

0064996



February 25, 2005

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

Reference: P.O. #630
Eberline Services R4-12-264-7205, SDG H2922

Dear Mr. Trent:

Enclosed is the data report for one solid sample designated under SAF No. F04-019 received at Eberline Services on December 23, 2004. 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
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(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 H2922 was composed of one solid (soil) sample designated under SAF No. F04-019 with a Project Designation of: 200-MW-1 Characterization Sampling and Analysis – Waste Management.

The sample was received as stated on the Chain-of-Custody document. 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 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.5 Iodine-129 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.

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

2/25/05

Date

EBRLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2922

SDG 7205
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG_H2922

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

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N.J. Verville
Prepared by
Melissa Mannion
Reviewed by

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 02/25/05

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2922

SDG 7205
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2922

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
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 02/25/05

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2922

SDG 7205

Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford

Contract No. 630

Case no SDG_H2922

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

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 02/25/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2922

SDG 7205
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Case no SDG H2922

SAMPLE SUMMARY

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB		CHAIN OF CUSTODY	COLLECTED
				SAMPLE ID	SAP NO		
B19976	216-U-3; 12.5'-15'	SOLID		R412264-01	F04-019	F04-019-006	12/10/04 09:30
Method Blank		SOLID		R412264-03	F04-019		
Lab Control Sample		SOLID		R412264-02	F04-019		
Duplicate (R412264-01)	216-U-3; 12.5'-15'	SOLID		R412264-04	F04-019		12/10/04 09:30
Spike (R412264-01)	216-U-3; 12.5'-15'	SOLID		R412264-05	F04-019		12/10/04 09:30

SAMPLE SUMMARY

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
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 Version 3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2922

SDG 7205
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2922

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
7205	F04-019-006	B19976	SOLID	96.9	78.7 g		12/23/04 13		R412264-01	7205-001
		Method Blank	SOLID						R412264-03	7205-003
		Lab Control Sample	SOLID						R412264-02	7205-002
		Duplicate (R412264-01)	SOLID	96.9	78.7 g		12/23/04 13		R412264-04	7205-004
		Spike (R412264-01)	SOLID	96.9	78.7 g		12/23/04 13		R412264-05	7205-005

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-QS
 Version 1.06
 Report date 02/25/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2922

SDG 7205
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG H2922

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	7121-080	5.0	1	1	1	1/1	
Beta Counting									
TC	SOLID	Technetium 99 in Solids	7121-080	10.0	1	1	1	1/1	
Gamma Spectroscopy									
I	SOLID	Iodine 129 in Solids	7121-080	10.0	1	1	1	1/1	
Liquid Scintillation Counting									
C	SOLID	Carbon 14 in Solids	7121-080	10.0	1	1	1	1/1	
H	SOLID	Tritium in Solids	7121-080	10.0	1	1	1	1/1	1/1 X
NI_L	SOLID	Nickel 63 in Solids	7121-080	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 EBRLINE
 Protocol Hanford
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 Form DVD-PBS
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2922

SDG 7205
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H2922

CLIENT SAMPLE ID	LAB SAMPLE ID									
LOCATION	MATRIX	COLLECTED	SUF-							
CUSTODY	SAF No	RECEIVED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
B19976		R412264-01	7205-001	C		01/31/05	02/03/05	MWT	Carbon 14 in Solids	
216-U-3; 12.5'-15'	SOLID	12/10/04	7205-001	H		02/19/05	02/23/05	MWT	Tritium in Solids	
F04-019-006	F04-019	12/23/04	7205-001	I		02/14/05	02/16/05	MWT	Iodine 129 in Solids	
			7205-001	NI_L		02/06/05	02/16/05	MWT	Nickel 63 in Solids	
			7205-001	TC		02/15/05	02/21/05	MWT	Technetium 99 in Solids	
			7205-001	TH		01/20/05	01/24/05	MWT	Thorium, Isotopic in Solids	
Method Blank		R412264-03	7205-003	C		01/31/05	02/03/05	MWT	Carbon 14 in Solids	
	SOLID		7205-003	H		02/20/05	02/23/05	MWT	Tritium in Solids	
	F04-019		7205-003	I		02/15/05	02/16/05	MWT	Iodine 129 in Solids	
			7205-003	NI_L		02/06/05	02/16/05	MWT	Nickel 63 in Solids	
			7205-003	TC		02/15/05	02/21/05	MWT	Technetium 99 in Solids	
			7205-003	TH		01/21/05	01/24/05	MWT	Thorium, Isotopic in Solids	
Lab Control Sample		R412264-02	7205-002	C		01/31/05	02/03/05	MWT	Carbon 14 in Solids	
	SOLID		7205-002	H		02/20/05	02/23/05	MWT	Tritium in Solids	
	F04-019		7205-002	I		02/14/05	02/16/05	MWT	Iodine 129 in Solids	
			7205-002	NI_L		02/06/05	02/16/05	MWT	Nickel 63 in Solids	
			7205-002	TC		02/14/05	02/21/05	MWT	Technetium 99 in Solids	
			7205-002	TH		01/21/05	01/24/05	MWT	Thorium, Isotopic in Solids	
Duplicate (R412264-01)		R412264-04	7205-004	C		01/31/05	02/03/05	MWT	Carbon 14 in Solids	
216-U-3; 12.5'-15'	SOLID	12/10/04	7205-004	H		02/20/05	02/23/05	MWT	Tritium in Solids	
F04-019		12/23/04	7205-004	I		02/15/05	02/16/05	MWT	Iodine 129 in Solids	
			7205-004	NI_L		02/06/05	02/16/05	MWT	Nickel 63 in Solids	
			7205-004	TC		02/15/05	02/21/05	MWT	Technetium 99 in Solids	
			7205-004	TH		01/21/05	01/24/05	MWT	Thorium, Isotopic in Solids	
Spike (R412264-01)		R412264-05	7205-005	H		02/20/05	02/23/05	MWT	Tritium in Solids	
216-U-3; 12.5'-15'	SOLID	12/10/04								
F04-019		12/23/04								

Lab id EBERLINE
Protocol Hanford
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Form DVD-CWS
Version 3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2922

SDG 7205
 Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
 Contract No. 630
 Case no SDG H2922

COUNTS OF TESTS BY SAMPLE TYPE											
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
C	F04-019	Carbon 14 in Solids	C14_COX_LSC		1		1	1	1		4
H	F04-019	Tritium in Solids	906.0_H3_LSC		1		1	1	1	1	5
I	F04-019	Iodine 129 in Solids	I129_SEP_LEPS_GS		1		1	1	1		4
NI_L	F04-019	Nickel 63 in Solids	NI63_LSC		1		1	1	1		4
TC	F04-019	Technetium 99 in Solids	TC99_TR_SEP_LSC		1		1	1	1		4
TH	F04-019	Thorium, Isotopic in Solids	THISO_IE_PLATE_AEA		1		1	1	1		4
TOTALS					6		6	6	6	1	25

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2922

R412264-03

Method Blank

METHOD BLANK

SDG <u>7205</u>	Client/Case no <u>Hanford</u>	SDG <u>H2922</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R412264-03</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7205-003</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F04-019</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	-0.016	0.21	0.36	400	U	H
Carbon 14	14762-75-5	0.771	1.4	2.3	50	U	C
Nickel 63	13981-37-8	0.225	1.8	3.1	30	U	NI_L
Technetium 99	14133-76-7	-0.029	0.17	0.54	15	U	TC
Thorium 228	14274-82-9	0.054	0.11	0.21	1.0	U	TH
Thorium 230	14269-63-7	0	0.16	0.21	1.0	U	TH
Thorium 232	TH-232	-0.027	0.054	0.21	1.0	U	TH
Iodine 129	15046-84-1	0.235	0.32	0.71	2.0	U	I

200-MW-1 Charac. Samp. & Ana-Wste. Mngnt

QC-BLANK 51376

Lab id <u>EBERLINE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/25/05</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2922

R412264-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7205</u> Contact <u>Melissa C. Mannion</u> Lab sample id <u>R412264-02</u> Dept sample id <u>7205-002</u>	Client/Case no <u>Hanford</u> <u>SDG H2922</u> Contract No. <u>630</u> Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOLID</u> SAF No <u>F04-019</u>
---	--

ANALYTE	RESULT	2σ ERR	MDA	RDL	QUALI-	ADDED	2σ ERR	REC	3σ LMITS	PROTOCOL
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS TEST	pCi/g	pCi/g	‡	(TOTAL)	LIMITS
Tritium	12.2	0.55	0.36	400	H	11.8	0.47	103	82-118	80-120
Carbon 14	1290	26	5.3	50	C	1280	51	101	83-117	80-120
Nickel 63	213	5.7	2.9	30	NI_L	226	9.0	94	84-116	80-120
Technetium 99	107	2.7	0.61	15	TC	109	4.4	98	84-116	80-120
Thorium 230	37.7	3.2	0.31	1.0	TH	42.0	1.7	90	85-115	80-120
Iodine 129	125	1.6	<u>2.5</u>	2.0	I	116	4.6	108	83-117	80-120

200-MW-1 Charac.Samp.&Ana-Waste.Mngnt

QC-LCS 51375

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>02/25/05</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2922

R412264-04

B19976

DUPLICATE

SDG <u>7205</u>	Client/Case no <u>Hanford</u>	SDG <u>H2922</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R412264-04</u>	Lab sample id <u>R412264-01</u>	Client sample id <u>B19976</u>
Dept sample id <u>7205-004</u>	Dept sample id <u>7205-001</u>	Location/Matrix <u>216-U-3; 12.5'-15'</u> <u>SOLID</u>
	Received <u>12/23/04</u>	Collected/Weight <u>12/10/04 09:30</u> <u>78.7 g</u>
% solids <u>96.9</u>	% solids <u>96.9</u>	Custody/SAF No <u>F04-019-006</u> <u>F04-019</u>

ANALYTE	DUPLICATE	2σ ERR	MDA	RDL	QUALI-	ORIGINAL	2σ ERR	MDA	QUALI-	RPD	3σ	PROT
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS TEST		pCi/g	(COUNT)	pCi/g	FIERS	%	TOT
Tritium	0.351	0.22	0.35	400	H	0.164	0.21	0.35	U	73	179	
Carbon 14	-0.380	1.3	2.2	50	U C	-0.412	1.3	2.3	U	-		
Nickel 63	0.703	2.1	3.6	30	U NI_L	1.16	2.3	3.8	U	-		
Technetium 99	-0.004	0.15	0.49	15	U TC	0.068	0.43	0.71	U	-		
Thorium 228	0.489	0.26	0.20	1.0	TH	0.488	0.12	0.082		0	89	
Thorium 230	0.359	0.26	0.34	1.0	TH	0.433	0.15	0.21		19	114	
Thorium 232	0.487	0.21	0.20	1.0	TH	0.486	0.12	0.064		0	75	
Iodine 129	-0.174	0.58	1.3	2.0	U I	-0.172	0.51	1.2	U	-		

200-MW-1 Charac. Samp. & Ana. Waste. Mngnt

QC-DUP#1 51377

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>02/25/05</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2922

R412264-05

B19976

MATRIX SPIKE

SDG <u>7205</u>	Client/Case no <u>Hanford</u>	SDG <u>H2922</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R412264-05</u>	Lab sample id <u>R412264-01</u>	Client sample id <u>B19976</u>
Dept sample id <u>7205-005</u>	Dept sample id <u>7205-001</u>	Location/Matrix <u>216-U-3; 12.5'-15'</u> <u>SOLID</u>
	Received <u>12/23/04</u>	Collected/Weight <u>12/10/04 09:30</u> <u>78.7 g</u>
% solids <u>96.9</u>	% solids <u>96.9</u>	Custody/SAF No <u>F04-019-006</u> <u>F04-019</u>

ANALYTE	SPIKE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS TEST	ADDED pCi/g	2σ ERR pCi/g	ORIGINAL pCi/g	2σ ERR (COUNT)	REC 3σ % (TOTAL)	LMTS LIMITS	PROTOCOL
Tritium	57.0	1.2	0.39	400	X H	59.3	2.4	0.164	0.21	96	84-116	60-140

200-MW-1 Charac. Samp. & Ana-Wste. Mngnt

QC-MS#1 51378

MATRIX SPIKES

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SUMMARY DATA SECTION

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Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-MS</u>
Version <u>3.06</u>
Report date <u>02/25/05</u>

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2922

R412264-01

B19976

DATA SHEET

SDG <u>7205</u>	Client/Case no <u>Hanford</u>	SDG <u>H2922</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R412264-01</u>	Client sample id <u>B19976</u>	
Dept sample id <u>7205-001</u>	Location/Matrix <u>216-U-3; 12.5'-15'</u>	<u>SOLID</u>
Received <u>12/23/04</u>	Collected/Weight <u>12/10/04 09:30</u>	<u>78.7 g</u>
% solids <u>96.9</u>	Custody/SAF No <u>F04-019-006</u>	<u>F04-019</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.164	0.21	0.35	400	U	H
Carbon 14	14762-75-5	-0.412	1.3	2.3	50	U	C
Nickel 63	13981-37-8	1.16	2.3	3.8	30	U	NI_L
Technetium 99	14133-76-7	0.068	0.43	0.71	15	U	TC
Thorium 228	14274-82-9	0.488	0.12	0.082	1.0		TH
Thorium 230	14269-63-7	0.433	0.15	0.21	1.0		TH
Thorium 232	TH-232	0.486	0.12	0.064	1.0		TH
Iodine 129	15046-84-1	-0.172	0.51	1.2	2.0	U	I

200-MW-1 Charac.Samp.&Ana-Wste.Mngnt

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

SAMPLE DELIVERY GROUP H2922

Test TH Matrix SOLID
 SDG 7205
 Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOLIDS
 ALPHA SPECTROSCOPY

Client Hanford
 Contract No. 630
 Contract SDG H2922

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Thorium 230
Preparation batch 7121-080				
B19976	R412264-01		7205-001	0.433
BLK (QC ID=51376)	R412264-03		7205-003	U
LCS (QC ID=51375)	R412264-02		7205-002	ok
Duplicate (R412264-01)	R412264-04		7205-004	ok
Nominal values and limits from method 200-MW-1 Charac.Samp.&Ana-Waste.Mngnt				
			RDLs (pCi/g)	1.0

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/g	MAX MDA	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	PWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7121-080 2σ prep error 5.0 % Reference Lab Notebook 7121 pg. 080																
B19976	R412264-01			0.21	0.250			93	887				41	01/20/05	01/20	SS-036
BLK (QC ID=51376)	R412264-03			0.21	0.250			86	225					01/20/05	01/21	SS-056
LCS (QC ID=51375)	R412264-02			0.31	0.250			91	225					01/20/05	01/21	SS-055
Duplicate (R412264-01)	R412264-04			0.34	0.250			94	226				42	01/20/05	01/21	SS-057
																(QC ID=51377)
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>0.27</u> ± <u>0.14</u>
FOR 4 SAMPLES	YIELD	<u>91</u> ± <u>7</u>

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2922

Test TC Matrix SOLID
 SDG 7205
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG H2922

METHOD SUMMARY

TECHNETIUM 99 IN SOLIDS
 BETA COUNTING

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	Planchet	Techneium 99
Preparation batch 7121-080					
B19976	R412264-01	7205-001			U
BLK (QC ID=51376)	R412264-03	7205-003			U
LCS (QC ID=51375)	R412264-02	7205-002			ok
Duplicate (R412264-01)	R412264-04	7205-004			- U
Nominal values and limits from method		RDLs (pCi/g)		15	
200-MW-1 Charac.Samp.&Ana-Waste.Mngnt					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF COUNT %	FWHM min keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7121-080 2σ prep error 10.0 % Reference Lab Notebook 7121 pg. 080															
B19976	R412264-01			0.71	1.00			78	50		67	02/11/05	02/15		GRB-201
BLK (QC ID=51376)	R412264-03			0.54	1.00			94	50			02/11/05	02/15		GRB-202
LCS (QC ID=51375)	R412264-02			0.61	1.00			101	50			02/11/05	02/14		GRB-231
Duplicate (R412264-01)	R412264-04			0.49	1.00			103	50		67	02/11/05	02/15		GRB-203
	(QC ID=51377)														
Nominal values and limits from method				15	1.00			20-105	50		180				

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

AVERAGES ± 2 SD	MDA	0.59 ± 0.19
FOR 4 SAMPLES	YIELD	94 ± 23

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

SAMPLE DELIVERY GROUP H2922

Test I Matrix SOLID
 SDG 7205
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG H2922

METHOD SUMMARY

IODINE 129 IN SOLIDS
 GAMMA SPECTROSCOPY

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Iodine 129
Preparation batch 7121-080					
B19976	R412264-01	7205-001			U
BLK (QC ID=51376)	R412264-03	7205-003			U
LCS (QC ID=51375)	R412264-02	7205-002			ok
Duplicate (R412264-01)	R412264-04	7205-004			- U

Nominal values and limits from method RDLs (pCi/g) 2.0
 200-MW-1 Charac.Samp.&Ana-Wste.Mngnt

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 7121-080 2σ prep error 10.0 % Reference Lab Notebook 7121 pg. 080															
B19976	R412264-01			1.2	1.00			59	803			66	02/12/05	02/14	XSPEC-004
BLK (QC ID=51376)	R412264-03			0.71	1.00			91	618				02/12/05	02/15	XSPEC-004
LCS (QC ID=51375)	R412264-02			<u>2.5</u>	1.00			93	804				02/12/05	02/14	XSPEC-002
Duplicate (R412264-01)	R412264-04			1.3	1.00			60	618			67	02/12/05	02/15	XSPEC-002
															(QC ID=51377)

Nominal values and limits from method 2.0 1.00 20-105 300 180

PROCEDURES REFERENCE I129_SEP_LEPS_GS
 CP-024 Iodine-129, Sample Dissolution, rev 5
 CP-530 Iodine-129 Purification, rev 1

AVERAGES ± 2 SD MDA 1.4 ± 1.5
 FOR 4 SAMPLES YIELD 76 ± 38

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 Protocol Hanford
 Version Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2922

Test C Matrix SOLID
 SDG 7205
 Contact Melissa C. Mannion

METHOD SUMMARY

CARBON 14 IN SOLIDS
 LIQUID SCINTILLATION COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H2922

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUP- PLANCHET	Carbon 14
Preparation batch 7121-080				
B19976	R412264-01		7205-001	U
BLK (QC ID=51376)	R412264-03		7205-003	U
LCS (QC ID=51375)	R412264-02		7205-002	ok
Duplicate (R412264-01)	R412264-04		7205-004	- U

Nominal values and limits from method RDLs (pCi/g) 50
 200-MW-1 Charac. Samp. & Ana-Waste Mngmt

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUP- pCi/g	MDA g	ALIQ	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 7121-080 2σ prep error 10.0 % Reference Lab Notebook 7121 pg. 080															
B19976	R412264-01		2.3	0.518				100		50		52	01/30/05	01/31	LSC-005
BLK (QC ID=51376)	R412264-03		2.3	0.500				100		50			01/30/05	01/31	LSC-005
LCS (QC ID=51375)	R412264-02		5.3	0.500				100		<u>10</u>			01/30/05	01/31	LSC-005
Duplicate (R412264-01)	R412264-04		2.2	0.521				100		50		52	01/30/05	01/31	LSC-005
	(QC ID=51377)														

Nominal values and limits from method 50 0.500 25 180

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

AVERAGES ± 2 SD MDA 3.0 ± 3.0
 FOR 4 SAMPLES YIELD 100 ± 0

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

SAMPLE DELIVERY GROUP H2922

Test H Matrix SOLID
 SDG 7205
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG H2922

METHOD SUMMARY
 TRITIUM IN SOLIDS
 LIQUID SCINTILLATION COUNTING

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Tritium
Preparation batch 7121-080					
B19976	R412264-01			7205-001	U
BLK (QC ID=51376)	R412264-03			7205-003	U
LCS (QC ID=51375)	R412264-02			7205-002	ok
Duplicate (R412264-01)	R412264-04			7205-004	ok
Spike (R412264-01)	R412264-05			7205-005	ok X
Nominal values and limits from method					
200-MW-1 Charac.Samp.&Ana-Waste.Mngnt				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 7121-080 2σ prep error 10.0 % Reference Lab Notebook 7121 pg. 080															
B19976	R412264-01			0.35	20.4			34		50		71	02/18/05	02/19	LSC-004
BLK (QC ID=51376)	R412264-03			0.36	20.0			33		50			02/18/05	02/20	LSC-004
LCS (QC ID=51375)	R412264-02			0.36	20.0			33		50			02/18/05	02/20	LSC-004
Duplicate (R412264-01)	R412264-04			0.35	20.2			35		50		72	02/18/05	02/20	LSC-004
(QC ID=51377)															
Spike (R412264-01)	R412264-05			0.39	20.1			34		42		72	02/18/05	02/20	LSC-004
(QC ID=51378)															
Nominal values and limits from method															
				400	20.0					25	180				

PROCEDURES REFERENCE 906.0_H3_LSC
 CP-218 Tritium in Soil Samples by Azeotropic Distillation, rev 3

AVERAGES ± 2 SD MDA 0.36 ± 0.033
 FOR 5 SAMPLES YIELD 34 ± 2

Lab id EBRLNE
 Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2922

Test NI L Matrix SOLID
 SDG 7205
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG H2922

METHOD SUMMARY
 NICKEL 63 IN SOLIDS
 LIQUID SCINTILLATION COUNTING

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Nickel 63
Preparation batch 7121-080				
B19976	R412264-01		7205-001	U
BLK (QC ID=51376)	R412264-03		7205-003	U
LCS (QC ID=51375)	R412264-02		7205-002	ok
Duplicate (R412264-01)	R412264-04		7205-004	- U

Nominal values and limits from method RDLs (pCi/g) 30
 200-MW-1 Charac.Samp.&Ana-Waste.Mngmt

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/g	MDA g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 7121-080 2σ prep error 10.0 % Reference Lab Notebook 7121 pg. 080																
B19976	R412264-01			3.8	0.500			76		50			58	02/04/05	02/06	LSC-007
BLK (QC ID=51376)	R412264-03			3.1	0.500			94		50				02/04/05	02/06	LSC-007
LCS (QC ID=51375)	R412264-02			2.9	0.500			97		50				02/04/05	02/06	LSC-007
Duplicate (R412264-01)	R412264-04			3.6	0.500			79		50			58	02/04/05	02/06	LSC-007
	(QC ID=51377)															

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

PROCEDURES	REFERENCE	NI63_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>3.4</u> ± <u>0.84</u>
FOR 4 SAMPLES	YIELD <u>86</u> ± <u>21</u>

METHOD SUMMARIES

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2922

SDG 7205

Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford

Contract No. 630

Case no SDG_H2922

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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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2922

SDG 7205
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2922

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 H2922

SDG 7205

Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford

Contract No. 630

Case no SDG H2922

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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SAMPLE DELIVERY GROUP H2922

SDG 7205
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2922

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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SAMPLE DELIVERY GROUP H2922

SDG 7205
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2922

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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SDG 7205

Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford

Contract No. 630

Case no SDG_H2922

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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SAMPLE DELIVERY GROUP H2922

SDG 7205
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG H2922

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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SAMPLE DELIVERY GROUP H2922

SDG 7205
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2922

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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SAMPLE DELIVERY GROUP H2922

SDG 7205
Contact Melissa C. Mannion

GUIDE, cont.

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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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SAMPLE DELIVERY GROUP H2922

SDG 7205
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG_H2922

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

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2922

SDG 7205

Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford

Contract No. 630

Case no SDG H2922

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

Page 11

SUMMARY DATA SECTION

Page 29

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 02/25/05

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2922

SDG 7205

Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford

Contract No. 630

Case no SDG_H2922

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'

REPORT GUIDES

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SUMMARY DATA SECTION

Page 30

Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-RG

Version 3.06

Report date 02/25/05

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2922

SDG 7205
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
 Contract No. 630
 Case no SDG H2922

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.

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 02/25/05

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2922

SDG 7205
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
 Contract No. 630
 Case no SDG H2922

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

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 02/25/05

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H2922

SDG 7205
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG H2922

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 02/25/05

0000036

Fluor Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F04-019-006	PAGE 1 OF 1
COLLECTOR Pope/Pfister/Tyra/Wiberg		COMPANY CONTACT CS Clearlock		TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION 12.5-15' 216-U-3; 17.5R-20R 12/10/04		PROJECT DESIGNATION H2922 (7205) 200-MW-1 Characterization Sampling and Analysis - Waste Management		SAF NO. F04-019	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. GRP-03-019		FIELD LOGBOOK NO.	COA 119144ES10	METHOD OF SHIPMENT Government Vehicle <input checked="" type="checkbox"/> Fed Ex <input checked="" type="checkbox"/> D MARS 12/15/04		
SHIPPED TO Eberline Services		OFFSITE PROPERTY NO. See PTR 14590		BILL OF LADING/AIR BILL NO. See PTR 14590		
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 10/15/04 Rad to B19975	PRESERVATION Cool 4C None	TYPE OF CONTAINER gG gG	NO. OF CONTAINER(S) 1 1	VOLUME 120mL 60mL	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS SEE ITEM (2) IN SPECIAL INSTRUCTIONS
SPECIAL HANDLING AND/OR STORAGE N/A						
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B19976	SOIL	12/10/04	0930		X	
CHAIN OF POSSESSION				SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS ASR 12-8-04 (1) NO2/NO3 - 355.2; Oil & Grease - 413.1; Chromium Hex - 7196; (2) Iodine-129; Carbon-14; Nickel-63; Technetium-99; Isotopic Thorium (Thorium-228, Thorium-232) Tritium - H3;
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	DATE/TIME 12/10/04	RECEIVED BY/STORED IN <i>[Signature]</i>	DATE/TIME 12/13/04			
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	DATE/TIME 12/15/04	RECEIVED BY/STORED IN <i>[Signature]</i>	DATE/TIME 12/15/04			
RELINQUISHED BY/REMOVED FROM <i>[Signature]</i>	DATE/TIME 12/15/04	RECEIVED BY/STORED IN <i>[Signature]</i>	DATE/TIME 12/15/04			
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		



RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

Client: Fluor Hanford City Richland State WA
Date/Time received 12/23/04 12:00 CoC No. FO4-019-006

Container I.D. No. F1120 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: 1 (Or see CoC)
- 8. Samples are in correct container Yes [] No []
- 9. Paperwork agrees with samples? Yes [] No []
- 10. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels []
- 11. Samples are: In good condition [] Leaking [] Broken Container [] Missing []
- 12. Samples are: Preserved [] Not preserved [] pH Preservative
- 13. Describe any anomalies:
- 14. Was P.M. notified of any anomalies? Yes [] No [] Date
- 15. Inspected by Date: 12/23/04 Time: 12:00

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

(Page break/coc received 12/14/04
Sample sent to Livermore)
Actual Sample received 12/23/04 12:00

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:

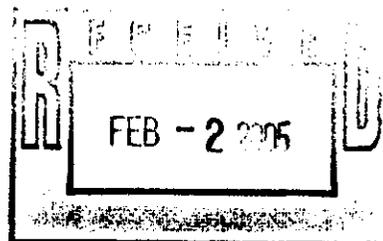
Enclosed are the hard copy analytical reports for the batch number/fraction indicated (marked X) in the following table:

LvLI Batch #	0412L482
SDG #	H2922
SAF #	F04-019
Date Received	12-18-04
# Samples	1
Matrix	Soil
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\mu-hanford\data\fc_ltrs.doc

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD F04-019 H2922

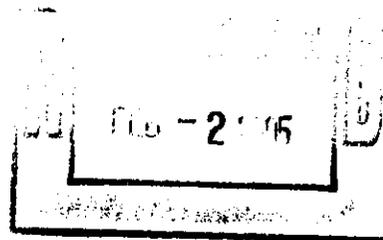
DATE RECEIVED: 12/18/04

LVL LOT # :0412L482

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B19976						
% SOLIDS	001	S	04L*S207	12/10/04	12/28/04	12/28/04
% SOLIDS	001 REP	S	04L*S207	12/10/04	12/28/04	12/28/04
CHROMIUM VI	001	S	04LVI047	12/10/04	12/27/04	12/27/04
CHROMIUM VI	001 REP	S	04LVI047	12/10/04	12/27/04	12/27/04
CHROMIUM VI	001 MS	S	04LVI047	12/10/04	12/27/04	12/27/04
CHROMIUM VI	001 MSD	S	04LVI047	12/10/04	12/27/04	12/27/04
NITRATE NITRITE	001	S	05LN3003	12/10/04	01/14/05	01/15/05
NITRATE NITRITE	001 REP	S	05LN3003	12/10/04	01/14/05	01/15/05
NITRATE NITRITE	001 MS	S	05LN3003	12/10/04	01/14/05	01/15/05
OIL & GREASE BY GRAV	001	S	04LOG046	12/10/04	12/28/04	12/29/04
OIL AND GREASE BY GR	001 REP	S	04LOG046	12/10/04	12/28/04	12/29/04
OIL AND GREASE BY GR	001 MS	S	04LOG046	12/10/04	12/28/04	12/29/04

LAB QC:

CHROMIUM VI	MB1	S	04LVI047	N/A	12/27/04	12/27/04
CHROMIUM VI	MB1 BS	S	04LVI047	N/A	12/27/04	12/27/04
CHROMIUM VI	MB1 BSD	S	04LVI047	N/A	12/27/04	12/27/04
NITRATE NITRITE	MB1	S	05LN3003	N/A	01/14/05	01/15/05
NITRATE NITRITE	MB1 BS	S	05LN3003	N/A	01/14/05	01/15/05
OIL & GREASE BY GRAV	MB1	S	04LOG046	N/A	12/28/04	12/29/04
OIL AND GREASE BY GR	MB1 BS	S	04LOG046	N/A	12/28/04	12/29/04
OIL AND GREASE BY GR	MB1 BSD	S	04LOG046	N/A	12/28/04	12/29/04





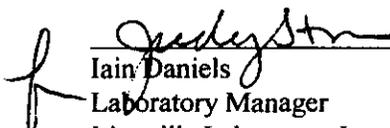
Analytical Report

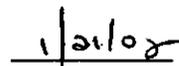
Client: TNU-HANFORD F04-019 H2922
LVL#: 0412L482

W.O.#: 11343-606-001-9999-00
Date Received: 12-18-04

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.
4. The results presented in this report are derived from samples 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 with the exception of LCS 04LOG046-MB1 for Oil and Grease that was above the 80-125% control limit at 131.5% however the duplicate LCS 04LOG046-MB1 was within the control limits at 112.0%. The duplicate LCS for Oil and Grease was within the 20% Relative Percent Difference (RPD) control limit.
7. The matrix spike recoveries for Chromium VI, Nitrate Nitrite and Oil and Grease were within the 75-125% control limits.
8. The replicate analyses Percent Solids and Nitrate Nitrite were within the 20% RPD control limit however replicate analyses for Chromium VI and Oil and Grease 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


Date

njpl12-482

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 (mod.)	✓ EPA 2/13.1 (mod.)
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 01/21/05

CLIENT: TNUHANFORD P04-019 H2922
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L482

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	E19976	% Solids	96.7	%	0.01	1.0
		Chromium VI	0.21	u MG/KG	0.21	1.0
		Nitrate Nitrite	0.33	MG/KG	0.21	1.0
		Oil & Grease Gravimetri	689	u MG/KG	689	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/21/05

CLIENT: TNUHANFORD P04-019 H2922
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L482

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	04LVI047-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0
BLANK10	05LN3003-MB1	Nitrate Nitrite	0.20 u	MG/KG	0.20	1.0
BLANK10	04LOG046-MB1	Oil & Grease Gravimetri	667	u MG/KG	667	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/21/05

CLIENT: TNUHANFORD P04-019 H2922
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L482

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B19976	Soluble Chromium VI	4.6	0.21u	4.1	107.8	1.0
		Insoluble Chromium VI	1320	0.21u	1190	110.5	100
		Nitrate Nitrite	5.9	0.33	5.2	107.2	1.0
		Oil & Grease Gravimetr	7130	689 u	7430	95.9	1.0
BLANK10	04LVI047-MB1	Soluble Chromium VI	4.2	0.20u	4.0	105.0	1.0
		Insoluble Chromium VI	1360	0.20u	1230	110.4	100
BLANK10	05LN3003-MB1	Nitrate Nitrite	5.2	0.20u	5.0	104.0	1.0
BLANK10	04LOG046-MB1	Oil & Grease Gravimetr	9450	667 u	7190	131.5	1.0
		Oil & Grease - Grav M	8050	667 u	7190	112.0	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 01/21/05

CLIENT: TNUHANFORD F04-019 H2922
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L482

SAMPLE	SITE ID	ANALYTE	SPIKE#1		SPIKE#2	
			%RECOV	%RECOV	%RECOV	%DIFF
BLANK10	04LOG046-MB1	Oil & Grease - Grav	131.5	112.0	16.0	

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/21/05

CLIENT: TNUHANFORD F04-019 H2922
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L482

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	B19976	† Solids	96.7	97.1	0.38	1.0
		Chromium VI	0.21u	0.24	66.7	1.0
		Nitrate Nitrite	0.33	0.40	19.6	1.0
		Oil & Grease Gravimetri	689 u	712	120.0	1.0

COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Caslock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE SN	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION 12.5-15' 216-U-3; 12.5A-20A 15-17.5 ft 12/09/04	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Waste Management		SAF NO. F04-019	AIR QUALITY <input type="checkbox"/>	

ICE CHEST NO. GFP-03-016	FIELD LOGBOOK NO.	COA 119144ES10	METHOD OF SHIPMENT Government Vehicle Fed Ex 12/16/04		
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SHIPPED TO Eberline Services RECRU 98-12-8-01	OFFSITE PROPERTY NO. #1 SUPTR 14591	BILL OF LADING/AIR BILL NO. #1 SUPTR 14591
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MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS MMP 12/15/04 Rad to B19975	PRESERVATION Cool 4C	None																	
	TYPE OF CONTAINER	2G	2G																	
	NO. OF CONTAINER(S)	1	1																	
	VOLUME	120ml	60ml																	
SPECIAL HANDLING AND/OR STORAGE N/A	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS																	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME																
B19976	SOIL	12/10/04	0930	X															

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>Samuel Berg</i>	DATE/TIME 12/10/04 1330	RECEIVED BY/STORED IN <i>S. J. Frisette</i>	DATE/TIME 12/10/04 1330	(1) NO2/NO3 - 353.2; Oil & Grease - 413.1; Chromium Hex - 7196; (2) Iodine-129; Carbon-14; Nickel-63; Technetium-99; Isotopic Thorium (Thorium-226, Thorium-232); Tritium-1H3; 98-12-8-04	
RELINQUISHED BY/REMOVED FROM <i>M. B. Brown</i>	DATE/TIME 12/16/04 1150	RECEIVED BY/STORED IN <i>M. B. Brown</i>	DATE/TIME 12/16/04 1150		
RELINQUISHED BY/REMOVED FROM <i>M. B. Brown</i>	DATE/TIME 12/16/04 1150	RECEIVED BY/STORED IN <i>Ed EA</i>	DATE/TIME 12/16/04 1150		
RELINQUISHED BY/REMOVED FROM <i>Ed EA</i>	DATE/TIME 12/18/04 11:15	RECEIVED BY/STORED IN <i>W. J. Smith</i>	DATE/TIME 12/18/04 11:15		
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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Lionville Laboratory Incorporated
SAMPLE RECEIPT CHECKLIST (SRC)

CLIENT: TNU Hartford

Date: 12-18-04

Purchase Order / Project# /
 SAF# / SOW# / Release #: F04-019

LvLI Batch #: 0412482

Sample Custodian: *D. Smith*

NOTE: EXPLAIN ALL DISCREPANCIES

- | | | |
|--|---|---|
| <p>1. Samples Hand Delivered or <u>Shipped</u></p> | <p>Carrier <i>FedEx</i></p> | <p>Airbill# <i>7903 6982 110</i></p> |
| <p>2. Custody seals on coolers or shipping container intact, signed and dated?</p> | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> | <p><input type="checkbox"/> No Seals Comments</p> |
| <p>3. Outside of coolers or shipping containers are free from damage?</p> | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> | |
| <p>4. All expected paperwork received (coc and other client specific information) sealed in plastic bag and easily accessible?</p> | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> | |
| <p>5. Samples received <u>cooled</u> or ambient?</p> | <p>Temp <i>3.7</i> °C</p> | <p>Cooler # <i>GEP-03-015</i></p> |
| <p>6. Custody seals on sample containers intact, signed and dated?</p> | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> | <p><input type="checkbox"/> No Seals</p> |
| <p>7. coc signed and dated?</p> | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> | |
| <p>8. Sample containers are intact?</p> | <p><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No</p> | |
| <p>9. All samples on coc received? All samples received on coc?</p> | <p><input checked="" type="checkbox"/> Yes</p> | <p><input checked="" type="checkbox"/> No <i>Rec'd volume for analysis (see item # 2)</i></p> |
| <p>10. All sample label information matches coc?</p> | <p><input checked="" type="checkbox"/> Yes</p> | <p><input type="checkbox"/> No <i>Not indicated on Client C.O.C.</i></p> |
| <p>11. Samples properly preserved?</p> | <p><input checked="" type="checkbox"/> Yes</p> | <p><input type="checkbox"/> No <i>ID = 819976</i></p> |
| <p>12. Samples received within hold times? Short holds taken to wet lab?</p> | <p><input checked="" type="checkbox"/> Yes</p> | |
| <p>13. VOA, TOC, TOX free of headspace?</p> | <p><input type="checkbox"/> Yes</p> | <p><input type="checkbox"/> No <input checked="" type="checkbox"/> N/A</p> |
| <p>14. QC stickers placed on bottles designated by client?</p> | <p><input checked="" type="checkbox"/> Yes</p> | <p><input type="checkbox"/> No <input type="checkbox"/> N/A</p> |
| <p>15. Shipment meets LvLI Sample Acceptance Policy? (Identify all bottles not within policy. See reverse side for policy)</p> | <p><input checked="" type="checkbox"/> Yes</p> | <p><input checked="" type="checkbox"/> No <i>See above</i></p> |
| <p>16. Project Manager contacted concerning discrepancies? name/date (or samples outside criteria)</p> | <p><input checked="" type="checkbox"/> Yes</p> | <p><input type="checkbox"/> No <input type="checkbox"/> No Discrepancies</p> |

Rec'd addition volume subsequent subject to check