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EBERLINE SERVICES

EBERLINE ANALYTICAL CORPORATION

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Richmond, California 94804-3849

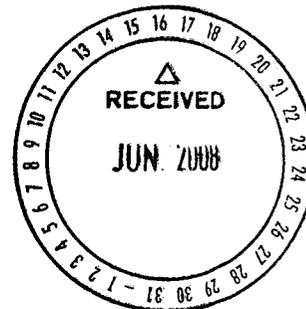
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Toll Free (800) 841-5487

www.eberlineservices.com

June 12, 2008

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



Reference: **P.O. #33677**
Eberline Services R8-05-019-7089, SDG H3704

Dear Mr. Trent:

Enclosed is a data report for one solid (soil) samples designated under SAF No. F08-043 received at Eberline Services on May 1, 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

MCM/njv

Enclosure: Data Package

RECEIVED
JAN 22 2009

EDMC

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1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H3704 was composed of one solid (soil) sample designated under SAF No. F08-043 with a Project Designation of: 216-A-30 Crib Sampling.

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 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

2.3 Technetium-99 Analysis

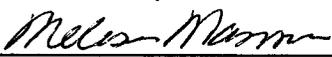
No problems were encountered during the course of the analyses.

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

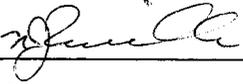
E B E R L I N E S E R V I C E S / R I C H M O N D
S A M P L E D E L I V E R Y G R O U P H 3 7 0 4

SDG 7089
Contact Melissa C. Mannion

Client Hanford
Contract No. 33677
Case no SDG H3704

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

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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 06/12/08

00000003

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3704

SDG 7089
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 33677
Case no SDG_H3704

ABOUT THE DATA SUMMARY SECTION

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

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

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

PREPARATION BATCH SUMMARY

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

WORK SUMMARY

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

METHOD BLANKS

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

LAB CONTROL SAMPLES

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

REPORT GUIDES

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SUMMARY DATA SECTION

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

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3704

SDG 7089
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 33677
Case no SDG H3704

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

Page 2

SUMMARY DATA SECTION

Page 2

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

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3704

SDG 7089
 Contact Melissa C. Mannion

LAB SAMPLE SUMMARY

Client Hanford
 Contract No. 33677
 Case no SDG H3704

LAB	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R805019-01	B1VB30	C5941, I-ASS-001	SOLID		F08-043	F08-043-186	04/21/08 09:30
R805019-02	Lab Control Sample		SOLID		F08-043		
R805019-03	Method Blank		SOLID		F08-043		
R805019-04	Duplicate (R805019-01)	C5941, I-ASS-001	SOLID		F08-043		04/21/08 09:30

LAB SUMMARY

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SUMMARY DATA SECTION

Page 3

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 H3704

SDG 7089
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 33677
 Case no SDG H3704

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL SAMPLE ID	DEPARTMENT SAMPLE ID
7089	F08-043-186	B1VB30	SOLID	85.9	233 g		05/01/08 10	R805019-01	7089-001
		Method Blank	SOLID					R805019-03	7089-003
		Lab Control Sample	SOLID					R805019-02	7089-002
		Duplicate (R805019-01)	SOLID	85.9	233 g		05/01/08 10	R805019-04	7089-004

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 H3704

SDG 7089
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. 33677
 Case no SDG H3704

TEST	MATRIX	METHOD	PREPARATION ERROR			PLANCHETS ANALYZED			QUALI-
			BATCH	2σ %	CLIENT MORE	RE BLANK	LCS	DUP/ORIG MS/ORIG	
Alpha Spectroscopy									
TH	SOLID	Thorium, Isotopic in Solids	6152-090	8.0	1	1	1	1/1	
Beta Counting									
TC	SOLID	Technetium 99 in Solids	6152-090	13.2	1	1	1	1/1	
Liquid Scintillation Counting									
H	SOLID	Tritium in Solids	6152-090	10.0	1	1	1	1/1	
NI_L	SOLID	Nickel 63 in Solids	6152-090	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 06/12/08

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3704

SDG 7089
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 33677
 Case no SDG H3704

LAB WORK SUMMARY

LAB SAMPLE	CLIENT SAMPLE ID				SUF-					
COLLECTED	LOCATION	MATRIX			FIX	ANALYZED	REVIEWED	BY	METHOD	
RECEIVED	CUSTODY	SAF No	PLANCHET	TEST						
R805019-01	B1VB30		7089-001	H		06/03/08	06/05/08	BW	Tritium in Solids	
04/21/08	C5941, I-ASS-001	SOLID	7089-001	NI_L		05/31/08	06/03/08	BW	Nickel 63 in Solids	
05/01/08	F08-043-186	F08-043	7089-001	TC		06/07/08	06/10/08	BW	Technetium 99 in Solids	
			7089-001	TH		06/05/08	06/06/08	BW	Thorium, Isotopic in Solids	
R805019-02	Lab Control Sample		7089-002	H		06/03/08	06/05/08	BW	Tritium in Solids	
		SOLID	7089-002	NI_L		05/31/08	06/03/08	BW	Nickel 63 in Solids	
		F08-043	7089-002	TC		06/06/08	06/10/08	BW	Technetium 99 in Solids	
			7089-002	TH		06/05/08	06/06/08	BW	Thorium, Isotopic in Solids	
R805019-03	Method Blank		7089-003	H		06/03/08	06/05/08	BW	Tritium in Solids	
		SOLID	7089-003	NI_L		05/31/08	06/03/08	BW	Nickel 63 in Solids	
		F08-043	7089-003	TC		06/07/08	06/10/08	BW	Technetium 99 in Solids	
			7089-003	TH		06/07/08	06/09/08	BW	Thorium, Isotopic in Solids	
R805019-04	Duplicate (R805019-01)		7089-004	H		06/03/08	06/05/08	BW	Tritium in Solids	
04/21/08	C5941, I-ASS-001	SOLID	7089-004	NI_L		05/31/08	06/03/08	BW	Nickel 63 in Solids	
05/01/08		F08-043	7089-004	TC		06/09/08	06/10/08	BW	Technetium 99 in Solids	
			7089-004	TH		06/05/08	06/06/08	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	F08-043	Tritium in Solids	TRITIUM_COX_LSC	1			1	1	1		4
NI_L	F08-043	Nickel 63 in Solids	NI63_LSC	1			1	1	1		4
TC	F08-043	Technetium 99 in Solids	TC99_TR_SEP_GPC	1			1	1	1		4
TH	F08-043	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	1			1	1	1		4
TOTALS				4			4	4	4		16

WORK SUMMARY

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol Fluor
 Version Ver 1.0
 Form DVD-LWS
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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3704

7089-003

Method Blank

METHOD BLANK

SDG <u>7089</u>	Client/Case no <u>Hanford</u>	SDG <u>H3704</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>33677</u>	
Lab sample id <u>R805019-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7089-003</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F08-043</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	1.60	2.5	4.24	400	U	H
Nickel 63	13981-37-8	-1.37	1.9	3.27	30.0	U	NI_L
Technetium 99	14133-76-7	-0.020	0.16	0.393	12.0	U	TC
Thorium 228	14274-82-9	0	0.14	0.346	1.00	U	TH
Thorium 230	14269-63-7	0.107	0.22	0.274	1.00	U	TH
Thorium 232	TH-232	-0.036	0.072	0.274	1.00	U	TH

216-A-30 Crib Sampling

QC-BLANK #65692

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>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3704

7089-002

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7089</u>	Client/Case no <u>Hanford</u>	SDG <u>H3704</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>33677</u>	
Lab sample id <u>R805019-02</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7089-002</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F08-043</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	602	12	4.24	400	H	612	24	98	84-116	80-120
Nickel 63	200	5.6	3.14	30.0	NI_L	220	8.8	91	83-117	80-120
Technetium 99	101	1.8	0.444	12.0	TC	109	4.4	93	81-119	80-120
Thorium 230	40.3	3.7	0.274	1.00	TH	37.8	1.5	107	80-120	80-120

216-A-30 Crib Sampling

QC-LCS #65691

LAB CONTROL SAMPLES

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SUMMARY DATA SECTION

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Lab id <u>EBRLNE</u>
Protocol <u>Fluor</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>06/12/08</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3704

7089-004

B1VB30

DUPLICATE

SDG <u>7089</u>	Client/Case no <u>Hanford</u>	<u>SDG H3704</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>33677</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R805019-04</u>	Lab sample id <u>R805019-01</u>	Client sample id <u>B1VB30</u>
Dept sample id <u>7089-004</u>	Dept sample id <u>7089-001</u>	Location/Matrix <u>C5941, I-ASS-001</u> <u>SOLID</u>
	Received <u>05/01/08</u>	Collected/Weight <u>04/21/08 09:30</u> <u>233 g</u>
% solids <u>85.9</u>	% solids <u>85.9</u>	Custody/SAF No <u>F08-043-186</u> <u>F08-043</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 σ
Tritium	0.929	2.1	3.55	400	U	H	1.07	2.1	3.51	U	-		0.1
Nickel 63	-0.845	2.1	3.56	30.0	U	NI_L	0.592	2.2	3.73	U	-		0.9
Technetium 99	0.124	0.20	0.369	12.0	U	TC	0.086	0.15	0.438	U	-		0.3
Thorium 228	0.641	0.35	0.446	1.00		TH	1.09	0.42	0.377		52	96	1.6
Thorium 230	0.376	0.29	0.277	1.00		TH	0.778	0.34	0.259		70	118	1.8
Thorium 232	0.521	0.23	0.221	1.00		TH	0.541	0.27	0.259		4	102	0.1

216-A-30 Crib Sampling

QC-DUP#1 65693

DUPLICATES

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SUMMARY DATA SECTION

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Lab id <u>EBRLNE</u>
Protocol <u>Fluor</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>06/12/08</u>

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3704

7089-001

B1VB30

DATA SHEET

SDG <u>7089</u>	Client/Case no <u>Hanford</u>	<u>SDG H3704</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 33677</u>	
Lab sample id <u>R805019-01</u>	Client sample id <u>B1VB30</u>	
Dept sample id <u>7089-001</u>	Location/Matrix <u>C5941, I-ASS-001</u>	<u>SOLID</u>
Received <u>05/01/08</u>	Collected/Weight <u>04/21/08 09:30</u>	<u>233 g</u>
% solids <u>85.9</u>	Custody/SAF No <u>F08-043-186</u>	<u>F08-043</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	1.07	2.1	3.51	400	U	H
Nickel 63	13981-37-8	0.592	2.2	3.73	30.0	U	NI_L
Technetium 99	14133-76-7	0.086	0.15	0.438	12.0	U	TC
Thorium 228	14274-82-9	1.09	0.42	0.377	1.00		TH
Thorium 230	14269-63-7	0.778	0.34	0.259	1.00		TH
Thorium 232	TH-232	0.541	0.27	0.259	1.00		TH

216-A-30 Crib Sampling

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

SAMPLE DELIVERY GROUP H3704

Test TH Matrix SOLID
 SDG 7089
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 33677
 Contract SDG H3704

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 6152-090

R805019-01	7089-001	B1VB30	0.778
R805019-02	7089-002	Lab Control Sample	ok
R805019-03	7089-003	Method Blank	U
R805019-04	7089-004	Duplicate (R805019-01)	ok

Nominal values and limits from method RDLs (pCi/g) 1.00
 216-A-30 Crib Sampling

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 6152-090 2σ prep error 8.0 % Reference Lab Notebook #6152 pg. 90

R805019-01	B1VB30	0.377	0.250	83	191	45	06/04/08	06/05	SS-032
R805019-02	Lab Control Sample	0.274	0.250	84	191		06/04/08	06/05	SS-033
R805019-03	Method Blank	0.346	0.250	93	156		06/04/08	06/07	SS-065
R805019-04	Duplicate (R805019-01)	0.446	0.250	87	186	45	06/04/08	06/05	SS-035

Nominal values and limits from method 1.00 0.250 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>0.361</u> ± <u>0.143</u>
FOR 4 SAMPLES	YIELD	<u>87</u> ± <u>9</u>

METHOD SUMMARIES

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SUMMARY DATA SECTION

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

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3704

Test TC Matrix SOLID
 SDG 7089
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOLIDS

BETA COUNTING

Client Hanford
 Contract No. 33677
 Contract SDG H3704

RESULTS

LAB RAW SUP- Technetium
 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID 99

Preparation batch 6152-090

R805019-01	7089-001	B1VB30	U
R805019-02	7089-002	Lab Control Sample	ok
R805019-03	7089-003	Method Blank	U
R805019-04	7089-004	Duplicate (R805019-01)	- U

Nominal values and limits from method RDLs (pCi/g) 12.0
 216-A-30 Crib Sampling

METHOD PERFORMANCE

LAB RAW SUP- 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 6152-090 2σ prep error 13.2 % Reference Lab Notebook #6152 pg. 90

R805019-01	B1VB30	0.438	1.00	82	100	47	06/03/08	06/07	GRB-230
R805019-02	Lab Control Sample	0.444	1.00	82	100		06/03/08	06/06	GRB-230
R805019-03	Method Blank	0.393	1.00	94	100		06/03/08	06/07	GRB-232
R805019-04	Duplicate (R805019-01)	0.369	1.00	94	100	49	06/03/08	06/09	GRB-220

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-431 Technetium-99 Purification of Soil or Resin by
 Extraction Chromatography, rev 2
 CP-008 Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD MDA 0.411 ± 0.072
 FOR 4 SAMPLES YIELD 88 ± 14

METHOD SUMMARIES

Page 2

SUMMARY DATA SECTION

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

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3704

Test H Matrix SOLID
 SDG 7089
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

TRITIUM IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
 Contract No. 33677
 Contract SDG H3704

RESULTS

LAB	RAW	SUF-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Tritium
Preparation batch 6152-090				
R805019-01		7089-001	B1VB30	U
R805019-02		7089-002	Lab Control Sample	ok
R805019-03		7089-003	Method Blank	U
R805019-04		7089-004	Duplicate (R805019-01)	- U

Nominal values and limits from method RDLs (pCi/g) 400
 216-A-30 Crib Sampling

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 6152-090			2σ prep error 10.0 %		Reference Lab Notebook #6152 pg. 90										
R805019-01		B1VB30	3.51	0.481			100		50			43	06/02/08	06/03	LSC-004
R805019-02		Lab Control Sample	4.24	0.400			100		50				06/02/08	06/03	LSC-004
R805019-03		Method Blank	4.24	0.400			100		50				06/02/08	06/03	LSC-004
R805019-04		Duplicate (R805019-01)	3.55	0.476			100		50			43	06/02/08	06/03	LSC-004

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 3.88 ± 0.820
 FOR 4 SAMPLES YIELD 100 ± 0

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3704

Test NI L Matrix SOLID
 SDG 7089
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
 Contract No. 33677
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RESULTS

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

Preparation batch 6152-090

R805019-01	7089-001	B1VB30	U
R805019-02	7089-002	Lab Control Sample	ok
R805019-03	7089-003	Method Blank	U
R805019-04	7089-004	Duplicate (R805019-01)	- U

Nominal values and limits from method RDLs (pCi/g) 30.0
 216-A-30 Crib Sampling

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 6152-090 2σ prep error 11.2 % Reference Lab Notebook #6152 pg. 90

R805019-01	B1VB30	3.73	0.500	79	50	40	05/30/08	05/31	LSC-004
R805019-02	Lab Control Sample	3.14	0.500	91	50		05/30/08	05/31	LSC-004
R805019-03	Method Blank	3.27	0.500	88	50		05/30/08	05/31	LSC-004
R805019-04	Duplicate (R805019-01)	3.56	0.500	82	50	40	05/30/08	05/31	LSC-004

Nominal values and limits from method 30.0 0.500 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 3.42 ± 0.537
 FOR 4 SAMPLES YIELD 85 ± 11

METHOD SUMMARIES

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SAMPLE DELIVERY GROUP H3704

SDG 7089
Contact Melissa C. Mannion

REPORT GUIDE

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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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SAMPLE DELIVERY GROUP H3704

SDG 7089
Contact Melissa C. Mannion

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PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

These qualifiers should be reviewed as follows:

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

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

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WORK SUMMARY

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

The following notes apply to this report:

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

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DATA SHEET

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

The following notes apply to this report:

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

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

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

The following qualifiers are defined by the DVD system:

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

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DATA SHEET

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

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DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The error of RESULT, including that introduced by rounding the result prior to printing.

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

2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
 - * The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

This value reported for this limit is at most 999.

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

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DUPLICATE

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

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

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

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

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MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

2. The error of ADDED.

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

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

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MATRIX SPIKE

for the recovery.

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

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

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METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Lab id EBRLNE
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COLLECTOR: *11/18/08 / 118 DRICK*
 COMPANY CONTACT: TRENT, SJ TELEPHONE NO. 373-5869 PROJECT COORDINATOR: WIDRIG, DL
 PROJECT DESIGNATION: **H3704 (7089)** SAF NO. F08-043
 216-A-30 Crib Sampling
 FIELD LOGBOOK NO. *N.M.F. N. 556* ACTUAL SAMPLE DEPTH: *0.25 m*
 ICE CHEST NO. **300** OFFSITE PROPERTY NO. *022108910*
 SHIPPED TO: Eberline Services

PRICE CODE: 8N
 AIR QUALITY:
 METHOD OF SHIPMENT: FEDERAL EXPRESS
 BILL OF LADING/AIR BILL NO. **7909 7607 9602**
 SEE PTR

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)
Matrix: A=Air, DL=Drum, L=Liquids, DS=Drum, S=Solids, I=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, WI=Wipe, X=Other
Preservation: None
Type of Container: G/P
No. of Container(s): 1
Volume: 120ml
Special Handling and/or Storage: Radioactive tie to B1VB27
See Item (1) III Special Instructions:

SAMPLE NO.	MATRIX*	SAMPLE TIME	DATE	TIME
B1VB30	SOIL		7/21/08	0830

CHAIN OF POSSESSION	SIGN / PRINT NAMES	RECEIVED BY / STORED IN	DATE / TIME	RECEIVED BY / STORED IN	DATE / TIME	RECEIVED BY / STORED IN	DATE / TIME
RELINQUISHED BY / REMOVED FROM			1040				
<i>4. P. Stes / 11/18/08</i>		<i>M O S O P FRID #2</i>	<i>4/21/08</i>				
RELINQUISHED BY / REMOVED FROM			1100				
<i>M O S O P RIF #2</i>		<i>D. Parohen</i>	<i>4-22-08</i>				
RELINQUISHED BY / REMOVED FROM			1200				
<i>D. Parohen</i>		<i>M O 745 RIF #1</i>	<i>4-22-08</i>				
RELINQUISHED BY / REMOVED FROM			1300				
<i>M O 745</i>		<i>D. E. PAROHEN</i>	<i>4-30-08</i>				
RELINQUISHED BY / REMOVED FROM			1400				
<i>FLUOR HANFORD</i>		<i>Fred Kex</i>	<i>4-30-08</i>				
RELINQUISHED BY / REMOVED FROM			1500				
<i>D. E. PAROHEN</i>		<i>Fred Kex</i>	<i>05/1/08</i>				
RELINQUISHED BY / REMOVED FROM			1600				
<i>Fred Kex</i>		<i>Fred Kex</i>	<i>09-20</i>				

SPECIAL INSTRUCTIONS: ** The 200 Area S&GRP Characterization and Monitoring Sampling and Analysis GK1 applies to this SAF.
 (1) Tritium - H3; Technetium-99 {Technetium-99} Nickel-63; Isotopic Thorium

SK 5/1/08

Client: F. HANFORD City MCKEAN State WA

Date/Time received 05/01/08 09:30 CoC No. F08-043-186

Container I.D. No. 300 Requested TAT (Days) 45 P.O. Received Yes [] No []

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 HR Date 05/01/08 Time 11:15

Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wide	Customer Sample No.	Beta/Gamma cpm	Ion Chamber mR/hr	Wide
B1V530	<60						

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

00000034

RECEIVED JUNE 24, 2008

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD F08-043 H3704

DATE RECEIVED: 05/02/08

LVL LOT # :0805L035

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B1VB30						
% SOLIDS	001	S	08L%S045	04/21/08	05/06/08	05/07/08
% SOLIDS	001 REP	S	08L%S045	04/21/08	05/06/08	05/07/08
CHROMIUM VI	001	S	08LVI043	04/21/08	05/07/08	05/07/08
CHROMIUM VI	001 REP	S	08LVI043	04/21/08	05/07/08	05/07/08
CHROMIUM VI	001 MS	S	08LVI043	04/21/08	05/07/08	05/07/08
CHROMIUM VI	001 MSD	S	08LVI043	04/21/08	05/07/08	05/07/08
SULFIDE	001	S	08LSD034	04/21/08	05/06/08	05/07/08
SULFIDE	001 REP	S	08LSD034	04/21/08	05/06/08	05/07/08
SULFIDE	001 MS	S	08LSD034	04/21/08	05/06/08	05/07/08

LAB QC:

CHROMIUM VI	MB1	S	08LVI043	N/A	05/07/08	05/07/08
CHROMIUM VI	MB1 BS	S	08LVI043	N/A	05/07/08	05/07/08
CHROMIUM VI	MB1 BSD	S	08LVI043	N/A	05/07/08	05/07/08
SULFIDE	MB1	S	08LSD034	N/A	05/06/08	05/07/08
SULFIDE	MB1 BS	S	08LSD034	N/A	05/06/08	05/07/08
SULFIDE	MB1 BSD	S	08LSD034	N/A	05/06/08	05/07/08

000000001



Analytical Report

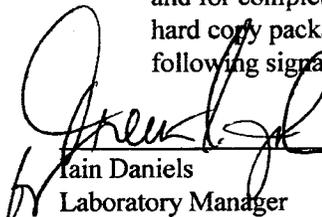
Client: TNU-HANFORD F08-043 H3704
LVL#: 0805L035

W.O.#: 11343-606-001-9999-00
Date Received: 05-02-08

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.

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.
4. The results presented in this report are derived from a sample that met LvLI's sample acceptance policy.
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 (MS) recoveries for Chromium VI were within the 75-125% control limits however MS recovery for Sulfide was below the control limit at 62.4%.
8. The replicate analyses were within the 20% 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.


Tain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

6/17/08
Date

njpl05-035

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

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% 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) 19034	
Specific Gravity	___ D1429-76C/	___ D5057-90	
Sulfur, Total		___ 9056	
Synthetic Preparation Leach		___ 1312	
Paint Filter		___ 9095A	
Other:	Method:		
Other:	Method		

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 05/28/08

CLIENT: TNUHANFORD F08-043 H3704
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0805L035

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B1VB30	% Solids	97.6	%	0.01	1.0
		Chromium VI	0.20 u	MG/KG	0.20	1.0
		Sulfide	21.1 u	MG/KG	21.1	1.0

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Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/28/08

CLIENT: TNUHANFORD F08-043 H3704
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0805L035

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
BLANK10	08LVI043-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0
BLANK10	08LSD034-MB1	Sulfide	20.6 u	MG/KG	20.6	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 05/28/08

CLIENT: TNUHANFORD P08-043 H3704

LVL LOT #: 0805L035

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B1VB30	Soluble Chromium VI	4.1	0.20u	4.1	98.5	1.0
		Insoluble Chromium VI	1150	0.20u	1150	100	100
		Sulfide	168	0.0	268	62.4	1.0
BLANK10	08LVI043-MB1	Soluble Chromium VI	4.1	0.20u	4.0	101.5	1.0
		Insoluble Chromium VI	1240	0.20u	1200	103.2	100
BLANK10	08LSDC34-MB1	Sulfide	258	20.6 u	283	91.4	1.0
		Sulfide MSD	253	20.6 u	275	92.2	1.0

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Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 05/28/08

CLIENT: TNUHANFORD F08-043 H3704
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0805L035

SAMPLE	SITE ID	ANALYTE	SPIKE#1		SPIKE#2	
			%RECOV	%RECOV	%RECOV	%DIFF
BLANK10	08LSD034-MB1	Sulfide	91.4	92.2	0.85	

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Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 05/28/08

CLIENT: TNUHANFORD F08-043 H3704
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: C805L035

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	B1VB30	% Solids	97.6	95.9	1.7	1.0
		Chromium VI	0.20u	0.20u	NC	1.0
		Sulfide	21.1 u	20.9 u	NC	1.0

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Fluor Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

FOB-043-187

PAGE 1 OF 1

DATA TURNAROUND 45 Days / 45 Days

COLLECTOR
MASTERS, HERALD

SAMPLING LOCATION
CS941, IASS-001

ICE CHEST NO.
GRP-04-005

SHIPPED TO
Lionville Laboratory Incorporated

MATRIX*
A=Air
DL=Drum
L=Liquid
DS=Drum
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 B1VBZ7*

COMPANY CONTACT
TRENT, SJ

TELEPHONE NO.
373-5869

PROJECT COORDINATOR
WIDRIG, DL

PRICE CODE
8N

PROJECT DESIGNATION
216-A-30 Chb Sampling

FIELD LOGBOOK NO.
NMF-N-5852

SAF NO.
F08-043

AIR QUALITY

ACTUAL SAMPLE DEPTH
285 - 287.6

COA
123215ES20

METHOD OF SHIPMENT
FEDERAL EXPRESS

OFFSITE PROPERTY NO.
SEE PTR

BILL OF LADING/AIR BILL NO.
7910 5640 2971

PRESERVATION
Cool-dc

TYPE OF CONTAINER
G

SEE PTR

FEDERAL EXPRESS

NO. OF CONTAINER(S)
1

VOLUME
120ml

SEE PTR

SAMPLE ANALYSIS
Chromium Hex.
7196, Surides.
9330 (Surides)

SAMPLE NO.
B1VB30

MATRIX*
SOIL

SAMPLE DATE
4/21/08

SAMPLE TIME
0930

SEE PTR

SEE PTR

CHAIN OF POSSESSION

SIGN/ PRINT NAMES

2241050

SPECIAL INSTRUCTIONS

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

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM R. P. S. / M. J. / 4/21/08	1040	RECEIVED BY/STORED IN M. S. G. / F. C. / 4/21/08	1040
RELINQUISHED BY/REMOVED FROM M. S. G. / R. P. S. / 4/22/08	1100	RECEIVED BY/STORED IN D. P. R. / M. J. / 4/22/08	1100
RELINQUISHED BY/REMOVED FROM D. P. R. / M. J. / 4/22/08	1040	RECEIVED BY/STORED IN M. S. G. / F. C. / 4/22/08	1040
RELINQUISHED BY/REMOVED FROM M. S. G. / R. P. S. / 4/30/08	0940	RECEIVED BY/STORED IN D. E. P. / M. J. / 4/30/08	0940
RELINQUISHED BY/REMOVED FROM D. E. P. / M. J. / 5/1/08	0940	RECEIVED BY/STORED IN M. S. G. / F. C. / 5/1/08	0940

LABORATORY SECTION

RECEIVED BY

DATE/TIME

RECEIVED BY

FINAL SAMPLE DISPOSITION

DISPOSAL METHOD

DATE/TIME

DISPOSAL METHOD

000000011

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU HANFORD
 Project/SAP/SOW/Release #: F08-066

Date: 5-1-08

LvLI Batch #: 0805L 034 + 035 Sample Custodian: Victor Hernandez

NOTE: EXPLAIN ALL DISCREPANCIES

1. Samples Hand Delivered or <u>Shipped?</u>	Carrier <u>Fed Ex</u>	Airbill # <u>79105640 2971</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	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 cooled or ambient?	Temp <u>5-4^o</u> °C	Cooler # <u>GRP-04-005</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?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<u>Sulfide past hold</u>
Short holds taken to wet lab?	<input type="checkbox"/> Yes <input type="checkbox"/> No	
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 6-1508</u>	<input type="checkbox"/> No <u>All # 12</u>
16. Project Manager contacted concerning any discrepancies?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> N/A
Person Contacted _____	Date _____	

