

0067582



April 21, 2005

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



Reference: P.O. #630
Eberline Services R5-03-033-7254, SDG H3066

Dear Mr. Trent:

Enclosed is the data report for one solid sample designated under SAF No. F03-025 received at Eberline Services on March 4, 2005. 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/

Enclosure: Data Package

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Analytical Services
2030 Wright Avenue
P.O. Box 4040
Richmond, California 94804-0040
(510) 235-2633 Fax (510) 235-0438
Toll Free (800) 841-5487
www.eberlineservices.com

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H3066 was composed of one solid (soil) samples designated under SAF No. F03-025 with a Project Designation of: 200-LW-1/LW-2 Characterization-Soil.

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

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.6 Isotopic Thorium Analyses

No problems were encountered during the course of the analyses.

2.7 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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



Melissa C. Mannion
Senior Program Manager



Date

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3066

SDG 7254
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG H3066

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

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Melissa Mannion
Prepared by
Melissa Mannion
Reviewed by

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 04/21/05

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3066

SDG 7254
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3066

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

SAMPLE DELIVERY GROUP H3066

SDG 7254
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H3066

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

Page 2

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

SAMPLE DELIVERY GROUP H3066

SDG 7254
 Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H3066

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B19428	216-Z-7; 40ft-42.5ft	SOLID		R503033-01	F03-025	F03-025-150	02/16/05 11:15
Method Blank		SOLID		R503033-03	F03-025		
Lab Control Sample		SOLID		R503033-02	F03-025		
Duplicate (R503033-01)	216-Z-7; 40ft-42.5ft	SOLID		R503033-04	F03-025		02/16/05 11:15

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CS
 Version 3.06
 Report date 04/21/05

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H3066

SDG 7254
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H3066

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
7254	F03-025-150	819428	SOLID	97.5	337.2 g		03/04/05 16	R503033-01		7254-001
		Method Blank	SOLID					R503033-03		7254-003
		Lab Control Sample	SOLID					R503033-02		7254-002
		Duplicate (R503033-01)	SOLID	97.5	337.2 g		03/04/05 16	R503033-04		7254-004

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 04/21/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3066

SDG 7254
Contact Melissa C. Mannon

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H3066

TEST MATRIX	METHOD		PREPARATION ERROR			PLANCHETS ANALYZED			QUALI- FIERS
			BATCH	2σ %	CLIENT MORE	RE BLANK	LCS	DUP/ORIG MS/ORIG	
Alpha Spectroscopy									
TH	SOLID	Thorium, Isotopic in Solids	7132-049	5.0	1		1	1	1/1
Beta Counting									
SR	SOLID	Total Strontium in Solids	7132-049	10.0	1		1	1	1/1
TC	SOLID	Technetium 99 in Solids	7132-049	10.0	1		1	1	1/1
Gamma Spectroscopy									
GAM	SOLID	Gamma Scan	7132-049	15.0	1		1	1	1/1
Liquid Scintillation Counting									
C	SOLID	Carbon 14 in Solids	7132-049	10.0	1		1	1	1/1
H	SOLID	Tritium in Solids	7132-049	10.0	1		1	1	1/1
NI_L	SOLID	Nickel 63 in Solids	7132-049	10.0	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
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Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 04/21/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3066

SDG 7254
 Contact Melissa C. Mennion

WORK SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H3066

CLIENT SAMPLE ID	LAB SAMPLE ID									
LOCATION		NATRIX	COLLECTED	PLANCHET	TEST	SUF-				
CUSTODY	SAF No		RECEIVED			FIX	ANALYZED	REVIEWED	BY	METHOD
B19428			R503033-01	7254-001	C		04/02/05	04/17/05	MWT	Carbon 14 in Solids
216-Z-7; 40ft-42.5ft		SOLID	02/16/05	7254-001	GAM		04/07/05	04/17/05	MWT	Gamma Scan
F03-025-150	F03-025		03/04/05	7254-001	H		04/05/05	04/17/05	MWT	Tritium in Solids
				7254-001	NI_L		03/24/05	04/17/05	MWT	Nickel 63 in Solids
				7254-001	SR		03/29/05	04/17/05	MWT	Total Strontium in Solids
				7254-001	TC		03/29/05	04/17/05	MWT	Technetium 99 in Solids
				7254-001	TH		04/02/05	04/17/05	MWT	Thorium, Isotopic in Solids
Method Blank			R503033-03	7254-003	C		04/02/05	04/17/05	MWT	Carbon 14 in Solids
		SOLID		7254-003	GAM		04/01/05	04/17/05	MWT	Gamma Scan
	F03-025			7254-003	H		04/05/05	04/17/05	MWT	Tritium in Solids
				7254-003	NI_L		03/24/05	04/17/05	MWT	Nickel 63 in Solids
				7254-003	SR		03/29/05	04/17/05	MWT	Total Strontium in Solids
				7254-003	TC		03/29/05	04/17/05	MWT	Technetium 99 in Solids
				7254-003	TH		04/02/05	04/17/05	MWT	Thorium, Isotopic in Solids
Lab Control Sample			R503033-02	7254-002	C		04/03/05	04/17/05	MWT	Carbon 14 in Solids
		SOLID		7254-002	GAM		04/09/05	04/17/05	MWT	Gamma Scan
	F03-025			7254-002	H		04/06/05	04/17/05	MWT	Tritium in Solids
				7254-002	NI_L		03/24/05	04/17/05	MWT	Nickel 63 in Solids
				7254-002	SR		03/29/05	04/17/05	MWT	Total Strontium in Solids
				7254-002	TC		03/28/05	04/17/05	MWT	Technetium 99 in Solids
				7254-002	TH		04/02/05	04/17/05	MWT	Thorium, Isotopic in Solids
Duplicate (R503033-01)			R503033-04	7254-004	C		04/02/05	04/17/05	MWT	Carbon 14 in Solids
216-Z-7; 40ft-42.5ft		SOLID	02/16/05	7254-004	GAM		04/02/05	04/17/05	MWT	Gamma Scan
F03-025			03/04/05	7254-004	H		04/05/05	04/17/05	MWT	Tritium in Solids
				7254-004	NI_L		03/24/05	04/17/05	MWT	Nickel 63 in Solids
				7254-004	SR		03/29/05	04/17/05	MWT	Total Strontium in Solids
				7254-004	TC		03/28/05	04/17/05	MWT	Technetium 99 in Solids
				7254-004	TH		04/02/05	04/17/05	MWT	Thorium, Isotopic in Solids

Lab id EBRLNE
 Protocol Hanford
 Version Vgr 1.0
 Form DVD-CWS
 Version 3.06
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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H3066

SDG 7254
 Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
 Contract No. 630
 Case no SDG H3066

COUNTS OF TESTS BY SAMPLE TYPE										
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
C	F03-025	Carbon 14 in Solids	C14_COX_LSC	1			1	1	1	4
GAM	F03-025	Gamma Scan	GAMMA_GS	1			1	1	1	4
H	F03-025	Tritium in Solids	TRITIUM_COX_LSC	1			1	1	1	4
NI_L	F03-025	Nickel 63 in Solids	NI63_LSC	1			1	1	1	4
SR	F03-025	Total Strontium in Solids	SRTOT_SEP_PRECIP_GPC	1			1	1	1	4
TC	F03-025	Technetium 99 in Solids	TC99_TR_SEP_LSC	1			1	1	1	4
TH	F03-025	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA	1			1	1	1	4
TOTALS				7			7	7	7	28

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3066

R503033-03

Method Blank

METHOD BLANK

SDG <u>7254</u>	Client/Case no <u>Hanford</u>	<u>SDG H3066</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R503033-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7254-003</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F03-025</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	-1.75	2.0	3.4	400	U	H
Carbon 14	14762-75-5	0.132	2.6	4.4	50	U	C
Nickel 63	13981-37-8	2.30	2.1	3.5	30	U	NI_L
Total Strontium	SR-RAD	-0.002	0.16	0.33	1.0	U	SR
Technetium 99	14133-76-7	-0.072	0.17	0.61	15	U	TC
Thorium 228	14274-82-9	0.006	0.023	0.035	1.0	U	TH
Thorium 230	14269-63-7	0.034	0.096	0.20	1.0	U	TH
Thorium 232	TH-232	-0.008	0.023	0.050	1.0	U	TH
Potassium 40	13966-00-2	U		1.7		U	GAM
Cobalt 60	10198-40-0	U		0.19	0.050	U	GAM
Cesium 137	10045-97-3	U		0.15	0.10	U	GAM
Radium 226	13982-63-3	U		0.30	0.10	U	GAM
Radium 228	15262-20-1	U		0.61	0.20	U	GAM
Europium 152	14683-23-9	U		0.38	0.10	U	GAM
Europium 154	15585-10-1	U		0.47	0.10	U	GAM
Europium 155	14391-16-3	U		0.22	0.10	U	GAM
Thorium 228	14274-82-9	U		0.17		U	GAM
Thorium 232	TH-232	U		0.61		U	GAM
Uranium 235	15117-96-1	U		0.39		U	GAM
Uranium 238	U-238	U		21		U	GAM
Americium 241	14596-10-2	U		0.12		U	GAM

200-LW-1/LW-2 Characterization-Soil

QC-BLANK 52197

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>04/21/05</u>

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H3066

R503033-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7254</u>	Client/Case no <u>Hanford</u> SDG <u>H3066</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>
Lab sample id <u>R503033-02</u>	Client sample id <u>Lab Control Sample</u>
Dept sample id <u>7254-002</u>	Material/Matrix <u>SOLID</u>
	SAF No <u>F03-025</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	878	20	6.2	400	H		977	39	90	85-115	80-120
Carbon 14	2200	44	10	50	C		2130	85	103	83-117	80-120
Nickel 63	260	8.4	4.6	30	NI_L		270	11	96	84-116	80-120
Total Strontium	10.7	0.62	0.27	1.0	SR		11.1	0.44	96	82-118	80-120
Technetium 99	121	3.2	0.69	15	TC		120	4.8	101	83-117	80-120
Thorium 230	46.0	1.4	0.20	1.0	TH		46.4	1.9	99	89-111	80-120
Cobalt 60	9.40	0.62	<u>0.19</u>	0.050	GAM		8.09	0.32	116	71-129	80-120
Cesium 137	9.96	0.55	<u>0.35</u>	0.10	GAM		8.29	0.33	120	71-129	80-120

200-LW-1/LW-2 Characterization-Soil

QC-LCS 52196

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>04/21/05</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3066

R503033-04

B19428

DUPLICATE

<u>SDG 7254</u>	<u>Client/Case no Hanford</u>	<u>SDG H3066</u>
<u>Contact Melissa C. Mannion</u>	<u>Contract No. 630</u>	
DUPLICATE	ORIGINAL	
<u>Lab sample id R503033-04</u>	<u>Lab sample id R503033-01</u>	<u>Client sample id B19428</u>
<u>Dept sample id 7254-004</u>	<u>Dept sample id 7254-001</u>	<u>Location/Matrix 216-2-7; 40ft-42.5ft SOLID</u>
	<u>Received 03/04/05</u>	<u>Collected/Weight 02/16/05 11:15 337.2 g</u>
<u>% solids 97.5</u>	<u>% solids 97.5</u>	<u>Custody/SAF No F03-025-150 F03-025</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	PROT LIMIT
Tritium	3.41	1.6	2.5	400		H	1.97	1.8	3.0	U	54	136	
Carbon 14	-0.226	1.9	3.2	50	U	C	0.462	2.3	3.9	U	-	-	
Nickel 63	0.203	2.6	4.5	30	U	NI_L	-1.26	2.2	3.8	U	-	-	
Total Strontium	34.9	1.2	0.32	1.0		SR	34.8	1.2	0.33		0	22	
Technetium 99	-0.073	0.20	0.68	15	U	TC	0.014	0.20	0.57	U	-	-	
Thorium 228	0.563	0.089	0.048	1.0		TH	0.510	0.079	0.045		10	35	
Thorium 230	0.451	0.12	0.19	1.0		TH	0.445	0.12	0.19		1	58	
Thorium 232	0.577	0.089	0.050	1.0		TH	0.532	0.079	0.050		8	34	
Potassium 40	13.6	3.4	2.6			GAM	11.8	2.4	2.1		14	59	
Cobalt 60	U		<u>0.27</u>	0.050	U	GAM	U		<u>0.25</u>	U	-	-	
Cesium 137	U		<u>0.21</u>	0.10	U	GAM	U		<u>0.20</u>	U	-	-	
Radium 226	0.566	0.34	<u>0.40</u>	0.10		GAM	U		<u>0.55</u>	U	3	177	
Radium 228	1.02	0.76	<u>0.95</u>	0.20		GAM	U		<u>0.92</u>	U	10	187	
Europium 152	U		<u>0.38</u>	0.10	U	GAM	U		<u>0.60</u>	U	-	-	
Europium 154	U		<u>0.69</u>	0.10	U	GAM	U		<u>0.77</u>	U	-	-	
Europium 155	U		<u>0.46</u>	0.10	U	GAM	U		<u>0.36</u>	U	-	-	
Thorium 228	0.591	0.19	0.23			GAM	0.768	0.23	0.22		26	73	
Thorium 232	1.02	0.76	0.95			GAM	U		0.92	U	10	187	
Uranium 235	U		0.65		U	GAM	U		0.58	U	-	-	
Uranium 238	U		21		U	GAM	U		25	U	-	-	
Americium 241	4.14	0.55	0.64			GAM	3.79	0.31	0.29		9	40	

200-LW-1/LW-2 Characterization-Soil

QC-DUP#1 52198

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 04/21/05

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3066

R503033-01

B19428

DATA SHEET

SDG <u>7254</u>	Client/Case no <u>Hanford</u>	SDG <u>H3066</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R503033-01</u>	Client sample id <u>B19428</u>	
Dept sample id <u>7254-001</u>	Location/Matrix <u>216-Z-7; 40ft-42.5ft</u>	<u>SOLID</u>
Received <u>03/04/05</u>	Collected/Weight <u>02/16/05 11:15</u>	<u>337.2 g</u>
% solids <u>97.5</u>	Custody/SAF No <u>F03-025-150</u>	<u>F03-025</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	1.97	1.8	3.0	400	U	H
Carbon 14	14762-75-5	0.462	2.3	3.9	50	U	C
Nickel 63	13981-37-8	-1.26	2.2	3.8	30	U	NI_L
Total Strontium	SR-RAD	34.8	1.2	0.33	1.0		SR
Technetium 99	14133-76-7	0.014	0.20	0.57	15	U	TC
Thorium 228	14274-82-9	0.510	0.079	0.045	1.0		TH
Thorium 230	14269-63-7	0.445	0.12	0.19	1.0		TH
Thorium 232	TH-232	0.532	0.079	0.050	1.0		TH
Potassium 40	13966-00-2	11.8	2.4	2.1			GAM
Cobalt 60	10198-40-0	U		0.25	0.050	U	GAM
Cesium 137	10045-97-3	U		0.20	0.10	U	GAM
Radium 226	13982-63-3	U		0.55	0.10	U	GAM
Radium 228	15262-20-1	U		0.92	0.20	U	GAM
Europium 152	14683-23-9	U		0.60	0.10	U	GAM
Europium 154	15585-10-1	U		0.77	0.10	U	GAM
Europium 155	14391-16-3	U		0.36	0.10	U	GAM
Thorium 228	14274-82-9	0.768	0.23	0.22			GAM
Thorium 232	TH-232	U		0.92		U	GAM
Uranium 235	15117-96-1	U		0.58		U	GAM
Uranium 238	U-238	U		25		U	GAM
Americium 241	14596-10-2	3.79	0.31	0.29			GAM

200-LW-1/LW-2 Characterization-Soil

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>04/21/05</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3066

Test ID Matrix SOLID
 SDG 7254
 Contact Melissa C. Mannion

METHOD SUMMARY
 THORIUM, ISOTOPIC IN SOLIDS
 ALPHA SPECTROSCOPY

Client Manford
 Contract No. 630
 Contract SDG H3066

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Thorium Z30
Preparation batch 7132-049				
B19428	R503033-01		7254-001	0.445
BLK (QC ID=52197)	R503033-03		7254-003	U
LCS (QC ID=52196)	R503033-02		7254-002	ok
Duplicate (R503033-01)	R503033-04		7254-004	ok
Nominal values and limits from method			RDLs (pCi/g)	1.0
200-LW-1/LW-2 Characterization-Soil				

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- TEST FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7132-049		2σ prep error 5.0 %		Reference Lab Notebook 7132 pg. 49												
B19428	R503033-01			0.19	0.250			86		2181			45	04/02/05	04/02	SS-062
BLK (QC ID=52197)	R503033-03			0.20	0.250			86		2182				04/02/05	04/02	SS-064
LCS (QC ID=52196)	R503033-02			0.20	0.250			84		2182				04/02/05	04/02	SS-063
Duplicate (R503033-01)	R503033-04			0.19	0.250			85		2182			45	04/02/05	04/02	SS-065
(QC ID=52198)																
Nominal values and limits from method				1.0	0.250			20-105		150			180			

PROCEDURES	REFERENCE	THISO IE PLATE AEA
CP-060		Soil Preparation, rev 7
CP-071		Soil Dissolution, > 1.0g Aliquot, rev 5
CP-900		Thorium in Water and Dissolved Solid Samples by Extraction Chromatography, rev 1
CP-008		Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD	MDA	<u>0.20</u> ± <u>0.012</u>
FOR 4 SAMPLES	YIELD	<u>85</u> ± <u>2</u>

Lab id EBRLNE
 Protocol Manford
 Version Ver 1.0
 Form DVD-CMS
 Version 3.06
 Report date 04/21/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3066

Test SR Matrix SOLID
 SDG 7254
 Contact Melissa C. Mannion

METHOD SUMMARY
 TOTAL STRONTIUM IN SOLIDS
 BETA COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H3066

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX PLANCHET	Total Strontium
Preparation batch 7132-049				
B19428	R503033-01		7254-001	34.8
BLK (QC ID=52197)	R503033-03		7254-003	U
LCS (QC ID=52196)	R503033-02		7254-002	ok
Duplicate (R503033-01)	R503033-04		7254-004	ok
Nominal values and limits from method 200-LW-1/LW-2 Characterization-Soil				RDLs (pCi/g) 1.0

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7132-049 2σ prep error 10.0 % Reference Lab Notebook 7132 pg. 49															
B19428	R503033-01			0.33	1.00			86	100				41	03/29/05	GRB-218
BLK (QC ID=52197)	R503033-03			0.33	1.00			77	100					03/29/05	GRB-225
LCS (QC ID=52196)	R503033-02			0.27	1.00			77	<u>99</u>					03/29/05	GRB-217
Duplicate (R503033-01) (QC ID=52198)	R503033-04			0.32	1.00			86	100				41	03/29/05	GRB-221
Nominal values and limits from method				1.0	1.00			30-105	100				180		

PROCEDURES REFERENCE SRTOT_SEP_PRECIP_GPC
 CP-060 Soil Preparation, rev 7
 CP-071 Soil Dissolution, > 1.0g Aliquot, rev 5
 CP-383 Strontium in Dissolved Solid of < 5.0g Aliquot, rev 1

AVERAGES ± 2 SD MDA 0.31 ± 0.057
 FOR 4 SAMPLES YIELD 82 ± 10

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CMS
 Version 3.06
 Report date 04/21/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3066

Test IC Matrix SOLID
SDG 7254
Contact Melissa C. Mannion

METHOD SUMMARY
TECHNETIUM 99 IN SOLIDS
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H3066

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Technetium 99
Preparation batch 7132-049					
B19428	R503033-01			7254-001	U
BLK (QC ID=52197)	R503033-03			7254-003	U
LCS (QC ID=52196)	R503033-02			7254-002	ok
Duplicate (R503033-01)	R503033-04			7254-004	- U
Nominal values and limits from method					
200-LW-1/LW-2 Characterization-Soil				RDls (pCi/g)	15

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7132-049 2σ prep error 10.0 % Reference Lab Notebook 7132 pg. 49																
B19428	R503033-01			0.57	1.00			92		50			41	03/24/05	03/29	GRB-223
BLK (QC ID=52197)	R503033-03			0.61	1.00			83		50				03/24/05	03/29	GRB-224
LCS (QC ID=52196)	R503033-02			0.69	1.00			93		50				03/24/05	03/28	GRB-226
Duplicate (R503033-01) (QC ID=52198)	R503033-04			0.68	1.00			75		50			40	03/24/05	03/28	GRB-228
Nominal values and limits from method																
				15	1.00			20-105		50			180			

PROCEDURES REFERENCE TC99_TR_SEP_LSC
CP-431 Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 2
CP-008 Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD NDA 0.64 ± 0.11
FOR 4 SAMPLES YIELD 86 ± 17

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 04/21/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3066

Test GAM Matrix SOLID
SDG 7254
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN
GAMMA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H3066

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Cobalt 60	Cesium 137
Preparation batch 7132-049					
B19428	R503033-01		7254-001	U	U
BLK (QC ID=52197)	R503033-03		7254-003	U	U
LCS (QC ID=52196)	R503033-02		7254-002	ok	ok
Duplicate (R503033-01)	R503033-04		7254-004	- U	- U
Nominal values and limits from method			RDLs (pCi/g)	0.050	0.10
200-LW-1/LW-2 Characterization-Soil					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/g	MDA	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT keV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7132-049 2σ prep error 15.0 % Reference Lab Notebook 7132 pg. 49															
B19428	R503033-01		<u>1.8</u>	64.4						113			50	03/14/05	04/07 PD,07,00
BLK (QC ID=52197)	R503033-03		<u>1.3</u>	64.4						116				03/14/05	04/01 PD,07,00
LCS (QC ID=52196)	R503033-02		<u>0.19</u>	64.4						147				03/14/05	04/09 PD,03,00
Duplicate (R503033-01)	R503033-04		<u>1.5</u>	64.4						107			45	03/14/05	04/02 PD,03,00
(QC ID=52198)															
Nominal values and limits from method			0.050	64.4						100			180		

PROCEDURES	REFERENCE	GAMMA_GS
CP-061	Determination of Moisture Content in Solid Samples rev 3	
CP-100	Ge(Li) Preparation for Commercial Samples, rev 7	

AVERAGES ± 2 SD	MDA <u>1.2</u> ± <u>1.4</u>
FOR 4 SAMPLES	YIELD _____ ± _____

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 04/21/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3066

Test C Matrix SOLID
SDG 7254
Contact Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN SOLIDS
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H3066

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Carbon 14
Preparation batch 7132-049					
B19428	R503033-01	7254-001			U
BLK (QC ID=52197)	R503033-03	7254-003			U
LCS (QC ID=52196)	R503033-02	7254-002			ok
Duplicate (R503033-01)	R503033-04	7254-004			- U
Nominal values and limits from method		RDLs (pCi/g)		50	
200-LW-1/LW-2 Characterization-Soil					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7132-049 2σ prep error 10.0 % Reference Lab Notebook 7132 pg. 49																
B19428	R503033-01			3.9	0.348			100		50			45	04/01/05	04/02	LSC-004
BLK (QC ID=52197)	R503033-03			4.4	0.300			100		50				04/01/05	04/02	LSC-004
LCS (QC ID=52196)	R503033-02			10	0.300			100		9				04/01/05	04/03	LSC-004
Duplicate (R503033-01) (QC ID=52198)	R503033-04			3.2	0.414			100		50			45	04/01/05	04/02	LSC-004
Nominal values and limits from method				50	0.300					25			180			

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

AVERAGES ± 2 SD MDA 5.4 ± 6.2
FOR 4 SAMPLES YIELD 100 ± 0

Lab id EBRLE
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 04/21/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3066

Test H Matrix SOLID
 SDG 7254
 Contact Melissa C. Mannion

METHOD SUMMARY
 TRITIUM IN SOLIDS
 LIQUID SCINTILLATION COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H3066

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Tritium
Preparation batch 7132-049					
B19428	R503033-01			7254-001	U
BLK (QC ID=52197)	R503033-03			7254-003	U
LCS (QC ID=52196)	R503033-02			7254-002	ok
Duplicate (R503033-01)	R503033-04			7254-004	ok
Nominal values and limits from method					
200-LW-1/LW-2 Characterization-Soil				RDLs (pCi/g)	400

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7132-049 2σ prep error 10.0 % Reference Lab Notebook 7132 pg. 49															
B19428	R503033-01			3.0	0.348			100		120		48	04/01/05	04/05	LSC-004
BLK (QC ID=52197)	R503033-03			3.4	0.300			100		120			04/01/05	04/05	LSC-004
LCS (QC ID=52196)	R503033-02			6.2	0.300			100		35			04/01/05	04/06	LSC-004
Duplicate (R503033-01)	R503033-04			2.5	0.414			100		120		48	04/01/05	04/05	LSC-004
(QC ID=52198)															
Nominal values and limits from method															
				400	0.300					25	180				

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

AVERAGES ± 2 SD MDA 3.8 ± 3.3
 FOR 4 SAMPLES YIELD 100 ± 0

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form QVD-CMS
 Version 3.06
 Report date 04/21/05

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H3066

Test Ni L Matrix SOLID
SDG 7254
Contact Melissa C. Mannion

METHOD SUMMARY
NICKEL 63 IN SOLIDS
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H3066

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Nickel 63
Preparation batch 7132-049					
B19428	R503033-01	7254-001			U
BLK (QC ID=52197)	R503033-03	7254-003			U
LCS (QC ID=52196)	R503033-02	7254-002			ok
Duplicate (R503033-01)	R503033-04	7254-004			- U

Nominal values and limits from method RDLs (pCi/g) 30
200-LW-1/LW-2 Characterization-Soil

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR	
Preparation batch 7132-049 2σ prep error 10.0 % Reference Lab Notebook 7132 pg. 49																
B19428	R503033-01			3.8	0.500			73		50			36	03/23/05	03/24 LSC-004	
BLK (QC ID=52197)	R503033-03			3.5	0.500			79		50				03/23/05	03/24 LSC-004	
LCS (QC ID=52196)	R503033-02			4.6	0.500			74		35				03/23/05	03/24 LSC-004	
Duplicate (R503033-01)	R503033-04			4.5	0.500			64		50				36	03/23/05	03/24 LSC-004
	(QC ID=52198)															

Nominal values and limits from method 30 0.500 30-105 25 180

PROCEDURES	REFERENCE	N163_LSC
CP-060	Soil Preparation, rev 7	
CP-071	Soil Dissolution, > 1.0g Aliquot, rev 5	
CP-280	Nickel-63 Purification, rev 3	

AVERAGES ± 2 SD	MDA <u>4.1 ± 1.1</u>
FOR 4 SAMPLES	YIELD <u>72 ± 12</u>

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

SAMPLE DELIVERY GROUP H3066

SDG 7254
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3066

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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SUMMARY DATA SECTION

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Lab id EBRLNE
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3066

SDG 7254
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3066

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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SAMPLE DELIVERY GROUP H3066

SDG 7254
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H3066

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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SUMMARY DATA SECTION

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Lab id EBERLINE
Protocol Hanford
Version Ver 1.0
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3066

SDG 7254
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG_H3066

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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 Protocol Hanford
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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3066

SDG 7254
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H3066

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.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLINE
Protocol Hanford
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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3066

SDG 7254

Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford

Contract No. 630

Case no SDG H3066

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.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-RG

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Report date 04/21/05

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3066

SDG 7254
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG H3066

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.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 04/21/05

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3066

SDG 7254
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG H3066

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.

Lab id EBERLINE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 04/21/05

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3066

SDG 7254
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H3066

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.

REPORT GUIDES

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SUMMARY DATA SECTION

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Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/05

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3066

SDG 7254
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 530
 Case no SDG H3066

MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

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

 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits

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 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 04/21/05

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SDG 7254
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
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Case no SDG H3066

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.

REPORT GUIDES

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SUMMARY DATA SECTION

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3066

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 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
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METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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EBERLINE SERVICES / RICHMOND

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SDG 7254

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GUIDE, cont.

Client Hanford

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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.

REPORT GUIDES

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SUMMARY DATA SECTION

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SAMPLE DELIVERY GROUP H3066

SDG 7254
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
 Contract No. 630
 Case no SDG H3066

METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

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

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

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

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

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

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SAMPLE DELIVERY GROUP H3066

SDG 7254
Contact Melissa C. Mannion

GUIDE, cont.

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METHOD SUMMARY

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

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

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

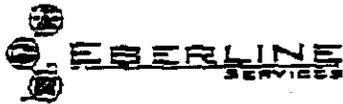
If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/05

FLUOR Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-025-150	PAGE 1	OF 1		
COLLECTOR Pope/Mfster/Tyra/Wberg		COMPANY CONTACT TRENT, STEVE		TELEPHONE NO. 373-5689		PROJECT COORDINATOR TRENT, SJ		PRICE CODE BN	DATA TURNAROUND	
SAMPLING LOCATION 216-Z-7; 40R-42.5R		PROJECT DESIGNATION 200-LW-1/LW-2 Characterization - Soil H306b (7254)				SAF NO. F03-025		AIR QUALITY <input type="checkbox"/>	45 Days / 45 Days	
ICE CHEST NO. ARP-05-008		FIELD LOGBOOK NO. HNF-N-356 1		COA 119143ES10		METHOD OF SHIPMENT Federal Express				
SHIPPED TO Eberline Services		OFFSITE PROPERTY NO. See PTR 14942				BILL OF LADING/AIRBILL NO. See PTR 14942				
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 N/A	PRESERVATION		Cool AC	None					
		TYPE OF CONTAINER		2G	1G					
		NO. OF CONTAINER(S)		1	1					
	VOLUME		250ml	250ml						
	SPECIAL HANDLING AND/OR STORAGE Radioactive FIELD: B19417		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS				
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME							
B19428	SOIL ✓	2/16/05	1115						X	
CHAIN OF POSSESSION		SIGN/ PRINT NAMES				SPECIAL INSTRUCTIONS				
RELINQUISHED BY/REMOVED FROM D. J. M... 2/16/05 1400		DATE/TIME		RECEIVED BY/STORED IN M. H. ... 2/16/05 1400		DATE/TIME		(1) Chromium Hex - 7196; NO2/NO3 - 353; Sulfoxide - 9030; Oil & Grease - 413.1; (2) Nickel-63; Gamma Spec - Radium-226, Radium-228; Technetium-99; Isotopic Thorium {Thorium-232} Tritium - H3; Carbon-14; Strontium-89,90 -- Total		
RELINQUISHED BY/REMOVED FROM MO-024 K13 2/19/05 0025		DATE/TIME		RECEIVED BY/STORED IN M. H. ... 2/19/05 0025		DATE/TIME				
RELINQUISHED BY/REMOVED FROM M. H. ... 3/19/05 0025		DATE/TIME		RECEIVED BY/STORED IN FED EX		DATE/TIME				
RELINQUISHED BY/REMOVED FROM FED EX 3/04/05		DATE/TIME		RECEIVED BY/STORED IN PK 3/04/05		DATE/TIME				
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME				
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME				
LABORATORY SECTION	RECEIVED BY	TITLE				DATE/TIME				
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY				DATE/TIME				

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720-11-2000



RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client FLUOR HANFORD City RICHLAND State WA

Date/Time received 3/04/05 10:00 CoC No. F03-025-150

Container I.D. No. GRP 05-008 Requested TAT (Days) 45 P.D. Received Yes [] No []

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [] N/A []

2. Custody seals on shipping container dated & signed? Yes [✓] No [] N/A []

3. Custody seals on sample containers intact? Yes [✓] No [] N/A []

4. Custody seals on sample containers dated & signed? Yes [✓] No [] N/A []

5. Packing material is: Wet [] Dry [✓]

6. Number of samples in shipping container: 1 Sample Matrix SOIL

7. Number of containers per sample: _____ (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 AK Date: 3/04/05 Time: 10:00

Customer Sample No.	cpm	mR/hr	wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. _____ Calibration date _____

Alpha Meter Ser. No. _____ Calibration date _____

Beta/Gamma Meter Ser. No. _____ Calibration date _____



Mr. Steve Trent
Fluor Hanford Inc.
825 Jadwin Ave.
Richland, WA 99352



**Subject: Contract No. 630
Analytical Data Package**

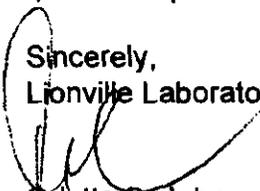
Dear Mr. Trent:

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

LvLI Batch #	0503L917
SDG #	H3066
SAF #	F03-025
Date Received	3-4-05
# Samples	1
Matrix	Water
Volatiles	
Semivolatiles	
Pest/PCB	
DRO/GRO/KRO	
Herbicides	
GC Alcohol	
Metals	
Inorganics	X

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

Sincerely,
Lionville Laboratory Incorporated


Orlette S. Johnson
Project Manager

r:\group\pm\orlette\trn-hanford\data\fc_itr.doc

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD F03-025 H3066



DATE RECEIVED: 03/04/05

LVL LOT # :0503L917

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B19428						
* SOLIDS	001	S	05L&S031	02/16/05	03/07/05	03/08/05
* SOLIDS	001 REP	S	05L&S031	02/16/05	03/07/05	03/08/05
CHROMIUM VI	001	S	05LVI020	02/16/05	03/08/05	03/08/05
CHROMIUM VI	001 REP	S	05LVI020	02/16/05	03/08/05	03/08/05
CHROMIUM VI	001 MS	S	05LVI020	02/16/05	03/08/05	03/08/05
CHROMIUM VI	001 MSD	S	05LVI020	02/16/05	03/08/05	03/08/05
NITRATE NITRITE	001	S	05LN3014	02/16/05	03/10/05	03/10/05
NITRATE NITRITE	001 REP	S	05LN3014	02/16/05	03/10/05	03/10/05
NITRATE NITRITE	001 MS	S	05LN3014	02/16/05	03/10/05	03/10/05
OIL & GREASE BY GRAV	001	S	05LOG013	02/16/05	03/17/05	03/18/05
OIL AND GREASE BY GR	001 REP	S	05LOG013	02/16/05	03/17/05	03/18/05
OIL AND GREASE BY GR	001 MS	S	05LOG013	02/16/05	03/17/05	03/18/05
SULFIDE	001	S	05LSDA11	02/16/05	03/07/05	03/07/05
SULFIDE	001 REP	S	05LSDA11	02/16/05	03/07/05	03/07/05
SULFIDE	001 MS	S	05LSDA11	02/16/05	03/07/05	03/07/05

LAB QC:

CHROMIUM VI	MB1	S	05LVI020	N/A	03/08/05	03/08/05
CHROMIUM VI	MB1 BS	S	05LVI020	N/A	03/08/05	03/08/05
CHROMIUM VI	MB1 BSD	S	05LVI020	N/A	03/08/05	03/08/05
NITRATE NITRITE	MB1	S	05LN3014	N/A	03/10/05	03/10/05
NITRATE NITRITE	MB1 BS	S	05LN3014	N/A	03/10/05	03/10/05
OIL & GREASE BY GRAV	MB1	S	05LOG013	N/A	03/17/05	03/18/05
OIL AND GREASE BY GR	MB1 BS	S	05LOG013	N/A	03/17/05	03/18/05
SULFIDE	MB1	S	05LSDA11	N/A	03/07/05	03/07/05
SULFIDE	MB1 BS	S	05LSDA11	N/A	03/07/05	03/07/05
SULFIDE	MB1 BSD	S	05LSDA11	N/A	03/07/05	03/07/05



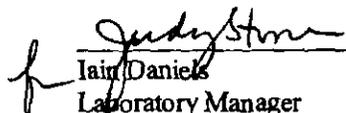
Analytical Report

Client: TNU-HANFORD F03-025 H3066
LVL#: 0503L917

W.O.#: 11343-606-001-9999-00
Date Received: 03-04-05

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 soil sample.
2. The sample was prepared and analyzed in accordance with the methods indicated on the attached glossary.
3. Sample holding times as required by the method and/or contract were met with the exception of Sulfide that was received past hold.
4. The results presented in this report are derived from samples that met LVL'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 for Chromium VI, Nitrate Nitrite, Oil and Grease and Sulfide were within the 75-125% control limits.
8. The replicate analyses for Percent Solids, Nitrate Nitrite, Oil and Grease and Sulfide were within the 20% RPD control limit however replicate analysis for Chromium VI were outside the control limit that may be attributed to sample inhomogeneity.
9. Results for solid samples are reported on a dry weight basis.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

njp003-917

3/31/05
Date

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)	
Specific Gravity	— D1429-76C/	— D5057-90	
Sulfur, Total		— 9056	
Synthetic Preparation Leach		— 1312	
Paint Filter		— 9095A	
Other: <i>Nitrate Nitrite</i>		Method: <i>EPA 353.2(mod.)</i>	
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 03/23/05

CLIENT: TRUHANFORD F03-025 H3066
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L917

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B19428	% Solids	96.3	%	0.01	1.0
		Chromium VI	0.21	u MG/KG	0.21	1.0
		Nitrate Nitrite	2.5	MG/KG	0.21	1.0
		Oil & Grease Gravimetri	692	u MG/KG	692	1.0
		Sulfide	35.9	u MG/KG	35.9	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/23/05

CLIENT: TNUHANFORD F03-025 H3066
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L917

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	05LVI020-MB1	Chromium VI	0.20	u MG/KG	0.20	1.0
BLANK10	05LN3014-MB1	Nitrate Nitrite	0.20	u MG/KG	0.20	1.0
BLANK10	05LOG013-MB1	Oil & Grease Gravimetri	667	u MG/KG	667	1.0
BLANK10	05LSDA11-MB1	Sulfide	40.0	u MG/KG	40.0	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 03/23/05

CLIENT: TNUHANFORD F03-025 H3066
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L917

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B19428	Soluble Chromium VI	4.0	0.21u	4.2	93.0	1.0
		Insoluble Chromium VI	1300	0.21u	1140	113.9	100
		Nitrate Nitrite	7.9	2.5	5.2	103.6	1.0
		Oil & Grease Gravimetr	6700	692 u	7100	94.3	1.0
		Sulfide	269	31.05 35.9u	315	86.5	1.0
BLANK10	05LVI020-MB1	Soluble Chromium VI	4.0	0.20u	4.0	100.7	1.0
		Insoluble Chromium VI	1190	0.20u	1120	106.2	100
BLANK10	05LN3014-MB1	Nitrate Nitrite	5.0	0.20u	5.0	99.0	1.0
BLANK10	05LOG013-MB1	Oil & Grease Gravimetr	6470	667 u	6840	94.5	1.0
BLANK10	05LSDA11-MB1	Sulfide	326	40.0 u	373	87.5	1.0
		Sulfide MSD	302	40.0 u	373	81.0	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 03/23/05

CLIENT: TNUHANFORD F03-025 H3066
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L917

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	05LSDA11-MB1	Sulfide	87.5	81.0	7.7

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 03/23/05

CLIENT: TNUHANFORD F03-025 H3066
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0503L917

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE RPD		
-001REP	B19428	% Solids	96.3	96.6	0.34	1.0
		Chromium VI	0.21u	0.24	70.0	1.0
		Nitrate Nitrite	2.5	2.5	2.5	1.0
		Oil & Grease Gravimetri	692 u	692 u	NC	1.0
		Sulfide	35.9 u	38.9 u	NC	1.0

FLUOR Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F03-025-150	PAGE 1 OF 1
COLLECTOR Pope/Pfister/Tyra/Wiberg		COMPANY CONTACT TRENT, STEVE		TELEPHONE NO. 373-5689		PROJECT COORDINATOR TRENT, SJ	
SAMPLING LOCATION 216-2-7; 40R-42.5R		PROJECT DESIGNATION 200-LW-1/LW-2 Characterization - Soil		SAF NO. F03-025		PRICE CODE 8N AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. GRP-05-003		FIELD LOGBOOK NO. HNF-N-356 1		COA 119143ES10		METHOD OF SHIPMENT Federal Express	
SHIPPED TO Becca		OFFSITE PROPERTY NO. See PTR 14975		BILL OF LADING/AIR BILL NO. See PTR 14975			
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 N/A	PRESERVATION	Cool 4C	None			
		TYPE OF CONTAINER	2G	2G			
		NO. OF CONTAINER(S)	1	1			
		VOLUME	250ml	250ml			
	SPECIAL HANDLING AND/OR STORAGE Radioactive TRD: B19417	SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS		
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B19428	SOIL	2/16/05	1115	X			
CHAIN OF POSSESSION				SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	(1) Chromium Hex - 7196; NO2/NO3 - 353.2; Sulfides - 9030; Oil & Grease - 413.1; (2) Nickel-63; Gamma Spec - Radium (Radium-226, Radium-228) - Technetium-99; Isotopic Thorium (Thorium-232) - Tritium - H3; Carbon-14; Strontium-89,90 - Total			
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME			
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME			

Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: *TNU-HANFORD*

Date: *3-4-05*

Purchase Order / Project# /
 SAF# / SOW# / Release #: *F03-025*

LvLI Batch #: *0503L917*

Sample Custodian: *[Signature]*

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|---|--|--|
| 1. Samples Hand Delivered or Shipped | Carrier <i>FedEx</i> | Airbill# <i>79286127724</i> |
| 2. Custody seals on coolers or shipping container intact, signed and dated? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> No Seals Comments |
| 3. Outside of coolers or shipping containers are free from damage? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | |
| 4. All expected paperwork received (coc and 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 <i>5-2</i> °C | Cooler # <i>GRP-05-003</i> |
| 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 signed and 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? 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? | <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 <i>rsp 3-31-05</i> <input type="checkbox"/> No | <i>Sulfide post hold</i> |
| 13. VOA, TOC, TOX free of headspace? | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> N/A |
| 14. QC stickers placed on bottles designated by client? | <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> N/A |
| 15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy) | <input type="checkbox"/> Yes <i>rsp 3-31-05</i> <input checked="" type="checkbox"/> No | <i>See # 12</i> |
| 16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria) | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input checked="" type="checkbox"/> No Discrepancies |