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EBERLINE SERVICES

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October 2, 2008

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EDMC

Mr. Steve Trent
Fluor Hanford Inc.
1200 Jadwin Avenue
Richland, WA 99352

Reference: **P.O. #33677**
Eberline Services R8-08-073-7172, SDG H3827

Dear Mr. Trent:

Enclosed is a data report for one solid (soil) sample designated under SAF No. F08-138 received at Eberline Services on August 8, 2008. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

NJV

Enclosure: Data Package

00000001

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H3827 was composed of one solid (soil) sample designated under SAF No. F08-138 with a Project Designation of: BC Cribs & Trenches (Former TW-1 OU Vadose Zone)-Waste Management.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies were noted on the Eberline Services Sample Receipt Checklist.

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 Technetium-99 Analysis

No problems were encountered during the course of the analyses.

2.5 Isotopic Thorium Analysis

No problems were encountered during the course of the analyses.

2.6 Neptunium-237 Analysis

No problems were encountered during the course of the reanalyses.

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 C. Mannion
Senior Program Manager

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 H3827

SDG	7172
Contact	Melissa C. Mannion

Client	Hanford
Contract	No. 33677
Case no	SDG_H3827

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

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Prepared by

Reviewed by

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-TOC
Version	3.06
Report date	10/02/08

SDG 7172
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 33677
Case no SDG_H3827

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 Fluor
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 10/02/08

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.

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

SDG 7172
Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
Contract No. 33677
Case no SDG H3827

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R808073-01	B1WMD7	C5923	SOLID		F08-138	F08-138-003	08/03/08 08:30
R808073-02	Lab Control Sample		SOLID		F08-138		
R808073-03	Method Blank		SOLID		F08-138		
R808073-04	Duplicate (R808073-01)	C5923	SOLID		F08-138		08/03/08 08:30

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LS
Version 3.06
Report date 10/02/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

SDG 7172
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 33677
Case no SDG H3827

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
7172	F08-138-003	B1WMD7	SOLID	98.4	213 g		08/08/08	5	R808073-01	7172-001
		Method Blank	SOLID						R808073-03	7172-003
		Lab Control Sample	SOLID						R808073-02	7172-002
		Duplicate (R808073-01)	SOLID	98.4	213 g		08/08/08	5	R808073-04	7172-004

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 10/02/08

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

SDG 7172
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 33677
Case no SDG H3827

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
NP	SOLID	Neptunium in Solids	6165-060	14.8	1			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Solids	6165-060	8.0	1			1	1	1/1		
Beta Counting												
TC	SOLID	Technetium 99 in Solids	6165-060	13.2	1			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Solids	6165-060	10.0	1			1	1	1/1		
H	SOLID	Tritium in Solids	6165-060	10.0	1			1	1	1/1		
NI_L	SOLID	Nickel 63 in Solids	6165-060	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.

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 10/02/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

SDG 7172
Contact Melissa C. Mannion

LAB WORK SUMMARY

Client Hanford
Contract No. 33677
Case no SDG H3827

LAB SAMPLE COLLECTED RECEIVED	CLIENT SAMPLE ID LOCATION CUSTODY	SAF No	MATRIX	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
R808073-01	B1WMD7			7172-001	C		09/26/08	10/01/08	BW	Carbon 14 in Solids
08/03/08	C5923		SOLID	7172-001	H		09/25/08	10/01/08	BW	Tritium in Solids
08/08/08	F08-138-003	F08-138		7172-001	NI_L		09/25/08	09/30/08	BW	Nickel 63 in Solids
				7172-001	NP		09/23/08	09/24/08	BW	Neptunium in Solids
				7172-001	TC		09/21/08	09/24/08	BW	Technetium 99 in Solids
				7172-001	TH		09/26/08	09/30/08	BW	Thorium, Isotopic in Solids
R808073-02	Lab Control Sample			7172-002	C		09/26/08	10/01/08	BW	Carbon 14 in Solids
			SOLID	7172-002	H		09/25/08	10/01/08	BW	Tritium in Solids
		F08-138		7172-002	NI_L		09/25/08	09/30/08	BW	Nickel 63 in Solids
				7172-002	NP		09/23/08	09/24/08	BW	Neptunium in Solids
				7172-002	TC		09/21/08	09/24/08	BW	Technetium 99 in Solids
				7172-002	TH		09/26/08	09/30/08	BW	Thorium, Isotopic in Solids
R808073-03	Method Blank			7172-003	C		09/26/08	10/01/08	BW	Carbon 14 in Solids
			SOLID	7172-003	H		09/25/08	10/01/08	BW	Tritium in Solids
		F08-138		7172-003	NI_L		09/25/08	09/30/08	BW	Nickel 63 in Solids
				7172-003	NP		09/23/08	09/24/08	BW	Neptunium in Solids
				7172-003	TC		09/22/08	09/24/08	BW	Technetium 99 in Solids
				7172-003	TH		09/26/08	09/30/08	BW	Thorium, Isotopic in Solids
R808073-04	Duplicate (R808073-01)			7172-004	C		09/26/08	10/01/08	BW	Carbon 14 in Solids
08/03/08	C5923		SOLID	7172-004	H		09/25/08	10/01/08	BW	Tritium in Solids
08/08/08		F08-138		7172-004	NI_L		09/25/08	09/30/08	BW	Nickel 63 in Solids
				7172-004	NP		09/24/08	09/24/08	BW	Neptunium in Solids
				7172-004	TC		09/22/08	09/24/08	BW	Technetium 99 in Solids
				7172-004	TH		09/26/08	09/30/08	BW	Thorium, Isotopic in Solids

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 10/02/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

SDG 7172
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 33677
Case no SDG H3827

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
C	F08-138	Carbon 14 in Solids	C14_COX_LSC	1			1	1	1	4
H	F08-138	Tritium in Solids	TRITIUM_COX_LSC	1			1	1	1	4
NI_L	F08-138	Nickel 63 in Solids	NI63_LSC	1			1	1	1	4
NP	F08-138	Neptunium in Solids	NP237_LLE_PLATE_AEA	1			1	1	1	4
TC	F08-138	Technetium 99 in Solids	TC99_TR_SEP_GPC	1			1	1	1	4
TH	F08-138	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	1			1	1	1	4
TOTALS				6			6	6	6	24

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LWS
Version 3.06
Report date 10/02/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

7172-003 Method Blank

METHOD BLANK

SDG	7172	Client/Case no	Hanford	SDG H3827	
Contact	Melissa C. Mannion	Contract	No. 33677		
Lab sample id	R808073-03	Client sample id	Method Blank		
Dept sample id	7172-003	Material/Matrix		SOLID	
		SAF No	F08-138		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.690	2.4	4.14	400	U	H
Carbon 14	14762-75-5	-1.15	2.2	3.73	50.0	U	C
Nickel 63	13981-37-8	-0.074	1.5	2.59	30.0	U	NI_L
Technetium 99	14133-76-7	0.027	0.22	0.342	12.0	U	TC
Thorium 228	14274-82-9	-0.050	0.16	0.303	1.00	U	TH
Thorium 230	14269-63-7	0.030	0.12	0.195	1.00	U	TH
Thorium 232	TH-232	-0.010	0.079	0.159	1.00	U	TH
Neptunium 237	13994-20-2	0	0.047	0.178	1.00	U	NP

BCCribs&Trenches(FrmrTW1OUVadoseZn)

QC-BLANK #66885

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/02/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

7172-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7172
Contact Melissa C. Mannion

Client/Case no Hanford SDG H3827
Contract No. 33677

Lab sample id R808073-02
Dept sample id 7172-002

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No F08-138

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	590	12	3.92	400		H	602	24	98	84-116	80-120
Carbon 14	1550	14	3.32	50.0		C	1600	64	97	84-116	80-120
Nickel 63	201	5.6	2.51	30.0		NI_L	220	8.8	91	83-117	80-120
Technetium 99	101	1.7	0.401	12.0		TC	109	4.4	93	81-119	80-120
Thorium 230	37.4	3.5	0.225	1.00		TH	37.8	1.5	99	81-119	80-120
Neptunium 237	20.2	1.5	0.172	1.00		NP	19.8	0.79	102	74-126	80-120

BCCribs&Trenches(FrmrTW10UVadoseZn)

QC-LCS #66884

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form IVD-LCS
Version 3.06
Report date 10/02/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

7172-004 B1WMD7

DUPLICATE

SDG	7172			Client/Case no	Hanford SDG H3827
Contact	Melissa C. Mannion			Contract	No. 33677
	DUPLICATE		ORIGINAL		
Lab sample id	R808073-04	Lab sample id	R808073-01	Client sample id	B1WMD7
Dept sample id	7172-004	Dept sample id	7172-001	Location/Matrix	C5923 SOLID
		Received	08/08/08	Collected/Weight	08/03/08 08:30 213 g
% solids	98.4	% solids	98.4	Custody/SAF No	F08-138-003 F08-138

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	DER σ
Tritium	-0.411	2.2	3.88	400	U	H	-0.479	2.3	3.95	U	-		0
Carbon 14	-3.31	1.9	3.40	50.0	U	C	-2.62	1.9	3.33	U	-		0.5
Nickel 63	-0.044	1.8	3.10	30.0	U	NI_L	-0.648	1.6	2.85	U	-		0.5
Technetium 99	0.218	0.29	0.379	12.0	U	TC	0.086	0.32	0.358	U	-		0.6
Thorium 228	0.408	0.14	0.164	1.00		TH	0.360	0.28	0.371	U	12	124	0.3
Thorium 230	0.550	0.14	0.121	1.00		TH	0.357	0.22	0.210		43	88	1.5
Thorium 232	0.482	0.11	0.054	1.00		TH	0.412	0.22	0.210		16	84	0.6
Neptunium 237	0	0.040	0.060	1.00	U	NP	0.018	0.035	0.053	U	-		0.7

BCCribs&Trenches(FrmrTW1OUVadoseZn)

QC-DUP#1 66886

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	10/02/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

7172-001 B1WMD7

DATA SHEET

SDG	7172	Client/Case no	Hanford	SDG H3827	
Contact	Melissa C. Mannion	Contract	No. 33677		
Lab sample id	R808073-01	Client sample id	B1WMD7		
Dept sample id	7172-001	Location/Matrix	C5923	SOLID	
Received	08/08/08	Collected/Weight	08/03/08 08:30	213 g	
% solids	98.4	Custody/SAF No	F08-138-003	F08-138	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.479	2.3	3.95	400	U	H
Carbon 14	14762-75-5	-2.62	1.9	3.33	50.0	U	C
Nickel 63	13981-37-8	-0.648	1.6	2.85	30.0	U	NI_L
Technetium 99	14133-76-7	0.086	0.32	0.358	12.0	U	TC
Thorium 228	14274-82-9	0.360	0.28	0.371	1.00	U	TH
Thorium 230	14269-63-7	0.357	0.22	0.210	1.00		TH
Thorium 232	TH-232	0.412	0.22	0.210	1.00		TH
Neptunium 237	13994-20-2	0.018	0.035	0.053	1.00	U	NP

BCCribs&Trenches(FrmrTW1OUVadoseZn)

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/02/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

Test	NP
Matrix	SOLID
SDG	7172
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

NEPTUNIUM IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 33677
Contract	SDG H3827

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Neptunium 237
Preparation batch 6165-060					
R808073-01			7172-001	B1WMD7	U
R808073-02			7172-002	Lab Control Sample	ok
R808073-03			7172-003	Method Blank	U
R808073-04			7172-004	Duplicate (R808073-01)	- U

Nominal values and limits from method RDLs (pCi/g) 1.00

BCCribs&Trenches(FrmrTW10UVadoseZn)

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6165-060			2σ prep error 14.8 % Reference Lab Notebook #6160, pg. 60													
R808073-01			B1WMD7	0.053	0.500			64		209			51	09/22/08	09/23	SS-053
R808073-02			Lab Control Sample	0.172	0.500			51		208				09/21/08	09/23	SS-040
R808073-03			Method Blank	0.178	0.500			57		208				09/21/08	09/23	SS-042
R808073-04			Duplicate (R808073-01)	0.060	0.500			57		189			52	09/22/08	09/24	SS-038
Nominal values and limits from method				1.00	0.500			20-105		100			180			

PROCEDURES	REFERENCE	NP237_LLE_PLATE_AEA
	SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7
	CP-930	Neptunium from Solids and Water by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 4 SAMPLES				
MDA	0.116	±	0.137
YIELD	57	±	11

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/02/08

0000001 5

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

Test	TH
Matrix	SOLID
SDG	7172
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

THORIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	No. 33677
Contract	SDG H3827

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230
Preparation batch 6165-060					
R808073-01			7172-001	B1WMD7	0.357
R808073-02			7172-002	Lab Control Sample	ok
R808073-03			7172-003	Method Blank	U
R808073-04			7172-004	Duplicate (R808073-01)	ok
Nominal values and limits from method BCCribs&Trenches(FrmrTW1OUVadoseZn)				RDLs (pCi/g)	1.00

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6165-060 2σ prep error 8.0 % Reference Lab Notebook #6160, pg. 60																
R808073-01			B1WMD7	0.371	0.250			94		175			54	09/22/08	09/26	SS-063
R808073-02			Lab Control Sample	0.225	0.250			86		175				09/22/08	09/26	SS-064
R808073-03			Method Blank	0.303	0.250			60		907				09/22/08	09/26	SS-032
R808073-04			Duplicate (R808073-01)	0.164	0.250			91		907			54	09/22/08	09/26	SS-033
Nominal values and limits from method				1.00	0.250			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 12

AVERAGES ± 2 SD FOR 4 SAMPLES				
MDA	0.266	±	0.181
YIELD	83	±	31

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/02/08

0000016

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

Test	TC
Matrix	SOLID
SDG	7172
Contact	Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOLIDS

BETA COUNTING

Client	Hanford
Contract	No. 33677
Contract	SDG H3827

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Technetium 99	
Preparation batch 6165-060						
R808073-01			7172-001	B1WMD7	U	
R808073-02			7172-002	Lab Control Sample	ok	
R808073-03			7172-003	Method Blank	U	
R808073-04			7172-004	Duplicate (R808073-01)	-	U

Nominal values and limits from method RDLs (pCi/g) 12.0
BCCribs&Trenches(FrmrTW10UVadoseZn)

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6165-060			2σ prep error 13.2 % Reference Lab Notebook #6160, pg. 60													
R808073-01			B1WMD7	0.358	1.00			98		100			49	09/18/08	09/21	GRB-218
R808073-02			Lab Control Sample	0.401	1.00			89		100				09/18/08	09/21	GRB-220
R808073-03			Method Blank	0.342	1.00			103		100				09/18/08	09/22	GRB-222
R808073-04			Duplicate (R808073-01)	0.379	1.00			94		100			50	09/18/08	09/22	GRB-223
Nominal values and limits from method				12.0	1.00			20-105		50			180			

PROCEDURES	REFERENCE	TC99_TR_SEP_GPC
	SPP-062	Sample Aliquoting, rev 0
	CP-021	Preparation of Tc-99m Tracer, rev 4
	CP-431	Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 12

AVERAGES ± 2 SD FOR 4 SAMPLES				
MDA	0.370	±	0.051
YIELD	96	±	12

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/02/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

Test C	Matrix SOLID
SDG 7172	
Contact Melissa C. Mannion	

LAB METHOD SUMMARY

CARBON 14 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	No. 33677
Contract	SDG H3827

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Carbon 14	
Preparation batch 6165-060						
R808073-01			7172-001	B1WMD7	U	
R808073-02			7172-002	Lab Control Sample	ok	
R808073-03			7172-003	Method Blank	U	
R808073-04			7172-004	Duplicate (R808073-01)	-	U

Nominal values and limits from method RDLs (pCi/g) 50.0
BCCribs&Trenches(FrmrTW10UVadoseZn)

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6165-060			2σ prep error 10.0 % Reference Lab Notebook #6160, pg. 60													
R808073-01			B1WMD7	3.33	0.431			100		50			54	09/23/08	09/26	LSC-006
R808073-02			Lab Control Sample	3.32	0.400			100		50				09/23/08	09/26	LSC-006
R808073-03			Method Blank	3.73	0.400			100		50				09/23/08	09/26	LSC-006
R808073-04			Duplicate (R808073-01)	3.40	0.430			100		50			54	09/23/08	09/26	LSC-006
Nominal values and limits from method				50.0	0.400					10			180			

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

AVERAGES ± 2 SD	MDA	3.44	± 0.387
FOR 4 SAMPLES	YIELD	100	± 0

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/02/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

Test H	Matrix SOLID
SDG 7172	
Contact Melissa C. Mannion	

LAB METHOD SUMMARY

TRITIUM IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford	
Contract No. 33677	
Contract SDG H3827	

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Tritium	
Preparation batch 6165-060						
R808073-01			7172-001	B1WMD7	U	
R808073-02			7172-002	Lab Control Sample	ok	
R808073-03			7172-003	Method Blank	U	
R808073-04			7172-004	Duplicate (R808073-01)	-	U

Nominal values and limits from method RDLs (pCi/g) 400
BCCribs&Trenches(FrmrTW1OUVadoseZn)

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6165-060			2σ prep error 10.0 % Reference Lab Notebook #6160, pg. 60													
R808073-01			B1WMD7	3.95	0.431			100		50			53	09/23/08	09/25	LSC-007
R808073-02			Lab Control Sample	3.92	0.400			100		50				09/23/08	09/25	LSC-007
R808073-03			Method Blank	4.14	0.400			100		50				09/23/08	09/25	LSC-007
R808073-04			Duplicate (R808073-01)	3.88	0.430			100		50			53	09/23/08	09/25	LSC-007
Nominal values and limits from method				400	0.400					25			180			

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

AVERAGES ± 2 SD	MDA	3.97	± 0.231
FOR 4 SAMPLES	YIELD	100	± 0

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-LMS
Version	3.06
Report date	10/02/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

Test NI L Matrix SOLID
SDG 7172
Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 33677
Contract SDG H3827

RESULTS

LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63	
Preparation batch 6165-060						
R808073-01			7172-001	B1WMD7	U	
R808073-02			7172-002	Lab Control Sample	ok	
R808073-03			7172-003	Method Blank	U	
R808073-04			7172-004	Duplicate (R808073-01)	-	U

Nominal values and limits from method RDLs (pCi/g) 30.0
BCCribs&Trenches(FrmrTW1OUVadoseZn)

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST	SUF-FIX	CLIENT SAMPLE ID	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6165-060			2σ prep error 11.2 % Reference Lab Notebook #6160, pg. 60													
R808073-01			B1WMD7	2.85	0.500			87		50			53	09/24/08	09/25	LSC-005
R808073-02			Lab Control Sample	2.51	0.500			98		50				09/24/08	09/25	LSC-005
R808073-03			Method Blank	2.59	0.500			95		50				09/24/08	09/25	LSC-005
R808073-04			Duplicate (R808073-01)	3.10	0.500			81		50			53	09/24/08	09/25	LSC-005
Nominal values and limits from method				30.0	0.500			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 FOR 4 SAMPLES				
	MDA	2.76	±	0.536
	YIELD	90	±	15

Lab id EBRLNE
Protocol Fluor
Version Ver 1.0
Form DVD-LMS
Version 3.05
Report date 10/02/08

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3827

SDG	7172
Contact	Melissa C. Mannion

REPORT GUIDE

Client	Hanford
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Case no	SDG H3827

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.

Lab id	EBRLNE
Protocol	Fluor
Version	Ver 1.0
Form	DVD-RG
Version	3.06
Report date	10/02/08

SDG 7172
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 33677
Case no SDG H3827

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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Version Ver 1.0
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REPORT GUIDE

Client Hanford
Contract No. 33677
Case no SDG_H3827

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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GUIDE, cont.

Client Hanford
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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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REPORT GUIDE

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Case no SDG H3827

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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GUIDE, cont.

Client Hanford
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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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GUIDE, cont.

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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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REPORT GUIDE

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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.

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

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.

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F08-138-003	PAGE 1 OF 1

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8N	DATA TURNAROUND
NCO Sampler D. Webb	TRENT, SJ	373-5869	WIDRIG, DL	AIR QUALITY ☐	45 Days / 45 Days
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**		
C5923	43827 (7172) BC Cribs & Trenches (Former TW-1 OU Vadose Zone) - Waste Managemen		F08-138		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**ACTUAL SAMPLE DEPTH**	**COA**	**METHOD OF SHIPMENT**	
GW-1			122727ES10	FEDERAL EXPRESS	
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
Eberline Services			7993 6127 6447		

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	None
TYPE OF CONTAINER	G/P
NO. OF CONTAINER(S)	1
VOLUME	120mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B1WMD7	SOIL	8-3-8	0830	X

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
D. Webb / D. Webb	8-3-8 / 1300	MO 413 FRIDGE	8-3-8 / 1300
MO 413 Fridge	AUG 07 2008 / 0700	Kevin Patterson Fluor Hanford	AUG 07 2008 / 0700
Kevin Patterson Fluor Hanford	AUG 07 2008 / 1500	FEDEX	
FED EX			08/08/08 09:00

SPECIAL INSTRUCTIONS
Sample @ 310 Feet. Drum Number BC1-08-068 / 0050224. Radioactive tie to B1WMD6.
(1)Carbon-14; Tritium - H3; Isotopic Thorium {Thorium-232} Technetium-99 {Technetium-99} Neptunium-237; Nickel-63;

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

A-6003-618(01/06)

EBERLINE

RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

JK 8/8/08

Client: F. HANFORD City RICHLAND State WA

Date/Time received 08/08/08 09:00 CoC No. F08-138-003

Container I.D. No. GW-1 Requested TAT (Days) 45 P.O. Received Yes [ ] No [X]

INSPECTION

1. Custody seals on shipping container intact? Yes [X] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [X] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [X] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [X] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry [X]
6. Number of samples in shipping container: 1 Sample Matrix S
7. Number of containers per sample: 1 (Or see CoC _____)
8. Samples are in correct container Yes [X] No [ ]
9. Paperwork agrees with samples? Yes [X] No [ ]
10. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [X]
11. Samples are: In good condition [X] Leaking [ ] Broken Container [ ] Missing [ ]
12. Samples are: Preserved [ ] Not preserved [ ] pH _____ Preservative _____
13. Describe any anomalies:
14. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
15. Inspected by TM Date: 08/08/08 Time: 11:30

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
B1WMD7	<60						

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. 100482 Calibration date 10JUL08

Form SCP-02, 07-30-07

"over 55 years of quality nuclear services"

00000037

RECEIVED OCTOBER 15, 2008

LvLI

LIONVILLE LABORATORY INC.

15

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

Subject: Contract No. 630
Analytical Data Package

Dear Mr. Neely:

Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0808L058
SDG #	H3827
SAF #	F08-138
Date Received	8/08/08
# Samples	1
Matrix	SOIL
Volatiles	
Semivolatiles	
Pest/PCB	
DRO/GRO/KRO	
Herbicides	X
GC Alcohol	
Metals	
Inorganics	X

The electronic data deliverable (EDD) will be emailed shortly. If you have any questions, please don't hesitate to contact me at (610) 280-3012.

Sincerely,

Lionville Laboratory
(A Division of Eberline Analytical Corporation)

Orlette S. Johnson
Project Manager

r:\group\pm\orlette\hanford\data\fc_ltrs.doc

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

CHAIN OF CUSTODY

Lionville Laboratory Use Only: 08081032

Custody Transfer Record/Lab Work Request

Page 1 of 1 See SRC

LVLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

FLR HANFORD

Client: TNU HANFORD SAF# F08-138

Est. Final Proj. Sampling Date:

Project#: 11343-606-001-9999-00

Project Contact/Phone#:

Lionville Laboratory Project Manager: O. JOHNSON

QC: SW846 Del: STP TAT: 30 days

Date Rec'd: 8-8-08 Date Due: 9-7-08

Refrigerator #					A 2						B 2					
#/Type Container	Liquid / Solid				1G						1P					
Volume					500						125					
Preservatives					—						—					
ANALYSES REQUESTED		ORGANIC: VOA	BNA	Pest/PCB	CHLORO Herb				INORG: Metal	CN	NO2 NO3					
Lionville Laboratory Use Only					OH86	X 8-8-08					IVSN2					

MATRIX CODES:
S- Soil
SE- Sediment
SO- Solid
SL- Sludge
W- Water
O- Oil
A- Air
DS- Drum Solids
DL- Drum Liquids
L- EP/TCLP Leachate
WI- Wipe
X- Other
F- Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected														
001	B1WMD7	✓	✓	Soil	8-3-08	0830				X						X				

Special Instructions:

Special Instructions:

1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
[signature]	[signature]	8/8/08	0955

Relinquished by	Received by	Date	Time

Relinquished by	Received by	Date	Time
ORIGINAL REWRITTEN		COMPOSITE WASTE	

000000003

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F08-138-004	PAGE 1 OF 1
COLLECTOR NCO Sampler D. WEBB	COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8N AIR QUALITY ☐	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION C5923	PROJECT DESIGNATION BC Cribs & Trenches (Former TW-1 OU Vadose Zone) - Waste Managemen		SAF NO. F08-138		
ICE CHEST NO. GUSS-6	FIELD LOGBOOK NO.	ACTUAL SAMPLE DEPTH	COA 122727ES10	METHOD OF SHIPMENT FEDERAL EXPRESS	
SHIPPED TO Lionville Laboratory Incorporated	OFFSITE PROPERTY NO.		BILL OF LADING/AIR BILL NO. 7906 6521 8962		

000000004

MATRIX*
A=Air
DL=Drum Liquids
DS=Drum Solids
L=Liquid
O=Oil
S=Soil
SE=Sediment
T=Tissue
V=Vegitation
W=Water
WI=Wipe
X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)

SPECIAL HANDLING AND/OR STORAGE

PRESERVATION	Cool~4C	Cool~4C
TYPE OF CONTAINER	aG	G/P
NO. OF CONTAINER(S)	1	1
VOLUME	~~300~~mL 500 8-1-8	125mL
SAMPLE ANALYSIS	Chloro-Herbicides - EPA8151;	NO2/NO3 - 353.2;

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1WMD7	SOIL	8-3-8	0830	X	X								

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
D.WEBB / [signature]	8-3-8 / 1300	MO413 FRIDGE	8-3-8 / 1300
MO413 Fridge	8/7/08 0200	Kevin Patterson Fluor Hanford [signature]	8/7/08 0200
Kevin Patterson Fluor Hanford [signature]	8/7/08 1530	FEDEX	
FEDEX	8-8-08 0955	[signature]	8-8-08 0955

SPECIAL INSTRUCTIONS
Sample @ 310 Feet. Drum Number BC1-08-068 / 0050224. Radioactive tie to B1WMD6.

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

A-6003-618(01/06)

Lionville Laboratory Incorporated

SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD
Project/SAF/SOW/Release #: F08-138

Date: 8/8/08

LvLI Batch #: 08081032

Sample Custodian: [signature]

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or Shipped?	Carrier [illegible]		Airbill # 790065218962
2. Custody Seals on coolers or shipping containers intact, signed & dated?	☑ Yes	☐ No	☐ No Seals
3. Outside of coolers or shipping containers are free from damage?	☑ Yes	☐ No	*Comments:*
4. All expected paperwork received (coc & other client specific information) sealed in plactic bag and easily accessible?	☑ Yes	☐ No	
5. Samples received cooled or ambient?	Temp 4.1	°C	Cooler # GUSS-6
How was the temperature taken?	☑ IR	☐ Temp. Blank	☐ Other (Specify):
Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)	☑ Yes	☐ No	
6. Custody seals on sample containers intact, signed and dated?	☑ Yes	☐ No	☐ No Seals
7. COC (Client & LvLI) signed & dated?	☑ Yes	☐ No	
8. Sample containers are intact?	☑ Yes	☐ No	
9. All samples on COC received?	☑ Yes	☐ No	
All samples received on COC?	☑ Yes	☐ No	
10. All sample label information matches COC?	☑ Yes	☐ No	
11. Samples properly preserved? (If #5 is no, then this is no.)	☑ Yes	☐ No	
12. Samples received within hold times?	☑ Yes	☐ No	
Short holds taken to wet lab?	☐ Yes	☐ No	☑ N/A
13. VOA, TOC, TOX free of headspace?	☐ Yes	☐ No	☑ N/A
14. QC stickers placed on bottles designated by client?	☑ Yes	☐ No	☐ N/A
15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles that do not meet the policy, which is on the reverse of this page.)	☑ Yes	☐ No	
16. Project Manager contacted concerning any discrepancies?	☐ Yes	☐ No	☑ N/A

Person Contacted _____ Date _____

LvLI LIONVILLE LABORATORY INC.

HERBICIDES

Lionville Laboratory, Inc.
HBGX ANALYTICAL DATA PACKAGE FOR
FLRHANFORD F08-138 H3827

DATE RECEIVED: 08/08/08 LVL LOT # :0808L032

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B1WMD7	001	S	08LE0385	08/03/08	08/13/08	08/27/08
B1WMD7	001 MS	S	08LE0385	08/03/08	08/13/08	08/27/08
B1WMD7	001 MSD	S	08LE0385	08/03/08	08/13/08	08/27/08

LAB QC:

PBLKTZ	MB1	S	08LE0385	N/A	08/13/08	08/27/08
PBLKTZ	MB1 BS	S	08LE0385	N/A	08/13/08	08/27/08

LIONVILLE LABORATORY INC.

Case Narrative

Client: FLUOR-HANFORD F08-138 H3827
LVL #: 0808L032

W.O. #: 60049-001-001-0001
Date Received: 08-08-2008

HERBICIDE

One (1) soil sample was collected on 08-03-2008.

The sample and its associated QC samples were extracted on 08-13-2008 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition method 8151A on 08-27-2008.

The following is a summary of QC results accompanying the sample results. Lionville Laboratory (LVL) certifies that all test results meet the requirements of NELAC except as noted below:

1. All required holding times for extraction and analysis have been met.
2. The method blank was below the reporting limits for all target compounds.
3. All obtainable surrogate recoveries were within the acceptance criteria.
4. One (1) of eight (8) blank spike recoveries were outside acceptance criteria. A copy of the sample discrepancy report (08GC103) has been enclosed.
5. Two (2) of sixteen (16) matrix spike recoveries were outside acceptance criteria. A copy of the sample discrepancy report (08GC103) has been enclosed.
6. The initial calibrations associated with this data set were within acceptance criteria.
7. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
8. LVL is NELAP accredited by the State of Pennsylvania. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/10/08
Date

r:\group\data\2008\herb\fluor-hanford\0808-032ojs1.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of pages.

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 08GC103

Initiator: Svetlana Zak
Date: 08/28/08
Client: TVU

Batch: 08081032
Samples: 001-S, MS, BS
Method: SW846/MCAWW/CLP/

Parameter: HERB
Matrix: Soil
Prep Batch: 08LE0385

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code ✓ Other _____

b. General Discrepancy

__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. Problem (Include all relevant specific results; attach data if necessary)

Low recovery on Dinoseb & Pentachlorophenol for 08LE0385-MB1-S & 08081032-001, S, T

2. Known or Probable Causes(s) Dinoseb in soil is a very erratic performer. The recoveries seen in this batch are not untypical for soils. These recoveries, while outside the in house limit being used, are within the limits calculated from data in method 8151

3. Discussion and Proposed Action Other Description:

__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

Redeintigl Samples/spikes
Samples were redigested but recoveries were still low.
No narrative JD.

4. Project Manager Instructions...signature/date: _____

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
__ Client Contacted:
Date/Person _____
__ Add
__ Cancel

5. Final Action...signature/date: _____ Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

10/2/08

When Final Action has been recorded, forward original to QA for diposition.

Route
__ Lab Manager: Daniels
I Project Mgr (circle): Johnson / Stone
__ Sample Prep (circle): Ford
__ Log-in: King

Route
__ Metals: Welsh / _____
__ Inorganic: Perrone / _____
__ GC/LC: Carey / _____
__ MS VOA: Rubino / _____
__ MS BNA: Carden / _____
__ Other: _____

QA-139-A-0208

GLOSSARY OF DATA

DATA QUALIFIERS

U	=	Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).
J	=	Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
I	=	Interference.
.I	=	Indicates an interference on one analytical column only. Result is reported from remaining analytical column.

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Indicates that recoveries were not obtained because the extract had to be diluted for analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
NS	=	Not Spiked.
SP	=	Indicates Spiked Compound.
P	=	This flag is used for an PESTICIDE/PCB target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".
D	=	This flag identifies all compounds identified in an analysis at a secondary dilution factor.
C	=	This flag applies to a compound that has been confirmed by GC/MS.
NPM	=	No pattern match for multi-component target analytes.

Lionville Laboratory, Inc.

Herbicides, Special List

Report Date: 10/07/08 14:47

RFW Batch Number: **0808L032** Client: **FLRHANFORD F08-138 H3827** Work Order: 11343606001 Page: 1

000000011

	Cust ID:	B1WMD7	B1WMD7	B1WMD7	PBLKTZ	PBLKTZ BS
Sample Information	RFW#:	001	001 MS	001 MSD	08LE0385-MB1	08LE0385-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
Surrogate:	DCAA	59 %	73 %	74 %	87 %	86 %

Dalapon	34	U	60	%	52	%	33	U	69	%
Dicamba	34	U	68	%	58	%	33	U	88	%
Dichloroprop	34	U	53	%	52	%	33	U	71	%
2,4-D	34	U	52	%	64	%	33	U	85	%
2,4,5-TP (Silvex)	17	U	62	%	62	%	17	U	76	%
2,4,5-T	17	U	57	%	62	%	17	U	74	%
Dinoseb	17	U	22 *	%	7 *	%	17	U	8 *	%
2,4-DB	17	U	59	%	57	%	17	U	79	%

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Lionville Laboratory, Inc.

SAMPLE EXTRACTION RECORD

Sheet no.: 1

Extract. Date: 08/13/08 Extraction Batch No: 08LE0385 Analyst: MF Method: SONC3550

Test: OHBG Cleanup Date: Analyst: Client: FLRHANFORD F08-138 H3827

LIMS Report Date: 08/27/08 Solvent: DCM,ACET,ETHER,HEXAN Adsorbent:

Sample No:	Client Name / Client ID	pH	Initial WT/VOL	Surr. Mult.	Spike Mult.	Final VOL	Final VOL	Split Mult.	GPC Y/N	% Solids	C/D FACTOR
0808L032-	FLRHANFORD F08-138 H3827										
001 X	B1WMD7		30.0	1.0		10		1.0	N	99.24	335.9
001 XS	B1WMD7		30.0	1.0	1.0	10		1.0	N	99.24	335.9
001 XT	B1WMD7		30.0	1.0	1.0	10		1.0	N	99.24	335.9
08LE0385-MB1 X	PBLKTZ		30.0	1.0		10		1.0	N	100.00	333.3
08LE0385-MB1 XS	PBLKTZ		30.0	1.0	1.0	10		1.0	N	100.00	333.3

Comments:
Surrogate: 100 UL HERB SURR 86971904
Spike: 100 UL HERB SPIKE 89916302

Extracts Transferred	Relinquished By	Date Time	Received By	Date Time	Reason for Transfer
		8/27/08 1220	SI	8/27/08 12:30	GC

000000012

INORGANICS

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
FLRHANFORD F08-138 H3827

DATE RECEIVED: 08/08/08 LVL LOT # :0808L032

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B1WMD7						
% SOLIDS	001	S	08L%S068	08/03/08	08/14/08	08/15/08
% SOLIDS	001 REP	S	08L%S068	08/03/08	08/14/08	08/15/08
NITRATE NITRITE	001	S	08LN3A25	08/03/08	08/25/08	08/25/08
NITRATE NITRITE	001 REP	S	08LN3A25	08/03/08	08/25/08	08/25/08
NITRATE NITRITE	001 MS	S	08LN3A25	08/03/08	08/25/08	08/25/08
LAB QC:						
NITRATE NITRITE	MB1	S	08LN3A25	N/A	08/25/08	08/25/08
NITRATE NITRITE	MB1 BS	S	08LN3A25	N/A	08/25/08	08/25/08
NITRATE NITRITE	MB1 BSD	S	08LN3A25	N/A	08/25/08	08/25/08

LIONVILLE LABORATORY INC.

Analytical Report

Client: FLRHANFORD F08-138 H3827
LVL#: 0808L032

W.O.#: 11343-606-001-9999-00
Date Received: 08-08-08

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 soil sample.

2. The sample was prepared and analyzed in accordance with the methods checked on the attached glossary.

   Lionville Lab (LvL) is NELAP accredited by the State of Pennsylvania. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvL certifies that all test results meet the requirements of NELAC with any exception noted in the following statements.

3. Sample holding times as required by the method and/or contract were met.

4. The results presented in this report are derived from a sample that met LvLI's sample acceptance policy.

5. The method blank for Nitrate Nitrite was within the method criteria.

6. The Laboratory Control Sample (LCS) for Nitrate Nitrite was within the laboratory control limits.

7. The matrix spike recovery for Nitrate Nitrite was within the 75-125% control limits.

8. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit.

9. Results for soil samples are reported on a dry weight basis.

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

Iain Daniels
Laboratory Manager
Lionville Laboratory

10/10/08
Date

njp\i08-032

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		__ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		__ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3/9014	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		__ 9045C	
Sulfide, Reactive		__ Section 7.3/9030B	
Sulfide		__ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Preparation Leach		__ 1312	
Paint Filter		__ 9095A	

Other: Nitrate Nitrite **Method:** EPA 353.2 (mod.)

Other: **Method**

L-WI-034/B-01/01

Lionville Laboratory Incorporated

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LC = Laboratory Control Sample.
NC = Not calculated.

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 08/27/08

CLIENT: FLRHANFORD F08-138 H3827

LVL LOT #: 0808L032

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B1WMD7	% Solids	99.2	%	0.01	1.0
		Nitrate Nitrite	0.39	MG/KG	0.13	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 08/27/08

CLIENT: FLRHANFORD F08-138 H3827 LVL LOT #: 0808L032

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	08LN3A25-MB1	Nitrate Nitrite	0.19 u	MG/KG	0.19	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 08/27/08

CLIENT: FLRHANFORD F08-138 H3827 LVL LOT #: 0808L032

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B1WMD7	Nitrate Nitrite	3.6	0.39	3.7	88.4	1.0
BLANK10	08LN3A25-MB1	Nitrate Nitrite	4.9	0.19u	4.7	105.0	1.0
		Nitrate Nitrite MSD	5.2	0.19u	5.0	105.0	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 08/27/08

CLIENT: FLRHANFORD F08-138 H3827 LVL LOT #: 0808L032
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	08LN3A25-MB1	Nitrate Nitrite	105.0	105.0	0.008

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 08/27/08

CLIENT: FLRHANFORD F08-138 H3827 LVL LOT #: 0808L032
WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B1WMD7	% Solids	99.2	99.2	0.040	1.0
		Nitrate Nitrite	0.39	0.44	11.7	1.0