



# EBERLINE SERVICES

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June 12, 2008

**RECEIVED**  
JAN 22 2009  
**EDMC**



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

Reference: **P.O. #33677**  
**Eberline Services R8-04-186-7088, SDG H3703** ✓

Dear Mr. Trent:

Enclosed is a data report for two solid (soil) samples designated under SAF No. F08-066 received at Eberline Services on April 30, 2008. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion  
Senior Program Manager

MCM/njv

Enclosure: Data Package

**1.0 GENERAL**

Fluor Hanford Inc. (FH) Sample Delivery Group H3703 was composed of two solid (soil) samples designated under SAF No. F08-066 with a Project Designation of: 216-S-6 Crib Sampling-Soil.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies were noted on the Eberline Services Sample.

**2.0 ANALYSIS NOTES**

**2.1 Tritium Analysis**

No problems were encountered during the course of the analyses.

**2.2 Nickel-63 Analysis**

No problems were encountered during the course of the analyses.

**2.3 Technetium-99 Analysis**

No problems were encountered during the course of the analyses.

**2.4 Isotopic Thorium Analysis**

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 C. Mannion  
Senior Program Manager

  
\_\_\_\_\_  
Date

EBERLINE SERVICES / RICHMOND  
SAMPLE DELIVERY GROUP H3703

SDG 7088  
Contact Melissa C. Mannion

Client Hanford  
Contract No. 33677  
Case no SDG\_H3703

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*n. J. Smith*  
Prepared by \_\_\_\_\_

*Melissa Mannion*  
Reviewed by \_\_\_\_\_

Lab id EBRLNE  
Protocol Fluor  
Version Ver 1.0  
Form DVD-TOC  
Version 3.06  
Report date 06/12/08

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3703

SDG 7088  
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford  
Contract No. 33677  
Case no SDG H3703

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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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3703

SDG 7088  
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford  
Contract No. 33677  
Case no SDG H3703

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES

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SUMMARY DATA SECTION

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3703

SDG 7088  
 Contact Melissa C. Mannion

Client Hanford  
 Contract No. 33677  
 Case no SDG H3703

LAB SAMPLE SUMMARY

LAB						CHAIN OF	
SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CUSTODY	COLLECTED
R804186-01	B1TFD2	C6174, I-004	SOLID		F08-066	F08-066-050	04/16/08 08:55
R804186-02	B1TFD9	C6174, I-005	SOLID		F08-066	F08-066-051	04/17/08 09:15
R804186-03	Lab Control Sample		SOLID		F08-066		
R804186-04	Method Blank		SOLID		F08-066		
R804186-05	Duplicate (R804186-01)	C6174, I-004	SOLID		F08-066		04/16/08 08:55

LAB SUMMARY

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Lab id EBRLNE  
 Protocol Fluor  
 Version Ver 1.0  
 Form DVD-LS  
 Version 3.06  
 Report date 06/12/08

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3703

SDG 7088

Contact Melissa C. Mannion

**QC SUMMARY**

Client Hanford

Contract No. 33677

Case no SDG H3703

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7088	F08-066-050	B1TFD2	SOLID	95.9	111 g		04/30/08 14	R804186-01		7088-001
	F08-066-051	B1TFD9	SOLID	92.4	102 g		04/30/08 13	R804186-02		7088-002
		Method Blank	SOLID					R804186-04		7088-004
		Lab Control Sample	SOLID					R804186-03		7088-003
		Duplicate (R804186-01)	SOLID	95.9	111 g		04/30/08 14	R804186-05		7088-005

QC SUMMARY

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Lab id EBRLNE

Protocol Fluor

Version Ver 1.0

Form DVD-QS

Version 3.06

Report date 06/12/08

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3703

SDG 7088  
 Contact Melissa C. Mannion

**PREP BATCH SUMMARY**

Client Hanford  
 Contract No. 33677  
 Case no SDG H3703

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI- FIERS	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK		LCS
<b>Alpha Spectroscopy</b>										
TH	SOLID	Thorium, Isotopic in Solids	6150-055	8.0	2			1	1	1/1
<b>Beta Counting</b>										
TC	SOLID	Technetium 99 in Solids	6150-055	13.2	2			1	1	1/1
<b>Liquid Scintillation Counting</b>										
H	SOLID	Tritium in Solids	6150-055	10.0	2			1	1	1/1
NI_L	SOLID	Nickel 63 in Solids	6150-055	11.2	2			1	1	1/1

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

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3703

SDG 7088  
 Contact Melissa C. Mannion

Client Hanford  
 Contract No. 33677  
 Case no SDG H3703

**LAB WORK SUMMARY**

LAB SAMPLE	CLIENT SAMPLE ID									
COLLECTED	LOCATION	MATRIX		SUF-						
RECEIVED	CUSTODY	SAF No	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
R804186-01	B1TFD2		7088-001	H		06/04/08	06/09/08	BW	Tritium in Solids	
04/16/08	C6174, I-004	SOLID	7088-001	NI_L		05/31/08	06/03/08	BW	Nickel 63 in Solids	
04/30/08	F08-066-050	F08-066	7088-001	TC		06/09/08	06/10/08	BW	Technetium 99 in Solids	
			7088-001	TH		06/04/08	06/05/08	BW	Thorium, Isotopic in Solids	
R804186-02	B1TFD9		7088-002	H		06/04/08	06/09/08	BW	Tritium in Solids	
04/17/08	C6174, I-005	SOLID	7088-002	NI_L		05/31/08	06/03/08	BW	Nickel 63 in Solids	
04/30/08	F08-066-051	F08-066	7088-002	TC		06/06/08	06/10/08	BW	Technetium 99 in Solids	
			7088-002	TH		06/04/08	06/05/08	BW	Thorium, Isotopic in Solids	
R804186-03	Lab Control Sample		7088-003	H		06/04/08	06/09/08	BW	Tritium in Solids	
		SOLID	7088-003	NI_L		05/31/08	06/03/08	BW	Nickel 63 in Solids	
		F08-066	7088-003	TC		06/06/08	06/10/08	BW	Technetium 99 in Solids	
			7088-003	TH		06/04/08	06/05/08	BW	Thorium, Isotopic in Solids	
R804186-04	Method Blank		7088-004	H		06/04/08	06/09/08	BW	Tritium in Solids	
		SOLID	7088-004	NI_L		05/31/08	06/03/08	BW	Nickel 63 in Solids	
		F08-066	7088-004	TC		06/09/08	06/10/08	BW	Technetium 99 in Solids	
			7088-004	TH		06/05/08	06/05/08	BW	Thorium, Isotopic in Solids	
R804186-05	Duplicate (R804186-01)		7088-005	H		06/04/08	06/09/08	BW	Tritium in Solids	
04/16/08	C6174, I-004	SOLID	7088-005	NI_L		05/31/08	06/03/08	BW	Nickel 63 in Solids	
04/30/08		F08-066	7088-005	TC		06/06/08	06/10/08	BW	Technetium 99 in Solids	
			7088-005	TH		06/04/08	06/05/08	BW	Thorium, Isotopic in Solids	

**COUNTS OF TESTS BY SAMPLE TYPE**

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
H	F08-066	Tritium in Solids	TRITIUM_COX_LSC	2			1	1	1		5
NI_L	F08-066	Nickel 63 in Solids	NI63_LSC	2			1	1	1		5
TC	F08-066	Technetium 99 in Solids	TC99_TR_SEP_GPC	2			1	1	1		5
TH	F08-066	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	2			1	1	1		5
<b>TOTALS</b>				<b>8</b>			<b>4</b>	<b>4</b>	<b>4</b>		<b>20</b>

WORK SUMMARY

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**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H3703**

7088-004

Method Blank

**METHOD BLANK**

SDG <u>7088</u>	Client/Case no <u>Hanford</u>	SDG <u>H3703</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>33677</u>	
Lab sample id <u>R804186-04</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7088-004</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F08-066</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	1.62	4.8	8.17	400	U	H
Nickel 63	13981-37-8	-0.731	9.5	16.2	30.0	U	NI_L
Technetium 99	14133-76-7	0.412	1.3	1.77	12.0	U	TC
Thorium 228	14274-82-9	-0.233	0.93	<u>2.23</u>	1.00	U	TH
Thorium 230	14269-63-7	-0.232	0.46	<u>1.77</u>	1.00	U	TH
Thorium 232	TH-232	0.232	0.46	<u>1.77</u>	1.00	U	TH

216-S-6 Crib Sampling - Soil

QC-BLANK #65620
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Lab id <u>EBRLNE</u>
Protocol <u>Fluor</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>06/12/08</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3703

7088-003

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7088</u>	Client/Case no <u>Hanford</u> <u>SDG H3703</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 33677</u>
Lab sample id <u>R804186-03</u>	Client sample id <u>Lab Control Sample</u>
Dept sample id <u>7088-003</u>	Material/Matrix <u>SOLID</u>
	SAF No <u>F08-066</u>

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	1180	25	8.30	400	H	1220	49	97	84-116	80-120
Nickel 63	1020	28	15.0	30.0	NI_L	1100	44	93	83-117	80-120
Technetium 99	514	8.8	2.67	12.0	TC	545	22	94	80-120	80-120
Thorium 230	47.5	5.5	0.637	1.00	TH	45.6	1.8	104	77-123	80-120

216-S-6 Crib Sampling - Soil

QC-LCS #65619

Lab id <u>EBRLNE</u>
Protocol <u>Fluor</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LC3</u>
Version <u>3.0f</u>
Report date <u>06/12/08</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3703

7088-005

BITFD2

DUPLICATE

SDG <u>7088</u>	Client/Case no <u>Hanford</u>	<u>SDG H3703</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 33677</u>	
<b>DUPLICATE</b>	<b>ORIGINAL</b>	
Lab sample id <u>R804186-05</u>	Lab sample id <u>R804186-01</u>	Client sample id <u>BITFD2</u>
Dept sample id <u>7088-005</u>	Dept sample id <u>7088-001</u>	Location/Matrix <u>C6174, I-004</u>
	Received <u>04/30/08</u>	Collected/Weight <u>04/16/08 08:55</u> <u>111 g</u>
% solids <u>95.9</u>	% solids <u>95.9</u>	Custody/SAF No <u>F08-066-050</u> <u>F08-066</u>

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 o
Tritium	1.66	3.2	5.42	400	U	H	-0.084	3.2	5.46	U	-		0.8
Nickel 63	0.690	9.0	15.2	30.0	U	NI_L	-5.89	8.5	14.9	U	-		1.1
Technetium 99	-0.069	1.6	2.04	12.0	U	TC	0.502	0.93	1.82	U	-		0.6
Thorium 228	3.38	2.1	<u>2.49</u>	1.00		TH	0.594	1.2	<u>1.99</u>	U	140	184	2.3
Thorium 230	1.04	1.0	<u>1.98</u>	1.00	U	TH	0.295	0.89	<u>1.42</u>	U	-		1.1
Thorium 232	1.04	1.0	<u>1.98</u>	1.00	U	TH	0.295	0.30	<u>1.13</u>	U	-		1.4

216-S-6 Crib Sampling - Soil

QC-DUP#1 65621

DUPLICATES

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Report date <u>06/12/08</u>

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3703

7088-001

B1TFD2

DATA SHEET

SDG <u>7088</u>	Client/Case no <u>Hanford</u>	SDG <u>H3703</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>33677</u>	
Lab sample id <u>R804186-01</u>	Client sample id <u>B1TFD2</u>	
Dept sample id <u>7088-001</u>	Location/Matrix <u>C6174, I-004</u>	<u>SOLID</u>
Received <u>04/30/08</u>	Collected/Weight <u>04/16/08 08:55</u>	<u>111 g</u>
% solids <u>95.9</u>	Custody/SAF No <u>F08-066-050</u>	<u>F08-066</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	-0.084	3.2	5.46	400	U	H
Nickel 63	13981-37-8	-5.89	8.5	14.9	30.0	U	NI_L
Technetium 99	14133-76-7	0.502	0.93	1.82	12.0	U	TC
Thorium 228	14274-82-9	0.594	1.2	<u>1.99</u>	1.00	U	TH
Thorium 230	14269-63-7	0.295	0.89	<u>1.42</u>	1.00	U	TH
Thorium 232	TH-232	0.295	0.30	<u>1.13</u>	1.00	U	TH

216-S-6 Crib Sampling - Soil

DATA SHEETS

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Version <u>3.06</u>
Report date <u>06/12/08</u>

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**EBERLINE SERVICES / RICHMOND**  
**SAMPLE DELIVERY GROUP H3703**

7088-002

B1TFD9

**DATA SHEET**

SDG <u>7088</u>	Client/Case no <u>Hanford</u>	SDG <u>H3703</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 33677</u>	
Lab sample id <u>R804186-02</u>	Client sample id <u>B1TFD9</u>	
Dept sample id <u>7088-002</u>	Location/Matrix <u>C6174, I-005</u>	<u>SOLID</u>
Received <u>04/30/08</u>	Collected/Weight <u>04/17/08 09:15</u>	<u>102 g</u>
% solids <u>92.4</u>	Custody/SAF No <u>F08-066-051</u>	<u>F08-066</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	4.52	3.3	5.28	400	U	H
Nickel 63	13981-37-8	0.764	5.0	8.44	30.0	U	NI_L
Technetium 99	14133-76-7	0.238	0.56	1.23	12.0	U	TC
Thorium 228	14274-82-9	2.62	1.4	<u>1.25</u>	1.00		TH
Thorium 230	14269-63-7	0.910	0.79	0.994	1.00	U	TH
Thorium 232	TH-232	0.910	0.79	0.994	1.00	U	TH

216-S-6 Crib Sampling - Soil

Lab id <u>EBRLNE</u>
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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3703

Test TH Matrix SOLID  
 SDG 7088  
 Contact Melissa C. Mannion

Client Hanford  
 Contract No. 33677  
 Contract SDG H3703

**LAB METHOD SUMMARY**

THORIUM, ISOTOPIC IN SOLIDS  
 ALPHA SPECTROSCOPY

**RESULTS**

LAB	RAW	SUF-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Thorium 230
Preparation batch 6150-055				
R804186-01		7088-001	B1TFD2	U
R804186-02		7088-002	B1TFD9	U
R804186-03		7088-003	Lab Control Sample	ok
R804186-04		7088-004	Method Blank	U
R804186-05		7088-005	Duplicate (R804186-01)	- U

Nominal values and limits from method RDLs (pCi/g) 1.00  
 216-S-6 Crib Sampling - Soil

**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/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6150-055			2σ prep error 8.0 %		Reference Lab Notebook #6150, pg. 55										
R804186-01		B1TFD2	<u>1.99</u>	0.100			39		190			49	06/04/08	06/04	SS-027
R804186-02		B1TFD9	<u>1.25</u>	0.200			28		191			48	06/04/08	06/04	SS-031
R804186-03		Lab Control Sample	0.637	0.100			84		191				06/04/08	06/04	SS-032
R804186-04		Method Blank	<u>2.23</u>	0.100			34		164				06/04/08	06/05	SS-065
R804186-05		Duplicate (R804186-01)	<u>2.49</u>	0.100			28		191			49	06/04/08	06/04	SS-034

Nominal values and limits from method 1.00 0.100 20-105 150 180

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
SPP-061	Determination of Moisture Content in Solid Samples	rev 0
SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7	
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>1.72</u> ± <u>1.52</u>
FOR 5 SAMPLES	YIELD <u>43</u> ± <u>47</u>

METHOD SUMMARIES

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3703

Test TC Matrix SOLID  
 SDG 7088  
 Contact Melissa C. Mannion

Client Hanford  
 Contract No. 33677  
 Contract SDG H3703

**LAB METHOD SUMMARY**

TECHNETIUM 99 IN SOLIDS  
 BETA COUNTING

**RESULTS**

LAB	RAW	SUF-			Techneium
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID		99
Preparation batch 6150-055					
R804186-01		7088-001	B1TFD2		U
R804186-02		7088-002	B1TFD9		U
R804186-03		7088-003	Lab Control Sample		ok
R804186-04		7088-004	Method Blank		U
R804186-05		7088-005	Duplicate (R804186-01)		- U

Nominal values and limits from method RDLs (pCi/g) 12.0  
 216-S-6 Crib Sampling - Soil

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6150-055			2σ prep error 13.2 % Reference Lab Notebook #6150, pg. 55												
R804186-01		B1TFD2	1.82	0.200			96	100				54	06/03/08	06/09	GRB-222
R804186-02		B1TFD9	1.23	0.300			95	100				50	06/03/08	06/06	GRB-224
R804186-03		Lab Control Sample	2.67	0.200			88	100					06/03/08	06/06	GRB-226
R804186-04		Method Blank	1.77	0.200			99	100					06/03/08	06/09	GRB-228
R804186-05		Duplicate (R804186-01)	2.04	0.200			86	100				51	06/03/08	06/06	GRB-228

Nominal values and limits from method 12.0 0.200 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 1.91 ± 1.04  
 FOR 5 SAMPLES YIELD 93 ± 11

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3703

**LAB METHOD SUMMARY**

TRITIUM IN SOLIDS

LIQUID SCINTILLATION COUNTING

Test H        Matrix SOLID  
 SDG 7088  
 Contact Melissa C. Mannion

Client Hanford  
 Contract No. 33677  
 Contract SDG H3703

**RESULTS**

LAB	RAW	SUF-			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID		Tritium
Preparation batch 6150-055					
R804186-01		7088-001	B1TFD2		U
R804186-02		7088-002	B1TFD9		U
R804186-03		7088-003	Lab Control Sample		ok
R804186-04		7088-004	Method Blank		U
R804186-05		7088-005	Duplicate (R804186-01)	-	U

Nominal values and limits from method      RDLs (pCi/g)      400  
 216-S-6 Crib Sampling - Soil

**METHOD PERFORMANCE**

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED DETECTOR
Preparation batch 6150-055      2σ prep error 10.0 %      Reference Lab Notebook #6150, pg. 55													
R804186-01		B1TFD2	5.46	0.298			100		50			49 06/02/08 06/04	LSC-007
R804186-02		B1TFD9	5.28	0.313			100		50			48 06/02/08 06/04	LSC-007
R804186-03		Lab Control Sample	8.30	0.200			100		50			06/02/08 06/04	LSC-007
R804186-04		Method Blank	8.17	0.200			100		50			06/02/08 06/04	LSC-007
R804186-05		Duplicate (R804186-01)	5.42	0.303			100		50			49 06/02/08 06/04	LSC-007

Nominal values and limits from method      400      0.200      25      180

PROCEDURES      REFERENCE      TRITIUM\_COX\_LSC  
 CP-251      Tritium/Carbon-14 Oxidation, rev 8

AVERAGES ± 2 SD      MDA 6.53 ± 3.12  
 FOR 5 SAMPLES      YIELD 100 ± 0

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**EBERLINE SERVICES/RICHMOND**

SAMPLE DELIVERY GROUP H3703

Test NI L Matrix SOLID  
 SDG 7088  
 Contact Melissa C. Mannion

Client Hanford  
 Contract No. 33677  
 Contract SDG H3703

**LAB METHOD SUMMARY**

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

**RESULTS**

LAB RAW SUF-  
 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Nickel 63

Preparation batch 6150-055

R804186-01	7088-001	B1TFD2	U
R804186-02	7088-002	B1TFD9	U
R804186-03	7088-003	Lab Control Sample	ok
R804186-04	7088-004	Method Blank	U
R804186-05	7088-005	Duplicate (R804186-01)	- U

Nominal values and limits from method RDLs (pCi/g) 30.0  
 216-S-6 Crib Sampling - Soil

**METHOD PERFORMANCE**

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

Preparation batch 6150-055 2σ prep error 11.2 % Reference Lab Notebook #6150, pg. 55

R804186-01	B1TFD2	14.9	0.100	98	50	45	05/30/08	05/31	LSC-004
R804186-02	B1TFD9	8.44	0.200	87	50	44	05/30/08	05/31	LSC-004
R804186-03	Lab Control Sample	15.0	0.100	96	50		05/30/08	05/31	LSC-004
R804186-04	Method Blank	16.2	0.100	91	50		05/30/08	05/31	LSC-004
R804186-05	Duplicate (R804186-01)	15.2	0.100	96	50	45	05/30/08	05/31	LSC-004

Nominal values and limits from method 30.0 0.100 30-105 25 180

PROCEDURES REFERENCE NI63\_LSC  
 SPP-070 Soil Dissolution, < 1.0g Aliquot, rev 7  
 CP-280 Nickel-63 Purification, rev 3

AVERAGES ± 2 SD MDA 13.9 ± 6.24  
 FOR 5 SAMPLES YIELD 94 ± 9

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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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REPORT GUIDE

LAB CONTROL SAMPLE

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

The following notes apply to this report:

- \* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- \* An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

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

- \* REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- \* The first, computed limits for the recovery reflect:
  1. The error of RESULT, including that introduced by rounding the result prior to printing.  
  
If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
  2. The error of ADDED.
  3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- \* The second limits are protocol defined upper and lower QC limits for the recovery.
- \* The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

This value reported for this limit is at most 999.

- \* The second limit for the RPD is the larger of:
  1. A fixed percentage specified in the protocol.

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DUPLICATE

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

- \* The RPD is underlined if it is greater than either limit.
- \* If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

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

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

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MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

- \* The first, computed limits for the recovery reflect:

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

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

2. The error of ADDED.

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

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

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MATRIX SPIKE

for the recovery.

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

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

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METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

- \* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- \* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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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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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

REPORT GUIDES

Page 14

SUMMARY DATA SECTION

Page 29

Lab id EBRLNE

Protocol Fluor

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 06/12/08

00000032

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3703

SDG 7088  
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford  
Contract No. 33677  
Case no SDG H3703

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.

REPORT GUIDES

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SUMMARY DATA SECTION

Page 30

Lab id EBRLNE  
Protocol Fluor  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 06/12/08

00000033

COLLECTOR *Connelly Resave*  
 NCO Sampler  
 SAMPLING LOCATION  
 C6174, I-004  
 ICE CHEST NO.  
**ERC-96-071**

COMPANY CONTACT  
 TRENT, SJ  
 PROJECT DESIGNATION  
 216-S-6 Crib Sampling - Soil **H3703 (7088)**  
 FIELD LOGBOOK NO.  
**HNF-N-595-5 pg 26 22.7-25.2'**  
 ACTUAL SAMPLE DEPTH  
 OFFSITE PROPERTY NO.  
 See PTR

PROJECT COORDINATOR  
 WIDRIG, DL  
 SAF NO.  
 F08-066  
 COA  
 123210ES20  
 BILL OF LADING/AIR BILL NO.  
 See PTR **H00 30000**

PRICE CODE 8N  
 AIR QUALITY   
 METHOD OF SHIPMENT  
 FEDERAL EXPRESS

DATA TURNAROUND  
 45 Days / 45 Days

SHIPPED TO  
 Eberline Services

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

**POSSIBLE SAMPLE HAZARDS/ REMARKS**  
 Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

**SPECIAL HANDLING AND/OR STORAGE**  
 Radioactive tie to B1TFB2

**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
B1TFD2	SOIL	4-16-08	0855 ✓

CHAIN OF POSSESSION

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
<i>Henry Resave, Jimmy Resave</i>	4-16-08/1100	<i>ON Site ReF</i>	4-16-08/1100
<i>on site ReF</i>	4-28-08	<i>D. Parich Day</i>	4-28-08
<i>D. Parich Day</i>	4-28-08	<i>MO 745 ReF #3</i>	4-28-08
<i>MO 745 ReF #3</i>	4-29-08	<i>D. Parich Day</i>	4-29-08
<i>D. Parich Day</i>	4-29-08	<i>Fed EX</i>	
<i>Fed EX</i>		<i>Fun</i>	04/30/08 09:30

\*\* The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.  
 \*\* Analytical batch QC must be run on a sample associated with this SAF.  
 (1) Tritium - H3; Technetium-99 {Technetium-99} Nickel-63; Isotopic Thorium {Thorium-232}

000000004

LABORATORY SECTION RECEIVED BY  
 FINAL SAMPLE DISPOSITION DISPOSAL METHOD

TITLE DATE/TIME  
 DISPOSED BY DATE/TIME

COLLECTOR  
NCO Sampler *DConnolly*

SAMPLING LOCATION  
C6174, I-005

ICE CHEST NO.  
*ERC-96-071*

SHIPPED TO  
Eberline Services

COMPANY CONTACT  
TRENT, SJ

TELEPHONE NO.  
373-5869

PROJECT COORDINATOR  
WIDRIG, DL

PROJECT DESIGNATION  
216-S-6 Crib Sampling - Soil

FIELD LOGBOOK NO.  
*H3703 (7088)*

ACTUAL SAMPLE DEPTH  
*29.2' - 31.7'*

OFFSITE PROPERTY NO.  
See PTR

SAF NO.  
F08-066

COA  
123210ES20

BILL OF LADING/AIR BILL NO.  
See PTR *H00 30000*

PRICE CODE 8N

AIR QUALITY

METHOD OF SHIPMENT  
FEDERAL EXPRESS

DATA TURNAROUND  
45 Days / 45 Days

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

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

SPECIAL HANDLING AND/OR STORAGE  
Radioactive tie to B1TFB3

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
B1TFD9	SOIL	4-17-8	0915

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME
<i>D Connolly</i>	4-17-8 1100	<i>024775</i>	<i>on site Ref</i>	4-17-8 1100
<i>on site ref</i>	4-28-08 1500	<i>D. Parsh Dwy</i>	<i>D. Parsh Dwy</i>	4-28-08
<i>D. Parsh Dwy</i>	4-28-08	<i>MO 745 Ref #1</i>	<i>MO 745 Ref #1</i>	4-28-08
<i>MO 745 Ref #1</i>	4-29-08	<i>D. Parsh Dwy</i>	<i>D. Parsh Dwy</i>	4-29-08
<i>D. Parsh Dwy</i>	4-29-08	<i>Fed Ex</i>	<i>Fed Ex</i>	
<i>Fed Ex</i>		<i>Mo</i>	<i>Mo</i>	

SPECIAL INSTRUCTIONS

\*\* The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.

\*\* Analytical batch QC must be run on a sample associated with this SAF.  
(1) Tritium - H3; Technetium-99 {Technetium-99} Nickel-63; Isotopic Thorium {Thorium-232}

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



# RICHMOND, CA LABORATORY

## SAMPLE RECEIPT CHECKLIST

4/30/08

Client: F. HANFORD City: RICHMOND State: WA

Date/Time received: 04/30/08 09:30 CoC No. F08-066-050,051

Container I.D. No. ERC-96-671 Requested TAT (Days) 45 P.O. Received Yes [ ] No [ ]

### INSPECTION

1. Custody seals on shipping container intact? Yes [] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [] No [ ] N/A [ ]
5. Packing material is: Wet [ ] Dry []
6. Number of samples in shipping container: 2 Sample Matrix S
7. Number of containers per sample: 1 (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 MWJ Date: 04/30/08 Time: 11:15

Customer Sample No	Beta/Gamma cpm	Ion Chamber mR/hr	Wipe	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	wipe
B1TFD2	3200						
B1TFD9	1700						

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

RECEIVED JUNE 24, 2008

Lionville Laboratory, Inc.  
INORGANIC ANALYTICAL DATA PACKAGE FOR  
TNUHANFORD F08-066 H3703

DATE RECEIVED: 04/30/08

LVL LOT # :0804L025

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B1TFD2						
CHROMIUM VI	001	S	08LVI042	04/16/08	05/02/08	05/02/08
SULFIDE	001	S	08LSD033	04/16/08	05/02/08	05/03/08
SPECIFIC CONDUCTANCE	001	S	08LSP009	04/16/08	05/02/08	05/02/08

B1TFD9						
% SOLIDS	002	S	08L%S044	04/17/08	05/02/08	05/03/08
% SOLIDS	002 REP	S	08L%S044	04/17/08	05/02/08	05/03/08
CHROMIUM VI	002	S	08LVI042	04/17/08	05/02/08	05/02/08
CHROMIUM VI	002 REP	S	08LVI042	04/17/08	05/02/08	05/02/08
CHROMIUM VI	002 MS	S	08LVI042	04/17/08	05/02/08	05/02/08
CHROMIUM VI	002 MSD	S	08LVI042	04/17/08	05/02/08	05/02/08
SULFIDE	002	S	08LSD033	04/17/08	05/02/08	05/03/08
SULFIDE	002 REP	S	08LSD033	04/17/08	05/02/08	05/03/08
SULFIDE	002 MS	S	08LSD033	04/17/08	05/02/08	05/03/08
SPECIFIC CONDUCTANCE	002	S	08LSP009	04/17/08	05/02/08	05/02/08
SPECIFIC CONDUCTANCE	002 REP	S	08LSP009	04/17/08	05/02/08	05/02/08

LAB QC:

CHROMIUM VI	MB1	S	08LVI042	N/A	05/02/08	05/02/08
CHROMIUM VI	MB1 BS	S	08LVI042	N/A	05/02/08	05/02/08
CHROMIUM VI	MB1 BSD	S	08LVI042	N/A	05/02/08	05/02/08
SULFIDE	MB1	S	08LSD033	N/A	05/02/08	05/03/08
SULFIDE	MB1 BS	S	08LSD033	N/A	05/02/08	05/03/08
SULFIDE	MB1 BSD	S	08LSD033	N/A	05/02/08	05/03/08
SPECIFIC CONDUCTANCE	MB1	W	08LSP009	N/A	05/02/08	05/02/08
SPECIFIC CONDUCTANCE	MB1 BS	W	08LSP009	N/A	05/02/08	05/02/08

000000001



## Analytical Report

Client: TNU-HANFORD F08-066 H3703  
LVL#: 0804L025

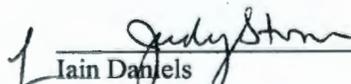
W.O.#: 11343-606-001-9999-00  
Date Received: 04-30-08

### INORGANIC NARRATIVE

1. This narrative covers the analyses of 2 soil samples.
2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.

LvLI 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. LvLI 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 with the exception of Sulfide that was received past hold (see the sample chronology summary for analyses times for short hold samples).
4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of Sulfide as noted on the Sample Receipt Checklist.
5. The method blanks were within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Sulfide was within the 20% Relative Percent Difference (RPD) control limit.
7. The matrix spike recoveries were within the 75-125% control limits.
8. The replicate analyses were within the 20% RPD control limit with the exception of Sulfide at 22.5%.
9. Results for soil sample B1TFD9 is reported on a dry weight basis and sample B1TDF2 was reported on as"as-received" 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 Incorporated

5/27/08  
Date

njpl04-025

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 13 pages.

**Lionville Laboratory Incorporated**

**WET CHEMISTRY**

**METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS**

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% Ash	— D2216-80		
% Moisture	— D2216-80		— ILMO4.0 (e)
% Solids	— <input checked="" type="checkbox"/> D2216-80		— ILMO4.0 (e)
% Volatile Solids	— D2216-80		
ASTM Extraction in Water	— D3987-81/85		
BTU	— D240-87		
CEC		— 9081	— c
Chromium VI		<input checked="" type="checkbox"/> 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		<input checked="" type="checkbox"/> 9030B(mod) / 9034	
Specific Gravity	— D1429-76C/	— D5057-90	
Sulfur, Total		— 9056	
Synthetic Preparation Leach		— 1312	
Paint Filter		— 9095A	
<b>Other:</b> <i>Specific Conductance</i>	<b>Method:</b> <i>SW 9050(mod.)</i>		
<b>Other:</b>	<b>Method</b>		

## 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 05/08/08

CLIENT: TNUHANFORD F08-066 H3703

LVL LOT #: 0804L025

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-001	B1TFD2	Chromium VI	0.20	u MG/KG	0.20	1.0
		Sulfide	38.7	MG/KG	22.1	1.0
		Specific Conductance	44.7	UMHOS/C	1.0	1.0
-002	B1TFD9	% Solids	92.4	%	0.01	1.0
		Chromium VI	0.22	u MG/KG	0.22	1.0
		Sulfide	34.6	MG/KG	22.3	1.0
		Specific Conductance	54.3	UMHOS/C	1.0	1.0

000000005

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/08/08

CLIENT: TNUHANFORD F08-066 H3703  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0804L025

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	08LVI042-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0
BLANK10	08LSD033-MB1	Sulfide	20.6 u	MG/KG	20.6	1.0
BLANK10	08LSP009-MB1	Specific Conductance	1.0 u	UMHOS/C	1.0	1.0

000000006

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/08/08

CLIENT: TNUHANFORD F08-066 H3703  
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0804L025

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-002	BITFD9	Soluble Chromium VI	4.3	0.20u	4.3	99.4	1.0
		Insoluble Chromium VI	1240	0.20u	1200	103.2	100
		Sulfide	265	34.6	276	83.2	1.0
BLANK10	08LVI042-MB1	Soluble Chromium VI	4.0	0.20u	4.0	100.2	1.0
		Insoluble Chromium VI	1230	0.20u	1200	102.3	100
BLANK10	08LSD033-MB1	Sulfide	223	20.6 u	257	87.0	1.0
		Sulfide MSD	246	20.6 u	259	95.0	1.0
BLANK10	08LSP009-MB1	Specific Conductance	716	1.0 u	718	99.8	1.0

000000007

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 05/08/08

CLIENT: TNUHANFORD F08-066 H3703  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0804L025

SAMPLE	SITE ID	ANALYTE	SPIKE#1	SPIKE#2	%DIFF
			%RECOV	%RECOV	
BLANK10	08LSD033-MB1	Sulfide	87.0	95.0	8.7

000000000

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/08/08

CLIENT: TNUHANFORD F08-066 H3703  
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0804L025

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE RPD			DILUTION FACTOR (REP)
-----	-----	-----	-----	-----	-----	-----	
-002REP	B1TFD9	% Solids	92.4	92.6	0.14	1.0	
		Chromium VI	0.22u	0.22u	NC	1.0	
		Sulfide	34.6	27.6	22.5	1.0	
		Specific Conductance	54.3	54.6	0.68	1.0	

000000009



Fluor Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F08-066-062	PAGE 1 OF 1
COLLECTOR NCO Sampler <i>Connelly Rosane</i>		COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR WIDRIG, DL	PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION C6174, I-004		PROJECT DESIGNATION 216-S-6 Crib Sampling - Soil		SAF NO. F08-066	AIR QUALITY <input type="checkbox"/>		
ICE CHEST NO. <i>GA-08</i>		FIELD LOGBOOK NO. <i>HNF-N-585-5 pg 26</i>	ACTUAL SAMPLE DEPTH <i>22.7'-25.2'</i>	COA 123210ES20	METHOD OF SHIPMENT FEDERAL EXPRESS		
SHIPPED TO Lionville Laboratory Incorporated		OFFSITE PROPERTY NO. See PTR		BILL OF LADING/AIR BILL NO. <i>40031000</i>			
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		PRESERVATION Cool~4C				
			TYPE OF CONTAINER G				
			NO. OF CONTAINER(S) 1				
			VOLUME 120mL				
	SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: B1TFB2	SAMPLE ANALYSIS Chromium Hex - 7196; Sulfides - 9030 (Sulfide)					
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B1TFD2	SOIL	4-16-08	0855	✓			
CHAIN OF POSSESSION		SIGN/ PRINT NAMES			SPECIAL INSTRUCTIONS		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.  ** Analytical batch QC must be run on a sample associated with this SAF.			
<i>Larry Rosane / Larry Rosane</i>	4-16-08/1100	<i>ON site Ref</i>	4-16-08/1100				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
<i>ON site Ref</i>	4-24-08/1400	<i>Elkner / Elkner</i>	4-24-08/1400				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
<i>Elkner / Elkner</i>	4-24-08/1520	<i>MO-745 Ref #3</i>	4-24-08/1520				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
<i>MO 745 Ref #3</i>	4-29-08	<i>D. Parch DEKJ</i>	4-29-08				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
<i>D. Parch DEKJ</i>	4-29-08	<i>Fed EX</i>					
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
<i>DEKJ</i>	4-30-08/0950	<i>D. Parch</i>	4-30-08/0950				
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			

000000011

Fluor Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F08-066-063

PAGE 1 OF 1

COLLECTOR  
NCO Sampler *D. Connolly*

COMPANY CONTACT  
TRENT, SJ

TELEPHONE NO.  
373-5869

PROJECT COORDINATOR  
WIDRIG, DL

PRICE CODE 8N

DATA  
TURNAROUND  
45 Days / 45  
Days

SAMPLING LOCATION  
C6174, I-005

PROJECT DESIGNATION  
216-S-6 Crib Sampling - Soil

SAF NO.  
F08-066

AIR QUALITY

ICE CHEST NO.  
*GA-08*

FIELD LOGBOOK NO.  
*HNF-N-585-5 pg 27*

ACTUAL SAMPLE DEPTH  
*29.2' - 31.7'*

COA  
123210E520

METHOD OF SHIPMENT  
FEDERAL EXPRESS

SHIPPED TO  
Lionville Laboratory Incorporated

OFFSITE PROPERTY NO.  
See PTR

BILL OF LADING/AIR BILL NO.

See PTR *H 0031000*

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

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

SPECIAL HANDLING AND/OR STORAGE  
Radioactive Tie To: B1TFB3

PRESERVATION  
Cool ~4C

TYPE OF CONTAINER  
G

NO. OF CONTAINER(S)  
1

VOLUME  
120ml

SAMPLE ANALYSIS  
Chromium Hex - 7196; Sulfides - 9030 (Sulfide)

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B1TFD9	SOIL	4-17-8	0915	✓					

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	DATE/TIME	DATE/TIME
RELINQUISHED BY/REMOVED FROM <i>D. Connolly</i>	RECEIVED BY/STORED IN <i>on site Ref</i>	4-17-8 1100	4-17-8 1100
RELINQUISHED BY/REMOVED FROM <i>on site Ref</i>	RECEIVED BY/STORED IN <i>D. Parsh Dwy</i>	4-28-08 1200	4-28-08 1200
RELINQUISHED BY/REMOVED FROM <i>D. Parsh Dwy</i>	RECEIVED BY/STORED IN <i>MO 745 Ref #1</i>	4-28-08 0900	4-28-08 1600
RELINQUISHED BY/REMOVED FROM <i>MO 745 Ref #1</i>	RECEIVED BY/STORED IN <i>D. Parsh Dwy</i>	4-29-08 0900	4-29-08 0900
RELINQUISHED BY/REMOVED FROM <i>D. Parsh Dwy</i>	RECEIVED BY/STORED IN <i>Fed Ex</i>	4-29-08 0900	
RELINQUISHED BY/REMOVED FROM <i>Fed Ex</i>	RECEIVED BY/STORED IN <i>D. Parsh Dwy</i>	4-30-08/0950	4-30-08/0950
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN	DATE/TIME	DATE/TIME

SPECIAL INSTRUCTIONS  
\*\* The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GKI applies to this SAF.  
\*\* Analytical batch QC must be run on a sample associated with this SAF.

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

000000012

Lionville Laboratory Incorporated  
**SAMPLE RECEIPT CHECKLIST (SRC)**

CLIENT: TNU Hanford  
 Project/SAF/SDW/Release #: F08-066

Date: 4-30-08

LvLI Batch #: 08042025

Sample Custodian: D. Smith

NOTE: EXPLAIN ALL DISCREPANCIES

- |   |   |   |
|---|---|---|
| 1. Samples Hand Delivered or <u>Shipped</u> ?   | Carrier <u>Fed Ex</u>                                     | Airbill # <u>7900 0339 9467</u>   |
| 2. Custody Seals on coolers or shipping containers intact, signed & dated?  | <input checked="" type="checkbox"/> Yes                   | <input type="checkbox"/> No <input type="checkbox"/> No Seals                                   |
| 3. Outside of coolers or shipping containers are free from damage?  | <input checked="" type="checkbox"/> Yes                   | <input type="checkbox"/> No <input type="checkbox"/> Comments:                                  |
| 4. All expected paperwork received (coc & other client specific information) sealed in plastic bag and easily accessible?                   | <input checked="" type="checkbox"/> Yes                   | <input type="checkbox"/> No   |
| 5. Samples received <u>cooled</u> or ambient?   | Temp <u>4.3</u> °C  | Cooler # <u>GA-08</u>   |
| How was the temperature taken?  | <input checked="" type="checkbox"/> IR                    | <input type="checkbox"/> Temp. Blank <input type="checkbox"/> Other (Specify):                  |
| Is the Temp. Criteria met for these samples? (Hg in soils @ 4°C)  | <input checked="" type="checkbox"/> Yes                   | <input type="checkbox"/> No   |
| 6. Custody seals on sample containers intact, signed and dated?   | <input checked="" type="checkbox"/> Yes                   | <input type="checkbox"/> No <input type="checkbox"/> No Seals                                   |
| 7. COC (Client & LvLI) signed & dated?  | <input checked="" type="checkbox"/> Yes                   | <input type="checkbox"/> No   |
| 8. Sample containers are intact?  | <input checked="" type="checkbox"/> Yes                   | <input type="checkbox"/> No   |
| 9. All samples on COC received?   | <input checked="" type="checkbox"/> Yes                   | <input type="checkbox"/> No   |
| All samples received on COC?  | <input checked="" type="checkbox"/> Yes                   | <input type="checkbox"/> No   |
| 10. All sample label information matches COC?   | <input checked="" type="checkbox"/> Yes                   | <input type="checkbox"/> No   |
| 11. Samples properly preserved? (If #5 is no, then this is no.)   | <input checked="" type="checkbox"/> Yes                   | <input type="checkbox"/> No   |
| 12. Samples received within hold times? Short holds taken to wet lab?   | <input checked="" type="checkbox"/> Yes <u>MP 5-21-08</u> | <input checked="" type="checkbox"/> No <u>Sulfide past hold</u><br><input type="checkbox"/> N/A |
| 13. VOA, TOC, TOX free of headspace?  | <input type="checkbox"/> Yes                              | <input type="checkbox"/> No <input type="checkbox"/> N/A  |
| 14. QC stickers placed on bottles designated by client?   | <input type="checkbox"/> Yes                              | <input type="checkbox"/> No <input type="checkbox"/> 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.) | <input checked="" type="checkbox"/> Yes <u>MP 5-21-08</u> | <input checked="" type="checkbox"/> No <u>see # 12</u>  |
| 16. Project Manager contacted concerning any discrepancies?<br>Person Contacted _____   | <input type="checkbox"/> Yes                              | <input type="checkbox"/> No <input type="checkbox"/> N/A<br>Date _____                          |

