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March 16, 2000

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APR 11 2000
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Ms. Joan Kessner
Bechtel Hanford Inc.
3190 George Washington Way
Richland, WA 99352
MSIN: H9-03

Reference: **P.O. #TRC-SBB-207925**
Thermo Retec N9-12-041-7306, SDG H0662 – Revision 1

Dear Ms. Kessner:

Enclosed is the data report for two solid samples designated under SAF No. B00-006 received at Thermo Retec on December 2, 1999. The samples were analyzed according to the accompanying chain-of-custody documents. This data report has been revised to include Americium-241 sample analyses requested by BHI on February 22, 2000.

Please call if you have any questions concerning this report.

Sincerely,

Melissa Mannion

Melissa C. Mannion
Program Manager

MCM

Enclosure: Data Package

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1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H0662 was composed of two solid (soil) samples designated under SAF No. B00-006 with a Project Designation of: 200 Area Source Characterization 200-CS-1 Operable Unit.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Thermo Retec Sample Receipt Checklist. Results were transmitted to BHI via facsimile on February 9, 2000. Requested Americium-241 results were transmitted to BHI via e-Fax on February 14, 2000.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

Samples B0X0B4 (7306-01) and B0X0B5 (7306-05) and their associated QC samples were recounted to verify data results due to contamination in the gross beta analysis method blank. The method blank contamination was above the RDL (15 pCi/g) for the gross beta analysis. No other problems were encountered during the course of the analyses.

2.2 Tritium Analyses

Due to the matrix spike (51%) failure in the original analysis sample B0X0B5 was reanalyzed with new QC samples. No problems were encountered during the second analysis of the tritium samples. Reanalysis data is reported herein.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

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2.5 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.6 Isotopic Thorium Analyses

No problems were encountered during the course of the analyses.

2.7 Total Uranium Analyses

No problems were encountered during the course of the analyses.

2.8 Isotopic Uranium Analyses

BHI did not request any of the samples be analyzed for Isotopic Uranium after reporting the Total Uranium results on January 17, 2000 via facsimile.

2.9 Neptunium-237 Analyses

Due to a low yield (15%) sample B0X0B5 was reanalyzed with new QC samples. No problems were encountered during the course of the second analysis. Reanalysis data is reported herein.

2.10 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.11 Americium-241 Analyses

Sample B0X0B4 had a low yield of 18%. The sample was reworked in chemistry. No other problems were encountered during the course of the analyses. The reworked sample data for B0X0B4 is reported herein.

On February 22, 2000 Americium-241 analysis was requested on sample B0X0B5 by BHI. The sample was batched with SDG H0690 (7321). Due to low yields sample BOX0B5 (7%) and its duplicate (18%) were reworked in chemistry and recounted. The reworked sample data for B0X0B5 is reported herein.

2.12 Gamma Spec Analyses

Samples were recounted to meet contract required RDLs. Sample B0X0B5 was recounted on February 10, 2000 at the request of BHI. The K-40 result appeared incorrect. The recount data of February 10, 2000 for sample B0X0B5 is reported herein. No other problems were encountered during the course of the analyses.

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

SDG 7306
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract TKB-SDB-207925
Case no SDG H0662

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
BCX0B4	200 West	SOLID		N912041-01	B00-006	B00-006-14	11/30/99 08:00
BCX0B5	200 West	SOLID		N912041-05	B00-006	B00-006-15	12/01/99 10:10
Method Blank		SOLID		N912041-03	B00-006		
Method Blank		SOLID		N912041-12	B00-006		
Method Blank		SOLID		N912041-14	B00-006		
Method Blank		SOLID		N912041-18	B00-006		
Method Blank		SOLID		N912134-13	B00-006		
Lab Control Sample		SOLID		N912041-02	B00-006		
Lab Control Sample		SOLID		N912041-11	B00-006		
Lab Control Sample		SOLID		N912041-13	B00-006		
Lab Control Sample		SOLID		N912041-17	B00-006		
Lab Control Sample		SOLID		N912134-12	B00-006		
Duplicate (N912041-01)	200 West	SOLID		N912041-04	B00-006		11/30/99 08:00
Duplicate (N912041-05)	200 West	SOLID		N912041-07	B00-006		12/01/99 10:10
Duplicate (N912041-05)	200 West	SOLID		N912041-15	B00-006		12/01/99 10:10
Duplicate (N912041-05)	200 West	SOLID		N912041-19	B00-006		12/01/99 10:10
Duplicate (N912041-05)	200 West	SOLID		N912041-20	B00-006		12/01/99 10:10
Spike (N912041-05)	200 West	SOLID		N912041-06	B00-006		12/01/99 10:10
Spike (N912041-05)	200 West	SOLID		N912041-16	B00-006		12/01/99 10:10

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 03/14/00

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SAMPLE DELIVERY GROUP H0662

SDG 7306
Contact Melissa C. Maunion

QC SUMMARY

Client Hanford
Contract TRP SPB-207925
Case no SDG H0662

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7306	B00-006-14	B0X0B4	SOLID	94.6			12/02/99	2	N912041-01	7306-001
	B00-006-15	B0X0B5	SOLID	87.4			12/03/99	2	N912041-05	7306-005
		Method Blank	SOLID						N912041-03	7306-003
		Method Blank	SOLID						N912041-12	7306-012
		Method Blank	SOLID						N912041-14	7306-014
		Method Blank	SOLID						N912041-18	7306-018
		Lab Control Sample	SOLID						N912041-02	7306-002
		Lab Control Sample	SOLID						N912041-11	7306-011
		Lab Control Sample	SOLID						N912041-13	7306-013
		Lab Control Sample	SOLID						N912041-17	7306-017
		Duplicate (N912041-01)	SOLID				12/02/99	2	N912041-04	7306-004
		Duplicate (N912041-05)	SOLID				12/03/99	2	N912041-07	7306-007
		Duplicate (N912041-05)	SOLID				12/03/99	2	N912041-15	7306-015
		Duplicate (N912041-05)	SOLID				12/03/99	2	N912041-19	7306-019
		Duplicate (N912041-05)	SOLID				12/03/99	2	N912041-20	7306-020
		Spike (N912041-05)	SOLID				12/03/99	2	N912041-06	7306-006
		Spike (N912041-05)	SOLID				12/03/99	2	N912041-16	7306-016
7321		Method Blank	SOLID						N912134-13	7321-013
		Lab Control Sample	SOLID						N912134-12	7321-012

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 03/14/00

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SAMPLE DELIVERY GROUP H0662

SDG 7306
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract TRP-SBB-207925
Case no SDG H0662

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Soil	6909-138	5.0	1			1	1	1/1		
			6909-186	5.0	1			1	1	1/1		
NP	SOLID	Neptunium in Soil	6909-138	5.0	1			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6909-138	5.0	2			1	1	1/1		
TH	SOLID	Thorium, Isotopic in Soil	6909-138	5.0	1			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	6909-138	10.0	2			1	1	1/1		
TC	SOLID	Technetium 99 in Soil	6909-138	10.0	1			1	1	1/1		
Gas Proportional Counting												
80A	SOLID	Gross Alpha in Soil	6909-138	20.0	2			1	1	1/1		
80B	SOLID	Gross Beta in Soil	6909-138	15.0	2			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6909-138	15.0	2			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOLID	Uranium, Total in Soil	6909-138	9.0	2			1	1	1/1		
Liquid Scintillation Counting												
H	SOLID	Tritium in Soil	6909-138	10.0	1			1	1	1/1	1/1	
NI_L	SOLID	Nickel 63 in Soil	6909-138	10.0	1			1	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 TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

WORK SUMMARY

SDG 7306
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0662

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0X0B4			N912041-01	7306-001	80A/80		02/03/00	02/09/00	MCM	Gross Alpha in Soil
200 West		SOLID	11/30/99	7306-001	80B/80		02/03/00	02/09/00	MCM	Gross Beta in Soil
B00-006-14	B00-006		12/02/99	7306-001	AM	R1	02/01/00	02/09/00	MCM	Americium 241 in Soil
				7306-001	GAM		02/01/00	02/09/00	MCM	Gamma Scan
				7306-001	PU		01/27/00	02/09/00	MCM	Plutonium, Isotopic in Solids
				7306-001	SR		01/26/00	02/09/00	MCM	Total Strontium in Soil
				7306-001	U_T		01/12/00	01/17/00	MCM	Uranium, Total in Soil
B0X0B5			N912041-05	7306-005	80A/80		02/03/00	02/09/00	MCM	Gross Alpha in Soil
200 West		SOLID	12/01/99	7306-005	80B/80		02/03/00	02/09/00	MCM	Gross Beta in Soil
B00-006-15	B00-006		12/03/99	7306-005	AM	R1	03/08/00	03/14/00	MCM	Americium 241 in Soil
				7306-005	GAM		02/10/00	02/11/00	MCM	Gamma Scan
				7306-005	H	A1	02/02/00	02/09/00	MCM	Tritium in Soil
				7306-005	NI_L		01/31/00	02/09/00	MCM	Nickel 63 in Soil
				7306-005	NP	A1	02/05/00	02/09/00	MCM	Neptunium in Soil
				7306-005	PU		01/26/00	02/09/00	MCM	Plutonium, Isotopic in Solids
				7306-005	SR		01/26/00	02/09/00	MCM	Total Strontium in Soil
				7306-005	TC		02/01/00	02/09/00	MCM	Technetium 99 in Soil
				7306-005	TH		01/28/00	02/09/00	MCM	Thorium, Isotopic in Soil
				7306-005	U_T		01/12/00	01/17/00	MCM	Uranium, Total in Soil
Method Blank			N912041-03	7306-003	80A/80		02/03/00	02/09/00	MCM	Gross Alpha in Soil
		SOLID		7306-003	80B/80		02/03/00	02/09/00	MCM	Gross Beta in Soil
	B00-006			7306-003	AM		01/27/00	02/09/00	MCM	Americium 241 in Soil
				7306-003	GAM		02/02/00	02/09/00	MCM	Gamma Scan
				7306-003	PU		01/26/00	02/09/00	MCM	Plutonium, Isotopic in Solids
				7306-003	SR		01/26/00	02/09/00	MCM	Total Strontium in Soil
				7306-003	U_T		01/12/00	01/17/00	MCM	Uranium, Total in Soil
Method Blank			N912041-12	7306-012	NI_L		01/31/00	02/09/00	MCM	Nickel 63 in Soil
		SOLID		7306-012	TC		01/31/00	02/09/00	MCM	Technetium 99 in Soil
	B00-006			7306-012	TH		01/28/00	02/08/00	MCM	Thorium, Isotopic in Soil
Method Blank			N912041-14	7306-014	H		02/02/00	02/09/00	MCM	Tritium in Soil
		SOLID								
	B00-006									

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 03/14/00

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SAMPLE DELIVERY GROUP H0662

SDG 7306
Contact Melissa C. Maynion

WORK SUMMARY, cont.

Client Hanford
Contract TKB-SRB-207925
Case no SDG H0662

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Method Blank			N912041-18	7306-018	NP		02/05/00	02/09/00	MCM	Neptunium in Soil
		SOLID								
	B00-006									
Method Blank			N912134-13	7321-013	AM		03/02/00	03/07/00	MCM	Americium 241 in Soil
		SOLID								
	B00-006									
Lab Control Sample			N912041-02	7306-002	80A/80		02/03/00	02/09/00	MCM	Gross Alpha in Soil
		SOLID		7306-002	80B/80		02/03/00	02/09/00	MCM	Gross Beta in Soil
	B00-006			7306-002	AM		01/27/00	02/09/00	MCM	Americium 241 in Soil
				7306-002	GAM		02/02/00	02/09/00	MCM	Gamma Scan
				7306-002	PU		01/26/00	02/09/00	MCM	Plutonium, Isotopic in Solids
				7306-002	SR		01/26/00	02/09/00	MCM	Total Strontium in Soil
				7306-002	U_T		01/12/00	01/17/00	MCM	Uranium, Total in Soil
Lab Control Sample			N912041-11	7306-011	NI_L		01/31/00	02/09/00	MCM	Nickel 63 in Soil
		SOLID		7306-011	TC		01/31/00	02/09/00	MCM	Technetium 99 in Soil
	B00-006			7306-011	TH		01/28/00	02/08/00	MCM	Thorium, Isotopic in Soil
Lab Control Sample			N912041-13	7306-013	H		02/02/00	02/09/00	MCM	Tritium in Soil
		SOLID								
	B00-006									
Lab Control Sample			N912041-17	7306-017	NP		02/05/00	02/09/00	MCM	Neptunium in Soil
		SOLID								
	B00-006									
Lab Control Sample			N912134-12	7321-012	AM		03/03/00	03/07/00	MCM	Americium 241 in Soil
		SOLID								
	B00-006									
Duplicate (N912041-01)			N912041-04	7306-004	80A/80		02/03/00	02/09/00	MCM	Gross Alpha in Soil
200 West		SOLID	11/30/99	7306-004	80B/80		02/03/00	02/09/00	MCM	Gross Beta in Soil
	B00-006		12/02/99	7306-004	AM		01/27/00	02/09/00	MCM	Americium 241 in Soil
				7306-004	GAM		02/03/00	02/09/00	MCM	Gamma Scan
				7306-004	PU		01/26/00	02/09/00	MCM	Plutonium, Isotopic in Solids
				7306-004	SR		01/26/00	02/09/00	MCM	Total Strontium in Soil
				7306-004	U_T		01/12/00	01/17/00	MCM	Uranium, Total in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

SDG 7306
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRP-SEP-207925
Case no SDG H0662

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Duplicate (N912041-05)			N912041-07	7306-007	NI_L		01/31/00	02/09/00	MCM	Nickel 63 in Soil
200 West		SOLID	12/01/99	7306-007	TC		02/01/00	02/09/00	MCM	Technetium 99 in Soil
	B00-006		12/03/99	7306-007	TH		01/28/00	02/09/00	MCM	Thorium, Isotopic in Soil
Duplicate (N912041-05)			N912041-15	7306-015	H		02/02/00	02/09/00	MCM	Tritium in Soil
200 West		SOLID	12/01/99							
	B00-006		12/03/99							
Duplicate (N912041-05)			N912041-19	7306-019	NP		02/05/00	02/09/00	MCM	Neptunium in Soil
200 West		SOLID	12/01/99							
	B00-006		12/03/99							
Duplicate (N912041-05)			N912041-20	7306-020	AM	R1	03/03/00	03/14/00	MCM	Americium 241 in Soil
200 West		SOLID	12/01/99							
	B00-006		12/03/99							
Spike (N912041-05)			N912041-06	7306-006	NI_L		01/31/00	02/09/00	MCM	Nickel 63 in Soil
200 West		SOLID	12/01/99							
	B00-006		12/03/99							
Spike (N912041-05)			N912041-16	7306-016	H		02/02/00	02/09/00	MCM	Tritium in Soil
200 West		SOLID	12/01/99							
	B00-006		12/03/99							

Lab id TMANC
Protocol Hanford
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Version 3.06
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SAMPLE DELIVERY GROUP H0662

SDG 7306
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0662

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
80A/80	B00-006	Gross Alpha in Soil	EPA900.0	2			1	1	1		5
80B/80	B00-006	Gross Beta in Soil	EPA900.0	2			1	1	1		5
AM	B00-006	Americium 241 in Soil	AM/CMPLATE	2			2	2	2		8
GAM	B00-006	Gamma Scan	GAMMAHI	2			1	1	1		5
H	B00-006	Tritium in Soil	EPA906.0	1			1	1	1	1	5
NI_L	B00-006	Nickel 63 in Soil	NI63LSC	1			1	1	1	1	5
NP	B00-006	Neptunium in Soil	NP237PLATE	1			1	1	1		4
PU	B00-006	Plutonium, Isotopic in Solids	PUPLATE	2			1	1	1		5
SR	B00-006	Total Strontium in Soil	SRTOTAL	2			1	1	1		5
TC	B00-006	Technetium 99 in Soil	TC99TRLSC	1			1	1	1		4
TH	B00-006	Thorium, Isotopic in Soil	THPLATE	1			1	1	1		4
U_T	B00-006	Uranium, Total in Soil	UKPA	2			1	1	1		5
TOTALS				19			13	13	13	2	60

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041-03

Method Blank

METHOD BLANK

SDG	7306	Client/Case no	Hanford SDG H0662
Contact	Melissa C. Mannion	Contract	TRB-SEB-207925
Lab sample id	N912041-03	Client sample id	Method Blank
Dept sample id	7306-003	Material/Matrix	SOLID
		SAF No	B00-006

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.032	1.4	2.9	10	U	80A
Gross Beta	12587-47-2	19.4	5.0	7.0	15		80B
Total Uranium (ug/g)	7440-61-1	0	0.001	0.002	1.0	U	U_T
Plutonium 238	13981-16-3	0.003	0.027	0.049	1.0	U	PU
Plutonium 239/240	PU-239/240	0.003	0.014	0.033	1.0	U	PU
Americium 241	14596-10-2	0.032	0.028	0.034	1.0	U	AM
Total Strontium	SR-RAD	0.024	0.23	0.31	1.0	U	SR
Potassium 40	13966-00-2	U		1.9		U	GAM
Cobalt 60	10198-40-0	U		0.11	0.050	U	GAM
Cesium 137	10045-97-3	U		0.096	0.10	U	GAM
Europium 152	14683-23-9	U		0.25	0.10	U	GAM
Europium 154	15585-10-1	U		0.32	0.10	U	GAM
Europium 155	14391-16-3	U		0.25	0.10	U	GAM
Radium 226	13982-63-3	U		0.18	0.10	U	GAM
Radium 228	15262-20-1	U		0.58	0.20	U	GAM
Thorium 228	14274-82-9	U		0.14		U	GAM
Thorium 232	TH-232	U		0.58		U	GAM
Americium 241	14596-10-2	U		0.30		U	GAM
Uranium 238	U-238	U		12		U	GAM
Uranium 235	15117-96-1	U		0.33		U	GAM

200 Area Source Chara. - 200-CS-1 OU

QC-BLANK 33045

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041-12

Method Blank

METHOD BLANK

SDG	7306	Client/Case no	Hanford SDG H0662
Contact	Melissa C. Mannion	Contract	TRB-SPB-207925
Lab sample id	N912041-12	Client sample id	Method Blank
Dept sample id	7306-012	Material/Matrix	SOLID
		SAF No	B00-006

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Technetium 99	14133-76-7	-0.043	0.28	0.81	15	U	TC
Nickel 63	13981-37-8	0.411	1.2	2.0	30	U	NI_L
Thorium 228	14274-82-9	-0.026	0.078	0.19	1.0	U	TH
Thorium 230	14269-63-7	0.039	0.13	0.17	1.0	U	TH
Thorium 232	TH-232	0.013	0.026	0.099	1.0	U	TH

200 Area Source Chara. - 200-CS-1 OU

QC-BLANK 33199

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041-14

Method Blank

METHOD BLANK

SDG	7306	Client/Case no	Hanford	SDG H0662	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N912041-14	Client sample id	Method Blank		
Dept sample id	7306-014	Material/Matrix		SOLID	
		SAF No	B00-006		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Tritium	10028-17-8	-0.142	0.15	0.27	400	U	H

200 Area Source Chara. - 200-CS-1 OU

QC-BLANK #33299

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/14/00

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041-18 Method Blank

METHOD BLANK

SDG	7306	Client/Case no	Hanford
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N912041-18	Client sample id	Method Blank
Dept sample id	7306-018	Material/Matrix	SOLID
		SAF No	B00-006

SDG H0662

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Neptunium 237	13994-20-2	0	0.006	0.010	1.0	U	NP

200 Area Source Chara. - 200-CS-1 OU

QC-BLANK 33311

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912134-13

Method Blank

METHOD BLANK

SDG	7306	Client/Case no	Hanford	SDG H0662	
Contact	Melissa C. Mannion	Contract	TRB-SRB-207925		
Lab sample id	N912134-13	Client sample id	Method Blank		
Dept sample id	7321-013	Material/Matrix		SOLID	
		SAF No	B00-006		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Americium 241	14596-10-2	0.025	0.051	0.093	1.0	U	AM

200 Area Source Chara. - 200-CS-1 OU

QC-BLANK #33564

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7306

Contact Melissa C. Mannion

Client/Case no Hanford SDG H0662

Case no CHP-SPB-207925

Lab sample id N912041-02

Dept sample id 7306-002

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No F00-006

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	154	13	3.1	10		80A	201	8.0	77	74-126	70-130
Gross Beta	240	11	6.2	15	B	80B	225	9.0	107	74-126	70-130
Total Uranium (ug/g)	31.2	3.7	0.023	1.0		U_T	33.0	1.3	95	78-122	80-120
Plutonium 238	8.45	0.54	0.025	1.0		PU	10.0	0.40	84	88-112	80-120
Plutonium 239/240	9.05	0.57	0.032	1.0		PU	10.6	0.42	85	88-112	80-120
Americium 241	8.59	0.55	0.033	1.0		AM	9.58	0.38	90	88-112	80-120
Total Strontium	11.8	0.67	0.25	1.0		SR	11.2	0.45	105	81-119	80-120
Cobalt 60	5.71	0.39	0.18	0.050		GAM	6.02	0.24	95	76-124	80-120
Cesium 137	6.25	0.34	0.23	0.10		GAM	6.42	0.26	97	76-124	80-120

200 Area Source Chara. - 200-CS-1 OU

QC-LCS 33044

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041-11

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7306

Contact Melissa C. Mannion

Client/Case no Hanford SDG H0662

Case no 2KB-SPB-207925

Lab sample id N912041-11

Dept sample id 7306-011

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No P00-006

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Technetium 99	52.5	2.3	0.94	15		TC	56.7	2.3	93	84-116	80-120
Nickel 63	153	3.9	2.0	30		NI_L	147	5.9	104	83-117	80-120
Thorium 228	-0.026	0.13	0.25	1.0	U	TH					
Thorium 230	21.3	1.5	0.16	1.0		TH	22.4	0.90	95	86-114	
Thorium 232	0.079	0.079	0.10	1.0	U	TH					

200 Area Source Chara. - 200-CS-1 OU

QC-LCS 33198

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041-13

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7306

Contact Melissa C. Mannion

Client/Case no Hanford SDG H0662

Case no TKB-SBR-207925

Lab sample id N912041-13

Dept sample id 7306-013

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No B00-006

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	23.9	0.78	0.61	400	J	H	25.0	1.0	96	84-116	80-120

200 Area Source Chara. - 200-CS-1 OU

QC-LCS #33298

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041-17

Lab Control Sample

LAB CONTROL SAMPLE

SDG	7306	Client/Case no	Hanford SDG H0662
Contact	Melissa C. Mannion	Case no	TRR-SPP-207925
Lab sample id	N912041-17	Client sample id	Lab Control Sample
Dept sample id	7306-017	Material/Matrix	SOLID
		SAF No	P00 006

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Neptunium 237	10.1	0.44	0.031	1.0		NP	10.6	0.42	95	89-111	70-130

200 Area Source Chara. - 200-CS-1 OU

QC-LCS 33310

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-LCS
Version	3.06
Report date	03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912134-12

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7306

Contact Melissa C. Mannion

Client/Case no Hanford SDG H0662

Case no TKB-SPB-207925

Lab sample id N912134-12

Dept sample id 7321-012

Client sample id Lab Control Sample

Material/Matrix SOLID

SAF No H00-006

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Americium 241	45.9	20	1.2	1.0		AM	38.2	1.5	120	21-179	80-120

200 Area Source Chara. - 200-CS-1 OU

QC-LCS #33563

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041 04

B0X0B4

DUPLICATE

SDG 7306

Contact Melissa C. Mannion

Client/Case no Hanford SDG H0662

Case no TRB-SBB-207925

DUPLICATE	ORIGINAL	
Lab sample id N912041-04	Lab sample id N912041-01	Client sample id B0X0B4
Dept sample id 7306-004	Dept sample id 7306-001	Location/Matrix 200 West SOLID
	Received 12/02/99	Collected 11/30/99 08:00
	% solids 94.6	Custody/SAF No B00-006-14 B00-006

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	7.37	3.8	4.1	10	J	80A	10.7	4.3	3.9		37	105
Gross Beta	26.4	4.9	5.9	15	B	80B	40.3	6.2	7.7	B	42	48
Total Uranium (ug/g)	0.814	0.094	0.002	1.0	J	U_T	0.806	0.094	0.002	J	1	31
Plutonium 238	-0.011	0.033	0.083	1.0	U	PU	-0.006	0.012	0.034	U	-	
Plutonium 239/240	0.005	0.033	0.067	1.0	U	PU	0.006	0.012	0.030	U	-	
Americium 241	0	0.069	0.14	1.0	U	AM	0.019	0.057	0.10	U	-	
Total Strontium	-0.023	0.12	0.18	1.0	U	SR	-0.068	0.12	0.17	U	-	
Potassium 40	9.78	1.6	1.0			GAM	9.14	1.3	0.76		7	46
Cobalt 60	U		0.10	0.050	U	GAM	U		0.092	U	-	
Cesium 137	U		0.098	0.10	U	GAM	U		0.075	U	-	
Europium 152	U		0.25	0.10	U	GAM	U		0.20	U	-	
Europium 154	U		0.35	0.10	U	GAM	U		0.26	U	-	
Europium 155	U		0.22	0.10	U	GAM	U		0.19	U	-	
Radium 226	0.516	0.18	0.21	0.10		GAM	0.533	0.16	0.16		3	76
Radium 228	0.808	0.41	0.43	0.20		GAM	0.606	0.37	0.40		29	122
Thorium 228	0.746	0.11	0.12			GAM	0.623	0.090	0.092		18	45
Thorium 232	0.808	0.41	0.43			GAM	0.606	0.37	0.40		29	122
Americium 241	U		0.29		U	GAM	U		0.24	U	-	
Uranium 238	U		11		U	GAM	U		8.7	U	-	
Uranium 235	U		0.32		U	GAM	U		0.26	U	-	

200 Area Source Chara. - 200-CS-1 OU

QC-DUP#1 33046

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041-07

B0X0B5

DUPLICATE

SDG 7306

Contact Melissa C. Marnion

Client/Case no Hanford SDG H0662

Case no TRP-SFP-207925

DUPLICATE	ORIGINAL	
Lab sample id N912041-07	Lab sample id N912041-05	Client sample id B0X0B5
Dept sample id 7306-007	Dept sample id 7306-005	Location/Matrix 200 West SOLID
	Received 12/03/99	Collected 12/01/99 10:10
	% solids 87.4	Custody/SAF No P00-006-15 P00-006

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Technetium 99	0.069	0.18	0.27	15	U	TC	0.118	0.45	0.87	U	-		
Nickel 63	0.627	1.2	2.0	30	U	NI_L	1.40	1.2	2.0	U	-		
Thorium 228	0.358	0.16	0.18	1.0	J	TH	0.484	0.19	0.21	J	30	89	
Thorium 230	0.323	0.16	0.14	1.0	J	TH	0.436	0.22	0.21	J	30	108	
Thorium 232	0.288	0.12	0.088	1.0	J	TH	0.390	0.16	0.12	J	30	89	

200 Area Source Chara. - 200-CS-1 OU

QC-DUP#5 33197

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041-15

B0X0B5

DUPLICATE

SDG 7306		Client/Case no Hanford	SDG H0662
Contact Melissa C. Marrion		Case no TRP-SPB-207925	
DUPLICATE	ORIGINAL		
Lab sample id N912041-15	Lab sample id N912041-05	Client sample id B0X0B5	
Dept sample id 7306-015	Dept sample id 7306-005	Location/Matrix 200 West	SOLID
	Received 12/03/99	Collected 12/01/99 10:10	
	% solids 87.4	Custody/SAF No B00-006-15	B00-006

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Tritium	-0.125	0.11	0.20	400	U	H	-0.046	0.12	0.20	U	-		

200 Area Source Chara. - 200-CS-1 OU

QC-DUP#5A1 33300

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041-19

H0X0B5

DUPLICATE

SDG	7306		Client/Case no	Hanford	SDG H0662
Contact	Melissa C. Mannion		Case no	TAP-SPB-207925	
DUPLICATE		ORIGINAL			
Lab sample id	N912041-19	Lab sample id	N912041-05	Client sample id	B0X0B5
Dept sample id	7306-019	Dept sample id	7306-005	Location/Matrix	200 West SOLID
		Received	12/03/99	Collected	12/01/99 10:10
		% solids	87.4	Custody/SAF No	B00-006-15 B00-006

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Neptunium 237	0.004	0.035	0.067	1.0	U	NP	0.004	0.017	0.040	U	-		

200 Area Source Chara. - 200-CS-1 OU

QC-DUP#SA1 33312

DUPLICATES

Page 4

SUMMARY DATA SECTION

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Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041 20 B0X0B5

DUPLICATE

SDG	7306			Client/Case no	Hanford SDG H0662
Contact	Melissa C. Mannion			Case no	TRB-SPB-207925
DUPLICATE		ORIGINAL			
Lab sample id	N912041-20	Lab sample id	N912041-05	Client sample id	B0X0B5
Dept sample id	7306-020	Dept sample id	7306-005	Location/Matrix	200 West SOLID
		Received	12/03/99	Collected	12/01/99 10:10
		% solids	87.4	Custody/SAF No	B00-006-15 B00-006

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Americium 241	0	0.029	0.069	1.0	U	AM	0.024	0.036	0.046	U	-	

200 Area Source Chara. - 200-CS-1 OU

QC-DUP#ER1 33689

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041-06

B0X0B5

MATRIX SPIKE

SDG	7306		Client/Case no	Hanford	SDG H0662
Contact	Melissa C. Mannion		Case no	TRB-SRB-207925	
MATRIX SPIKE		ORIGINAL			
Lab sample id	N912041-06	Lab sample id	N912041-05	Client sample id	B0X0B5
Dept sample id	7306-006	Dept sample id	7306-005	Location/Matrix	200 West SOLID
		Received	12/03/99	Collected	12/01/99 10:10
		% solids	87.4	Custody/SAF No	B00-006-15 B00-006

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 LMTS (TOTAL)	PROTOCOL LIMITS
Nickel 63	129	3.6	2.0	30		N1_L	147	5.9	1.40	1.2	87	85-115	60-140

200 Area Source Chara. - 200-CS-1 OU

QC-MS#5 33196

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-MS
Version	3.06
Report date	03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041-16 B0X0B5

MATRIX SPIKE

SDG 7306		Client/Case no Hanford	SDG H0662
Contact Melissa C. Mannion		Case no TBP-SBP-207925	
MATRIX SPIKE	ORIGINAL		
Lab sample id N912041-16	Lab sample id N912041-05	Client sample id BOX0B5	
Dept sample id 7306-016	Dept sample id 7306-005	Location/Matrix 200 West	SOLID
	Received 12/03/99	Collected 12/01/99 10:10	
	% solids 87.4	Custody/SAF No B00-006-15	B00-006

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 LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	92.1	1.0	0.33	400	J	H	94.7	3.8	-0.046	0.12	97	84-116	60-140

200 Area Source Chara. - 200-CS-1 OU

QC-MS#5A1 33301

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-MS
Version 3.06
Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041-01

B0X0B4

DATA SHEET

SDG	7306	Client/Case no	Hanford	SDG H0662	
Contact	Melissa C. Mannion	Contract	TRB-SPB-207925		
Lab sample id	N912041-01	Client sample id	B0X0B4		
Dept sample id	7306-001	Location/Matrix	200 West	SOLID	
Received	12/02/99	Collected	11/30/99 08:00		
% solids	94.6	Custody/SAF No	B00-006-14	B00-006	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	10.7	4.3	3.9	10		80A
Gross Beta	12587-47-2	40.3	6.2	7.7	15	B	80B
Total Uranium (ug/g)	7440-61-1	0.806	0.094	0.002	1.0	J	U_T
Plutonium 238	13981-16-3	-0.006	0.012	0.034	1.0	U	PU
Plutonium 239/240	PU-239/240	0.006	0.012	0.030	1.0	U	PU
Americium 241	14596-10-2	0.019	0.057	0.10	1.0	U	AM
Total Strontium	SR-RAD	-0.068	0.12	0.17	1.0	U	SR
Potassium 40	13966-00-2	9.14	1.3	0.76			GAM
Cobalt 60	10198-40-0	U		0.092	0.050	U	GAM
Cesium 137	10045-97-3	U		0.075	0.10	U	GAM
Europium 152	14683-23-9	U		0.20	0.10	U	GAM
Europium 154	15585-10-1	U		0.26	0.10	U	GAM
Europium 155	14391-16-3	U		0.19	0.10	U	GAM
Radium 226	13982-63-3	0.533	0.16	0.16	0.10		GAM
Radium 228	15262-20-1	0.606	0.37	0.40	0.20		GAM
Thorium 228	14274-82-9	0.623	0.090	0.092			GAM
Thorium 232	TH-232	0.606	0.37	0.40			GAM
Americium 241	14596-10-2	U		0.24		U	GAM
Uranium 238	U-238	U		8.7		U	GAM
Uranium 235	15117-96-1	U		0.26		U	GAM

200 Area Source Chara. - 200-CS-1 OU

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

N912041-05 B0X0B5

DATA SHEET

SDG	7306	Client/Case no	Hanford SDG H0662
Contact	Melissa C. Mannion	Contract	TRB-SPB-207925
Lab sample id	N912041-05	Client sample id	B0X0B5
Dept sample id	7306-005	Location/Matrix	200 West SOLID
Received	12/03/99	Collected	12/01/99 10:10
% solids	87.4	Custody/SAF No	B00-006-15 B00-006

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	3.02	2.4	3.0	10	J	80A
Gross Beta	12587-47-2	24.0	5.0	6.4	15	B	80B
Tritium	10028-17-8	-0.046	0.12	0.20	400	U	H
Neptunium 237	13994-20-2	0.004	0.017	0.040	1.0	U	NP
Technetium 99	14133-76-7	0.118	0.45	0.87	15	U	TC
Total Uranium (ug/g)	7440-61-1	0.589	0.070	0.002	1.0	J	U_T
Plutonium 238	13981-16-3	-0.014	0.028	0.063	1.0	U	PU
Plutonium 239/240	PU-239/240	0.021	0.021	0.026	1.0	U	PU
Nickel 63	13981-37-8	1.40	1.2	2.0	30	U	NI_L
Americium 241	14596-10-2	0.024	0.036	0.046	1.0	U	AM
Total Strontium	SR-RAD	-0.027	0.14	0.20	1.0	U	SR
Thorium 228	14274-82-9	0.484	0.19	0.21	1.0	J	TH
Thorium 230	14269-63-7	0.436	0.22	0.21	1.0	J	TH
Thorium 232	TH-232	0.390	0.16	0.12	1.0	J	TH
Potassium 40	13966-00-2	10.7	2.0	1.2			GAM
Cobalt 60	10198-40-0	U		0.14	0.050	U	GAM
Cesium 137	10045-97-3	U		0.12	0.10	U	GAM
Europium 152	14683-23-9	U		0.29	0.10	U	GAM
Europium 154	15585-10-1	U		0.34	0.10	U	GAM
Europium 155	14391-16-3	U		0.28	0.10	U	GAM
Radium 226	13982-63-3	0.311	0.17	0.20	0.10		GAM
Radium 228	15262-20-1	0.667	0.44	0.54	0.20		GAM
Thorium 228	14274-82-9	0.883	0.16	0.19			GAM
Thorium 232	TH-232	0.667	0.44	0.54			GAM
Americium 241	14596-10-2	U		0.34		U	GAM
Uranium 238	U-238	U		15		U	GAM
Uranium 235	15117-96-1	U		0.36		U	GAM

200 Area Source Chara. - 200-CS-1 OU

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

Test AM	Matrix SOLID
SDG 7306	
Contact Melissa C. Mannion	

METHOD SUMMARY

AMERICIUM 241 IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract 2KB-SPB-207925	
Contract SDG H0662	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241	
Preparation batch 6909-138						
E0X0B4	N912041-01		R1	7306-001	U	
BLK (QC ID=33045)	N912041-03			7306-003	U	
LCS (QC ID=33044)	N912041-02			7306-002	ok	
Duplicate (N912041-01)	N912041-04			7306-004	-	U
Preparation batch 6909-186						
F0X0B5	N912041-05		R1	7306-005	U	
BLK (QC ID=33564)	N912134-13			7321-013	U	
LCS (QC ID=33563)	N912134-12			7321-012	ok	
Duplicate (N912041-05)	N912041-20		R1	7306-020	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0	

200 Area Source Chara. - 200-CS-1 OU

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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6909-138 2σ prep error 5.0 % Reference Lab Notebook 6909 pg. 138																
E0X0B4	N912041-01		R1	0.10	0.500			31		890			63	01/24/00	02/01	SS-001
BLK (QC ID=33045)	N912041-03			0.034	0.500			79		829				01/24/00	01/27	SS-065
LCS (QC ID=33044)	N912041-02			0.033	0.500			92		831				01/24/00	01/27	SS-061
Duplicate (N912041-01) (QC ID=33046)	N912041-04			0.14	0.500			25		829			58	01/24/00	01/27	SS-066
Preparation batch 6909-186 2σ prep error 5.0 % Reference Lab Notebook 6909 pg. 186																
F0X0B5	N912041-05		R1	0.046	0.500			32		1186			98	02/28/00	03/08	SS-006
BLK (QC ID=33564)	N912134-13			0.093	0.500			37		721				02/28/00	03/02	SS-055
LCS (QC ID=33563)	N912134-12			1.2	0.500			22		754				02/28/00	03/03	SS-051
Duplicate (N912041-05) (QC ID=33689)	N912041-20		R1	0.069	0.500			37		907			93	02/28/00	03/03	SS-002
Nominal values and limits from method				1.0	0.500			20-105		700	100		180			

Lab id TMANC	
Protocol Hanford	
Version Ver 1.0	
Form DVD-CMS	
Version 3.06	
Report date 03/14/00	

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

Test AM	Matrix
SDG 7306	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

AMERICIUM 241 IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract TRB-SPB-207925	
Contract SDG H0662	

PROCEDURES	REFERENCE	AM/CMPLATE
	CP-060	Soil Preparation, rev 2
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 3
	CP 940	Plutonium Separation and Purification, rev 2
	CP-960	Americium-Curium Purification, Large Aliquot, rev 4
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD	MDA	0.21	±	0.80
FOR 8 SAMPLES	YIELD	44	±	52

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

Test NP	Matrix SOLID
SDG 7306	
Contact Melissa C. Mannion	

METHOD SUMMARY

NEPTUNIUM IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract TBP-SBB 207925	
Contract SDG H0662	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 6909-138						
HGX0B5	N912041-05		A1	7306-005	U	
BLK (QC ID=33311)	N912041-18			7306-018	U	
LCS (QC ID=33310)	N912041-17			7306-017	ok	
Duplicate (N912041-05)	N912041-19			7306-019	-	U

Nominal values and limits from method RDLs (pCi/g) 1.0

200 Area Source Chara. - 200-CS-1 OU

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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6909-138 2σ prep error 5.0 % Reference Lab Notebook 6909 pg. 138																
HGX0B5	N912041-05		A1	0.040	0.500			59		1025			66	01/25/00	02/05	SS-11
BLK (QC ID=33311)	N912041-18			0.010	0.500			75		1026				01/25/00	02/05	SS-13
LCS (QC ID=33310)	N912041-17			0.031	0.500			60		1025				01/25/00	02/05	SS-12
Duplicate (N912041-05) (QC ID=33312)	N912041-19			0.067	0.500			55		1026			66	01/25/00	02/05	SS-13
Nominal values and limits from method				1.0	0.500			20-105		100			180			

PROCEDURES	REFERENCE	NP237PLATE
	CP-060	Soil Preparation, rev 2
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 3
	CP-934	Neptunium from Solids and Water by Extraction Chromatography, rev 1

AVERAGES ± 2 SD	MDA 0.037	± 0.047
FOR 4 SAMPLES	YIELD 62	± 18

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

Test PU Matrix SOLID
SDG 7306
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract TRP-SPB-207925
Contract SDG H0662

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 6909-138								
BCX0B4	N912041-01			7306-001	U		U	
BCX0B5	N912041-05			7306-005	U		U	
BLK (QC ID=33045)	N912041-03			7306-003	U		U	
LCS (QC ID=33044)	N912041-02			7306-002	LOW		LOW	
Duplicate (N912041-01)	N912041-04			7306-004	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0		1.0	
200 Area Source Chara. - 200-CS-1 OU								

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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6909-138	2σ prep error 5.0 %			Reference Lab Notebook 6909 pg. 138												
BCX0B4	N912041-01			0.034	0.500			90		830			58	01/24/00	01/27	SS-062
BCX0B5	N912041-05			0.063	0.500			92		726			56	01/24/00	01/26	SS-032
BLK (QC ID=33045)	N912041-03			0.049	0.500			98		726				01/24/00	01/26	SS-027
LCS (QC ID=33044)	N912041-02			0.032	0.500			85		1034				01/24/00	01/26	SS-065
Duplicate (N912041-01) (QC ID=33046)	N912041-04			0.083	0.500			58		726			57	01/24/00	01/26	SS-031
Nominal values and limits from method				1.0	0.500			20-105		50	100		180			

PROCEDURES	REFERENCE	PUPLATE
	CP-060	Soil Preparation, rev 2
	CP-940	Plutonium Separation and Purification, rev 2
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.052 ± 0.043
YIELD 85 ± 31

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

Test TH	Matrix SOLID
SDG 7306	
Contact Melissa C. Munnion	

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client Hanford	
Contract TRP-SEB-207925	
Contract SDG H0662	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 228	Thorium 230	Thorium 232
Preparation batch 6909-138							
ECX0B5	N912041-05			7306-005	0.484 J	0.436 J	0.390 J
BLK (QC ID=33199)	N912041-12			7306-012	U	U	U
LCS (QC ID=33198)	N912041-11			7306-011	No data U	ok	No data U
Duplicate (N912041-05)	N912041-07			7306-007	ok J	ok J	ok J
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0
200 Area Source Chara. - 200-CS-1 OU							

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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6909-138	2σ prep error 5.0 %			Reference Lab Notebook 6909 pg. 138												
ECX0B5	N912041-05			0.21	0.250			67		434			58	01/24/00	01/28	SS-031
BLK (QC ID=33199)	N912041-12			0.19	0.250			82		434				01/24/00	01/28	SS-034
LCS (QC ID=33198)	N912041-11			0.25	0.250			81		434				01/24/00	01/28	SS-033
Duplicate (N912041-05) (QC ID=33197)	N912041-07			0.18	0.250			92		434			58	01/24/00	01/28	SS-032
Nominal values and limits from method				1.0	0.250			20-105		200			180			

PROCEDURES	REFERENCE	TMPLATE
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 3
	CP-905	Thorium in Dissolved Solid Sample, rev 0
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD	MDA	0.21	± 0.062
FOR 4 SAMPLES	YIELD	80	± 21

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

Test SR Matrix SOLID
SDG 7306
Contact Melissa C. Marnion

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford
Contract TRB-SPB-207925
Contract SDG H0662

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium	
Preparation batch 6909-138						
BCX0B4	N912041-01			7306-001	U	
BCX0B5	N912041-05			7306-005	U	
BLK (QC ID=33045)	N912041-03			7306-003	U	
LCS (QC ID=33044)	N912041-02			7306-002	ok	
Duplicate (N912041-01)	N912041-04			7306-004	-	U
Nominal values and limits from method				RDLs (pCi/g)	1.0	
200 Area Source Chara. - 200-CS-1 OU						

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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6909-138	2σ prep error 10.0 % Reference Lab Notebook 6909 pg. 138															
BCX0B4	N912041-01			0.17	1.00			90		384			57	01/25/00	01/26	GRB-218
BCX0B5	N912041-05			0.20	1.00			80		400			56	01/25/00	01/26	GRB-223
BLK (QC ID=33045)	N912041-03			0.31	1.00			49		400				01/25/00	01/26	GRB-221
LCS (QC ID=33044)	N912041-02			0.25	1.00			77		384				01/25/00	01/26	GRB-219
Duplicate (N912041-01) (QC ID=33046)	N912041-04			0.18	1.00			84		400			57	01/25/00	01/26	GRB-222
Nominal values and limits from method				1.0	1.00					100			180			

PROCEDURES	REFERENCE	SRTOTAL
	CP-502	Strontium in Solids, rev 2
	CP-519	Strontium Planchet Demounting and Preparation for 90Y Decontamination, rev 2

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.22 ± 0.12
YIELD 76 ± 32

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

Test TC	Matrix SOLID
SDG 7306	
Contact Melissa C. Manion	

METHOD SUMMARY

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client Hanford	
Contract TRP-SFB-207525	
Contract SDG H0662	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 6909-138						
BGX0B5	N912041-05			7306-005	U	
BLK (QC ID=33199)	N912041-12			7306-012	U	
LCS (QC ID=33198)	N912041-11			7306-011	ok	
Duplicate (N912041-05)	N912041-07			7306-007	-	U

Nominal values and limits from method RDLs (pCi/g) 15

200 Area Source Chara. - 200-CS-1 OU

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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6909-138 2σ prep error 10.0 % Reference Lab Notebook 6909 pg. 138																
BGX0B5	N912041-05			0.87	1.00			23		280			62	01/27/00	02/01	GRB-219
BLK (QC ID=33199)	N912041-12			0.81	1.00			42		101				01/27/00	01/31	GRB-222
LCS (QC ID=33198)	N912041-11			0.94	1.00			38		101				01/27/00	01/31	GRB-221
Duplicate (N912041-05) (QC ID=33197)	N912041-07			0.27	1.00			73		280			62	01/27/00	02/01	GRB-220
Nominal values and limits from method				15	1.00			20-105		50			180			

PROCEDURES	REFERENCE	TC99TRLSC
	CP-060	Soil Preparation, rev 2
	CP-021	Preparation of Tc-99m Tracer, rev 0
	CP-002	Q.C. Preparation, rev 2
	CP-003	Tracing, rev 2
	CP-542	Technetium-99 Purification (Soil) by Extraction Chromatography, rev 0
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD	MDA	0.72	± 0.61
FOR 4 SAMPLES	YIELD	44	± 42

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

Test PCA Matrix SOLID
SDG 7306
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN SOIL

GAS PROPORTIONAL COUNTING

Client Hanford
Contract TKB-SPB-207925
Contract SDG H0662

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 6909-138						
BCX0B4	N912041-01	80		7306-001	10.7	
BCX0B5	N912041-05	80		7306-005	3.02	J
BLK (QC ID=33045)	N912041-03	80		7306-003	U	
LCS (QC ID=33044)	N912041-02	80		7306-002	ok	
Duplicate (N912041-01)	N912041-04	80		7306-004	ok	J

Nominal values and limits from method RDLs (pCi/g) 10
200 Area Source Chara. - 200-CS-1 OU

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6909-138	2σ prep error 20.0 % Reference Lab Notebook 6909 pg. 138															
BCX0B4	N912041-01	80		3.9	0.100			54		100			65	01/25/00	02/03	GRB-110
BCX0B5	N912041-05	80		3.0	0.100			34		100			64	01/25/00	02/03	GRB-114
BLK (QC ID=33045)	N912041-03	80		2.9	0.100			34		100				01/25/00	02/03	GRB-112
LCS (QC ID=33044)	N912041-02	80		3.1	0.100			34		100				01/25/00	02/03	GRB-111
Duplicate (N912041-01) (QC ID=33046)	N912041-04	80		4.1	0.100			55		100			65	01/25/00	02/03	GRB-113
Nominal values and limits from method				10	0.100			5-250		100			180			

PROCEDURES	REFERENCE	EPA900.0
	CP-060	Soil Preparation, rev 2
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 3
	CP-170	Soil Preparation for Direct Gross Alpha and Gross Beta Counting, rev 2

AVERAGES ± 2 SD MDA 3.4 ± 1.1
FOR 5 SAMPLES RESIDUE 42 ± 22

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

Test	P0B
Matrix	SOLID
SDG	7306
Contact	Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN SOIL

GAS PROPORTIONAL COUNTING

Client	Hanford
Contract	TkP-SPB-207925
Contract	SDG H0662

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 6909-138					
P0X0B4	N912041-01	80		7306-001	40.3
P0X0B5	N912041-05	80		7306-005	24.0
PLK (QC ID=33045)	N912041-03	80		7306-003	19.4
LCS (QC ID=33044)	N912041-02	80		7306-002	ok
Duplicate (N912041-01)	N912041-04	80		7306-004	ok
Nominal values and limits from method				RDLs (pCi/g)	15
200 Area Source Chara. - 200-CS-1 OU					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6909-138 2σ prep error 15.0 % Reference Lab Notebook 6909 pg. 138																
P0X0B4	N912041-01	80		7.7	0.100			54		100			65	01/25/00	02/03	GRB-110
P0X0B5	N912041-05	80		6.4	0.100			34		100			64	01/25/00	02/03	GRB-114
PLK (QC ID=33045)	N912041-03	80		7.0	0.100			34		100				01/25/00	02/03	GRB-112
LCS (QC ID=33044)	N912041-02	80		6.2	0.100			34		100				01/25/00	02/03	GRB-111
Duplicate (N912041-01) (QC ID=33046)	N912041-04	80		5.9	0.100			55		100			65	01/25/00	02/03	GRB-113
Nominal values and limits from method				15	0.100			5-250		100			180			

PROCEDURES	REFERENCE	EPA900.0
	CP-060	Soil Preparation, rev 2
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 3
	CP-170	Soil Preparation for Direct Gross Alpha and Gross Beta Counting, rev 2

AVERAGES ± 2 SD	MDA	6.6	±	1.4
FOR 5 SAMPLES	RESIDUE	42	±	22

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

Test GAM Matrix SOLID
SDG 7306
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract TRB-SBR-207925
Contract SDG H0662

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137	
Preparation batch 6909-138								
BCX0B4	N912041-01			7306-001	U		U	
BCX0B5	N912041-05			7306-005	U		U	
BLK (QC ID=33045)	N912041-03			7306-003	U		U	
LCS (QC ID=33044)	N912041-02			7306-002	ok		ok	
Duplicate (N912041-01)	N912041-04			7306-004	-	U	-	U
Nominal values and limits from method				RDLs (pCi/g)	0.050		0.10	
200 Area Source Chara. - 200-CS-1 OU								

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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6909-138 2σ prep error 15.0 % Reference Lab Notebook 6909 pg. 138																
BCX0B4	N912041-01			0.19	52.4					566			63	01/19/00	02/01	PD,03,00
BCX0B5	N912041-05			0.28	40.0					427			71	01/19/00	02/10	PD,03,00
BLK (QC ID=33045)	N912041-03			0.18	40.0					402				01/19/00	02/02	PD,03,00
LCS (QC ID=33044)	N912041-02			0.18	40.0					401				01/19/00	02/02	PD,01,00
Duplicate (N912041-01) (QC ID=33046)	N912041-04			0.23	52.4					396			65	01/19/00	02/03	PD,03,00
Nominal values and limits from method				0.050	40.0					100			180			

PROCEDURES	REFERENCE	GAMMAHI
	CP-060	Soil Preparation, rev 2
	CP-100	Ge(Li) Preparation for Commercial Samples, rev 2

AVERAGES ± 2 SD FOR 5 SAMPLES
MDA 0.21 ± 0.086
YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

Test U T	Matrix SOLID
SDG 7306	
Contact Melissa C. Maunion	

METHOD SUMMARY

URANIUM, TOTAL IN SOIL

KINETIC PHOSPHORIMETRY

Client Hanford	
Contract TRP-SMB-207925	
Contract SDG H0662	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium
Preparation batch 6909-138					
H0X0B4	N912041-01			7306-001	0.806 J
H0X0B5	N912041-05			7306-005	0.589 J
BLK (QC ID=33045)	N912041-03			7306-003	U
LCS (QC ID=33044)	N912041-02			7306-002	ok
Duplicate (N912041-01)	N912041-04			7306-004	ok J
Nominal values and limits from method				RDLs (ug/g)	1.0
200 Area Source Chara. - 200-CS-1 OU					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA ug/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6909-138	2σ prep error 9.0 %			Reference Lab Notebook 6909 pg. 138												
H0X0B4	N912041-01			0.002	0.0500								43	01/10/00	01/12	KPA-001
H0X0B5	N912041-05			0.002	0.0500								42	01/10/00	01/12	KPA-001
BLK (QC ID=33045)	N912041-03			0.002	0.0500									01/10/00	01/12	KPA-001
LCS (QC ID=33044)	N912041-02			0.023	0.0500									01/10/00	01/12	KPA-001
Duplicate (N912041-01) (QC ID=33046)	N912041-04			0.002	0.0500								43	01/10/00	01/12	KPA-001
Nominal values and limits from method				1.0	0.0500								180			

PROCEDURES	REFERENCE	UKPA
	CP-060	Soil Preparation, rev 2
	CP-070	Soil Dissolution, < 1.0g Aliquot, rev 3
	CP-044	Sample Preparation for Total Uranium by Kinetic Phosphorimetry, rev 2
	CP-928	Total Uranium by Kinetic Phosphorimetry, rev 2

AVERAGES ± 2 SD	MDA 0.006	± 0.019
FOR 5 SAMPLES	YIELD	±

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

Test H Matrix SOLID
SDG 7306
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRB-SEB-207925
Contract SDG H0662

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6909-138						
B0X0B5	N912041-05		A1	7306-005	U	
BLK (QC ID=33299)	N912041-14			7306-014	U	
LCS (QC ID=33298)	N912041-13			7306-013	ok	J
Duplicate (N912041-05)	N912041-15			7306-015	-	U
Spike (N912041-05)	N912041-16			7306-016	ok	J

Nominal values and limits from method RDLs (pCi/g) 400
200 Area Source Chara. - 200-CS-1 OU

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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6909-138 2σ prep error 10.0 % Reference Lab Notebook 6909 pg. 138																
B0X0B5	N912041-05		A1	0.20	10.4			100		120			63	02/02/00	02/02	LSC-004
BLK (QC ID=33299)	N912041-14			0.27	10.0			77		120				02/02/00	02/02	LSC-004
LCS (QC ID=33298)	N912041-13			0.61	10.0			34		120				02/02/00	02/02	LSC-004
Duplicate (N912041-05) (QC ID=33300)	N912041-15			0.20	10.5			100		120			63	02/02/00	02/02	LSC-004
Spike (N912041-05) (QC ID=33301)	N912041-16			0.33	10.1			62		120			63	02/02/00	02/02	LSC-004
Nominal values and limits from method				400	10.0					25			180			

PROCEDURES	REFERENCE	EPA906.0
	CP-060	Soil Preparation, rev 2
	CP-216	Tritium in Solid Samples by Azeotropic Distillation, rev 2

AVERAGES ± 2 SD MDA 0.32 ± 0.34
FOR 5 SAMPLES YIELD 75 ± 56

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/14/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0662

Test NI L Matrix SOLID
SDG 7306
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TEB-SBB-207925
Contract SDG H0662

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 6909-138						
BGX0B5	N912041-05			7306-005	U	
BLK (QC ID=33199)	N912041-12			7306-012	U	
LCS (QC ID=33198)	N912041-11			7306-011	ok	
Duplicate (N912041-05)	N912041-07			7306-007	-	U
Spike (N912041-05)	N912041-06			7306-006	ok	

Nominal values and limits from method RDLs (pCi/g) 30
200 Area Source Chara. - 200-CS-1 OU

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	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6909-138 2σ prep error 10.0 % Reference Lab Notebook 6909 pg. 138																
BGX0B5	N912041-05			2.0	0.500			100		100			61	01/26/00	01/31	LSC-005
BLK (QC ID=33199)	N912041-12			2.0	0.500			100		100				01/26/00	01/31	LSC-005
LCS (QC ID=33198)	N912041-11			2.0	0.500			100		100				01/26/00	01/31	LSC-005
Duplicate (N912041-05) (QC ID=33197)	N912041-07			2.0	0.500			100		100			61	01/26/00	01/31	LSC-005
Spike (N912041-05) (QC ID=33196)	N912041-06			2.0	0.500			100		100			61	01/26/00	01/31	LSC-005
Nominal values and limits from method				30	0.500					10			180			

PROCEDURES	REFERENCE	NI63LSC
	CP-060	Soil Preparation, rev 2
	CP-431	Nickel-63 Purification, rev 3

AVERAGES ± 2 SD	MDA	2.0	±	0
FOR 5 SAMPLES	YIELD	100	±	0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/14/00

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-15	Page 1 of ~~2~~ 1

Collector R Fahlberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Project Designation 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006
Ice Chest No. SML 264	Field Logbook No. EL 1435	COA B20CS1671C	Method of Shipment Fed Ex
Shipped To TMA/~~RECRA~~ RF 12-1-99	Offsite Property No. A000053		Bill of Lading/Air Bill No. 42357953 2395

Price Code **8N** Data Turnaround **45 Days**

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	~~G/P~~ aG	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Neptunium-237, Nickel-63	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082
B0X0B5	Soil	12·1·99	1010	X	X	X				X[1]	X[2]	X[3]	
													BOX069

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	1315 12·1·99	Ref 2-C	1315 12·1·99
Ref 2-C	12·2·99 / 0730	R. Thoren / R. Thoren	12·2·99 / 0730
R. Thoren / R. Thoren	12·2·99 / 1430	FED EX	12-2-99
FedEx	12-3-99 10:00	TW M. Goldenberg	12-3-99 10:00

SPECIAL INSTRUCTIONS

See Chain of Custody Comments on SAF B00-006. Out of Neptunium Bottle Also Analyze for Nickel-63,Tech-99,Tritium and Iso-Uranium. Out of N02/N03 Bottle Also Analyze For ICP Metals.

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; Mercury - 7471 - (CV); Chromium Hex - 7196
(2) Gamma Spec - Complete {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228}
(3) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; Strontium-89,90 – Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; Isotopic Thorium {Tho

tie to BOX 069

Matrix *
S=Soil
SE=Sediment
SO=Solid
S=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
L=Liquid
V=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (10/99)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-006-14	Page 1 of ~~2~~ 1
Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West		SAF No.: B00-006	Air Quality ☐
Ice Chest No.: ERC 99 033	Field Logbook No.: EL 1435	COA: B20CS1671C	Method of Shipment: Fed Ex	
Shipped To: TMA/~~RECRA~~ RF 11.29.99	Offsite Property No.: ~~A000050~~ A000052 RT 12.01.99		Bill of Lading/Air Bill No.: 42357953 2340	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None	None	Cool 4C	None	None	None	Cool 4C
Type of Container	aG	aG	aG	aG	G/P	aG	aG	aG	aG	aG
No. of Container(s)	0	0	0	0	1	1	1	1	1	1
Volume	60mL	60mL	60mL	250mL	60g	60mL	60mL	60mL	60mL	120mL
SAMPLE ANALYSIS	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL), VOA - 8260A (Add-On) (1-Propanol)	See item (2) in Special Instructions.	See item (3) in Special Instructions.	Neptunium-237; Nickel-63	Semi-VOA - 8270A (TCL); TPH-Diesel Range - WTPH-D; PCBs - 8082

Sample No.	Matrix *	Sample Date	Sample Time										
✓ B0X0B4	Soil	11-30-99	0800						11-30-99	~~X~~ RF	X		

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R Fahlberg	1430 11-30-99	RF 2-C	1430 11-30-99
Rikki Thor / R. Thoren	0730 12.01.99	RIKKI Thor / R. Thoren	12.01.99/0730
RIKKI Thor / R. Thoren	12.01.99/1430	FED EX	12-1-99
Fed Ex	12-2-99 9:30	TNV M. Goldenberg	9:30 12-2-99

SPECIAL INSTRUCTIONS R.F. 11-30-99

See Chain of Custody Comments on SAF B00-006. ~~Out of Neptunium Bottle Also Analyze for Nickel-63, Tech-99, Tritium and Iso-Uranium.~~ ~~Out of N02/N03 Bottle Also Analyze For ICP Metals.~~

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; ICP Metals - 6010A (Supertrace Add-On) {Beryllium, Copper, Nickel, Vanadium, Zinc}; *Mercury - 7471 - (CV); Chromium Hex - 7196*

(2) Gamma Spec - Complete {Americium-241, Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Radium-228}

(3) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Radium-228}; *Strontium-89,90* – Total Sr; Total Uranium {Uranium}; Isotopic Plutonium; ~~Isotopic Thorium {Tho-232~~, Americium 241 RF 11.29.99

Matrix *

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

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (10/99)

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Inc Date/Time received 12-3-99 10:00

CoC No. B00-006-15

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

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [✓] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [✓] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [✓] No [ ] N/A [ ]
5. Cooler Temperature: _____ Packing material is: Wet [ ] Dry [✓]
6. Number of samples in shipping container: 1
7. Number of containers per sample: _____ (Or see CoC ✓)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]
10. Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]
11. Describe any anomalies: We received only 3 bottles.

13. Was P.M. notified of any anomalies? Yes [✓] No [ ] Date 12-3-99
14. Received by M. Goldenberg Date: 12-3-99 Time: 10:00

LOGIN

TNU W.O. No. _____ Group No. _____ Client W.O. No. _____

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name _____ Date/time _____

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Inc Date/Time received 12-2-99 9:30

CoC No. BCO-006-14

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

INSPECTION

1. Custody seals on shipping container intact? Yes [ ] No [✓] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [ ] No [✓] N/A [ ]
3. Custody seals on sample containers intact? Yes [✓] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [✓] No [ ] N/A [ ]
5. Cooler Temperature: _____ Packing material is: Wet [ ] Dry [✓]
6. Number of samples in shipping container: 1
7. Number of containers per sample: 1 (Or see CoC _____)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]
10. Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]
11. Describe any anomalies: _____

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by M. Goldenberg Date: 12-2-99 Time: 9:30

LOGIN

TNU W.O. No. _____ Group No. _____ Client W.O. No. _____

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name _____ Date/time _____