

H0397-1114/KEC

Thermo Nutech
W.O. No. N9-05-024-7120

0051512
Bechtel Hanford Inc.
SDG H0397

Case Narrative

1.0 GENERAL

Bechtel Hanford Inc. Sample Delivery Group H0397 is comprised of eight solid (soil) samples designated under SAF No. B99-041 with a Project Designation of: 100 H Area-Quick Turn.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the TNU Sample Receipt Checklist. Preliminary data for all analyses were sent to Bechtel Hanford via fax on May 25, 1999.

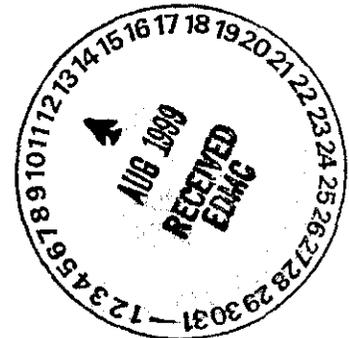
2.0 ANALYSIS NOTES

2.1 Isotopic Uranium Analyses

No problems were encountered during the processing of the samples.

2.2 Isotopic Plutonium Analyses

No problems were encountered during the processing of the samples.



TMA/RICHMOND

SAMPLE DELIVERY GROUP H0397

SAMPLE SUMMARY

SDG 7120
 Contact L.A. Johnson

Client Hanford
 Contract TRB-SBB-207925
 Case no SDG-H0397

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
BOV8L5	100-H-5	SOLID		N905024-01	B99-041	B99-041-006	04/29/99 08:25
BOV8L6	100-H-5	SOLID		N905024-02	B99-041	B99-041-006	04/29/99 08:40
BOV8L7	100-H-5	SOLID		N905024-03	B99-041	B99-041-006	04/29/99 09:05
BOV8L8	100-H-5	SOLID		N905024-04	B99-041	B99-041-006	04/29/99 12:40
BOV8L9	100-H-5	SOLID		N905024-05	B99-041	B99-041-007	04/30/99 08:05
BOV8M0	100-H-5	SOLID		N905024-06	B99-041	B99-041-007	04/30/99 08:45
BOV8M1	100-H-5	SOLID		N905024-07	B99-041	B99-041-007	04/30/99 10:20
BOV8M2	100-H-5	SOLID		N905024-08	B99-041	B99-041-007	04/30/99 10:35
Method Blank		SOLID		N905024-10	B99-041		
Lab Control Sample		SOLID		N905024-09	B99-041		
Duplicate (N905024-01)	100-H-5	SOLID		N905024-11	B99-041		04/29/99 08:25

SAMPLE SUMMARY

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Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CS
 Version 3.06
 Report date 06/01/99

TMA/RICHMOND
 SAMPLE DELIVERY GROUP H0397

SDG 7120
 Contact L.A. Johnson

QC SUMMARY

Client Hanford
 Contract TRB-SBB-207925
 Case no SDG-H0397

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL SAMPLE ID	DEPARTMENT SAMPLE ID
7120	B99-041-006	B0V8L5	SOLID	97.1			05/06/99 7	N905024-01	7120-001
		B0V8L6	SOLID	98.8			05/06/99 7	N905024-02	7120-002
		B0V8L7	SOLID	98.5			05/06/99 7	N905024-03	7120-003
		B0V8L8	SOLID	98.7			05/06/99 7	N905024-04	7120-004
	B99-041-007	B0V8L9	SOLID	94.7			05/06/99 6	N905024-05	7120-005
		B0V8M0	SOLID	96.8			05/06/99 6	N905024-06	7120-006
		B0V8M1	SOLID	96.4			05/06/99 6	N905024-07	7120-007
		B0V8M2	SOLID	95.3			05/06/99 6	N905024-08	7120-008
		Method Blank	SOLID					N905024-10	7120-010
		Lab Control Sample	SOLID					N905024-09	7120-009
		Duplicate (N905024-01)	SOLID	97.1			05/06/99 7	N905024-11	7120-011

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SAMPLE DELIVERY GROUP H0397

SDG 7120
Contact L.A. Johnson

PREP BATCH SUMMARY

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0397

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI- FIERS	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK		LCS
Alpha Spectroscopy										
PU	SOLID	Plutonium, Isotopic in Solids	6880-065	5.0	8			1	1	1/1
U	SOLID	Uranium, Isotopic in Soil	6880-065	5.0	8			1		1/1

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

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SAMPLE DELIVERY GROUP H0397

WORK SUMMARY

SDG 7120
 Contact L.A. Johnson

Client Hanford
 Contract TRB-SBB-207925
 Case no SDG-H0397

CLIENT SAMPLE ID	LAB SAMPLE ID								
LOCATION	MATRIX	COLLECTED	SUF-						
CUSTODY	SAF No	RECEIVED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD
BOV8L5		N905024-01	7120-001	PU		05/18/99			Plutonium, Isotopic in Solids
100-H-5	SOLID	04/29/99	7120-001	U		05/18/99			Uranium, Isotopic in Soil
B99-041-006	B99-041	05/06/99							
BOV8L6		N905024-02	7120-002	PU		05/18/99			Plutonium, Isotopic in Solids
100-H-5	SOLID	04/29/99	7120-002	U		05/18/99			Uranium, Isotopic in Soil
B99-041-006	B99-041	05/06/99							
BOV8L7		N905024-03	7120-003	PU		05/18/99			Plutonium, Isotopic in Solids
100-H-5	SOLID	04/29/99	7120-003	U		05/18/99			Uranium, Isotopic in Soil
B99-041-006	B99-041	05/06/99							
BOV8L8		N905024-04	7120-004	PU		05/18/99			Plutonium, Isotopic in Solids
100-H-5	SOLID	04/29/99	7120-004	U		05/18/99			Uranium, Isotopic in Soil
B99-041-006	B99-041	05/06/99							
BOV8L9		N905024-05	7120-005	PU		05/18/99			Plutonium, Isotopic in Solids
100-H-5	SOLID	04/30/99	7120-005	U		05/18/99			Uranium, Isotopic in Soil
B99-041-007	B99-041	05/06/99							
BOV8M0		N905024-06	7120-006	PU		05/18/99			Plutonium, Isotopic in Solids
100-H-5	SOLID	04/30/99	7120-006	U		05/18/99			Uranium, Isotopic in Soil
B99-041-007	B99-041	05/06/99							
BOV8M1		N905024-07	7120-007	PU		05/18/99			Plutonium, Isotopic in Solids
100-H-5	SOLID	04/30/99	7120-007	U		05/18/99			Uranium, Isotopic in Soil
B99-041-007	B99-041	05/06/99							
BOV8M2		N905024-08	7120-008	PU		05/18/99			Plutonium, Isotopic in Solids
100-H-5	SOLID	04/30/99	7120-008	U		05/18/99			Uranium, Isotopic in Soil
B99-041-007	B99-041	05/06/99							
Method Blank		N905024-10	7120-010	PU		05/19/99			Plutonium, Isotopic in Solids
	SOLID		7120-010	U		05/18/99			Uranium, Isotopic in Soil
	B99-041								
Lab Control Sample		N905024-09	7120-009	PU		05/18/99			Plutonium, Isotopic in Solids
	SOLID								
	B99-041								

WORK SUMMARY

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SAMPLE DELIVERY GROUP H0397

WORK SUMMARY, cont.

SDG 7120
 Contact L.A. Johnson

Client Hanford
 Contract TRB-SBB-207925
 Case no SDG-H0397

CLIENT SAMPLE ID	LAB SAMPLE ID	LOCATION	MATRIX	COLLECTED	SUF-	ANALYZED	REVIEWED BY	METHOD
CUSTODY	SAF No	RECEIVED	PLANCHET	TEST	FIX			
Duplicate (N905024-01)	N905024-11	7120-011		PU		05/19/99		Plutonium, Isotopic in Solids
100-H-5	B99-041	04/29/99	SOLID	U		05/18/99		Uranium, Isotopic in Soil
		05/06/99						

COUNTS OF TESTS BY SAMPLE TYPE										
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
PU	B99-041	Plutonium, Isotopic in Solids	PUPLATE	8			1	1	1	11
U	B99-041	Uranium, Isotopic in Soil	UPLATE	8			1		1	10
TOTALS				16			2	1	2	21

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TMA / RICHMOND
 SAMPLE DELIVERY GROUP H0397

N905024-10

Method Blank

METHOD BLANK

SDG <u>7120</u>	Client/Case no <u>Hanford</u>	SDG- <u>H0397</u>
Contact <u>L.A. Johnson</u>	Case no <u>TRB-SBB-207925</u>	
Lab sample id <u>N905024-10</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7120-010</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>B99-041</u>	

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 233/234	U-233/234	0.017	0.017	0.064	0.30	U	U
Uranium 235	15117-96-1	0.010	0.020	0.078	0.30	U	U
Uranium 238	U-238	0.008	0.017	0.064	0.30	U	U
Plutonium 238	13981-16-3	-0.003	0.007	0.020	0.050	U	PU
Plutonium 239/240	PU-239/240	0.002	0.007	0.016	0.050	U	PU

100 H Areas - Quick Turn

QC-BLANK 30715

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>06/01/99</u>

TMA/RICHMOND
SAMPLE DELIVERY GROUP H0397

N905024-09

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7120</u>	Client/Case no <u>Hanford</u>	SDG- <u>H0397</u>
Contact <u>L.A. Johnson</u>	Case no <u>TRB-SBB-207925</u>	
Lab sample id <u>N905024-09</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7120-009</u>	Material/Matrix _____	<u>SOLID</u>
	SAF No <u>B99-041</u>	

ANALYTE	RESULT	2σ ERR	MDA	RDL	QUALI-	ADDED	2σ ERR	REC	3σ LMTS	PROTOCOL
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS TEST	pCi/g	pCi/g	%	(TOTAL)	LIMITS
Plutonium 238	5.31	0.44	0.018	0.050	PU	5.66	0.23	94	85-115	80-120
Plutonium 239/240	5.09	0.43	0.018	0.050	PU	5.29	0.21	96	85-115	80-120

100 H Areas - Quick Turn

QC-LCS 30714

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>06/01/99</u>

TMA/RICHMOND
SAMPLE DELIVERY GROUP H0397

N905024-11

B0V8L5

DUPLICATE

SDG <u>7120</u>		Client/Case no <u>Hanford</u> <u>SDG-H0397</u>
Contact <u>L.A. Johnson</u>		Case no <u>TRB-SBB-207925</u>
DUPLICATE	ORIGINAL	
Lab sample id <u>N905024-11</u>	Lab sample id <u>N905024-01</u>	Client sample id <u>B0V8L5</u>
Dept sample id <u>7120-011</u>	Dept sample id <u>7120-001</u>	Location/Matrix <u>100-H-5</u> <u>SOLID</u>
	Received <u>05/06/99</u>	Collected <u>04/29/99 08:25</u>
% solids <u>97.1</u>	% solids <u>97.1</u>	Custody/SAF No <u>B99-041-006</u> <u>B99-041</u>

ANALYTE	DUPLICATE		MDA	RDL	QUALI-	TEST	ORIGINAL		MDA	QUALI-	RPD	3σ	PROT
	pCi/g	2σ ERR (COUNT)					pCi/g	2σ ERR (COUNT)					
Uranium 233/234	0.272	0.099	0.077	0.30	J	U	0.428	0.14	0.074		45	74	
Uranium 235	0.058	0.039	0.074	0.30	U	U	0.047	0.047	0.090	U	-		
Uranium 238	0.336	0.12	0.061	0.30		U	0.487	0.14	0.074		37	68	
Plutonium 238	-0.007	0.022	0.050	0.050	U	PU	0	0.021	0.050	U	-		
Plutonium 239/240	0	0.015	0.041	0.050	U	PU	0.005	0.010	0.040	U	-		

100 H Areas - Quick Turn

QC-DUP#1 30716

DUPLICATES

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Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>06/01/99</u>

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0397

N905024-01

B0V8L5

DATA SHEET

SDG <u>7120</u>	Client/Case no <u>Hanford</u>	SDG- <u>H0397</u>
Contact <u>L.A. Johnson</u>	Case no <u>TRB-SBB-207925</u>	
Lab sample id <u>N905024-01</u>	Client sample id <u>B0V8L5</u>	
Dept sample id <u>7120-001</u>	Location/Matrix <u>100-H-5</u>	<u>SOLID</u>
Received <u>05/06/99</u>	Collected <u>04/29/99 08:25</u>	
% solids <u>97.1</u>	Custody/SAF No <u>B99-041-006</u>	<u>B99-041</u>

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 233/234	U-233/234	0.428	0.14	0.074	0.30		U
Uranium 235	15117-96-1	0.047	0.047	0.090	0.30	U	U
Uranium 238	U-238	0.487	0.14	0.074	0.30		U
Plutonium 238	13981-16-3	0	0.021	0.050	0.050	U	PU
Plutonium 239/240	PU-239/240	0.005	0.010	0.040	0.050	U	PU

100 H Areas - Quick Turn

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>06/01/99</u>

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0397

N905024-02

BOV8L6

DATA SHEET

SDG <u>7120</u>	Client/Case no <u>Hanford</u>	SDG- <u>H0397</u>
Contact <u>L.A. Johnson</u>	Case no <u>TRB-SBB-207925</u>	
Lab sample id <u>N905024-02</u>	Client sample id <u>BOV8L6</u>	
Dept sample id <u>7120-002</u>	Location/Matrix <u>100-H-5</u>	<u>SOLID</u>
Received <u>05/06/99</u>	Collected <u>04/29/99 08:40</u>	
% solids <u>98.8</u>	Custody/SAF No <u>B99-041-006</u>	<u>B99-041</u>

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 233/234	U-233/234	0.398	0.13	0.071	0.30		U
Uranium 235	15117-96-1	0.022	0.022	0.086	0.30	U	U
Uranium 238	U-238	0.444	0.14	0.071	0.30		U
Plutonium 238	13981-16-3	-0.006	0.012	0.047	0.050	U	PU
Plutonium 239/240	PU-239/240	0.006	0.025	0.047	0.050	U	PU

100 H Areas - Quick Turn

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
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TMA / RICHMOND
SAMPLE DELIVERY GROUP H0397

N905024-03

B0V8L7

DATA SHEET

SDG <u>7120</u>	Client/Case no <u>Hanford</u>	SDG-H0397
Contact <u>L.A. Johnson</u>	Case no <u>TRB-SBB-207925</u>	
Lab sample id <u>N905024-03</u>	Client sample id <u>B0V8L7</u>	
Dept sample id <u>7120-003</u>	Location/Matrix <u>100-H-5</u>	<u>SOLID</u>
Received <u>05/06/99</u>	Collected <u>04/29/99 09:05</u>	
% solids <u>98.5</u>	Custody/SAF No <u>B99-041-006</u>	<u>B99-041</u>

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 233/234	U-233/234	0.369	0.11	0.069	0.30		U
Uranium 235	15117-96-1	0.022	0.022	0.083	0.30	U	U
Uranium 238	U-238	0.387	0.13	0.069	0.30		U
Plutonium 238	13981-16-3	-0.011	0.011	<u>0.055</u>	0.050	U	PU
Plutonium 239/240	PU-239/240	-0.006	0.023	<u>0.055</u>	0.050	U	PU

100 H Areas - Quick Turn

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
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Report date <u>06/01/99</u>

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0397

N905024-04

BOV8L8

DATA SHEET

SDG <u>7120</u>	Client/Case no <u>Hanford</u>	SDG- <u>H0397</u>
Contact <u>L.A. Johnson</u>	Case no <u>TRB-SBB-207925</u>	
Lab sample id <u>N905024-04</u>	Client sample id <u>BOV8L8</u>	
Dept sample id <u>7120-004</u>	Location/Matrix <u>100-H-5</u>	<u>SOLID</u>
Received <u>05/06/99</u>	Collected <u>04/29/99 12:40</u>	
% solids <u>98.7</u>	Custody/SAF No <u>B99-041-006</u>	<u>B99-041</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 233/234	U-233/234	0.438	0.13	0.068	0.30		U
Uranium 235	15117-96-1	0.022	0.022	0.083	0.30	U	U
Uranium 238	U-238	0.331	0.11	0.068	0.30		U
Plutonium 238	13981-16-3	-0.011	0.021	<u>0.058</u>	0.050	U	PU
Plutonium 239/240	PU-239/240	-0.005	0.011	0.040	0.050	U	PU

100 H Areas - Quick Turn

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
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TMA / RICHMOND
SAMPLE DELIVERY GROUP H0397

N905024-05

BOV8L9

DATA SHEET

SDG <u>7120</u>	Client/Case no <u>Hanford</u>	SDG- <u>H0397</u>
Contact <u>L.A. Johnson</u>	Case no <u>TRB-SBB-207925</u>	
Lab sample id <u>N905024-05</u>	Client sample id <u>BOV8L9</u>	
Dept sample id <u>7120-005</u>	Location/Matrix <u>100-H-5</u>	<u>SOLID</u>
Received <u>05/06/99</u>	Collected <u>04/30/99 08:05</u>	
% solids <u>94.7</u>	Custody/SAF No <u>B99-041-007</u>	<u>B99-041</u>

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 233/234	U-233/234	0.341	0.12	0.087	0.30		U
Uranium 235	15117-96-1	0.014	0.028	0.11	0.30	U	U
Uranium 238	U-238	0.398	0.14	0.087	0.30		U
Plutonium 238	13981-16-3	-0.014	0.028	<u>0.076</u>	0.050	U	PU
Plutonium 239/240	PU-239/240	-0.007	0.014	<u>0.053</u>	0.050	U	PU

100 H Areas - Quick Turn

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
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Report date <u>06/01/99</u>

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0397

N905024-06

BOV8M0

DATA SHEET

SDG <u>7120</u>	Client/Case no <u>Hanford</u>	SDG- <u>H0397</u>
Contact <u>L.A. Johnson</u>	Case no <u>TRB-SBB-207925</u>	
Lab sample id <u>N905024-06</u>	Client sample id <u>BOV8M0</u>	
Dept sample id <u>7120-006</u>	Location/Matrix <u>100-H-5</u>	<u>SOLID</u>
Received <u>05/06/99</u>	Collected <u>04/30/99 08:45</u>	
% solids <u>96.8</u>	Custody/SAF No <u>B99-041-007</u>	<u>B99-041</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 233/234	U-233/234	0.323	0.11	0.069	0.30		U
Uranium 235	15117-96-1	0.054	0.044	0.083	0.30	U	U
Uranium 238	U-238	0.359	0.11	0.069	0.30		U
Plutonium 238	13981-16-3	0.027	0.033	<u>0.052</u>	0.050	U	PU
Plutonium 239/240	PU-239/240	0.005	0.022	0.042	0.050	U	PU

100 H Areas - Quick Turn

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>06/01/99</u>

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0397

N905024-07

BOV8M1

DATA SHEET

SDG <u>7120</u>	Client/Case no <u>Hanford</u>	SDG- <u>H0397</u>
Contact <u>L.A. Johnson</u>	Case no <u>TRB-SBB-207925</u>	
Lab sample id <u>N905024-07</u>	Client sample id <u>BOV8M1</u>	
Dept sample id <u>7120-007</u>	Location/Matrix <u>100-H-5</u>	<u>SOLID</u>
Received <u>05/06/99</u>	Collected <u>04/30/99 10:20</u>	
% solids <u>96.4</u>	Custody/SAF No <u>B99-041-007</u>	<u>B99-041</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 233/234	U-233/234	0.330	0.11	0.066	0.30		U
Uranium 235	15117-96-1	0.042	0.042	0.080	0.30	U	U
Uranium 238	U-238	0.286	0.11	0.066	0.30	J	U
Plutonium 238	13981-16-3	-0.005	0.021	<u>0.059</u>	0.050	U	PU
Plutonium 239/240	PU-239/240	0.005	0.021	0.041	0.050	U	PU

100 H Areas - Quick Turn

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>06/01/99</u>

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0397

N905024-08

BOV8M2

DATA SHEET

SDG <u>7120</u>	Client/Case no <u>Hanford</u>	SDG-H0397
Contact <u>L.A. Johnson</u>	Case no <u>TRB-SBB-207925</u>	
Lab sample id <u>N905024-08</u>	Client sample id <u>BOV8M2</u>	
Dept sample id <u>7120-008</u>	Location/Matrix <u>100-H-5</u>	<u>SOLID</u>
Received <u>05/06/99</u>	Collected <u>04/30/99 10:35</u>	
% solids <u>95.3</u>	Custody/SAF No <u>B99-041-007</u>	<u>B99-041</u>

ANALYTE	CAS NO	RESULT pCi/g	2 σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 233/234	U-233/234	0.742	0.17	0.069	0.30		U
Uranium 235	15117-96-1	0.033	0.044	0.084	0.30	U	U
Uranium 238	U-238	0.308	0.11	0.069	0.30		U
Plutonium 238	13981-16-3	-0.012	0.024	<u>0.066</u>	0.050	U	PU
Plutonium 239/240	PU-239/240	0.006	0.024	<u>0.057</u>	0.050	U	PU

100 H Areas - Quick Turn

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>06/01/99</u>

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0397

Test PU Matrix SOLID
SDG 7120
Contact L.A. Johnson

METHOD SUMMARY
PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0397

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	Plutonium 238	Plutonium 239/240
Preparation batch 6880-065					
BOV8L5	N905024-01	7120-001		U	U
BOV8L6	N905024-02	7120-002		U	U
BOV8L7	N905024-03	7120-003		U	U
BOV8L8	N905024-04	7120-004		U	U
BOV8L9	N905024-05	7120-005		U	U
BOV8M0	N905024-06	7120-006		U	U
BOV8M1	N905024-07	7120-007		U	U
BOV8M2	N905024-08	7120-008		U	U
BLK (QC ID=30715)	N905024-10	7120-010		U	U
LCS (QC ID=30714)	N905024-09	7120-009		ok	ok
Duplicate (N905024-01)	N905024-11	7120-011		- U	- U

Nominal values and limits from method RDLs (pCi/g) 0.050 0.050
100 H Areas - Quick Turn

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 6880-065 2σ prep error 5.0 % Reference Lab Notebook 6880 pg.65															
BOV8L5	N905024-01			0.050	0.500			77		588			19	05/17/99	SS-013
BOV8L6	N905024-02			0.047	0.500			68		588			19	05/17/99	SS-016
BOV8L7	N905024-03			0.055	0.500			78		563			19	05/17/99	SS-036
BOV8L8	N905024-04			0.058	0.500			82		563			19	05/17/99	SS-043
BOV8L9	N905024-05			0.076	0.500			59		563			18	05/17/99	SS-061
BOV8M0	N905024-06			0.052	0.500			77		563			18	05/17/99	SS-062
BOV8M1	N905024-07			0.059	0.500			76		563			18	05/17/99	SS-065
BOV8M2	N905024-08			0.066	0.500			70		563			18	05/17/99	SS-066
BLK (QC ID=30715)	N905024-10			0.020	1.00			79		891				05/17/99	SS-065
LCS (QC ID=30714)	N905024-09			0.018	1.00			86		588				05/17/99	SS-012
Duplicate (N905024-01)	N905024-11			0.050	0.500			71		894			20	05/17/99	SS-066
	(QC ID=30716)														

Nominal values and limits from method 0.050 1.00 20-105 10 100 180

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/01/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0397

METHOD SUMMARY, cont.

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Test PU Matrix SOLID

SDG 7120

Contact L.A. Johnson

Client Hanford

Contract TRB-SBB-207925

Case no SDG-H0397

PROCEDURES	REFERENCE	PUPLATE
	EP-060	Soil Preparation, rev 0
	EP-070	Soil Dissolution, rev 0
	EP-940	Plutonium Purification, rev 0
	EP-008	Heavy Elements Electroplating, rev 0

AVERAGES ± 2 SD	MDA	<u>0.050</u> ± <u>0.035</u>
FOR 11 SAMPLES	YIELD	<u>75</u> ± <u>15</u>

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 06/01/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0397

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Test U Matrix SOLID
SDG 7120
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0397

RESULTS

CLIENT SAMPLE ID	LAB	RAW	SUF-	1: Uranium		2: Uranium		3: Uranium		RESULT RATIOS (%)					
	SAMPLE ID	TEST	FIX	PLANCHET	233/234	235	238	1+3	2σ	2+3	2σ				
Preparation batch 6880-065															
B0V8L5	N905024-01	7120-001			0.428	U		0.487		88	38	10	10		
B0V8L6	N905024-02	7120-002			0.398	U		0.444		90	41	5	5		
B0V8L7	N905024-03	7120-003			0.369	U		0.387		95	43	6	6		
B0V8L8	N905024-04	7120-004			0.438	U		0.331		132	59	7	7		
B0V8L9	N905024-05	7120-005			0.341	U		0.398		86	43	4	7		
B0V8M0	N905024-06	7120-006			0.323	U		0.359		90	41	15	13		
B0V8M1	N905024-07	7120-007			0.330	U		0.286 J		115	59	15	16		
B0V8M2	N905024-08	7120-008			0.742	U		0.308		<u>241</u>	102	11	15		
BLK (QC ID=30715)	N905024-10	7120-010			U	U		U							
Duplicate (N905024-01)	N905024-11	7120-011			ok	J		-	U	ok		81	41	17	13
Nominal values and limits from method				RDLs (pCi/g)	0.30		0.30		0.30		100		4		
100 H Areas - Quick Turn											Averages	113	10		

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB	RAW	SUF-	MAX MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
	SAMPLE ID	TEST	FIX	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6880-065 2σ prep error 5.0 % Reference Lab Notebook 6880 pg.65																
B0V8L5	N905024-01			0.090	1.00			81		155			19	05/15/99	05/18	SS-011
B0V8L6	N905024-02			0.086	1.00			84		155			19	05/15/99	05/18	SS-012
B0V8L7	N905024-03			0.083	1.00			84		155			19	05/15/99	05/18	SS-013
B0V8L8	N905024-04			0.083	1.00			86		155			19	05/15/99	05/18	SS-014
B0V8L9	N905024-05			0.11	1.00			68		155			18	05/15/99	05/18	SS-015
B0V8M0	N905024-06			0.083	1.00			88		155			18	05/15/99	05/18	SS-016
B0V8M1	N905024-07			0.080	1.00			96		153			18	05/15/99	05/18	SS-035
B0V8M2	N905024-08			0.084	1.00			90		153			18	05/15/99	05/18	SS-036
BLK (QC ID=30715)	N905024-10			0.078	1.00			97		153				05/15/99	05/18	SS-039
Duplicate (N905024-01)	N905024-11			0.077	1.00			103		153			19	05/15/99	05/18	SS-040
(QC ID=30716)																
Nominal values and limits from method				0.30	1.00			30-105		150	100		180			

METHOD SUMMARIES

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TMA/RICHMOND

SAMPLE DELIVERY GROUP H0397

METHOD SUMMARY, cont.

URANIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client Hanford

Contract TRB-SBB-207925

Case no SDG-H0397

Test U Matrix SOLID
SDG 7120
Contact L.A. Johnson

PROCEDURES	REFERENCE	UPLATE
	EP-060	Soil Preparation, rev 0
	EP-070	Soil Dissolution, rev 0
	EP-910	Uranium Purification, rev 0
	EP-008	Heavy Elements Electroplating, rev 0

AVERAGES \pm 2 SD	MDA <u>0.085</u> \pm <u>0.019</u>
FOR 10 SAMPLES	YIELD <u>88</u> \pm <u>20</u>

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 06/01/99

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0397

SDG 7120
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0397

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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SAMPLE DELIVERY GROUP H0397

SDG 7120
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0397

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 H0397

SDG 7120
Contact L.A. Johnson

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Client Hanford
Contract TRB-SBB-207925
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WORK SUMMARY

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

The following notes apply to this report:

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

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SAMPLE DELIVERY GROUP H0397

SDG 7120
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
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DATA SHEET

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

The following notes apply to this report:

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

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

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

The following qualifiers are defined by the DVD system:

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

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SUMMARY DATA SECTION

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SDG 7120
Contact L.A. Johnson

GUIDE, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0397

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.

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0397

SDG 7120
Contact L.A. Johnson

GUIDE, cont.

Client Hanford
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Case no SDG-H0397

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 H0397

SDG 7120
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
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LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

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SDG 7120
Contact L.A. Johnson

REPORT GUIDE

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Contract TRB-SBB-207925
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DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

This value reported for this limit is at most 999.

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

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TMA / RICHMOND
SAMPLE DELIVERY GROUP H0397

SDG 7120
Contact L.A. Johnson

GUIDE, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0397

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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SDG 7120
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REPORT GUIDE

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MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

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

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/01/99

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0397

SDG 7120
Contact L.A. Johnson

GUIDE, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0397

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.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/01/99

TMA / RICHMOND
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REPORT GUIDE

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Contract TRB-SBB-207925
Case no SDG-H0397

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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GUIDE, cont.

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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 H0397

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Contact L.A. Johnson

GUIDE, cont.

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METHOD SUMMARY

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

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

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

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

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

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

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SAMPLE DELIVERY GROUP H0397

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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.

REPORT GUIDES

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SUMMARY DATA SECTION

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Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/01/99

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-041-007

Collector Mike Stankovich	Company Contact Mike Stankovich	Telephone No. (509) 531-7620	Project Coordinator TRENT, SJ	Price Code	Data Turnaround
Project Designation 100 H Area - Quick Turn	Sampling Location 100-H-5	Field Logbook No. EL-1500	SAF No. B99-041	21 Day	
Ice Chest No. ERC 99-004	Offsite Property No. A990130	Method of Shipment Federal Express			
Shipped To TMA/RECRA BIN 5/4/99 Thermo Rotech	Bill of Lading/Air Bill No. 423579525599	COA R11HX12000			

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None																		
	Type of Container	aG																		
Special Handling and/or Storage	No. of Container(s)	1																		
	Volume	60mL																		
SAMPLE ANALYSIS		Isotopic Uranium (Uranium-238); Isotopic Plutonium																		
Sample No.	Matrix *	Sample Date	Sample Time																	
✓ BOV8L9	Soil	4-30-99	0805	✓																BOV8R9
✓ BOV8M0	Soil	4-30-99	0845	✓																BOV8T1
✓ BOV8M1	Soil	4-30-99	1020	✓																BOV8T4
✓ BOV8M2	Soil	4-30-99	1035	✓																BOV8T5

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS COC - R11HX12000 ** Above indicated samples containers shipped directly to Thermo Nutech Richmond, CA. M. Stankovich unavailable to relinquish samples. 113 = 5°C				Matrix * Soil Water Vapor Other Solid Other Liquid	
Relinquished By <i>[Signature]</i> Stankovich	Date/Time 4-30-99 1735	Received By <i>[Signature]</i> #1B	Date/Time 4/30/99 1735						
Relinquished By <i>[Signature]</i> #1B	Date/Time 5/5/99 1030	Received By <i>[Signature]</i> R. Nielson	Date/Time 5/5/99 1030						
Relinquished By <i>[Signature]</i> R. Nielson	Date/Time 5/5/99 1130	Received By Federal Express	Date/Time						
Relinquished By FedEx	Date/Time 5/06/99 11:50	Received By TNU M. Goldenberg	Date/Time 5/06/99 11:50						
LABORATORY SECTION	Received By	Title		Date/Time					
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By				Date/Time			

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-041-006

Page 1 of 1

Collector Mike Stankovich	Company Contact Mike Stankovich	Telephone No. (509) 531-7620	Project Coordinator TRENT, SJ	Price Code	Data Turnaround <i>21 day</i>
Project Designation 100 H Area - Quick Turn	Sampling Location 100-H-5		SAF No. B99-041		
Ice Chest No. <i>ERC96-014</i>	Field Logbook No. EL-1500		Method of Shipment <i>Federal Express</i>		
Shipped To Thermo Retech <i>Thermo Retech</i>	Offsite Property No. <i>A990128</i>		Bill of Lading/Air Bill No. <i>423579525496</i>		
			COA <i>R11HX12000</i>		

POSSIBLE SAMPLE HAZARDS/REMARKS Radioactive	Preservation	None																	
	Type of Container	aG																	
	No. of Container(s)	1																	
Special Handling and/or Storage	Volume	60mL																	
SAMPLE ANALYSIS			Isotopic Uranium (Uranium-238); Isotopic Plutonium																
Sample No.	Matrix *	Sample Date	Sample Time																
BOV8L5	Soil	4-29-99	0825	✓															BOV8XP
BOV8L6	Soil	4-29-99	0840	✓															BOV8P4
BOV8L7	Soil	4-29-99	0905	✓															BOV8R4
BOV8L8	Soil	4-29-99	1240	✓															BOV8R8

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS COC - R11HX1 2000 ** Above indicated samples containers shipped directly to Thermo Nutech Richmond, CA.	Matrix * Soil Water Vapor Other Solid Other Liquid
Relinquished By <i>Stankovich</i>	Date/Time <i>4-29-99 1745</i>	Received By <i>IB</i>	Date/Time <i>4/29/99 1745</i>
Relinquished By <i>IB</i>	Date/Time <i>5/4/99 1030</i>	Received By <i>R. Nielson</i>	Date/Time <i>5/4/99 1030</i>
Relinquished By <i>R. Nielson</i>	Date/Time <i>5/4/99 180</i>	Received By <i>Fed Ex</i>	Date/Time
Relinquished By <i>Fed Ex</i>	Date/Time <i>5/6/99 11:50</i>	Received By <i>TNU M. Goldeberg</i>	Date/Time <i>5/6/99 11:50</i>
LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

✓
✓
✓
✓

ms 4-22-98

Contractor BHI - Hanford	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT) A990128
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PART I - TO BE COMPLETED BY ORIGINATOR

Department: ERC Engineering Support	Section: Field & Analytical Support	Unit: Field Sampling
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The following items are to be shipped from Contractor Vendor

Routing Prepaid Collect

Shipped to Company: Thermo Retec Address: 2030 Wright Ave City: Richmond, CA 94804-0040 Country: Attn: Larry Johnson State: Zip Code: (510)235-2633	Off-site Custodian	Payroll No.
	On-site Custodian	

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
1	38 lbs.	Sample #: BOV8L5, BOV8L6, BOV8L7, BOV8L8, BOVD46, BOVD47, BOVD48, BOVD49 Cooler ID: ERC96-014 Polycooler with environmental samples packed in packing peanuts. BILL OF LADING # 42357952 5496	N/A
1		Sample #: _____ Cooler ID: _____ Polycooler with environmental samples packed in packing peanuts. BILL OF LADING # _____	N/A

Classified Unclassified Shipped Under DOE Contract Shipped Under Contractor's Use Permit Contract

Necessity for the off-site use of this property

Required for Project Work. List Project No. _____

Business Trip

Off-site Assignment

Shipment to Subcontractor. List Subcontract No. _____

Other (Please specify) _____

CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.

RM Clearance for Public Release N/A RWN 5/4/99	RM Survey No.	Date
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Location of and Contact for Property (Name/Phone No./Bldg./Area)
Renee Nielson/(509)372-9604/3728 Bldg/300 Area

Date Ready for Shipment 5/4/99	Cost Code to be Charged R116B42600	Approximate Date This Property will be Returned
Originated By Renee Nielson	Date 5/4/99	Authorized By Renee Nielson
Property Representative Signature	Date	Property Management Approval Sandy Johnson
		Date 5/4/99

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature [Signature]	Date 5/4/99
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DISTRIBUTION (AFTER FINAL SIGNATURES)

White - Property Management Yellow - Shipping Green - Accounts Payable Pink - Originator Goldenrod - Property Management

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT			
Client:	<u>Bechtel Hanford Inc</u>	Date/Time received	<u>5/06/99 11:50</u>
CoC No.	<u>B99-041-006, B99-002-91</u>		
Container I.D. No.	<u>ERC 96-014</u>	Requested TAT (Days)	<u>15.21</u> P.O. Received Yes [] No [<input checked="" type="checkbox"/>]
INSPECTION			
1.	Custody seals on shipping container intact?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
2.	Custody seals on shipping container dated & signed?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
3.	Custody seals on sample containers intact?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
4.	Custody seals on sample containers dated & signed?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
5.	Cooler Temperature: _____	Packing material is:	Wet [] Dry [<input checked="" type="checkbox"/>]
6.	Number of samples in shipping container:	<u>8</u>	
7.	Number of containers per sample: _____	(Or see CoC <u>✓</u>)	
8.	Paperwork agrees with samples?	Yes [<input checked="" type="checkbox"/>]	No []
9.	Samples have:	Tape [<input checked="" type="checkbox"/>]	Hazard labels [] Rad labels [<input checked="" type="checkbox"/>] Appropriate sample labels [<input checked="" type="checkbox"/>]
10.	Samples are:	In good condition [<input checked="" type="checkbox"/>]	Leaking [] Broken Container [] Missing []
11.	Describe any anomalies: _____ _____ _____ _____		
13.	Was P.M. notified of any anomalies?	Yes []	No [] Date _____
14.	Received by	<u>M. Goldenberg</u>	Date: <u>5/6/99</u> Time: <u>11:50</u>
LOGIN			
TNU W.O. No.	Group No.	Client W.O. No.	
PROGRAM MANAGER			
Sample holding times exceeded?	Yes []	No []	
Client Notified: Name	Date/time		