

SAF-RC-055
118-K-1 Burial Grounds – Other Solid
Quick Turn
FINAL DATA PACKAGE

COMPLETE COPY OF DATA PACKAGE TO:

Kathy Wendt H4-21 KW 4/30/08
INITIAL/DATE

COMMENTS:

SDG K1180 SAF-RC-055
 Rad only Chem only Rad & Chem
 Complete Partial

Waste Site: 118-K-1 Burial Grounds

RECEIVED
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EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION
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April 28, 2008

Ms. Joan Kessner
Washington Closure Hanford
2620 Fermi Avenue
MSIN H4-21
Richland, WA 99352

Reference: **P.O. #S00W235A00**
Eberline Services R8-04-056-7074, SDG K1180



Dear Ms. Kessner:

Enclosed is a revised data report for one solid (other solid) sample designated under SAF No. RC-055 received at Eberline Services on April 9, 2008. The sample was analyzed according to the accompanying chain-of-custody document.

Results are reported in units of pCi/sample.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

MCM/njv

Enclosure: Data Package

1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K1180 was composed of one solid (other solid) sample designated under SAF No. RC-055 with a Project Designation of: 118-K-1 Burial Grounds-Other Solid Quick Turn.

Most MDA's were greater than their respective RDL's due to very small aliquots. The units are pCi/sample.

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 WCH via e-mail on April 25, 2008.

2.0 ANALYSIS NOTES

2.1 Tritium Analysis

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analysis

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analysis

No problems were encountered during the course of the analyses.

2.6 Isotopic Thorium Analysis

No problems were encountered during the course of the analyses.

2.7 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.8 Isotopic Plutonium Analysis

No problems were encountered during the course of the reanalyses.

2.9 Americium-241 and Curium-243/244 Analysis

No problems were encountered during the course of the analysis.

2.10 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

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

Melissa Mannion
Melissa C. Mannion
Senior Program Manager

04/28/08
Date

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K1180

SDG 7074
Contact Melissa C. Mannion

Client Hanford
Contract No. S00W235A00
Case no SDG_K1180

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

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Prepared by

[Signature]

Reviewed by

[Signature]

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 04/28/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1180

SDG 7074
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. S00W235A00
Case no SDG_K1180

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

SAMPLE DELIVERY GROUP K1180

SDG 7074
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1180

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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Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1180

SDG 7074
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1180

LAB						CHAIN OF	
SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CUSTODY	COLLECTED
R804056-01	J16M47	118-K-1 Burial Grounds	OTHER		RC-055	RC-055-033	04/07/08 09:30
R804056-02	Lab Control Sample		OTHER		RC-055		
R804056-03	Method Blank		OTHER		RC-055		
R804056-04	Duplicate (R804056-01)	118-K-1 Burial Grounds	OTHER		RC-055		04/07/08 09:30

LAB SUMMARY

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Lab id EBRLNE
Protocol Hanford
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Form DVD-LS
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1180

SDG 7074
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. S00W235A00
 Case no SDG K1180

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL SAMPLE ID	DEPARTMENT SAMPLE ID
7074	RC-055-033	J16M47	OTHER	100.0	79.2 g		04/09/08 2	R804056-01	7074-001
		Method Blank	OTHER					R804056-03	7074-003
		Lab Control Sample	OTHER					R804056-02	7074-002
		Duplicate (R804056-01)	OTHER	100.0	79.2 g		04/09/08 2	R804056-04	7074-004

QC SUMMARY

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1180

SDG 7074
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. S00W235A00
 Case no SDG K1180

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI- FIERS	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK		LCS
Alpha Spectroscopy										
PU	OTHER	Plutonium, Isotopic in Solids	6145-202	8.0	1			1	1	1/1
TH	OTHER	Thorium, Isotopic in Solids	6145-202	8.0	1			1	1	1/1
TP	OTHER	Americium 241/Curium in Solids	6145-202	8.0	1			1	1	1/1
U	OTHER	Uranium, Isotopic in Solids	6145-202	8.0	1			1	1	1/1
Beta Counting										
SR	OTHER	Total Strontium in Solids	6145-202	10.4	1			1	1	1/1
TC	OTHER	Technetium 99 in Solids	6145-202	13.2	1			1	1	1/1
Gamma Spectroscopy										
GAM	OTHER	Gamma Scan	6145-202	7.0	1			1	1	1/1
Liquid Scintillation Counting										
C	OTHER	Carbon 14 in Solids	6145-202	10.0	1			1	1	1/1
H	OTHER	Tritium in Solids	6145-202	10.0	1			1	1	1/1
NI_L	OTHER	Nickel 63 in Solids	6145-202	11.2	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.

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SAMPLE DELIVERY GROUP K1180

SDG 7074
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. S00W235A00
Case no SDG K1180

LAB SAMPLE	CLIENT SAMPLE ID				SUF-					
COLLECTED	LOCATION	MATRIX			FIX	ANALYZED	REVIEWED	BY	METHOD	
RECEIVED	CUSTODY	SAF No	PLANCHET	TEST						
R804056-01	J16M47		7074-001	C		04/17/08	04/22/08	BW	Carbon 14 in Solids	
04/07/08	118-K-1 Burial Grounds	OTHER	7074-001	GAM		04/15/08	04/17/08	CSS	Gamma Scan	
04/09/08	RC-055-033	RC-055	7074-001	H		04/17/08	04/18/08	BW	Tritium in Solids	
			7074-001	NI_L		04/17/08	04/22/08	BW	Nickel 63 in Solids	
			7074-001	PU		04/22/08	04/22/08	BW	Plutonium, Isotopic in Solids	
			7074-001	SR		04/18/08	04/21/08	BW	Total Strontium in Solids	
			7074-001	TC		04/21/08	04/21/08	BW	Technetium 99 in Solids	
			7074-001	TH		04/22/08	04/24/08	BW	Thorium, Isotopic in Solids	
			7074-001	TP		04/24/08	04/24/08	BW	Americium 241/Curium in Solids	
			7074-001	U		04/22/08	04/23/08	BW	Uranium, Isotopic in Solids	
R804056-02	Lab Control Sample		7074-002	C		04/17/08	04/22/08	BW	Carbon 14 in Solids	
		OTHER	7074-002	GAM		04/15/08	04/17/08	CSS	Gamma Scan	
		RC-055	7074-002	H		04/17/08	04/18/08	BW	Tritium in Solids	
			7074-002	NI_L		04/17/08	04/22/08	BW	Nickel 63 in Solids	
			7074-002	PU		04/21/08	04/22/08	BW	Plutonium, Isotopic in Solids	
			7074-002	SR		04/18/08	04/21/08	BW	Total Strontium in Solids	
			7074-002	TC		04/18/08	04/21/08	BW	Technetium 99 in Solids	
			7074-002	TH		04/22/08	04/24/08	BW	Thorium, Isotopic in Solids	
			7074-002	TP		04/24/08	04/24/08	BW	Americium 241/Curium in Solids	
			7074-002	U		04/23/08	04/23/08	BW	Uranium, Isotopic in Solids	
R804056-03	Method Blank		7074-003	C		04/17/08	04/22/08	BW	Carbon 14 in Solids	
		OTHER	7074-003	GAM		04/15/08	04/17/08	CSS	Gamma Scan	
		RC-055	7074-003	H		04/17/08	04/18/08	BW	Tritium in Solids	
			7074-003	NI_L		04/17/08	04/22/08	BW	Nickel 63 in Solids	
			7074-003	PU		04/21/08	04/22/08	BW	Plutonium, Isotopic in Solids	
			7074-003	SR		04/18/08	04/21/08	BW	Total Strontium in Solids	
			7074-003	TC		04/21/08	04/21/08	BW	Technetium 99 in Solids	
			7074-003	TH		04/24/08	04/24/08	BW	Thorium, Isotopic in Solids	
			7074-003	TP		04/24/08	04/24/08	BW	Americium 241/Curium in Solids	
			7074-003	U		04/22/08	04/23/08	BW	Uranium, Isotopic in Solids	

WORK SUMMARY

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1180

SDG 7074
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG K1180

LAB SAMPLE	CLIENT SAMPLE ID				SUF-				
COLLECTED	LOCATION	MATRIX			FIX	ANALYZED	REVIEWED	BY	METHOD
RECEIVED	CUSTODY	SAF No	PLANCHET	TEST					
R804056-04	Duplicate (R804056-01)		7074-004	C		04/17/08	04/22/08	BW	Carbon 14 in Solids
04/07/08	118-K-1 Burial Grounds	OTHER	7074-004	GAM		04/16/08	04/17/08	CSS	Gamma Scan
04/09/08		RC-055	7074-004	H		04/17/08	04/18/08	BW	Tritium in Solids
			7074-004	NI_L		04/17/08	04/22/08	BW	Nickel 63 in Solids
			7074-004	PU		04/21/08	04/22/08	BW	Plutonium, Isotopic in Solids
			7074-004	SR		04/18/08	04/21/08	BW	Total Strontium in Solids
			7074-004	TC		04/19/08	04/21/08	BW	Technetium 99 in Solids
			7074-004	TH		04/23/08	04/24/08	BW	Thorium, Isotopic in Solids
			7074-004	TP		04/24/08	04/24/08	BW	Americium 241/Curium in Solids
			7074-004	U		04/22/08	04/23/08	BW	Uranium, Isotopic in Solids

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
C	RC-055	Carbon 14 in Solids	C14_COX_LSC	1			1	1	1		4
GAM	RC-055	Gamma Scan	GAMMA_GS	1			1	1	1		4
H	RC-055	Tritium in Solids	TRITIUM_COX_LSC	1			1	1	1		4
NI_L	RC-055	Nickel 63 in Solids	NI63_LSC	1			1	1	1		4
PU	RC-055	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	1			1	1	1		4
SR	RC-055	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	1			1	1	1		4
TC	RC-055	Technetium 99 in Solids	TC99_TR_SEP_GPC	1			1	1	1		4
TH	RC-055	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	1			1	1	1		4
TP	RC-055	Americium 241/Curium in Solids	AMCMISO_IE_PLATE_AEA	1			1	1	1		4
U	RC-055	Uranium, Isotopic in Solids	UIISO_PLATE_AEA	1			1	1	1		4
TOTALS				10			10	10	10		40

WORK SUMMARY

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LWS
Version 3.06
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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K1180

7074-003

Method Blank

METHOD BLANK

SDG <u>7074</u>	Client/Case no <u>Hanford</u>	SDG <u>K1180</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>S00W235A00</u>	
Lab sample id <u>R804056-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7074-003</u>	Material/Matrix <u>OTHER</u>	
	SAF No <u>RC-055</u>	

ANALYTE	CAS NO	RESULT pCi/smpl	2σ ERR (COUNT)	MDA pCi/smpl	RDL pCi/smpl	QUALI- FIERS	TEST
Tritium	10028-17-8	-210	460	<u>820</u>	400	U	H
Carbon 14	14762-75-5	-150	340	<u>580</u>	50	U	C
Nickel 63	13981-37-8	45.0	130	<u>220</u>	30	U	NI_L
Total Strontium	SR-RAD	6.62	17	<u>32</u>	1.0	U	SR
Americium 241	14596-10-2	-6.55	6.6	<u>25</u>	1.0	U	TP
Curium 242	15510-73-3	3.28	6.6	<u>25</u>	1.0	U	TP
Curium 243/244	CM-243/244	6.55	13	<u>25</u>	1.0	U	TP
Technetium 99	14133-76-7	10.2	32	<u>79</u>	15	U	TC
Thorium 228	14274-82-9	1.20	7.2	<u>16</u>	1.0	U	TH
Thorium 230	14269-63-7	<u>16.8</u>	12	<u>9.2</u>	1.0	U	TH
Thorium 232	TH-232	-1.20	2.4	<u>9.2</u>	1.0	U	TH
Uranium 233/234	U-233/234	2.05	4.1	<u>16</u>	1.0	U	U
Uranium 235	15117-96-1	0	5.0	<u>19</u>	1.0	U	U
Uranium 238	U-238	0	4.1	<u>16</u>	1.0	U	U
Plutonium 238	13981-16-3	0	6.5	<u>25</u>	1.0	U	PU
Plutonium 239/240	PU-239/240	3.24	6.5	<u>25</u>	1.0	U	PU
Cobalt 60	10198-40-0	U		<u>9.5</u>	0.050	U	GAM
Niobium 94	14681-63-1	U		<u>9.3</u>		U	GAM
Ruthenium 106	13967-48-1	U		<u>77</u>		U	GAM
Rhodium 106	14234-34-5	U		<u>77</u>		U	GAM
Silver 108m	14391-65-2	U		<u>8.0</u>		U	GAM
Silver 110m	14391-76-5	U		<u>12</u>		U	GAM
Antimony 125	14234-35-6	U		<u>22</u>		U	GAM
Tin 126	15832-50-5	U		<u>26</u>		U	GAM
Barium 133	13981-41-4	U		<u>11</u>		U	GAM
Cesium 134	13967-70-9	U		<u>13</u>		U	GAM
Cesium 137	10045-97-3	U		<u>9.4</u>	0.10	U	GAM
Cerium 144	14762-78-8	U		<u>49</u>		U	GAM
Praseodymium 144	14119-05-2	U		<u>49</u>		U	GAM

118-K-1 Burial Grounds-OtherSolid QT

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>04/28/08</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K1180

7074-003

Method Blank

B L A N K , c o n t .

SDG <u>7074</u>	Client/Case no <u>Hanford</u>	SDG <u>K1180</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>S00W235A00</u>	
Lab sample id <u>R804056-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7074-003</u>	Material/Matrix _____	<u>OTHER</u>
	SAF No <u>RC-055</u>	

ANALYTE	CAS NO	RESULT	2σ ERR	MDA	RDL	QUALI-	TEST
		pCi/smpl	(COUNT)	pCi/smpl	pCi/smpl	FIERS	
Europium 152	14683-23-9	U		<u>28</u>	0.10	U	GAM
Europium 154	15585-10-1	U		<u>30</u>	0.10	U	GAM
Europium 155	14391-16-3	U		<u>24</u>	0.10	U	GAM
Americium 241	14596-10-2	U		11		U	GAM
Tin 113	13982-39-3	U		11		U	GAM
Zinc 65	13966-06-8	U		22		U	GAM

118-K-1 Burial Grounds-OtherSolid QT

QC-BLANK #65334

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>04/28/08</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1180

7074-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7074</u> Contact <u>Melissa C. Mannion</u> Lab sample id <u>R804056-02</u> Dept sample id <u>7074-002</u>	Client/Case no <u>Hanford</u> <u>SDG K1180</u> Contract No. <u>S00W235A00</u> Client sample id <u>Lab Control Sample</u> Material/Matrix _____ <u>OTHER</u> SAF No <u>RC-055</u>
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ANALYTE	RESULT	2σ ERR	MDA	RDL	QUALI-	ADDED	2σ ERR	REC	3σ LMTS	PROTOCOL
	pCi/smpl	(COUNT)	pCi/smpl	pCi/smpl	FIERS TEST	pCi/smpl	pCi/smpl	%	(TOTAL)	LIMITS
Tritium	121000	5400	<u>1900</u>	400	H	124000	5000	98	83-117	80-120
Carbon 14	284000	5700	<u>1200</u>	50	C	319000	13000	89	85-115	80-120
Nickel 63	19900	500	<u>200</u>	30	NI_L	22200	890	90	83-117	80-120
Total Strontium	1110	59	<u>30</u>	1.0	SR	1030	41	108	80-120	80-120
Americium 241	459	92	<u>29</u>	1.0	TP	508	20	90	70-130	80-120
Curium 243/244	481	93	<u>36</u>	1.0	TP	578	23	83	73-127	80-120
Technetium 99	23100	420	<u>100</u>	15	TC	24000	960	96	80-120	80-120
Thorium 230	824	34	<u>8.1</u>	1.0	B TH	912	36	90	86-114	80-120
Uranium 233/234	500	83	<u>47</u>	1.0	U	495	20	101	71-129	80-120
Uranium 235	377	72	<u>21</u>	1.0	U	403	16	94	70-130	80-120
Uranium 238	548	85	<u>46</u>	1.0	U	537	21	102	73-127	80-120
Plutonium 238	1080	130	<u>30</u>	1.0	PU	1180	47	92	79-121	80-120
Plutonium 239/240	1180	140	<u>19</u>	1.0	PU	1320	53	89	80-120	80-120
Cobalt 60	523	19	<u>11</u>	0.050	GAM	514	21	102	86-114	80-120
Cesium 137	558	21	<u>14</u>	0.10	GAM	564	23	99	87-113	80-120

118-K-1 Burial Grounds-OtherSolid QT

QC-LCS #65333

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LCS
 Version 3.06
 Report date 04/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1180

7074-004

J16M47

DUPLICATE

SDG 7074

Client/Case no Hanford SDG K1180

Contact Melissa C. Mannion

Contract No. S00W235A00

DUPLICATE

ORIGINAL

Lab sample id R804056-04

Lab sample id R804056-01

Client sample id J16M47

Dept sample id 7074-004

Dept sample id 7074-001

Location/Matrix 118-K-1 Burial Grounds OTHER

Received 04/09/08

Collected/Weight 04/07/08 09:30 79.2 g

% solids 100.0

% solids 100.0

Custody/SAP No RC-055-033 RC-055

ANALYTE	DUPLICATE		MDA		RDL		QUALI-		ORIGINAL		MDA		QUALI-		RPD %	3σ TOT	DER σ
	pCi/smpl	2σ ERR (COUNT)	pCi/smpl	pCi/smpl	pCi/smpl	TEST	pCi/smpl	2σ ERR (COUNT)	pCi/smpl	FIERS	FIERS	FIERS	FIERS				
Tritium	265	390	<u>650</u>	400	U	H	367	400	<u>650</u>	U	-	-	0.4				
Carbon 14	569	280	<u>440</u>	50	C	C	328	280	<u>450</u>	U	54	134	1.2				
Nickel 63	4320	260	<u>200</u>	30	NI_L	NI_L	4260	260	<u>220</u>	U	1	27	0.2				
Total Strontium	78.5	15	<u>17</u>	1.0	SR	SR	80.1	15	<u>16</u>	U	2	46	0.1				
Americium 241	5.36	11	<u>20</u>	1.0	U	TP	5.02	15	<u>24</u>	U	-	0					
Curium 242	0	5.8	<u>22</u>	1.0	U	TP	0	5.4	<u>21</u>	U	-	0					
Curium 243/244	-2.68	5.4	<u>20</u>	1.0	U	TP	5.02	15	<u>31</u>	U	-	1.0					
Technetium 99	14.7	29	<u>82</u>	15	U	TC	20.3	33	<u>68</u>	U	-	0.3					
Thorium 228	10.7	9.6	<u>15</u>	1.0	U	TH	7.14	3.2	<u>3.4</u>	U	40	171	0.7				
Thorium 230	9.50	9.5	<u>11</u>	1.0	U	TH	16.8	5.6	<u>8.2</u>	B	56	127	1.3				
Thorium 232	8.31	7.2	<u>9.1</u>	1.0	U	TH	9.12	3.2	<u>3.0</u>	U	9	137	0.2				
Uranium 233/234	21.7	15	<u>18</u>	1.0	U	U	7.02	7.1	<u>27</u>	U	102	174	1.8				
Uranium 235	0	5.8	<u>22</u>	1.0	U	U	0	8.5	<u>32</u>	U	-	0					
Uranium 238	21.7	15	<u>18</u>	1.0	U	U	7.02	7.1	<u>27</u>	U	102	174	1.8				
Plutonium 238	3.07	18	<u>34</u>	1.0	U	PU	-2.99	12	<u>29</u>	U	-	0.6					
Plutonium 239/240	6.14	6.2	<u>24</u>	1.0	U	PU	8.97	12	<u>23</u>	U	-	0.4					
Cobalt 60	160	43	<u>42</u>	0.050	GAM	GAM	163	16	<u>13</u>	U	2	45	0.1				
Niobium 94	U		<u>26</u>		U	GAM	U		<u>10</u>	U	-	1.1					
Ruthenium 106	U		<u>280</u>		U	GAM	U		<u>92</u>	U	-	1.3					
Rhodium 106	U		<u>280</u>		U	GAM	U		<u>92</u>	U	-	1.3					
Silver 108m	U		<u>24</u>		U	GAM	U		<u>8.6</u>	U	-	1.2					
Silver 110m	U		<u>38</u>		U	GAM	U		<u>14</u>	U	-	1.2					
Antimony 125	U		<u>76</u>		U	GAM	U		<u>26</u>	U	-	1.2					
Tin 126	U		<u>54</u>		U	GAM	U		<u>20</u>	U	-	1.2					
Barium 133	U		<u>37</u>		U	GAM	U		<u>12</u>	U	-	1.3					
Cesium 134	U		<u>37</u>		U	GAM	U		<u>12</u>	U	-	1.3					
Cesium 137	176	36	<u>33</u>	0.10	GAM	GAM	156	14	<u>12</u>	U	12	38	1.0				
Cerium 144	U		<u>150</u>		U	GAM	U		<u>54</u>	U	-	1.2					

118-K-1 Burial Grounds-OtherSolid QT

DUPLICATES

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Lab id EBRINE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-DUP
 Version 3.06
 Report date 04/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1180

7074-004

J16M47

DUPLICATE, cont.

SDG <u>7074</u> Contact <u>Melissa C. Mannion</u> DUPLICATE Lab sample id <u>R804056-04</u> Dept sample id <u>7074-004</u> % solids <u>100.0</u>	ORIGINAL Lab sample id <u>R804056-01</u> Dept sample id <u>7074-001</u> Received <u>04/09/08</u> % solids <u>100.0</u>	Client/Case no <u>Hanford</u> <u>SDG K1180</u> Contract <u>No. S00W235A00</u> Client sample id <u>J16M47</u> Location/Matrix <u>118-K-1 Burial Grounds</u> <u>OTHER</u> Collected/Weight <u>04/07/08 09:30</u> <u>79.2 g</u> Custody/SAF No <u>RC-055-033</u> <u>RC-055</u>
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ANALYTE	DUPLICATE		MDA	RDL	QUALI- FIERS	TEST	ORIGINAL		MDA	QUALI- FIERS	RPD %	3σ TOT	DER σ
	2σ ERR pCi/smpl (COUNT)	pCi/smpl					2σ ERR pCi/smpl (COUNT)	pCi/smpl					
Praseodymium 144	U		150		U	GAM	U		54	U	-		1.2
Europium 152	U		<u>77</u>	0.10	U	GAM	U		<u>27</u>	U	-		1.2
Europium 154	U		<u>87</u>	0.10	U	GAM	U		<u>33</u>	U	-		1.2
Europium 155	U		<u>82</u>	0.10	U	GAM	U		<u>27</u>	U	-		1.3
Americium 241	U		210		U	GAM	U		72	U	-		1.2
Tin 113	U		33		U	GAM	U		11	U	-		1.3
Zinc 65	U		68		U	GAM	U		23	U	-		1.3

118-K-1 Burial Grounds-OtherSolid QT

QC-DUP#1 65335

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>04/28/08</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K1180

7074-001

J16M47

DATA SHEET

SDG <u>7074</u>	Client/Case no <u>Hanford</u>	<u>SDG_K1180</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>S00W235A00</u>	
Lab sample id <u>R804056-01</u>	Client sample id <u>J16M47</u>	
Dept sample id <u>7074-001</u>	Location/Matrix <u>118-K-1 Burial Grounds</u>	<u>OTHER</u>
Received <u>04/09/08</u>	Collected/Weight <u>04/07/08 09:30</u>	<u>79.2 g</u>
% solids <u>100.0</u>	Custody/SAF No <u>RC-055-033</u>	<u>RC-055</u>

ANALYTE	CAS NO	RESULT pCi/smpl	2σ ERR (COUNT)	MDA pCi/smpl	RDL pCi/smpl	QUALI- FIERS	TEST
Tritium	10028-17-8	367	400	<u>650</u>	400	U	H
Carbon 14	14762-75-5	328	280	<u>450</u>	50	U	C
Nickel 63	13981-37-8	4260	260	<u>220</u>	30		NI_L
Total Strontium	SR-RAD	80.1	15	<u>16</u>	1.0		SR
Americium 241	14596-10-2	5.02	15	<u>24</u>	1.0	U	TP
Curium 242	15510-73-3	0	5.4	<u>21</u>	1.0	U	TP
Curium 243/244	CM-243/244	5.02	15	<u>31</u>	1.0	U	TP
Technetium 99	14133-76-7	20.3	33	<u>68</u>	15	U	TC
Thorium 228	14274-82-9	7.14	3.2	<u>3.4</u>	1.0		TH
Thorium 230	14269-63-7	16.8	5.6	<u>8.2</u>	1.0	B	TH
Thorium 232	TH-232	9.12	3.2	<u>3.0</u>	1.0		TH
Uranium 233/234	U-233/234	7.02	7.1	<u>27</u>	1.0	U	U
Uranium 235	15117-96-1	0	8.5	<u>32</u>	1.0	U	U
Uranium 238	U-238	7.02	7.1	<u>27</u>	1.0	U	U
Plutonium 238	13981-16-3	-2.99	12	<u>29</u>	1.0	U	PU
Plutonium 239/240	PU-239/240	8.97	12	<u>23</u>	1.0	U	PU
Cobalt 60	10198-40-0	163	16	<u>13</u>	0.050		GAM
Niobium 94	14681-63-1	U		10		U	GAM
Ruthenium 106	13967-48-1	U		92		U	GAM
Rhodium 106	14234-34-5	U		92		U	GAM
Silver 108m	14391-65-2	U		8.6		U	GAM
Silver 110m	14391-76-5	U		14		U	GAM
Antimony 125	14234-35-6	U		26		U	GAM
Tin 126	15832-50-5	U		20		U	GAM
Barium 133	13981-41-4	U		12		U	GAM
Cesium 134	13967-70-9	U		12		U	GAM
Cesium 137	10045-97-3	156	14	<u>12</u>	0.10		GAM
Cerium 144	14762-78-8	U		54		U	GAM

118-K-1 Burial Grounds-OtherSolid QT

DATA SHEETS

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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>04/28/08</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K1180

7074-001

J16M47

DATA SHEET, cont

SDG <u>7074</u>	Client/Case no <u>Hanford</u>	<u>SDG K1180</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>S00W235A00</u>	
Lab sample id <u>R804056-01</u>	Client sample id <u>J16M47</u>	
Dept sample id <u>7074-001</u>	Location/Matrix <u>118-K-1 Burial Grounds</u>	<u>OTHER</u>
Received <u>04/09/08</u>	Collected/Weight <u>04/07/08 09:30</u>	<u>79.2 g</u>
% solids <u>100.0</u>	Custody/SAF No <u>RC-055-033</u>	<u>RC-055</u>

ANALYTE	CAS NO	RESULT pCi/smpl	2σ ERR (COUNT)	MDA pCi/smpl	RDL pCi/smpl	QUALI- FIERS	TEST
Praseodymium 144	14119-05-2	U		54		U	GAM
Europium 152	14683-23-9	U		27	0.10	U	GAM
Europium 154	15585-10-1	U		33	0.10	U	GAM
Europium 155	14391-16-3	U		27	0.10	U	GAM
Americium 241	14596-10-2	U		72		U	GAM
Tin 113	13982-39-3	U		11		U	GAM
Zinc 65	13966-06-8	U		23		U	GAM

118-K-1 Burial Grounds-OtherSolid QT

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>04/28/08</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1180

Test PU Matrix OTHER
 SDG 7074
 Contact Melissa C. Mannion

Client Hanford
 Contract No. S00W235A00
 Contract SDG K1180

LAB METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
 ALPHA SPECTROSCOPY

RESULTS

LAB	RAW	SUF-		Plutonium	Plutonium	
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	238	239/240	
Preparation batch 6145-202						
R804056-01		7074-001	J16M47	U	8.97 U	
R804056-02		7074-002	Lab Control Sample	ok	ok	
R804056-03		7074-003	Method Blank	U	<u>3.24</u> U	
R804056-04		7074-004	Duplicate (R804056-01)	- U	- U	
Nominal values and limits from method				RDLs (pCi/smpl)	1.0	1.0
118-K-1 Burial Grounds-OtherSolid QT						

METHOD PERFORMANCE

LAB	RAW	SUF-		MAX MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID		pCi/smpl	sample	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED DETECTOR
Preparation batch 6145-202			2σ prep error 8.0 %			Reference Lab Notebook #6145, pg. 173								
R804056-01		J16M47		<u>29</u>	0.0063			54	114				15 04/21/08 04/22	SS-033
R804056-02		Lab Control Sample		<u>30</u>	0.0060			67	114				04/21/08 04/21	SS-036
R804056-03		Method Blank		<u>25</u>	0.0060			52	114				04/21/08 04/21	SS-037
R804056-04		Duplicate (R804056-01)		<u>34</u>	0.0063			56	114				14 04/21/08 04/21	SS-038
Nominal values and limits from method				1.0	0.0060			20-105	100	100			180	

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5	
CP-941	Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 3	
CP-008	Heavy Element Electroplating, rev 9	

AVERAGES ± 2 SD	MDA <u>30</u> ± <u>7.4</u>
FOR 4 SAMPLES	YIELD <u>57</u> ± <u>13</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1180

Test TH Matrix OTHER
 SDG 7074
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford
 Contract No. S00W235A00
 Contract SDG K1180

RESULTS

LAB RAW SUF-
 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Thorium 230

Preparation batch 6145-202

R804056-01	7074-001	J16M47	16.8
R804056-02	7074-002	Lab Control Sample	ok
R804056-03	7074-003	Method Blank	<u>16.8</u>
R804056-04	7074-004	Duplicate (R804056-01)	ok U

Nominal values and limits from method RDLs (pCi/smpl) 1.0
 118-K-1 Burial Grounds-OtherSolid QT

METHOD PERFORMANCE

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

Preparation batch 6145-202 2σ prep error 8.0 % Reference Lab Notebook #6145, pg. 173

R804056-01	J16M47	<u>8.2</u>	0.0063	101	1052	15	04/22/08	04/22	SS-032
R804056-02	Lab Control Sample	<u>8.1</u>	0.0060	104	1052		04/22/08	04/22	SS-033
R804056-03	Method Blank	<u>16</u>	0.0060	104	152		04/22/08	04/24	SS-055
R804056-04	Duplicate (R804056-01)	<u>15</u>	0.0063	101	160	16	04/22/08	04/23	SS-061

Nominal values and limits from method 1.0 0.0060 20-105 150 180

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5	
CP-900	Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1	
CP-008	Heavy Element Electroplating, rev 9	

AVERAGES ± 2 SD	MDA <u>12</u> ± <u>8.5</u>
FOR 4 SAMPLES	YIELD <u>102</u> ± <u>3</u>

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 04/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1180

Test TP Matrix OTHER
 SDG 7074
 Contact Melissa C. Mannion

Client Hanford
 Contract No. S00W235A00
 Contract SDG K1180

LAB METHOD SUMMARY

AMERICIUM 241/CURIUM IN SOLIDS

ALPHA SPECTROSCOPY

RESULTS

LAB	RAW	SUF-		Americium	Americium	Curium	
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID	241	241	243/244
Preparation batch 6145-202							
R804056-01			7074-001	J16M47	5.02 U	5.02 U	5.02 U
R804056-02			7074-002	Lab Control Sample	ok	ok	ok
R804056-03			7074-003	Method Blank	U	U	<u>6.55</u> U
R804056-04			7074-004	Duplicate (R804056-01)	- U	- U	- U
Nominal values and limits from method							
			RDLs (pCi/smpl)	1.0	1.0	1.0	
118-K-1 Burial Grounds-OtherSolid QT							

METHOD PERFORMANCE

LAB	RAW	SUF-		MAX MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST	FIX	CLIENT SAMPLE ID	pCi/smpl	sample	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6145-202 2σ prep error 8.0 % Reference Lab Notebook #6145, pg. 173																
R804056-01			J16M47	<u>31</u>	0.0063			73		105			17	04/22/08	04/24	SS-061
R804056-02			Lab Control Sample	<u>36</u>	0.0060			50		105				04/22/08	04/24	SS-064
R804056-03			Method Blank	<u>25</u>	0.0060			69		104				04/22/08	04/24	SS-031
R804056-04			Duplicate (R804056-01)	<u>22</u>	0.0063			75		104			17	04/22/08	04/24	SS-032
Nominal values and limits from method																
				1.0	0.0060			20-105		100	100		180			

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5	
CP-963	Americium and Curium in Water and Dissolved Samples by Extraction Chromatography, rev 6	
CP-008	Heavy Element Electroplating, rev 9	

AVERAGES ± 2 SD	MDA <u>28</u> ± <u>12</u>
FOR 4 SAMPLES	YIELD <u>67</u> ± <u>23</u>

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
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 Version 3.06
 Report date 04/28/08

METHOD SUMMARIES

Page 3

SUMMARY DATA SECTION

Page 17

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1180

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client Hanford

Contract No. S00W235A00

Contract SDG K1180

Test U Matrix OTHER

SDG 7074

Contact Melissa C. Mannion

RESULTS

LAB SAMPLE ID	RAW TEST TEST FIX	SUF- PLANCHET	CLIENT SAMPLE ID	1: Uranium			2: Uranium			3: Uranium			RESULT RATIOS (%)				
				233/234			235			238			1+3	2σ	2+3	2σ	
Preparation batch 6145-202																	
R804056-01		7074-001	J16M47	7.02	U		U		7.02	U							
R804056-02		7074-002	Lab Control Sample	ok			ok		ok								
R804056-03		7074-003	Method Blank	2.05	U		U		U								
R804056-04		7074-004	Duplicate (R804056-01)	ok			-	U	ok			100	98	0	27		
Nominal values and limits from method				RDLs (pCi/smpl)	1.0		1.0		1.0			100				4	
118-K-1 Burial Grounds-OtherSolid QT											Averages 100				0		

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST TEST FIX	SUF- CLIENT SAMPLE ID	MAX MDA pCi/smpl	ALIQ sample	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL-						
													PREPARED	YZED	DETECTOR				
Preparation batch 6145-202														2σ prep error 8.0 %			Reference Lab Notebook #6145, pg. 173		
R804056-01		J16M47	32	0.0063			60		108			15	04/21/08	04/22	SS-059				
R804056-02		Lab Control Sample	47	0.0060			82		106				04/21/08	04/23	SS-064				
R804056-03		Method Blank	19	0.0060			88		109				04/21/08	04/22	SS-064				
R804056-04		Duplicate (R804056-01)	22	0.0063			84		109			15	04/21/08	04/22	SS-065				
Nominal values and limits from method			1.0	0.0060			20-105		100	100		180							

PROCEDURES	REFERENCE	UIISO_PLATE_AEA
SPP-071	Soil Dissolution, > 1.0g Aliquot, rev 5	
CP-921	Uranium in Water and Dissolved Samples by Extraction Chromatography, rev 1	
CP-008	Heavy Element Electroplating, rev 9	

AVERAGES ± 2 SD	MDA <u>30</u> ± <u>25</u>
FOR 4 SAMPLES	YIELD <u>78</u> ± <u>25</u>

METHOD SUMMARIES

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SUMMARY DATA SECTION

Page 18

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 04/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1180

Test SR Matrix OTHER
 SDG 7074
 Contact Melissa C. Mannion

Client Hanford
 Contract No. S00W235A00
 Contract SDG K1180

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS
 BETA COUNTING

RESULTS

LAB	RAW	SUF-		Total
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Strontium
Preparation batch 6145-202				
R804056-01		7074-001	J16M47	80.1
R804056-02		7074-002	Lab Control Sample	ok
R804056-03		7074-003	Method Blank	<u>6.62</u> □
R804056-04		7074-004	Duplicate (R804056-01)	ok

Nominal values and limits from method RDLs (pCi/smpl) 1.0
 118-K-1 Burial Grounds-OtherSolid QT

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/smpl	sample	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED DETECTOR
Preparation batch 6145-202			2σ prep error 10.4 % Reference Lab Notebook #6145, pg. 173										
R804056-01		J16M47	<u>16</u>	0.0126			102	100				11 04/18/08 04/18	GRB-224
R804056-02		Lab Control Sample	<u>30</u>	0.0100			94	100				04/18/08 04/18	GRB-206
R804056-03		Method Blank	<u>32</u>	0.0100			96	100				04/18/08 04/18	GRB-225
R804056-04		Duplicate (R804056-01)	<u>17</u>	0.0126			103	100				11 04/18/08 04/18	GRB-207

Nominal values and limits from method 1.0 0.0100 30-105 100 180

PROCEDURES REFERENCE SRTOT_SEP_PRECIP_GPC
 SPP-071 Soil Dissolution, > 1.0g Aliquot, rev 5
 CP-383 Strontium in Dissolved Solid of < 5.0g Aliquot, rev 1

AVERAGES ± 2 SD MDA 24 ± 17
 FOR 4 SAMPLES YIELD 99 ± 9

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 04/28/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K1180

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOLIDS

BETA COUNTING

Test TC Matrix OTHER
 SDG 7074
 Contact Melissa C. Mannion

Client Hanford
 Contract No. S00W235A00
 Contract SDG K1180

RESULTS

LAB	RAW	SUF-	Technetium	
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	99
Preparation batch 6145-202				
R804056-01		7074-001	J16M47	20.3 U
R804056-02		7074-002	Lab Control Sample	ok
R804056-03		7074-003	Method Blank	U
R804056-04		7074-004	Duplicate (R804056-01)	- U

Nominal values and limits from method RDLs (pCi/smpl) 15
 118-K-1 Burial Grounds-OtherSolid QT

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/smpl	sample	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6145-202			2σ prep error 13.2 % Reference Lab Notebook #6145, pg. 173												
R804056-01		J16M47	<u>68</u>	0.0054			94		100			14	04/15/08	04/21	GRB-202
R804056-02		Lab Control Sample	<u>100</u>	0.0050			104		50				04/15/08	04/18	GRB-223
R804056-03		Method Blank	<u>79</u>	0.0050			93		100				04/15/08	04/21	GRB-204
R804056-04		Duplicate (R804056-01)	<u>82</u>	0.0054			82		100			12	04/15/08	04/19	GRB-227

Nominal values and limits from method 15 0.0050 20-105 50 180

PROCEDURES	REFERENCE	TC99_TR_SEP_GPC
SPP-062	Sample Aliquoting, rev 0	
CP-431	Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 2	
CP-008	Heavy Element Electroplating, rev 9	

AVERAGES ± 2 SD	MDA <u>82</u> ± <u>27</u>
FOR 4 SAMPLES	YIELD <u>93</u> ± <u>18</u>

METHOD SUMMARIES

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SAMPLE DELIVERY GROUP K1180

LAB METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Test GAM Matrix OTHER
 SDG 7074
 Contact Melissa C. Mannion

Client Hanford
 Contract No. S00W235A00
 Contract SDG K1180

RESULTS

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

Preparation batch 6145-202

R804056-01	7074-001	J16M47	163	156
R804056-02	7074-002	Lab Control Sample	ok	ok
R804056-03	7074-003	Method Blank	U	U
R804056-04	7074-004	Duplicate (R804056-01)	ok	ok

Nominal values and limits from method RDLs (pCi/smpl) 0.050 0.10
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METHOD PERFORMANCE

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

Preparation batch 6145-202

2σ prep error 7.0 % Reference Lab Notebook #6145, pg. 173

R804056-01	J16M47	<u>2300</u>	0.521	762	8	04/15/08	04/15	MB,05,00
R804056-02	Lab Control Sample	<u>11</u>	0.500	966		04/15/08	04/15	01,04,00
R804056-03	Method Blank	<u>2600</u>	0.500	967		04/15/08	04/15	MB,06,00
R804056-04	Duplicate (R804056-01)	<u>6800</u>	0.521	102	9	04/15/08	04/16	MB,05,00

Nominal values and limits from method 0.050 0.500 100 180

PROCEDURES REFERENCE GAMMA_GS
 SPP-071 Soil Dissolution, > 1.0g Aliquot, rev 5
 SPP-100 Ge(Li) Preparation for Commercial Samples, rev 7

AVERAGES ± 2 SD MDA 2900 ± 5700
 FOR 4 SAMPLES YIELD _____ ± _____

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SAMPLE DELIVERY GROUP K1180

Test C Matrix OTHER
 SDG 7074
 Contact Melissa C. Mannion

Client Hanford
 Contract No. S00W235A00
 Contract SDG K1180

LAB METHOD SUMMARY

CARBON 14 IN SOLIDS
 LIQUID SCINTILLATION COUNTING

RESULTS

LAB RAW SUF-
 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Carbon 14

Preparation batch 6145-202

R804056-01	7074-001	J16M47	328	U
R804056-02	7074-002	Lab Control Sample	ok	
R804056-03	7074-003	Method Blank	U	
R804056-04	7074-004	Duplicate (R804056-01)	ok	

Nominal values and limits from method RDLs (pCi/smpl) 50
 118-K-1 Burial Grounds-OtherSolid QT

METHOD PERFORMANCE

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

Preparation batch 6145-202 2σ prep error 10.0 % Reference Lab Notebook #6145, pg. 173

R804056-01	J16M47	<u>450</u>	0.0026	100	50	10	04/16/08	04/17	LSC-005
R804056-02	Lab Control Sample	<u>1200</u>	0.0020	100	11		04/16/08	04/17	LSC-005
R804056-03	Method Blank	<u>580</u>	0.0020	100	50		04/16/08	04/17	LSC-005
R804056-04	Duplicate (R804056-01)	<u>440</u>	0.0026	100	50	10	04/16/08	04/17	LSC-005

Nominal values and limits from method 50 0.0020 10 180

PROCEDURES REFERENCE C14_COX_LSC
 CP-251 Tritium/Carbon-14 Oxidation, rev 8

AVERAGES ± 2 SD MDA 670 ± 720
 FOR 4 SAMPLES YIELD 100 ± 0

METHOD SUMMARIES

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SAMPLE DELIVERY GROUP K1180

Test H Matrix OTHER
 SDG 7074
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

TRITIUM IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
 Contract No. S00W235A00
 Contract SDG K1180

RESULTS

LAB	RAW	SUF-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Tritium
Preparation batch 6145-202				
R804056-01		7074-001	J16M47	U
R804056-02		7074-002	Lab Control Sample	ok
R804056-03		7074-003	Method Blank	U
R804056-04		7074-004	Duplicate (R804056-01)	- U

Nominal values and limits from method RDLs (pCi/smpl) 400
 118-K-1 Burial Grounds-OtherSolid QT

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/smpl	sample	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED DETECTOR
Preparation batch 6145-202			2σ prep error 10.0 % Reference Lab Notebook #6145, pg. 173										
R804056-01		J16M47	<u>650</u>	0.0026			100		50			10 04/16/08 04/17	LSC-005
R804056-02		Lab Control Sample	<u>1900</u>	0.0020			100		<u>12</u>			04/16/08 04/17	LSC-005
R804056-03		Method Blank	<u>820</u>	0.0020			100		50			04/16/08 04/17	LSC-005
R804056-04		Duplicate (R804056-01)	<u>650</u>	0.0026			100		50			10 04/16/08 04/17	LSC-005

Nominal values and limits from method 400 0.0020 25 180

PROCEDURES REFERENCE TRITIUM_COX_LSC
 CP-251 Tritium/Carbon-14 Oxidation, rev 8

AVERAGES ± 2 SD MDA 1000 ± 1200
 FOR 4 SAMPLES YIELD 100 ± 0

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 Version 3.06
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SAMPLE DELIVERY GROUP K1180

LAB METHOD SUMMARY

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Test NI L Matrix OTHER
 SDG 7074
 Contact Melissa C. Mannion

Client Hanford
 Contract No. S00W235A00
 Contract SDG K1180

RESULTS

LAB RAW SUF- CLIENT SAMPLE ID Nickel 63

Preparation batch 6145-202

SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63
R804056-01		7074-001	J16M47	4260
R804056-02		7074-002	Lab Control Sample	ok
R804056-03		7074-003	Method Blank	<u>45.0</u> U
R804056-04		7074-004	Duplicate (R804056-01)	ok

Nominal values and limits from method RDLs (pCi/smpl) 30
 118-K-1 Burial Grounds-OtherSolid QT

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/smpl	smpl	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6145-202			2σ prep error 11.2 % Reference Lab Notebook #6145, pg. 173												
R804056-01		J16M47	<u>220</u>	0.0063			90	50			10	04/16/08	04/17	LSC-005	
R804056-02		Lab Control Sample	<u>200</u>	0.0060			100	50				04/16/08	04/17	LSC-005	
R804056-03		Method Blank	<u>220</u>	0.0060			93	50				04/16/08	04/17	LSC-005	
R804056-04		Duplicate (R804056-01)	<u>200</u>	0.0063			94	50			10	04/16/08	04/17	LSC-005	

Nominal values and limits from method 30 0.0060 30-105 25 180

PROCEDURES REFERENCE NI63_LSC
 SPP-071 Soil Dissolution, > 1.0g Aliquot, rev 5
 CP-280 Nickel-63 Purification, rev 3

AVERAGES ± 2 SD MDA 210 ± 23
 FOR 4 SAMPLES YIELD 94 ± 8

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Contact Melissa C. Mannion

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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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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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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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SDG 7074

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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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Protocol Hanford

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 04/28/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K1180

SDG 7074

Contact Melissa C. Mannion

Client Hanford

Contract No. S00W235A00

Case no SDG K1180

GUIDE, cont.

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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SAMPLE DELIVERY GROUP K1180

SDG 7074

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REPORT GUIDE

Client Hanford

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METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

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METHOD SUMMARY

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

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
 - * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.
- MDAs are underlined if greater than the printed RDL.
- * Aliquots are underlined if less than the nominal value specified for the method.
 - * 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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SAMPLE DELIVERY GROUP K1180

SDG 7074

Contact Melissa C. Mannion

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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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SAMPLE DELIVERY GROUP K1180

SDG 7074
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. S00W235A00
Case no SDG_K1180

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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Version 3.06
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Washington Closure Hanford		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			RC-055-033	Page 1 of 1
Collector Garrett Taysom		Company Contact D. Bowers		Telephone No. 509-531-0701	Project Coordinator KESSNER, JH	Price Code 9L Data Turnaround
Project Designation 118-K-1 Burial Grounds - Other Solid Quick Turn		Sampling Location 118-K-1 burial grounds K1180 (7074)		SAF No. RC-055		21 day
Ice Chest No. ERC-01-061		Field Logbook No. EL-1602-4	COA R118K12600		Method of Shipment Fed Ex	
Shipped To EBERLINE SERVICES / LIONVILLE		Offsite Property No.			Bill of Lading/Air Bill No.	

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None																	
	Type of Container	Poly Bag																	
	No. of Container(s)	2	4-7-08																
	Volume	2000mL																	

SAMPLE ANALYSIS				See item (1) in Special Instructions.															
------------------------	--	--	--	---------------------------------------	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Sample No.	Matrix *	Sample Date	Sample Time																
J16M47	OTHER SOLID	4-7-08	0930	✓															

CHAIN OF POSSESSION				Sign/Print Names				SPECIAL INSTRUCTIONS				Matrix *			
Relinquished By/Removed From		Date/Time		Received By/Stored In		Date/Time		Add Thorium 228, 230, 232 to analysis. Sample time and date will reflect when sample were turned over to AFS personal. (1) AB List Radionuclide Analysis AMCM (Americium-241, Curium-243/244); GEA (Americium-241, Antimony-125, Barium-133, Cerium-144, Cesium-134, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Niobium-94, Preseodymium-144, Rhodium-106, Ruthenium-106, Silver-108 metastable, Silver-110 metastable, Tin-126); Ni-63; PuISO (Plutonium-238, Plutonium-239/240); SR RAD; TC-99; H3; UIISO (Uranium-233/234, Uranium-235, Uranium-238); C-14				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			
<i>Garrett Taysom</i>		4-7-08		<i>Doug Bowers</i>		4-7-08/0930									
<i>Doug Bowers</i>		4-7-08/1545		<i>A.F. 1A</i>		1060 bldg 4-7-08/1545									
<i>1060/A</i>		4/8/08 0915		<i>M. Stankovich</i>		4/8/08 0915									
<i>WCH</i>		Date/Time		<i>Fed Ex</i>		Date/Time									
<i>611 EX</i>		Date/Time		<i>from</i>		4/8/08 09:30									
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

JLK
4/9/08

Client: W.C. HANFORD City: RICHMOND State: WA

Date/Time received: 04/09/08 09:30 CoC No. RC-055-033

Container I.D. No. ERC-01-06/ Requested TAT (Days) 2 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 Sample Matrix
7. Number of containers per sample: 2 (Or see CoC: _____)
8. Samples are in correct container Yes [] No []
9. Paperwork agrees with samples? Yes [] No []
10. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels []
11. Samples are: In good condition [] Leaking [] Broken Container [] Missing []
12. Samples are: Preserved [] Not preserved [] pH _____ Preservative _____
13. Describe any anomalies:

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

15. Inspected by JLK Date: 04/09/08 Time: 10:30

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
J16M47	<60						

Ion Chamber Ser. No. _____ Calibration date _____
 Alpha Meter Ser. No. _____ Calibration date _____
 Beta/Gamma Meter Ser. No. 100482 Calibration date 09 MAY 07