0054037

RECRA ENVIRONMENTAL INC.

Chemical and Environmental Measurement Information

OCT 2000 RECEIVED

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B00-031
RFW#: 0009L562
SDG/SAF#: H1016/B00-031

W.O.#: 10985-001-001-9999-00
Date Received: 09-12-00

RECEIVED OCT 01 2000 EDMC

METALS CASE NARRATIVE

1. This narrative covers the analyses of 1 solid sample.

2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary.

3. All analyses were performed within the required holding times.

4. The cooler temperature has been recorded on the Chain of Custody.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).

6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

8. All ICP Interference Check Standards were within control limits.

9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. The matrix spike (MS) recoveries for 3 analytes were outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at meaningful concentration levels, due to high concentrations of the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B105T6	Chromium	1000	100.2
	Lead	1000	103.4

12. The duplicate analyses for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

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

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

10-13-00
Date

gmb/m09-562

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0009L562

Leaching Procedure: __1310 __1311 __1312 __Other:_____

CLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

Metals Digestion Methods: __3005A __3010A __3015 __3020A ✓3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	__6010B		__200.7				__99
Antimony	__6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	__6010B		__200.7				__99
Beryllium	__6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	__6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	__6010B		__200.7				__99
Chromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	__6010B		__200.7				__99
Copper	__6010B	__7211 [5]	__200.7	__220.2			__99
Iron	__6010B		__200.7				__99
Lead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	__6010B		__200.7				__99
Manganese	__6010B		__200.7				__99
Mercury	__7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	__6010B		__200.7				__99
Potassium	__6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	__6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	__6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	__6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	__6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	__6010B		__200.7				__99
Zinc	__6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ **Method:**_____

L-WI-033/M-11/99

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.

* = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

MB = Method or Preparation Blank.
MS = Matrix Spike.
MSD = Matrix Spike Duplicate.
REP = Sample Replicate
LCS = Laboratory Control Sample.
NC = Not calculated.

ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).

4. Flame AA.

5. Graphite Furnace AA.

RFW 21-21L-033/N-10/96

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 10/12/00

CLIENT: TWU-HANFORD BGO-031 RECRA LOT #: 0009L562

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B105T6	Arsenic, Total	44.5	MG/KG	1.7	5.0
		Chromium, Total	695	MG/KG	0.45	5.0
		Mercury, Total	30.0	MG/KG	0.33	20.0
		Lead, Total	223	MG/KG	1.1	5.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 10/12/00

CLIENT: TNU-HANFORD B00-031

RECRA LOT #: 0009L562

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L1571-MB1	Arsenic, Total	0.34 u	MG/KG	0.34	1.0
		Chromium, Total	0.09 u	MG/KG	0.09	1.0
		Lead, Total	0.21 u	MG/KG	0.21	1.0
BLANK1	00C0306-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 10/12/00

CLIENT: TWU-HANFORD B00-031 RECRA LOT #: 0009L562

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B105T6	Arsenic, Total	244	44.5	201	99.4	5.0
		Chromium, Total	681	695	20.1	-71. *	5.0
		Mercury, Total	13.8	30.0	0.17	-9800. *	20.0
		Lead, Total	247	223	50.2	47.4*	5.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 10/12/00

CLIENT: TNU-HANFORD B00-031 RECRA LOT #: 0009L562

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B105T6	Arsenic, Total	44.5	56.1	23.1	5.0
		Chromium, Total	695	617	11.8	5.0
		Mercury, Total	30.0	13.4	76.9	20.0
		Lead, Total	223	208	7.2	5.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 10/12/00

CLIENT: TMG-HANFORD B00-031 RECRA LOT #: 0009L562

WORK ORDER: 10985-001-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L1571-LC1	Arsenic, LCS	954	1000	MG/KG	95.4
		Chromium, LCS	49.8	50.0	MG/KG	99.6
		Lead, LCS	244	250	MG/KG	97.6
LCS1	00C0306-LC1	Mercury, LCS	0.77	0.7	MG/KG	107.9

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-031

DATE RECEIVED: 09/12/00 RFW LOT # :0009L562

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B105T6						
ARSENIC, TOTAL	001	SO	99L1571	08/31/00	09/21/00	09/21/00
ARSENIC, TOTAL	001 REP	SO	99L1571	08/31/00	09/21/00	09/21/00
ARSENIC, TOTAL	001 MS	SO	99L1571	08/31/00	09/21/00	09/21/00
CHROMIUM, TOTAL	001	SO	99L1571	08/31/00	09/21/00	09/21/00
CHROMIUM, TOTAL	001 REP	SO	99L1571	08/31/00	09/21/00	09/21/00
CHROMIUM, TOTAL	001 MS	SO	99L1571	08/31/00	09/21/00	09/21/00
MERCURY, TOTAL	001	SO	00C0306	08/31/00	09/25/00	09/26/00
MERCURY, TOTAL	001 REP	SO	00C0306	08/31/00	09/25/00	09/26/00
MERCURY, TOTAL	001 MS	SO	00C0306	08/31/00	09/25/00	09/26/00
LEAD, TOTAL	001	SO	99L1571	08/31/00	09/21/00	09/21/00
LEAD, TOTAL	001 REP	SO	99L1571	08/31/00	09/21/00	09/21/00
LEAD, TOTAL	001 MS	SO	99L1571	08/31/00	09/21/00	09/21/00

LAB QC:

ARSENIC LABORATORY	LC1 BS	S	99L1571	N/A	09/21/00	09/21/00
ARSENIC, TOTAL	MB1	S	99L1571	N/A	09/21/00	09/21/00
CHROMIUM LABORATORY	LC1 BS	S	99L1571	N/A	09/21/00	09/21/00
CHROMIUM, TOTAL	MB1	S	99L1571	N/A	09/21/00	09/21/00
MERCURY LABORATORY	LC1 BS	S	00C0306	N/A	09/25/00	09/26/00
MERCURY, TOTAL	MB1	S	00C0306	N/A	09/25/00	09/26/00
LEAD LABORATORY	LC1 BS	S	99L1571	N/A	09/21/00	09/21/00
LEAD, TOTAL	MB1	S	99L1571	N/A	09/21/00	09/21/00

RECRA LabNet Use Only

0009L562

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: Tnu-Hanford B00-031

Est. Final Proj. Sampling Date:

Project #: 10985-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: OS

QC: Spec Del: Std TAT: 15 day

Date Rec'd: 9-12-00 Date Due: 9-27-00

Account #:

Refrigerator #									4							
#/Type Container	Liquid															
	Solid								1AG							
Volume	Liquid															
	Solid								60							
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						
		RECRA LabNet Use Only														
									As Cr Pb Hg							

MATRIX CODES:
S - Soil
SE - Sediment
SO - Solid
SL - Sludge
W - Water
O - Oil
A - Air
DS - Drum Solids
DL - Drum Liquids
L - EP/TCLP Leachate
WI - Wipe
X - Other
F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected																
001	B105T6	✓	✓	So	8-31-00	1310								✓								

Special Instructions: Saf B00-031

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # See below
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 22.6 °C

Relinquished by	Received by	Date	Time
FedEx	TKeppel	9-12-00	0930

Relinquished by	Received by	Date	Time
COMPOSITE WASTE		ORIGINAL REWRITTEN	

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 822771885124

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-031-006	Page 1 of 1

Collector: R. Nielson	Company Contact: M. Stankovich	Telephone No.: 531-7620	Project Coordinator: TRENT, SJ
Price Code: 3E	Data Turnaround: 15 days	Air Quality ☐	
Project Designation: 100 F Area - Other Solid	Sampling Location: 100-F-19 - Pipeline	SAF No.: B00-031	
Ice Chest No.: ERC 99-068	Field Logbook No.: EL-1500-3	COA: R10F192600	Method of Shipment: Federal Express
Shipped To: TMA/RECRA	Offsite Property No.: RSR 106578	Bill of Lading/Air Bill No.: NA	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None							
Type of Container	sG	sG	sG	sG							
No. of Container(s)	0	0	1	1							
Volume	120mL	120mL	60mL	120mL							
SAMPLE ANALYSIS	Isotopic Uranium; Isotopic Plutonium; ~~Americium-241~~ RJN 8-31-00	Nickel-63; Strontium-89,90 -- Total Sr; Carbon-14; ~~Technetium-99~~ RJN 8-31-00	See item (1) in Special Instructions.	See item (2) in Special Instructions.							

Sample No.	Matrix *	Sample Date	Sample Time										
B105T6	OTHER SOLID	8-31-00	1310	~~X~~ RT 9.1.00	~~X~~	X	~~X~~ RT 9.1.00					B105T5	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Nielson	8-31-00 1613	Ref #1 C	8-31-00 1613
Ref #1 C 3728	9.11.00 0830	R Thoren	9.11.00 0830
R. Thoren	9.11.00 0830	FED EX	
FedEx	9-12-00 0930	T Keppel	9-12-00 0930

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV)
(2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}

Perform Iso uranium, Plutonium, nickel 63, Strontium 89, 90, Total strontium, carbon 14 from 120ml bottle.

Samples stored in Ref.# 1C at the 3728 Shipping Facility on 9/11/00 Collector not available to relinquish samples on 9/11/00 for shipment.

RT 9.11.00

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)

H1016

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1016 was composed of one other solid sample designated under SAF No. B00-031 with a Project Designation of: 100 F Area – Other Solid.

The sample was received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Thermo Retec Sample Receipt Checklist. The results were transmitted to BHI via e-Fax on October 4, 2000.

2.0 ANALYSIS NOTES

2.1 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.2 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.3 Total Strontium Analyses

There was contamination in the method blank (1.19 pCi/g). The activity was above the RDL (1.0 pCi/g) for Strontium.

No other problems were encountered during the course of the analyses.

2.4 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.5 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.6 Gamma Spectroscopy Analyses

No problems were encountered during the course of the analyses.

OCT 2000
RECEIVED

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1016

SAMPLE SUMMARY

SDG 7484
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1016

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B105T6	100-F-19-Pipeline	SOLID		R009067-01	B00-031	B00-031-006	08/31/00 13:10
Method Blank		SOLID		R009067-03	B00-031		
Lab Control Sample		SOLID		R009067-02	B00-031		
Duplicate (R009067-01)	100-F-19-Pipeline	SOLID		R009067-04	B00-031		08/31/00 13:10

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 10/06/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1016

SDG 7484
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1016

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
7484	B00-031-006	B105T6	SOLID	100.0			09/12/00	12	R009067-01	7484-001
		Method Blank	SOLID						R009067-03	7484-003
		Lab Control Sample	SOLID						R009067-02	7484-002
		Duplicate (R009067-01)	SOLID				09/12/00	12	R009067-04	7484-004

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 10/06/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1016

PREP BATCH SUMMARY

SDG 7484
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1016

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
PU	SOLID	Plutonium, Isotopic in Solids	6955-038	5.0	1			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	6955-038	5.0	1			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	6955-038	10.0	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6955-038	15.0	1			1	1	1/1		
Liquid Scintillation Counting												
C	SOLID	Carbon 14 in Soil	6955-038	10.0	1			1	1	1/1		
NI_L	SOLID	Nickel 63 in Soil	6955-038	10.0	1			1	1	1/1		

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 10/06/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1016

WORK SUMMARY

SDG 7484
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1016

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B105T6			R009067-01	7484-001	C		09/22/00	10/04/00	NJV	Carbon 14 in Soil
100-F-19-Pipeline		SOLID	08/31/00	7484-001	GAM		09/19/00	10/04/00	NJV	Gamma Scan
B00-031-006	B00-031		09/12/00	7484-001	NI_L		09/20/00	10/04/00	NJV	Nickel 63 in Soil
				7484-001	PU		09/21/00	10/04/00	NJV	Plutonium, Isotopic in Solids
				7484-001	SR		09/19/00	10/04/00	NJV	Total Strontium in Soil
				7484-001	U		09/21/00	10/04/00	NJV	Uranium, Isotopic in Soil
Method Blank			R009067-03	7484-003	C		09/22/00	10/04/00	NJV	Carbon 14 in Soil
		SOLID		7484-003	GAM		09/16/00	10/04/00	NJV	Gamma Scan
	B00-031			7484-003	NI_L		09/20/00	10/04/00	NJV	Nickel 63 in Soil
				7484-003	PU		09/21/00	10/04/00	NJV	Plutonium, Isotopic in Solids
				7484-003	SR		09/19/00	10/04/00	NJV	Total Strontium in Soil
				7484-003	U		09/26/00	10/04/00	NJV	Uranium, Isotopic in Soil
Lab Control Sample			R009067-02	7484-002	C		09/23/00	10/04/00	NJV	Carbon 14 in Soil
		SOLID		7484-002	GAM		09/16/00	10/04/00	NJV	Gamma Scan
	B00-031			7484-002	NI_L		09/20/00	10/04/00	NJV	Nickel 63 in Soil
				7484-002	PU		09/21/00	10/04/00	NJV	Plutonium, Isotopic in Solids
				7484-002	SR		09/19/00	10/04/00	NJV	Total Strontium in Soil
				7484-002	U		09/21/00	10/04/00	NJV	Uranium, Isotopic in Soil
Duplicate (R009067-01)			R009067-04	7484-004	C		09/22/00	10/04/00	NJV	Carbon 14 in Soil
100-F-19-Pipeline		SOLID	08/31/00	7484-004	GAM		09/20/00	10/04/00	NJV	Gamma Scan
	B00-031		09/12/00	7484-004	NI_L		09/20/00	10/04/00	NJV	Nickel 63 in Soil
				7484-004	PU		09/21/00	10/04/00	NJV	Plutonium, Isotopic in Solids
				7484-004	SR		09/19/00	10/04/00	NJV	Total Strontium in Soil
				7484-004	U		09/21/00	10/04/00	NJV	Uranium, Isotopic in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 10/06/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1016

SDG 7484
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1016

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
C	B00-031	Carbon 14 in Soil	C14_COX_LSC	1			1	1	1	4
GAM	B00-031	Gamma Scan	GAMMA_GS	1			1	1	1	4
NI_L	B00-031	Nickel 63 in Soil	NI63_LSC	1			1	1	1	4
PU	B00-031	Plutonium, Isotopic in Solids	PUISO_PLATE_AEA	1			1	1	1	4
SR	B00-031	Total Strontium in Soil	SRTOT_SEP_PRECIP_GPC	1			1	1	1	4
U	B00-031	Uranium, Isotopic in Soil	UISO_PLATE_AEA	1			1	1	1	4
TOTALS				6			6	6	6	24

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 10/06/00

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1016

R009067-03

Method Blank

METHOD BLANK

SDG	7484	Client/Case no	Hanford	SDG_H1016	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R009067-03	Client sample id	Method Blank		
Dept sample id	7484-003	Material/Matrix		SOLID	
		SAF No	B00-031		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	-1.77	2.2	3.9	50	U	C
Nickel 63	13981-37-8	-4.47	6.1	11	30	U	NI_L
Total Strontium	SR-RAD	1.19	0.69	0.89	1.0		SR
Uranium 233	U-233/234	0.042	0.17	0.32	1.0	U	U
Uranium 235	15117-96-1	0.051	0.10	0.39	1.0	U	U
Uranium 238	U-238	0.084	0.084	0.32	1.0	U	U
Plutonium 238	13981-16-3	-0.031	0.25	0.46	1.0	U	PU
Plutonium 239/240	PU-239/240	0.015	0.092	0.21	1.0	U	PU
Potassium 40	13966-00-2	U		1.7		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
Radium 226	13982-63-3	U		0.13	0.10	U	GAM
Radium 228	15262-20-1	U		0.29	0.20	U	GAM
Europium 152	14683-23-9	U		0.15	0.10	U	GAM
Europium 154	15585-10-1	U		0.18	0.10	U	GAM
Europium 155	14391-16-3	U		0.16	0.10	U	GAM
Thorium 228	14274-82-9	U		0.076		U	GAM
Thorium 232	TH-232	U		0.29		U	GAM
Uranium 235	15117-96-1	U		0.23		U	GAM
Uranium 238	U-238	U		6.5		U	GAM
Americium 241	14596-10-2	U		0.22		U	GAM

100 F Area - Other Solid

QC-BLANK 35838

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/06/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1016

R009067-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7484
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1016
Case no TRC-SBB-207925

Lab sample id R009067-02
Dept sample id 7484-002

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B00-031

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
Carbon 14	9270	190	23	50		C	10700	430	87	85-115	80-120
Nickel 63	636	17	10	30		NI_L	665	27	96	84-116	80-120
Total Strontium	57.5	3.3	1.6	1.0		SR	55.5	2.2	104	81-119	80-120
Uranium 233	45.3	5.5	2.6	1.0		U	46.4	1.9	98	80-120	80-120
Uranium 235	36.1	4.8	0.75	1.0		U	37.7	1.5	96	79-121	80-120
Uranium 238	52.8	6.2	2.5	1.0		U	50.4	2.0	105	79-121	80-120
Plutonium 238	49.0	3.3	0.29	1.0		PU	56.0	2.2	88	88-112	80-120
Plutonium 239/240	53.7	3.6	0.21	1.0		PU	59.5	2.4	90	87-113	80-120
Cobalt 60	2.42	0.12	0.057	0.050		GAM	2.54	0.10	95	77-123	80-120
Cesium 137	2.64	0.11	0.074	0.10		GAM	2.77	0.11	95	77-123	80-120

100 F Area - Other Solid

QC-LCS 35837

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 10/06/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1016

R009067-04

B105T6

DUPLICATE

SDG	7484			Client/Case no	Hanford SDG H1016
Contact	Melissa C. Mannion			Case no	TRC-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	R009067-04	Lab sample id	R009067-01	Client sample id	B105T6
Dept sample id	7484-004	Dept sample id	7484-001	Location/Matrix	100-F-19-Pipeline SOLID
		Received	09/12/00	Collected	08/31/00 13:10
		% solids	100.0	Custody/SAF No	B00-031-006 B00-031

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
Carbon 14	1.46	2.3	3.9	50	U	C	2.31	2.3	3.8	U	-	
Nickel 63	1210	25	12	30		NI_L	1220	26	12		1	22
Total Strontium	0.718	0.59	0.76	1.0	U	SR	0.212	0.47	0.78	U	-	
Uranium 233	0.343	0.46	0.87	1.0	U	U	0.264	0.35	0.67	U	-	
Uranium 235	0.138	0.28	1.1	1.0	U	U	0	0.21	0.82	U	-	
Uranium 238	0.686	0.46	0.87	1.0	U	U	0.882	0.53	0.67	J	25	135
Plutonium 238	0.061	0.12	0.22	1.0	U	PU	0.122	0.16	0.25	U	-	
Plutonium 239/240	6.23	0.84	0.22	1.0		PU	5.79	0.79	0.16		7	31
Potassium 40	U		29		U	GAM	U		34	U	-	
Cobalt 60	43.2	4.2	3.7	0.050		GAM	39.0	3.8	3.5		10	38
Cesium 137	U		8.8	0.10	U	GAM	U		7.1	U	-	
Radium 226	U		13	0.10	U	GAM	U		12	U	-	
Radium 228	U		29	0.20	U	GAM	U		27	U	-	
Europium 152	6880	32	23	0.10		GAM	6470	29	21		6	32
Europium 154	666	25	19	0.10		GAM	636	20	16		5	33
Europium 155	U		32	0.10	U	GAM	U		16	U	-	
Thorium 228	U		9.2		U	GAM	U		8.5	U	-	
Thorium 232	U		29		U	GAM	U		27	U	-	
Uranium 235	U		22		U	GAM	U		21	U	-	
Uranium 238	U		1200		U	GAM	U		1100	U	-	
Americium 241	U		6.2		U	GAM	U		5.7	U	-	

100 F Area - Other Solid

QC-DUP#1 35839

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	10/06/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1016

R009067-01 B105T6

DATA SHEET

SDG	7484	Client/Case no	Hanford SDG H1016
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R009067-01	Client sample id	B105T6
Dept sample id	7484-001	Location/Matrix	100-F-19-Pipeline SOLID
Received	09/12/00	Collected	08/31/00 13:10
% solids	100.0	Custody/SAF No	B00-031-006 B00-031

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Carbon 14	14762-75-5	2.31	2.3	3.8	50	U	C
Nickel 63	13981-37-8	1220	26	12	30		NI_L
Total Strontium	SR-RAD	0.212	0.47	0.78	1.0	U	SR
Uranium 233	U-233/234	0.264	0.35	0.67	1.0	U	U
Uranium 235	15117-96-1	0	0.21	0.82	1.0	U	U
Uranium 238	U-238	0.882	0.53	0.67	1.0	J	U
Plutonium 238	13981-16-3	0.122	0.16	0.25	1.0	U	PU
Plutonium 239/240	PU-239/240	5.79	0.79	0.16	1.0		PU
Potassium 40	13966-00-2	U		34		U	GAM
Cobalt 60	10198-40-0	39.0	3.8	3.5	0.050		GAM
Cesium 137	10045-97-3	U		7.1	0.10	U	GAM
Radium 226	13982-63-3	U		12	0.10	U	GAM
Radium 228	15262-20-1	U		27	0.20	U	GAM
Europium 152	14683-23-9	6470	29	21	0.10		GAM
Europium 154	15585-10-1	636	20	16	0.10		GAM
Europium 155	14391-16-3	U		16	0.10	U	GAM
Thorium 228	14274-82-9	U		8.5		U	GAM
Thorium 232	TH-232	U		27		U	GAM
Uranium 235	15117-96-1	U		21		U	GAM
Uranium 238	U-238	U		1100		U	GAM
Americium 241	14596-10-2	U		5.7		U	GAM

100 F Area - Other Solid

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	10/06/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1016

Test	PU
Matrix	SOLID
SDG	7484
Contact	Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1016

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240
Preparation batch 6955-038							
B105T6	R009067-01			7484-001	U		5.79
BLK (QC ID=35838)	R009067-03			7484-003	U		U
LCS (QC ID=35837)	R009067-02			7484-002	ok		ok
Duplicate (R009067-01)	R009067-04			7484-004	-	U	ok
Nominal values and limits from method				RDLs (pCi/g)	1.0		1.0
100 F Area - Other Solid							

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 6955-038	2σ prep error 5.0 %				Reference Lab Notebook 6955 pg. 038											
B105T6	R009067-01			0.25	0.100			51		1159			21	09/20/00	09/21	SS-038
BLK (QC ID=35838)	R009067-03			0.46	0.100			66		1159				09/20/00	09/21	SS-041
LCS (QC ID=35837)	R009067-02			0.29	0.100			68		1159				09/20/00	09/21	SS-039
Duplicate (R009067-01) (QC ID=35839)	R009067-04			0.22	0.100			49		1159			21	09/20/00	09/21	SS-042
Nominal values and limits from method				1.0	0.100			20-105		50	100		180			

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

AVERAGES ± 2 SD	MDA	0.30	± 0.21
FOR 4 SAMPLES	YIELD	58	± 20

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/06/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1016

Test	U
Matrix	SOLID
SDG	7484
Contact	Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1016

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Uranium 233		2: Uranium 235		3: Uranium 238		RESULT RATIOS (%) 1+3	2σ	2+3	2σ
Preparation batch 6955-038														
B105T6	R009067-01			7484-001	U		U		0.882	J	30	44	0	24
BLK (QC ID=35838)	R009067-03			7484-003	U		U		U					
LCS (QC ID=35837)	R009067-02			7484-002	ok		ok		ok					
Duplicate (R009067-01)	R009067-04			7484-004	-	U	-	U	ok	U				
Nominal values and limits from method				RDLs (pCi/g)	1.0		1.0		1.0		100		4	
100 F Area - Other Solid											Averages 30		0	

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 6955-038	2σ prep error 5.0 %			Reference Lab Notebook 6955 pg. 038												
B105T6	R009067-01			0.82	0.100			86		155			21	09/18/00	09/21	SS-048
BLK (QC ID=35838)	R009067-03			0.39	0.100			85		325				09/18/00	09/26	SS-039
LCS (QC ID=35837)	R009067-02			2.6	0.100			95		157				09/18/00	09/21	SS-049
Duplicate (R009067-01) (QC ID=35839)	R009067-04			1.1	0.100			90		150			21	09/18/00	09/21	SS-019
Nominal values and limits from method				1.0	0.100			20-105		150	100		180			

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	CP-911	Uranium in Water and Dissolved Sample by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD FOR 4 SAMPLES				
MDA	1.2	±	1.9
YIELD	89	±	9

Lab id	TMANC
Protocol	Hanford
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Report date	10/06/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1016

Test SR	Matrix SOLID
SDG 7484	
Contact Melissa C. Mannion	

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1016	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUP-FIX	PLANCHET	Total Strontium
Preparation batch 6955-038					
B105T6	R009067-01			7484-001	U
BLK (QC ID=35838)	R009067-03			7484-003	1.19
LCS (QC ID=35837)	R009067-02			7484-002	ok
Duplicate (R009067-01)	R009067-04			7484-004	- U
Nominal values and limits from method				RDLs (pCi/g)	1.0
100 F Area - Other Solid					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUP-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 6955-038	2σ prep error 10.0 % Reference Lab Notebook 6955 pg. 038															
B105T6	R009067-01			0.78	0.200			88		200			19	09/19/00	09/19	GRB-217
BLK (QC ID=35838)	R009067-03			0.89	0.200			80		400				09/19/00	09/19	GRB-222
LCS (QC ID=35837)	R009067-02			1.6	0.200			81		400				09/19/00	09/19	GRB-221
Duplicate (R009067-01) (QC ID=35839)	R009067-04			0.76	0.200			98		400			19	09/19/00	09/19	GRB-223
Nominal values and limits from method				1.0	0.200			30-105		100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	1.0	±	0.80
	YIELD	87	±	17

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/06/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1016

Test GAM Matrix SOLID
SDG 7484
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1016

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137	
Preparation batch 6955-038							
B105T6	R009067-01			7484-001	39.0	U	
BLK (QC ID=35838)	R009067-03			7484-003	U	U	
LCS (QC ID=35837)	R009067-02			7484-002	ok	ok	
Duplicate (R009067-01)	R009067-04			7484-004	ok	-	U
Nominal values and limits from method				RDLs (pCi/g)	0.050	0.10	
100 F Area - Other Solid							

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 6955-038	2σ prep error 15.0 % Reference Lab Notebook 6955 pg. 038															
B105T6	R009067-01			34	91.5					502			19	09/15/00	09/19	JR,01,01
BLK (QC ID=35838)	R009067-03			0.14	91.5					439				09/15/00	09/16	JR,07,00
LCS (QC ID=35837)	R009067-02			0.057	91.5					439				09/15/00	09/16	JR,04,00
Duplicate (R009067-01) (QC ID=35839)	R009067-04			29	91.5					449			20	09/15/00	09/20	JR,01,01
Nominal values and limits from method				0.050	91.5					100			180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 16 ± 36
YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 10/06/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1016

Test C	Matrix SOLID
SDG 7484	
Contact Melissa C. Mannion	

METHOD SUMMARY

CARBON 14 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford	
Contract TRC-SBB-207925	
Contract SDG H1016	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14	
Preparation batch 6955-038						
B105T6	R009067-01			7484-001	U	
BLK (QC ID=35838)	R009067-03			7484-003	U	
LCS (QC ID=35837)	R009067-02			7484-002	ok	
Duplicate (R009067-01)	R009067-04			7484-004	-	U
Nominal values and limits from method				RDLs (pCi/g)	50	
100 F Area - Other Solid						

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 6955-038	2σ prep error 10.0 % Reference Lab Notebook 6955 pg. 038															
B105T6	R009067-01			3.8	0.220			100		100			22	09/21/00	09/22	LSC-005
BLK (QC ID=35838)	R009067-03			3.9	0.211			100		100				09/21/00	09/22	LSC-005
LCS (QC ID=35837)	R009067-02			23	0.211			100		3				09/21/00	09/23	LSC-005
Duplicate (R009067-01) (QC ID=35839)	R009067-04			3.9	0.212			100		100			22	09/21/00	09/22	LSC-005
Nominal values and limits from method				50	0.211					25			180			

PROCEDURES	REFERENCE	C14_COX_LSC
	CP-060	Soil Preparation, rev 2
	CP-251	Tritium/Carbon-14 Oxidation, rev 2

AVERAGES ± 2 SD	MDA	8.6	± 19
FOR 4 SAMPLES	YIELD	100	± 0

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	10/06/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1016

Test NI L Matrix SOLID
SDG 7484
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL
LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1016

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63
Preparation batch 6955-038					
B105T6	R009067-01			7484-001	1220
BLK (QC ID=35838)	R009067-03			7484-003	U
LCS (QC ID=35837)	R009067-02			7484-002	ok
Duplicate (R009067-01)	R009067-04			7484-004	ok
Nominal values and limits from method				RDLs (pCi/g)	30
100 F Area - Other Solid					

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 6955-038	2σ prep error 10.0 %				Reference Lab Notebook 6955 pg. 038											
B105T6	R009067-01			12	0.100			77		100			20	09/20/00	09/20	LSC-005
BLK (QC ID=35838)	R009067-03			11	0.100			88		100				09/20/00	09/20	LSC-005
LCS (QC ID=35837)	R009067-02			10	0.100			87		100				09/20/00	09/20	LSC-005
Duplicate (R009067-01) (QC ID=35839)	R009067-04			12	0.100			77		100			20	09/20/00	09/20	LSC-005
Nominal values and limits from method				30	0.100			30-105		10			180			

PROCEDURES	REFERENCE	NI63_LSC
	CP-060	Soil Preparation, rev 2
	RP-431	Nickel-63 Purification, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 11 ± 1.9
YIELD 82 ± 12

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 10/06/00

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-031-006	Page 1 of 1
Collector: R. Nielson	Company Contact: M. Stankovich; Telephone No.: 531-7620	Project Coordinator: TRENT, SJ	Price Code: 3E; Data Turnaround: 15 days
Project Designation: 100 F Area - Other Solid	Sampling Location: 100-F-19 - Pipeline H1016 (7484)	SAF No.: B00-031	Air Quality ☐
Ice Chest No.: ERC 99-0066	Field Logbook No.: EL-1500-3; COA: R10F192600	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA	Offsite Property No.: RSR 106583	Bill of Lading/Air Bill No.: NA	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None	None	None							
Type of Container	aG	aG	aG	aG							
No. of Container(s)	0	0	1	1							
Volume	120mL	120mL	60mL	120mL							
SAMPLE ANALYSIS	Isotopic Uranium; Isotopic Plutonium; ~~Americium-241~~ RJN 8-31-00	Nickel-63; Strontium-89,90 -- Total Sr; Carbon-14; ~~Technetium-99~~ RJN 8-31-00	See item (1) in Special Instructions.	See item (2) in Special Instructions.							
Sample No.	Matrix *	Sample Date	Sample Time								
B105T6	OTHER SOLID	8-31-00	1310	X	X	X	X				B105T5

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	R. Nielson	8-31-00 1613	Received By: Ref #1 C	8-31-00 1613
Relinquished By: Received from	Ref 1C 3728	9-11-00 0800	Received By: R. Thorsen	9-11-00 0800
Relinquished By: R. Thorsen		9-11-00 0800	Received By: FEDEX	9-11-00
Relinquished By: Fed Ex		9-12-00 15:45	Received By: JR Corso	9-12-00 15:45
Relinquished By			Received By	
Relinquished By			Received By	

SPECIAL INSTRUCTIONS

(1) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV)
(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

Perform Iso uranium, Plutonium, nickel 63, Strontium 89, 90, Total Strontium, carbon 14 from 120ml bottle.

RT 9.11.00

Samples stored in Ref.# 1C at the 3728 Shipping Facility on 8/31/00. Collector not available to relinquish samples on 9/11/00 for shipment.

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 Date/Time received 9-12-00 15:45

CoC No. B00-031-006

Container I.D. No. ERC99-066 Requested TAT (Days) 15 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: The sample has a CPM of 1300.0

13. Was P.M. notified of any anomalies? Yes [✓] No [ ] Date 9-12-00
14. Received by JRCorgan Date: 9-12-00 Time: 15:45

LOGIN

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

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name _____ Date/time _____