Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B00-006
RFW# : 9912L912
SDG/SAF# : H0673/B00-006

W.O.# : 10985-001-001-9999-00
Date Received: 12-04-99

RECEIVED APR 11 2000 EDMC

FEB 2000 RECEIVED Data Log In

METALS CASE NARRATIVE

1. This narrative covers the analyses of 1 soil 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) 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 laboratory 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 14 pages.

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

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B0X0B6	Silver	100	84.8
	Selenium	100	88.0
	Vanadium	100	108.0

12. The duplicate analysis for 1 analyte was 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.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

1-24-00
Date

mld/m12-912

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 9912L912

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

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INORGANICS DATA SUMMARY REPORT 01/24/00

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9912L912

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0X0B6	Silver, Total	0.07 u	MG/KG	0.07	1.0
		Arsenic, Total	2.2	MG/KG	0.23	1.0
		Barium, Total	124	MG/KG	0.02	1.0
		Beryllium, Total	0.43	MG/KG	0.03	1.0
		Cadmium, Total	0.50	MG/KG	0.03	1.0
		Chromium, Total	15.5	MG/KG	0.06	1.0
		Copper, Total	18.0	MG/KG	0.04	1.0
		Nickel, Total	14.7	MG/KG	0.08	1.0
		Lead, Total	3.3	MG/KG	0.18	1.0
		Selenium, Total	2.0	MG/KG	0.35	1.0
		Vanadium, Total	87.1	MG/KG	0.05	1.0
		Zinc, Total	52.5	MG/KG	0.04	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/24/00

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9912L912

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L0876-MB1	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Arsenic, Total	0.27 u	MG/KG	0.27	1.0
		Barium, Total	0.02 u	MG/KG	0.02	1.0
		Beryllium, Total	0.03 u	MG/KG	0.03	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Chromium, Total	0.07 u	MG/KG	0.07	1.0
		Copper, Total	0.05 u	MG/KG	0.05	1.0
		Nickel, Total	0.10 u	MG/KG	0.10	1.0
		Lead, Total	0.21 u	MG/KG	0.21	1.0
		Selenium, Total	0.41 u	MG/KG	0.41	1.0
		Vanadium, Total	0.06 u	MG/KG	0.06	1.0
		Zinc, Total	0.05 u	MG/KG	0.05	1.0

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INORGANICS ACCURACY REPORT 01/24/00

CLIENT: TNU-HANFORD B00-006

RECRA LOT #: 9912L912

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0X0B6	Silver, Total	3.0	0.07u	4.1	73.2	1.0
		Arsenic, Total	130	2.2	166	77.3	1.0
		Barium, Total	282	124	166	95.8	1.0
		Beryllium, Total	4.1	0.43	4.1	89.4	1.0
		Cadmium, Total	4.2	0.50	4.1	90.3	1.0
		Chromium, Total	30.4	15.5	16.6	89.8	1.0
		Copper, Total	38.3	18.0	20.7	98.1	1.0
		Nickel, Total	50.2	14.7	41.4	85.7	1.0
		Lead, Total	39.6	3.3	41.4	87.7	1.0
		Selenium, Total	126	2.0	166	74.9	1.0
		Vanadium, Total	140	87.1	41.4	128.5	1.0
		Zinc, Total	94.4	52.5	41.4	101.2	1.0

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INORGANICS PRECISION REPORT 01/24/00

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9912L912

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0X0B6	Silver, Total	0.07u	0.08u	NC	1.0
		Arsenic, Total	2.2	2.6	16.7	1.0
		Barium, Total	124	134	7.8	1.0
		Beryllium, Total	0.43	0.45	3.4	1.0
		Cadmium, Total	0.50	0.45	10.2	1.0
		Chromium, Total	15.5	20.9	29.7	1.0
		Copper, Total	18.0	18.6	3.3	1.0
		Nickel, Total	14.7	16.8	13.3	1.0
		Lead, Total	3.3	3.8	14.1	1.0
		Selenium, Total	2.0	2.2	9.5	1.0
		Vanadium, Total	87.1	99.8	13.6	1.0
		Zinc, Total	52.5	58.8	11.3	1.0

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INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/24/00

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9912L912

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L0876-LC1	Silver, LCS	49.3	50.0	MG/KG	98.6
		Arsenic, LCS	945	1000	MG/KG	94.5
		Barium, LCS	491	500	MG/KG	98.2
		Beryllium, LCS	23.5	25.0	MG/KG	94.0
		Cadmium, LCS	24.2	25.0	MG/KG	96.8
		Chromium, LCS	49.8	50.0	MG/KG	99.6
		Copper, LCS	123	125	MG/KG	98.3
		Nickel, LCS	193	200	MG/KG	96.3
		Lead, LCS	241	250	MG/KG	96.5
		Selenium, LCS	918	1000	MG/KG	91.8
		Vanadium, LCS	255	250	MG/KG	101.9
		Zinc, LCS	95.5	100	MG/KG	95.5

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 12/04/99 RFW LOT # :9912L912

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0X0B6						
SILVER, TOTAL	001	S	99L0876	12/02/99	01/10/00	01/13/00
SILVER, TOTAL	001 REP	S	99L0876	12/02/99	01/10/00	01/13/00
SILVER, TOTAL	001 MS	S	99L0876	12/02/99	01/10/00	01/13/00
ARSENIC, TOTAL	001	S	99L0876	12/02/99	01/10/00	01/13/00
ARSENIC, TOTAL	001 REP	S	99L0876	12/02/99	01/10/00	01/13/00
ARSENIC, TOTAL	001 MS	S	99L0876	12/02/99	01/10/00	01/13/00
BARIUM, TOTAL	001	S	99L0876	12/02/99	01/10/00	01/13/00
BARIUM, TOTAL	001 REP	S	99L0876	12/02/99	01/10/00	01/13/00
BARIUM, TOTAL	001 MS	S	99L0876	12/02/99	01/10/00	01/13/00
BERYLLIUM, TOTAL	001	S	99L0876	12/02/99	01/10/00	01/14/00
BERYLLIUM, TOTAL	001 REP	S	99L0876	12/02/99	01/10/00	01/14/00
BERYLLIUM, TOTAL	001 MS	S	99L0876	12/02/99	01/10/00	01/14/00
CADMIUM, TOTAL	001	S	99L0876	12/02/99	01/10/00	01/13/00
CADMIUM, TOTAL	001 REP	S	99L0876	12/02/99	01/10/00	01/13/00
CADMIUM, TOTAL	001 MS	S	99L0876	12/02/99	01/10/00	01/13/00
CHROMIUM, TOTAL	001	S	99L0876	12/02/99	01/10/00	01/13/00
CHROMIUM, TOTAL	001 REP	S	99L0876	12/02/99	01/10/00	01/13/00
CHROMIUM, TOTAL	001 MS	S	99L0876	12/02/99	01/10/00	01/13/00
COPPER, TOTAL	001	S	99L0876	12/02/99	01/10/00	01/13/00
COPPER, TOTAL	001 REP	S	99L0876	12/02/99	01/10/00	01/13/00
COPPER, TOTAL	001 MS	S	99L0876	12/02/99	01/10/00	01/13/00
NICKEL, TOTAL	001	S	99L0876	12/02/99	01/10/00	01/13/00
NICKEL, TOTAL	001 REP	S	99L0876	12/02/99	01/10/00	01/13/00
NICKEL, TOTAL	001 MS	S	99L0876	12/02/99	01/10/00	01/13/00
LEAD, TOTAL	001	S	99L0876	12/02/99	01/10/00	01/13/00
LEAD, TOTAL	001 REP	S	99L0876	12/02/99	01/10/00	01/13/00
LEAD, TOTAL	001 MS	S	99L0876	12/02/99	01/10/00	01/13/00
SELENIUM, TOTAL	001	S	99L0876	12/02/99	01/10/00	01/13/00
SELENIUM, TOTAL	001 REP	S	99L0876	12/02/99	01/10/00	01/13/00
SELENIUM, TOTAL	001 MS	S	99L0876	12/02/99	01/10/00	01/13/00
VANADIUM, TOTAL	001	S	99L0876	12/02/99	01/10/00	01/13/00
VANADIUM, TOTAL	001 REP	S	99L0876	12/02/99	01/10/00	01/13/00
VANADIUM, TOTAL	001 MS	S	99L0876	12/02/99	01/10/00	01/13/00
ZINC, TOTAL	001	S	99L0876	12/02/99	01/10/00	01/13/00
ZINC, TOTAL	001 REP	S	99L0876	12/02/99	01/10/00	01/13/00

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 12/04/99 RFW LOT # :9912L912

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	001 MS	S	99L0876	12/02/99	01/10/00	01/13/00

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
SILVER, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
ARSENIC LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
ARSENIC, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
BARIUM LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
BARIUM, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
BERYLLIUM LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/14/00
BERYLLIUM, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/14/00
CADMIUM LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
CADMIUM, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
CHROMIUM LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
CHROMIUM, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
COPPER LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
COPPER, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
NICKEL LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
NICKEL, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
LEAD LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
LEAD, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
SELENIUM LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
SELENIUM, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
VANADIUM LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
VANADIUM, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00
ZINC LABORATORY	LC1 BS	S	99L0876	N/A	01/10/00	01/12/00
ZINC, TOTAL	MB1	S	99L0876	N/A	01/10/00	01/12/00

RECRA LabNet Use Only

99121912

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

A11 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

B00-

Client: TNU-Hanford ~~B00~~-006

Est. Final Proj. Sampling Date: 12/4/99

Project #: 10935-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: DJ

QC: Spec Del: Std TAT: 30 day

Date Rec'd: 12/4/99 Date Due: 1/3/00

Account #:

Refrigerator #			3				3				3						
#/Type Container	Liquid																
	Solid		1g				1g				1g						
Volume	Liquid																
	Solid		120				250				60						
Preservatives																	
ANALYSES REQUESTED →		ORGANIC VOA	ORGANIC BNA	ORGANIC Pest/PCB	ORGANIC Herb				INORG Metal	INORG CN							

RECRA LabNet Use Only

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected		0625H 0DRO	0PCB			Ang①	ICR6	*	ICNITO	IPH					
0001	BØX0B6	X	X	S	12/2/99	1345		✓	✓			✓	✓	✓	✓	✓					

Special Instructions:

saf# B00-006

COMPOSITE WASTE

DATE/REVISIONS:

1. * As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu,
2. Ni, V, Zn, Hg
3. Ang① = IN3N2, ICCL, ICFL, ICNO2, ICNO3,
4. ICPO4, ICSO4, ISFD, INH3N
5.
6.

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered ___
Airbill # *
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. 3.1 °C

Relinquished by	Received by	Date	Time
FedEx	Janson	12/4/99	1000

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

* 423579532476

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-16	Page 1 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: ERC 99028	Field Logbook No.: EL 1435	COA: B20CS1671G	Method of Shipment: Fed Ex
Shipped To: ~~TMA~~/RECRA RF 12-2-99	Offsite Property No.: A00 0055	Bill of Lading/Air Bill No.: 42357953 2476	

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	~~GA~~ 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	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										
B0X0B6 / Soil / 12-2-99 / 1345				X	X	X				X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	12-2-99 1530	Ref 2-C	12-2-99 1530
Ref 2C	12-3-99 / 0700	R. Thoren	12-3-99 / 0700
R. Thoren	12-3-99 / 1430	FEDEX	
FedEx		Anderson	12/4/99 1000

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 BOX069

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	B00-006-16	Page 2 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: SBC 99028	Field Logbook No.: EL 1435	COA: B20C51671C	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA Ref 12.2.99	Offsite Property No.: A000055	Bill of Lading/Air Bill No.: 42357953 2476	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C											
Type of Container	aG											
No. of Container(s)	1											
Volume	250mL											
SAMPLE ANALYSIS	See item (1) in Special Instructions.											

Sample No.	Matrix *	Sample Date	Sample Time										
B0X0B6	Soil	12.2.99	1345	X									

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By: R Fahlberg / R Fahlberg	12-2-99 1530	Received By: Ref 2.C	12.2.99 1530
Relinquished By: Ref 2C	12.3.99/0700	Received By: R. Thoren	12.3.99/0700
Relinquished By: R Thoren	12.3.99/1430	Received By: FED EX	
Relinquished By: FedEx		Received By: Johnson	12/4/99 1000
Relinquished By		Received By	
Relinquished By		Received By	

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) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

TIE TO BOX069

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)

RECRA LabNet
a division of Recra Environmental, Inc.
Virtual Laboratories Everywhere

FEB 2000
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B00-006
RFW# : 9912L912
SDG# : H0673
SAF# : B00-006

W.O. # : 10985-001-001-9999-00
Date Received: 12-04-99

INORGANIC CASE NARRATIVE

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

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

3. Sample holding times as required by the method and/or contract were met.

4. The cooler temperature was recorded on the chain-of-custody.

5. The method blanks were within method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS for Ammonia was within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recoveries were within the 75-125% control limits.

8. The replicate analyses were within the 20% RPD control limit with the exception of Sulfide.

9. Results for solid samples are reported on a dry weight basis.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

1-26-00
Date

njp\i12-912

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 14 pages.

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610)-280-3000 • Fax (610) 280-3041

Recra LabNet Philadelphia

WET CHEMISTRY
METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	ASTM	SW846	OTHER
% Ash	__ D2216-80		
% Moisture	__ D2216-80		__ ILMO4.0 (e)
% Solids	✓ D2216-80		__ ILMO4.0 (e)
% Volatile Soilids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Chromium VI		✓ 3060A/7196A	
Corrosivity __ by coupon __ by pH		__ 1110(mod) __ 9045C	
Cyanide, Total		✓ 9010B	__ ILMO4.0 (e)
Cyanide, Reactive		__ Section 7.3	
Halides, Extractable Organic		__ 9020B	__ EPA 600/4/84-008
Halides, Total		__ 9020B	__ EPA 600/4/84-008
EP Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Oil & Grease		__ 9071A	
Carbon, Total Organic		__ 9060	__ Lloyd Kahn (mod)
Oxygne Bomb Prep for Anions	__ D240-87(mod)	__ 5050	
Petroleum Hydrocarbons, Total Recoverable		__ 9071	__ EPA 418.1
pH, Soil		✓ 9045C	
Sulfide, Reactive		__ Section 7.3	
Sulfide		✓ 9030B(mod)	
Specific Gravity	__ D1429-76C/	__ D5057-90	
Sulfur, Total		__ 9056	
Synthetic Prpearation Leach		__ 1312	
Paint Filter		9095A	

Other: Nitrate Nitrite **Method:** EPA 353.2

Other: Ammonia **Method** EPA 350.3

Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate } EPA 300.0

L-WI-034/B-06/99

Recra LabNet Philadelphia
METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

A suffix of -R, -S, or -T following these codes indicate a replicate, spike or sample duplicate analysis respectively.

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 12/28/99

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9912L912

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0X0B6	% Solids	94.2		%	0.01	1.0
		Chloride by IC	2.0		MG/KG	1.3	1.0
		Fluoride by IC	2.7	u	MG/KG	2.7	1.0
		Nitrite by IC	1.3	u	MG/KG	1.3	1.0
		Nitrate by IC	1.3	u	MG/KG	1.3	1.0
		Cyanide, Total	0.53	u	MG/KG	0.53	1.0
		Phosphate by IC	2.6		MG/KG	1.3	1.0
		Chromium VI	0.42	u	MG/KG	0.42	1.0
		Sulfate by IC	12.4		MG/KG	1.3	1.0
		Nitrate Nitrite	0.22	u	MG/KG	0.22	1.0
		Ammonia, as N	1.3	u	MG/KG	1.3	1.0
		pH	8.1		SOIL PH	0.01	1.0
		Sulfide	8.3		MG/KG	2.1	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/28/99

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9912L912

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LIC106-MB1	Chloride by IC	1.2	u	MG/KG	1.2	1.0
		Fluoride by IC	2.5	u	MG/KG	2.5	1.0
		Nitrite by IC	1.2	u	MG/KG	1.2	1.0
		Nitrate by IC	1.2	u	MG/KG	1.2	1.0
		Phosphate by IC	1.2	u	MG/KG	1.2	1.0
		Sulfate by IC	1.2	u	MG/KG	1.2	1.0
BLANK10	99LC133A-MB1	Cyanide, Total	0.50	u	MG/KG	0.50	1.0
BLANK10	99LVI087-MB1	Chromium VI	0.40	u	MG/KG	0.40	1.0
BLANK10	99LN3A62-MB1	Nitrate Nitrite	0.20	u	MG/KG	0.20	1.0
BLANK10	99LAMA47-MB1	Ammonia, as N	25.0	u	MG/KG	25.0	1.0
BLANK10	99LSD074-MB1	Sulfide	2.0	u	MG/KG	2.0	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 12/28/99

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9912L912

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0X0B6	Chloride by IC	27.2	2.0	26.5	94.7	1.0
		Fluoride by IC	57.7	1.9	53.1	105.1	1.0
		Nitrite by IC	26	1.3 u	27	99.7	1.0
		Nitrate by IC	27	1.3 u	27	101.2	1.0
		Cyanide, Total	5.1	0.53u	5.3	96.5	1.0
		Phosphate by IC	27.5	2.6	26.5	94.0	1.0
		Soluble Chromium VI	4.3	0.42u	4.2	104.2	1.0
		Insoluble Chromium VI	1160	0.42u	1160	99.6	100
		Sulfate by IC	39.4	12.4	26.5	101.7	1.0
		Nitrate Nitrite	5.7	0.22u	5.4	105.4	1.0
		Ammonia, as N	105	1.3 u	103	102.0	1.0
		Sulfide	357	8.3	424	82.1	1.0
BLANK10	99LIC106-MB1	Chloride by IC	23.3	1.2 u	25.0	93.3	1.0
		Fluoride by IC	52.0	2.5 u	50.0	104.0	1.0
		Nitrite by IC	24	1.2 u	25	94.9	1.0
		Nitrate by IC	25	1.2 u	25	99.2	1.0
		Phosphate by IC	25.4	1.2 u	25.0	101.8	1.0
		Sulfate by IC	23.4	1.2 u	25.0	93.5	1.0
BLANK10	99LVI087-MB1	Soluble Chromium VI	4.0	0.40u	4.0	99.6	1.0
		Insoluble Chromium VI	1130	0.40u	1160	96.7	100
BLANK10	99LN3A62-MB1	Nitrate Nitrite	4.7	0.20u	5.0	94.6	1.0
BLANK10	99LAMA47-MB1	Ammonia, as N	918	25.0 u	1000	91.8	1.0
		Ammonia, as N MSD	1010	25.0 u	1000	101.2	1.0
BLANK10	99LSD074-MB1	Sulfide	9.1	2.0 u	10.0	91.0	1.0

Recra LabNet - Lionville

INORGANICS DUPLICATE SPIKE REPORT 12/28/99

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9912L912

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	99LAMA47-MB1	Ammonia, as N	91.8	101.2	9.8

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 12/28/99

CLIENT: TNU-HANFORD B00-006

RECRA LOT #: 9912L912

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0X0B6	% Solids	94.2	94.5	0.28	1.0
		Chloride by IC	2.0	1.9	5.4	1.0
		Fluoride by IC	2.7 u	2.7 u	NC	1.0
		Nitrite by IC	1.3 u	1.3 u	NC	1.0
		Nitrate by IC	1.3 u	1.3 u	NC	1.0
		Cyanide, Total	0.53u	0.53u	NC	1.0
		Phosphate by IC	2.6	2.7	6.0	1.0
		Chromium VI	0.42u	0.42u	NC	1.0
		Sulfate by IC	12.4	12.1	2.3	1.0
		Nitrate Nitrite	0.22u	0.23u	NC	1.0
		Ammonia, as N	1.3 u	1.3 u	NC	1.0
		pH	8.1	8.1	0.0	1.0
		Sulfide	8.3	4.1	68.0	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 12/28/99

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 9912L912

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS10	99LC133A-LC1	Cyanide, Total LCS	2.1	2.0	MG/KG	105.4
LCS20	99LC133A-LC2	Cyanide, Total LCS	9.7	10	MG/KG	96.5

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 12/04/99 RFW LOT # :9912L912

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0X0B6						
% SOLIDS	001	S	99L%S162	12/02/99	12/09/99	12/10/99
% SOLIDS	001 REP	S	99L%S162	12/02/99	12/09/99	12/10/99
CHLORIDE BY IC	001	S	99LIC106	12/02/99	12/07/99	12/07/99
CHLORIDE BY IC	001 REP	S	99LIC106	12/02/99	12/07/99	12/07/99
CHLORIDE BY IC	001 MS	S	99LIC106	12/02/99	12/07/99	12/07/99
FLUORIDE BY IC	001	S	99LIC106	12/02/99	12/07/99	12/07/99
FLUORIDE BY IC	001 REP	S	99LIC106	12/02/99	12/07/99	12/07/99
FLUORIDE BY IC	001 MS	S	99LIC106	12/02/99	12/07/99	12/07/99
NITRITE BY IC	001	S	99LIC106	12/02/99	12/07/99	12/07/99
NITRITE BY IC	001 REP	S	99LIC106	12/02/99	12/07/99	12/07/99
NITRITE BY IC	001 MS	S	99LIC106	12/02/99	12/07/99	12/07/99
NITRATE BY IC	001	S	99LIC106	12/02/99	12/07/99	12/07/99
NITRATE BY IC	001 REP	S	99LIC106	12/02/99	12/07/99	12/07/99
NITRATE BY IC	001 MS	S	99LIC106	12/02/99	12/07/99	12/07/99
TOTAL CYANIDE	001	S	99LC133A	12/02/99	12/13/99	12/13/99
TOTAL CYANIDE	001 REP	S	99LC133A	12/02/99	12/13/99	12/13/99
TOTAL CYANIDE	001 MS	S	99LC133A	12/02/99	12/13/99	12/13/99
PHOSPHATE BY IC	001	S	99LIC106	12/02/99	12/07/99	12/07/99
PHOSPHATE BY IC	001 REP	S	99LIC106	12/02/99	12/07/99	12/07/99
PHOSPHATE BY IC	001 MS	S	99LIC106	12/02/99	12/07/99	12/07/99
CHROMIUM VI	001	S	99LVI087	12/02/99	12/07/99	12/07/99
CHROMIUM VI	001 REP	S	99LVI087	12/02/99	12/07/99	12/07/99
CHROMIUM VI	001 MS	S	99LVI087	12/02/99	12/07/99	12/07/99
CHROMIUM VI	001 MSD	S	99LVI087	12/02/99	12/07/99	12/07/99
SULFATE BY IC	001	S	99LIC106	12/02/99	12/07/99	12/07/99
SULFATE BY IC	001 REP	S	99LIC106	12/02/99	12/07/99	12/07/99
SULFATE BY IC	001 MS	S	99LIC106	12/02/99	12/07/99	12/07/99
NITRATE NITRITE	001	S	99LN3A62	12/02/99	12/17/99	12/17/99
NITRATE NITRITE	001 REP	S	99LN3A62	12/02/99	12/17/99	12/17/99
NITRATE NITRITE	001 MS	S	99LN3A62	12/02/99	12/17/99	12/17/99
AMMONIA	001	S	99LAMA47	12/02/99	12/21/99	12/22/99
AMMONIA	001 REP	S	99LAMA47	12/02/99	12/21/99	12/22/99
AMMONIA	001 MS	S	99LAMA47	12/02/99	12/21/99	12/22/99
PH	001	S	99LPH131	12/02/99	12/07/99	12/07/99
PH	001 REP	S	99LPH131	12/02/99	12/07/99	12/07/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 12/04/99 RFW LOT # :9912L912

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SULFIDE	001	S	99LSD074	12/02/99	12/07/99	12/07/99
SULFIDE	001 REP	S	99LSD074	12/02/99	12/07/99	12/07/99
SULFIDE	001 MS	S	99LSD074	12/02/99	12/07/99	12/07/99

LAB QC:

CHLORIDE BY IC	MB1	S	99LIC106	N/A	12/07/99	12/07/99
CHLORIDE BY IC	MB1 BS	S	99LIC106	N/A	12/07/99	12/07/99
FLUORIDE BY IC	MB1	S	99LIC106	N/A	12/07/99	12/07/99
FLUORIDE BY IC	MB1 BS	S	99LIC106	N/A	12/07/99	12/07/99
NITRITE BY IC	MB1	S	99LIC106	N/A	12/07/99	12/07/99
NITRITE BY IC	MB1 BS	S	99LIC106	N/A	12/07/99	12/07/99
NITRATE BY IC	MB1	S	99LIC106	N/A	12/07/99	12/07/99
NITRATE BY IC	MB1 BS	S	99LIC106	N/A	12/07/99	12/07/99
TOTAL CYANIDE	LC1 L	S	99LC133A	N/A	12/13/99	12/13/99
TOTAL CYANIDE	LC2 L	S	99LC133A	N/A	12/13/99	12/13/99
TOTAL CYANIDE	MB1	S	99LC133A	N/A	12/13/99	12/13/99
PHOSPHATE BY IC	MB1	S	99LIC106	N/A	12/07/99	12/07/99
PHOSPHATE BY IC	MB1 BS	S	99LIC106	N/A	12/07/99	12/07/99
CHROMIUM VI	MB1	S	99LVI087	N/A	12/07/99	12/07/99
CHROMIUM VI	MB1 BS	S	99LVI087	N/A	12/07/99	12/07/99
CHROMIUM VI	MB1 BSD	S	99LVI087	N/A	12/07/99	12/07/99
SULFATE BY IC	MB1	S	99LIC106	N/A	12/07/99	12/07/99
SULFATE BY IC	MB1 BS	S	99LIC106	N/A	12/07/99	12/07/99
NITRATE NITRITE	MB1	S	99LN3A62	N/A	12/17/99	12/17/99
NITRATE NITRITE	MB1 BS	S	99LN3A62	N/A	12/17/99	12/17/99
AMMONIA	MB1	S	99LAMA47	N/A	12/21/99	12/22/99
AMMONIA	MB1 BS	S	99LAMA47	N/A	12/21/99	12/22/99
AMMONIA	MB1 BSD	S	99LAMA47	N/A	12/21/99	12/22/99
SULFIDE	MB1	S	99LSD074	N/A	12/07/99	12/07/99
SULFIDE	MB1 BS	S	99LSD074	N/A	12/07/99	12/07/99

RECRA LabNet Use Only

99121912

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

C12

A11 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

B00-

Client: TNU-Hanford ~~B00~~-006

Est. Final Proj. Sampling Date: 8/12/4/99

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

Project Contact/Phone #:

RECRA Project Manager: DJ

QC: Spec Del: std TAT: 30 day

Date Rec'd: 12/4/99 Date Due: 1/3/00

Account #:

Refrigerator #			3	1			3	1		3						
#/Type Container	Liquid															
	Solid		1g	1			1g	1		1g						
Volume	Liquid															
	Solid		120	1			250	1		60						
Preservatives									w/ Hg ⓓ							

ANALYSES REQUESTED →

	ORGANIC							INORG							
	VOA	BNA	Pest/PCB	Herb				Metal	CN						
RECRA LabNet Use Only		0025H 0DRO	0PCB			Ang ⓓ	ICR6	*	ICNITO	1PH					

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														
0001	BØX0B6	X	X	S	12/2/99	1345		✓	✓		✓	✓	✓	✓	✓					

Special Instructions:

saf# B00-006

COMPOSITE WASTE

DATE/REVISIONS:

1. * As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu,
2. Ni, V, Zn, Hg
3. Ang ⓓ = 1N3N2, 1CCL, 1CFL, 1CNO2, 1CNO3,
4. 1CPO4, 1SO4, 1SFD, 1NH3N
5.
6.

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___

Airbill # *

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. 3.1 °C

Relinquished by	Received by	Date	Time
FedEx	Janson	12/4/99	1000

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

* 423579532476

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-16	Page 1 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: ERC 99028	Field Logbook No.: EL 1435	COA: B2OCS1671G	Method of Shipment: Fed Ex
Shipped To: ~~TMA~~/RECRA RF 12-2-99	Offsite Property No.: A000055	Bill of Lading/Air Bill No.: 42357953 2476	

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	~~aG~~ 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	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions	pH (Soil) - 9045	VOA - 8260A (TCL), VOA - 8260A (Add-On) (I-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										
B0X0B6	Soil	12.2.99	1345				X	X	X				X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: R Fahlberg / R Fahlberg	Date/Time: 1530 12.2.99	Received By: RF 2.C	Date/Time: 1530 12.2.99
Relinquished By: RF 2C	Date/Time: 12.3.99/0700	Received By: R. Thoren	Date/Time: 12.3.99/0700
Relinquished By: R. Thoren	Date/Time: 12.3.99/1430	Received By: FEDEX	Date/Time:
Relinquished By: FedEx	Date/Time:	Received By: Anderson	Date/Time: 12/4/99 1000
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

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 BOX069

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	B00-006-16	Page 2 of 2

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. SBC 99028	Field Logbook No. EL 1435	COA B20CS1671C	Method of Shipment Fed Ex
Shipped To TMA/RECRA Ref 12.2.99	Offsite Property No. A0000055		Bill of Lading/Air Bill No. 42357953 2476

Price Code 8N

Air Quality ☐

Data Turnaround 45 Days

POSSIBLE SAMPLE HAZARDS/REMARKS												
	Preservation	Cool 4C										
	Type of Container	aG										
	No. of Container(s)	1										
Special Handling and/or Storage	Volume	250mL										
SAMPLE ANALYSIS		See item (1) in Special Instructions										

Sample No.	Matrix *	Sample Date	Sample Time										
B0X0B6	Soil	12.2.99	1345	X									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By R. Fahlberg	Date/Time 1530 R. Fahlberg 12-2-99	Received By Ref 2.C	Date/Time 1530 12.2.99
Relinquished By Ref 2C	Date/Time 12.3.99/0700	Received By R. Thoren	Date/Time 12.3.99/0700
Relinquished By R. Thoren	Date/Time 12.3.99/1430	Received By FED EX	Date/Time
Relinquished By FedEx	Date/Time	Received By Johnson	Date/Time 12/4/99 1000
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

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) NO2/NO3 - 353.1; IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

TIE TO BOX069

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)

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU HANFORD B00-006
RFW #: 9912L912
SDG/SAF#: H0673/B00-006

W.O. #: #: 10985-001-001-9999-00
Date Received: 12-04-99

GC SCAN

One (1) soil sample was collected on 12-02-99

The sample and its associated QC samples were prepared on 01-11-00 and analyzed by methodology based on EPA Method 8015B for Ethanol and 1-Propanol on 01-12-00.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. The sample was packaged and stored as specified in the method protocol; the cooler temperature upon receipt has been recorded on the chain-of-custody.
2. The required holding time for analysis was not met, since the sample was not originally logged for this analysis. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
3. All initial calibrations associated with this data set were within acceptance criteria.
4. All continuing calibration standards analyzed prior to the sample extracts were within acceptance criteria.
5. Recra does not use surrogate spikes for this analysis. The method does not provide specific guidance regarding the use of surrogates and performance criteria. Method performance is monitored through the use of blank spikes and matrix spikes.
6. The blank spike recovery was within advisory control limits of 50%-150%.
7. Matrix spike recoveries were within the advisory control limits of 50%-150%.

by J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

02-03-00
Date

FEB 2000
RECEIVED
Data
Log In

r:\share\lc\gcscan\12-912.doc

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 8 pages.

Recra Labnet Philadelphia

GLOSSARY OF OLCSC DATA

DATA QUALIFIERS

U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

Recra LabNet Philadelphia Sample Discrepancy Report (SDR) SDR #: 00PM008

Initiator: Olette Johnson RFW Batch: 99121912 Parameter: 1-propanol (GCSC)
Date: 1/10/00 Samples: Matrix:
Client: TNU Hanford Method: SW846/MCAWW/CLP/ Prep Batch:

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy

__ Missing Sample/Extract __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
✓ Hold Time Exceeded __ Insufficient Sample __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. QC Problem (Include all relevant specific results; attach data if necessary)

H0673, B00-006

2. Known or Probable Causes(s)

New employee error; employee has received additional instruction

3. Discussion and Proposed Action Other Description:

__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

run out of hold

4. Project Manager Instructions...signature/date: Olette Johnson 1/10/00

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
✓ Include in Case Narrative
✓ Client Contacted:
Date/Person Fran Kessner 1/10/00
__ Add
__ Cancel

5. Final Action...signature/date: 2-2-00 Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Doughty
__	X Lab Manager: M. Taylor	__	__ Inorganic: Perrone
__	X Project Mgr: Stone/Carey/Schrenkel/Johnson	X	__ GC/LC: Schnell (Kissinger)
__	X Section Mgr: Wesson/Daniels	__	__ MS: Taylor
__	X QA (file): Racioppi	__	__ Log-in: Janson
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Doughty/Kauffman	__	__ Other: _____

L-WI-006/E-03/99

Recra LabNet - Lionville Laboratory

GC SCAN

Report Date: 01/13/00 14:55

RFW Batch Number: **9912L912** Client: **TNU-HANFORD B00-006** Work Order: **10985-001-001-9999-00** Page: 1

	Cust ID:	B0X0B6	B0X0B6	B0X0B6	BLK	BLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	00LLC001-MB1	00LLC001-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
n-Propyl Alcohol		5.0 U	78 %	79 %	5.0 U	81 %
Ethanol		5.0 U	4.8 U	5.0 U	5.0 U	5.0 U

LC 1/13/00

1/28/00

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of Advisory limits.

RECRA LabNet Use Only: 99121912

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

A11 FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

B00-

Client: TNU-Hanford ~~B00~~-006
Est. Final Proj. Sampling Date: 12/4/99
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: DJ
QC: Spec Del: Std TAT: 30 day
Date Rec'd: 12/4/99 Date Due: 1/3/00
Account #:

Refrigerator #			3	1			3	1			3				
#/Type Container	Liquid														
	Solid		1g	1			1g	1			1g				
Volume	Liquid														
	Solid		120	1			250	1			60				
Preservatives															
ANALYSES REQUESTED →		ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Metal	CN					
RECRA LabNet Use Only			8025H 8DRO	8PCB			Ang①	ICP6	*	ICNTO	IPH				

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected												
S - Soil, SE - Sediment, SO - Solid, SL - Sludge, W - Water, O - Oil, A - Air, DS - Drum Solids, DL - Drum Liquids, L - ER/TCLP Leachate, Wi - Wipe, X - Other, F - Fish	0001	BØX0B6	X	X	S	12/2/99	1345		✓	✓		✓	✓	✓	✓	✓			

Special Instructions:
saf# B00-006

COMPOSITE WASTE

DATE/REVISIONS:
1. * As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu,
2. Ni, V, Zn, Hg
3. Ang① = IN3N2, ICCL, ICFL, ICNO2, ICNO3,
4. ICPO4, ICSO4, ISFD, INH3N
5.
6.

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered
Airbill # *
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. 3.1 °C

Relinquished by	Received by	Date	Time
FedEx	Jansson	12/4/99	1000

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
* 423579532476

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-16	Page 1 of 2

Collector R Fahlberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N Air Quality ☐	Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006		
Ice Chest No. ERC 99028	Field Logbook No. EL 1435	COA B2OCS1671G	Method of Shipment Fed Ex		
Shipped To ~~TMA~~/RECRA RF 12-2-99	Offsite Property No. A0000055		Bill of Lading/Air Bill No. 42357953 2476		

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
B0X0B6	Soil	12-2-99	1345				X	X	X				X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	1530 12-2-99	RF 2-C	1530 12-2-99
RF 2C	12-3-99/0700	R. Thoren	12-3-99/0700
R. Thoren	12-3-99/1430	FEDEX	
FedEx		Amazon	12/4/99 1000

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 BOX069

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	B00-006-16	Page 2 of 2

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. SBC 99028	Field Logbook No. EL 1435	COA B20CS167C	Method of Shipment Fed Ex
Shipped To ~~TMA~~/RECRA RF 12.2.99	Offsite Property No. A000055		Bill of Lading/Air Bill No. 42357952476

Price Code 8N

Data Turnaround 45 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

SAMPLE ANALYSIS

Preservation				Cool 4C									
Type of Container				aG									
No. of Container(s)				1									
Volume				250mL									
				See item (1) in Special Instructions									
Sample No.	Matrix *	Sample Date	Sample Time										
B0X0B6	Soil	12.2.99	1345	X									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By R. Fahlberg / R. Fahlberg	Date/Time 1530 12-2-99	Received By Ref 2.C	Date/Time 1530 12.2.99
Relinquished By Ref 2C	Date/Time 12.3.99/0700	Received By R. Thoren	Date/Time 12.3.99/0700
Relinquished By R. Thoren	Date/Time 12.3.99/1430	Received By FED EX	Date/Time
Relinquished By FedEx	Date/Time	Received By Johnson	Date/Time 12/4/99 1000
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

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) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

TIE TO BOX069

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)

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B00-006
RFW# : 9912L912
SDG/SAF#: H0673/B00-006

W.O #: 10985-001-001-9999-00
Date Received: 12-04-99

DIESEL RANGE ORGANICS

One (1) soil sample was collected on 12-02-99.

The sample and it's associated QC samples were prepared on 12-13-99 and analyzed according to Recra OPs based on EPA Method 8015B for Diesel Range Petroleum Hydrocarbons on 12-22, 23-99. The analysis met the intent of method WTPH-D.

1. The cooler temperature has been recorded on the chain-of-custody.

2. All required holding times for extraction and analysis were met.

3. All initial calibrations associated with this data set were within acceptance criteria.

4. All diesel continuing calibration standards analyzed prior to the sample extracts were within acceptance criteria.

5. All surrogate recoveries were within acceptance criteria.

6. The blank spike recovery was within acceptance criteria.

7. All matrix spike recoveries were within acceptance criteria.

FEB 2000
RECEIVED
Data
Log In

Per J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

01-04-00
Date

R:\group\hplc\narr\dro\12-912d.doc

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 7 pages.

GLOSSARY OF DIESEL DATA

DATA QUALIFIERS

U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates spiked compound.

Recra LabNet - Lionville Laboratory

DIESEL RANGE ORGANICS BY GC

Report Date: 12/27/99 13:30

RFW Batch Number: **9912L912** Client: **TNU-HANFORD B00-006** Work Order: **10985-001-001-9999-00** Page: 1

	Cust ID:	B0X0B6	B0X0B6	B0X0B6	BLK	BLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	99LE1513-MB1	99LE1513-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Surrogate:	p-Terphenyl	85 %	93 %	86 %	78 %	88 %
Diesel Range Organics		4.2 U	86 %	82 %	4.0 U	91 %

003

L 12/27/99

12/28/99

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not requested. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of Advisory limits.

Recra LabNet - Lionville Laboratory
DRO ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 12/04/99 RFW LOT # :9912L912

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0X0B6	001	S	99LE1513	12/02/99	12/13/99	12/22/99
B0X0B6	001 MS	S	99LE1513	12/02/99	12/13/99	12/23/99
B0X0B6	001 MSD	S	99LE1513	12/02/99	12/13/99	12/23/99
LAB QC:						
BLK	MB1	S	99LE1513	N/A	12/13/99	12/22/99
BLK	MB1 BS	S	99LE1513	N/A	12/13/99	12/22/99

12/20/99

RECRA LabNet Use Only

9912L912

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

B00-

Client: TNU-Hanford ~~B00~~-006

Est. Final Proj. Sampling Date: 12/4/99

Project #: 10935-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: Spec Del: Std TAT: 30 day

Date Rec'd: 12/4/99 Date Due: 1/3/00

Account #:

Refrigerator #		3	1			3	1		3					005
#/Type Container	Liquid													
	Solid	1g	1			1g	1		1g					
Volume	Liquid	0												
	Solid	120	1			250	1		60					
Preservatives														

ANALYSES REQUESTED →

	ORGANIC						INORG						
	VOA	BNA	Pest/PCB	Herb			Metal	CN					
RECRA LabNet Use Only		0625H 0DRO	0PCB			Ang①	1CR6	*	1CNTO	1PH			

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	BØX0B6	X	X	S	12/2/99	1345

Special Instructions:

saf# B00-006

COMPOSITE WASTE

DATE/REVISIONS:

1. * As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu,
2. Ni, V, Zn, Hg
3. Ang① = 1N3N2, 1CCL, 1CFL, 1CNO2, 1CNO3,
4. 1CPO4, 1SO4, 1SFD, 1NH3N
5.
6.

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___

Airbill # *

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. 3.1 °C

Relinquished by	Received by	Date	Time
FedEx	Janson	12/4/99	1000

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

* 423579532476

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-16	Page 1 of 2

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 99028	Field Logbook No. EL 1435	COA B20CS1671G	Method of Shipment Fed Ex		
Shipped To ~~TMA~~/RECRA RS 12-2-99	Offsite Property No. A000055		Bill of Lading/Air Bill No. 42357953 24776		

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	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										
B0X0B6	Soil	12-2-99	1345				X	X	X				X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time 1530	Received By	Date/Time 1530
R Fahlberg / R Fahlberg	12-2-99	Ref 2.C	12-2-99
Relinquished By	Date/Time	Received By	Date/Time
Ref 2C	12-3-99/0700	R. Thoren	12-3-99/0700
Relinquished By	Date/Time	Received By	Date/Time
R. Thoren	12-3-99/1430	FEDEX	
Relinquished By	Date/Time	Received By	Date/Time
FedEx		Jameson	12/4/99 1000
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

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 BOX069

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	B00-006-16	Page 2 of 2

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. SBC 99028	Field Logbook No. EL 1435	COA B20CS1671C	Method of Shipment Fed Ex
Shipped To ~~TMA~~/RECRA RF 12.2.99	Offsite Property No. A0000055		Bill of Lading/Air Bill No. 42357953 2476

Price Code 8N

Data Turnaround 45 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C											
Type of Container	aG											
No. of Container(s)	1											
Volume	250mL											
SAMPLE ANALYSIS	See item (1) in Special Instructions											

Sample No.	Matrix *	Sample Date	Sample Time										
B0X0B6	Soil	12.2.99	1345	X									

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	12-2-99 1530	Ref 2.C	12.2.99 1530
Ref 2C	12.3.99/0700	R. Thoren	12.3.99/0700
R. Thoren	12.3.99/1430	FED EX	
FedEx		Jenson	12/4/99 1000

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) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

TIE TO BOX069

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)

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B00-006
RFW#: 9912L912
SDG/SAF#: H0673/B00-006

W.O.#: 10985-001-001-9999-00
Date Received: 12-04-99

PCB

One (1) soil sample was collected on 12-02-99.

The sample and its associated QC samples were extracted on 12-13-99 and analyzed according to Recra OPs based on SW846, 3rd Edition procedures on 12-19,20-99. The extraction procedure was based on method 3540 and the extracts were analyzed based on method 8082 for Aroclors only.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. The cooler temperature has been recorded on the chain-of-custody.
2. All required holding times for extraction and analysis have been met.
3. The method blank was below the reporting limits for all target compounds.
4. The sample and its associated QC samples received a sulfuric acid and sulfur cleanup.
5. Two (2) of ten (10) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. The blank spike recovery was within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

01-12-00
Date

pef\r:\group\data\pest\12L-912.pcb

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 9 pages.

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

Recra LabNet Philadelphia

GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

I = Interference.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

P = This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C = This flag applies to a compound that has been confirmed by GC/MS.

Recra LabNet Philadelphia **Sample Discrepancy Report (SDR)** SDR #: 00GC002

Initiator: BPaster RFW Batch: 9912912 Parameter: OPCB
Date: 1/3/00 Samples: 001 Matrix: 99GE1507 1/3/00
Client: TWU Method: SW846/MCAWW/CLP/ Prep Batch: Soil
H0673

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy

__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. QC Problem (Include all relevant specific results; attach data if necessary)

Sample 001 had high surrogates @ 152% for TCX + 138% for DCB. The 001MS, 001MSD were OK. All spikes were OK.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description:

__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

Note in narrative

4. Project Manager Instructions...signature/date: _____

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
__ Include in Case Narrative
✓ Client Contacted: Date/Person Jan Kissner
__ Add
__ Cancel

5. Final Action...signature/date: 1/11/00 Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Doughty
__	X Lab Manager: M. Taylor	__	__ Inorganic: Perrone
__	X Project Mgr: Stone/Carey/Schrenkel/Johnson	__	__ GC/LC: Schnell
__	X Section Mgr: Wesson/Daniels	__	__ MS: Taylor
__	X QA (file): Racioppi	__	__ Log-in: Janson
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Doughty/Kauffman	__	__ Other: _____

L-WI-006/E-03/99

Recra LabNet - Lionville Laboratory

PCBs by GC

Report Date: 12/31/99 08:20

RFW Batch Number: **9912L912** Client: **TNU-HANFORD B00-006** Work Order: 10985001001 Page: 1

	Cust ID:	B0X0B6	B0X0B6	B0X0B6	PBLKBQ	PBLKBQ BS
Sample Information	RFW#:	001	001 MS	001 MSD	99LE1507-MB1	99LE1507-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	152 * %	92 %	98 %	85 %	105 %
	Decachlorobiphenyl	138 * %	87 %	91 %	92 %	107 %
Aroclor-1016		35 U	35 U	35 U	33 U	33 U
Aroclor-1221		71 U	71 U	71 U	67 U	67 U
Aroclor-1232		35 U	35 U	35 U	33 U	33 U
Aroclor-1242		35 U	35 U	35 U	33 U	33 U
Aroclor-1248		35 U	35 U	35 U	33 U	33 U
Aroclor-1254		35 U	82 %	84 %	33 U	94 %
Aroclor-1260		35 U	35 U	35 U	33 U	33 U

01-11-00

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

Recra LabNet - Lionville Laboratory
PCB ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 12/04/99 RFW LOT # :9912L912

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0X0B6	001	S	99LE1507	12/02/99	12/13/99	12/20/99
B0X0B6	001 MS	S	99LE1507	12/02/99	12/13/99	12/20/99
B0X0B6	001 MSD	S	99LE1507	12/02/99	12/13/99	12/20/99

LAB QC:

PBLKBQ	MB1	S	99LE1507	N/A	12/13/99	12/19/99
PBLKBQ	MB1 BS	S	99LE1507	N/A	12/13/99	12/19/99

02-11-00

RECRA LabNet Use Only

99121912

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

B00-

Client: TNU-Hanford ~~B00~~-006

Est. Final Proj. Sampling Date: 12/4/99

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

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: Spec Del: Std TAT: 30 day

Date Rec'd: 12/4/99 Date Due: 1/3/00

Account #:

Refrigerator #		3	1			3	1		3					
#/Type Container	Liquid													
	Solid	1g	1			1g	1		1g					
Volume	Liquid													
	Solid	120	1			250	1		60					
Preservatives								w/Hg ①						

ANALYSES REQUESTED →

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	Metal	CN

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	RECRA LabNet Use Only												
								8025H 0DRO	0PCB			Ang①	ICR6	*	ICNTO	IPH			
001	BØX0B6	X	X	S	12/2/99	1345		✓	✓			✓	✓	✓	✓	✓			

Special Instructions:

saf# B00-006

COMPOSITE WASTE

DATE/REVISIONS:

1. * As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu,
2. Ni, V, Zn, Hg
3. Ang① = IN3N2, ICCL, ICFL, ICNO2, ICNO3,
4. ICPO4, ICSO4, ISFD, INH3N
5.
6.

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___

Airbill # *

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. 3.1 °C

Relinquished by	Received by	Date	Time
FedEx	Janson	12/4/99	1000

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: * 423579532476

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-16	Page 1 of 2

Collector: R Fahlberg	Company Contact: C Cearlock	Telephone No.: 372-9574	Project Coordinator: TRENT, SJ
Price Code: 8N	Data Turnaround: 45 Days	Air Quality ☐	
Project Designation: 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location: 200 West	SAF No.: B00-006	
Ice Chest No.: ERC 99028	Field Logbook No.: EL 1435	COA: B2OCS1671G	Method of Shipment: Fed Ex
Shipped To: RF ~~TMA~~/RECRA 12-2-99	Offsite Property No.: A00 00 55		Bill of Lading/Air Bill No.: 42357953 24176

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	~~GP~~ 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	Isotopic Uranium	Technetium-99	Tritium - H3	See item (1) in Special Instructions.	pH (Soil) - 9045	VOA - 8260A (TCL); VOA - 8260A (Add-On) (I-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										
B0X0B6	Soil	12.2.99	1345				X	X	X				X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	1530 12.2.99	RF 2.C	1530 12.2.99
RF 2C	12.3.99/0700	R. Thoren	12.3.99/0700
R. Thoren	12.3.99/1430	FEDEX	
FedEx		Anson	12/4/99 1000

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 BOX069

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	B00-006-16	Page 2 of 2

Collector R Fahlberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ
Price Code 8N	Data Turnaround 45 Days	Air Quality ☐	
Project Designation 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006
Ice Chest No. SBC 99028	Field Logbook No. EL 1435	COA B20CS1671C	Method of Shipment Fed Ex
Shipped To ~~TMA~~/RECRA RF 12.2.99	Offsite Property No. A0000055		Bill of Lading/Air Bill No. 42357953 2476

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C											
Type of Container	aG											
No. of Container(s)	1											
Volume	250mL											
SAMPLE ANALYSIS	See item (1) in Special Instructions											
Sample No.	Matrix *	Sample Date	Sample Time									
B0X0B6	Soil	12.2.99	1345	X								

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By R. Fahlberg	Date/Time 1530 R. Fahlberg 12-2-99	Received By Ref 2.C	Date/Time 1520 12.2.99
Relinquished By Ref 2C	Date/Time 12.3.99/0700	Received By R. Thoren	Date/Time 12.3.99/0700
Relinquished By R. Thoren	Date/Time 12.3.99/1430	Received By FED EX	Date/Time
Relinquished By FedEx	Date/Time	Received By Johnson	Date/Time 12/4/99 1000
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

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) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

TIE TO BOX069

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)

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B00-006
RFW #: 9912L912
SDG/SAF #: H0673/B00-006

W.O.#: 10985-001-001-9999-00
Date Received: 12-04-99

SEMIVOLATILE

One (1) soil sample was collected on 12-02-99.

The sample and its associated QC samples were extracted on 12-15-99 and analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8270B for TCL Semivolatile target compounds on 12-31-99.

The following is a summary of the QC results accompanying the sample results and a description of any problems encountered during their analyses:

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
2. Non-target compounds were detected in the sample.
3. The required holding times for extraction and analysis were met.
4. All surrogate recoveries were within EPA QC limits.
5. Four (4) of twenty-two (22) matrix spike recoveries were outside EPA QC limits.
6. Two (2) of eleven (11) blank spike recoveries were outside EPA QC limits.
7. The sample was spectrally searched for Butylated Hydroxytoluene and Tributylphosphate; however, they were not identified in the sample.

FEB 2000
RECEIVED
Data
Log In

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

03-16-00
Date

som\gorup\data\bna\tnu12-912.doc

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 11 pages.

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

GLOSSARY OF BNA DATA

DATA QUALIFIERS

U	=	Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
J	=	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
D	=	Identifies all compounds identified in an analysis at a secondary dilution factor.
I	=	Interference.
NQ	=	Result qualitatively confirmed but not able to quantify.
A	=	Indicates that a TIC is a suspected aldol-condensation product.
N	=	Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
X	=	This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
Y	=	Additional qualifiers used as required are explained in the case narrative.

mmz\10-94\gloss.bna

GLOSSARY OF BNA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

mmz\10-94\gloss.bna

Recra LabNet - Lionville Laboratory

Semivolatiles by GC/MS, HSL List

Report Date: 01/19/00 16:19

RFW Batch Number: **9912L912** Client: **TNU-HANFORD B00-006** Work Order: 10985001001 Page: 1a

	Cust ID:	B0X0B6		B0X0B6		B0X0B6		SBLKIM		SBLKIM BS	
Sample Information	RFW#:	001		001 MS		001 MSD		99LE1523-MB1		99LE1523-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	88	%	93	%	98	%	96	%	90	%
	2-Fluorobiphenyl	84	%	89	%	101	%	97	%	96	%
	Terphenyl-d14	112	%	108	%	124	%	123	%	121	%
	Phenol-d5	88	%	95	%	102	%	102	%	102	%
	2-Fluorophenol	82	%	90	%	96	%	101	%	95	%
	2,4,6-Tribromophenol	87	%	111	%	113	%	110	%	119	%
Phenol		350	U	93 *	%	100 *	%	330	U	100 *	%
bis(2-Chloroethyl)ether		350	U	350	U	350	U	330	U	330	U
2-Chlorophenol		350	U	97	%	106 *	%	330	U	103 *	%
1,3-Dichlorobenzene		350	U	350	U	350	U	330	U	330	U
1,4-Dichlorobenzene		350	U	87	%	98	%	330	U	85	%
1,2-Dichlorobenzene		350	U	350	U	350	U	330	U	330	U
2-Methylphenol		350	U	350	U	350	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)		350	U	350	U	350	U	330	U	330	U
4-Methylphenol		350	U	350	U	350	U	330	U	330	U
N-Nitroso-di-n-propylamine		350	U	102	%	107	%	330	U	110	%
Hexachloroethane		350	U	350	U	350	U	330	U	330	U
Nitrobenzene		350	U	350	U	350	U	330	U	330	U
Isophorone		350	U	350	U	350	U	330	U	330	U
2-Nitrophenol		350	U	350	U	350	U	330	U	330	U
2,4-Dimethylphenol		350	U	350	U	350	U	330	U	330	U
bis(2-Chloroethoxy)methane		350	U	350	U	350	U	330	U	330	U
2,4-Dichlorophenol		350	U	350	U	350	U	330	U	330	U
1,2,4-Trichlorobenzene		350	U	87	%	97	%	330	U	87	%
Naphthalene		350	U	350	U	350	U	330	U	330	U
4-Chloroaniline		350	U	350	U	350	U	330	U	330	U
Hexachlorobutadiene		350	U	350	U	350	U	330	U	330	U
4-Chloro-3-methylphenol		350	U	85	%	87	%	330	U	92	%
2-Methylnaphthalene		350	U	350	U	350	U	330	U	330	U
Hexachlorocyclopentadiene		350	U	350	U	350	U	330	U	330	U
2,4,6-Trichlorophenol		350	U	350	U	350	U	330	U	330	U
2,4,5-Trichlorophenol		880	U	880	U	880	U	840	U	840	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 9912L912 Client: TNU-HANFORD B00-006 Work Order: 10985001001 Page: 1b

5

Cust ID:	B0X0B6		B0X0B6		B0X0B6		SBLKIM		SBLKIM BS	
RFW#:	001		001 MS		001 MSD		99LE1523-MB1		99LE1523-MB1	
2-Chloronaphthalene	350	U	350	U	350	U	330	U	330	U
2-Nitroaniline	880	U	880	U	880	U	840	U	840	U
Dimethylphthalate	350	U	350	U	350	U	330	U	330	U
Acenaphthylene	350	U	350	U	350	U	330	U	330	U
2,6-Dinitrotoluene	350	U	350	U	350	U	330	U	330	U
3-Nitroaniline	880	U	880	U	880	U	840	U	840	U
Acenaphthene	350	U	89	%	98	%	330	U	88	%
2,4-Dinitrophenol	880	U	880	U	880	U	840	U	840	U
4-Nitrophenol	880	U	81	%	100	%	840	U	86	%
Dibenzofuran	350	U	350	U	350	U	330	U	330	U
2,4-Dinitrotoluene	350	U	76	%	84	%	330	U	78	%
Diethylphthalate	350	U	350	U	350	U	330	U	330	U
4-Chlorophenyl-phenylether	350	U	350	U	350	U	330	U	330	U
Fluorene	350	U	350	U	350	U	330	U	330	U
4-Nitroaniline	880	U	880	U	880	U	840	U	840	U
4,6-Dinitro-2-methylphenol	880	U	880	U	880	U	840	U	840	U
N-Nitrosodiphenylamine (1)	350	U	350	U	350	U	330	U	330	U
4-Bromophenyl-phenylether	350	U	350	U	350	U	330	U	330	U
Hexachlorobenzene	350	U	350	U	350	U	330	U	330	U
Pentachlorophenol	880	U	98	%	115 *	%	840	U	101	%
Phenanthrene	350	U	350	U	350	U	330	U	330	U
Anthracene	350	U	350	U	350	U	330	U	330	U
Carbazole	350	U	350	U	350	U	330	U	330	U
Di-n-butylphthalate	350	U	350	U	350	U	330	U	330	U
Fluoranthene	350	U	350	U	350	U	330	U	330	U
Pyrene	350	U	106	%	120	%	330	U	113	%
Butylbenzylphthalate	350	U	350	U	350	U	330	U	330	U
3,3'-Dichlorobenzidine	350	U	350	U	350	U	330	U	330	U
Benzo(a)anthracene	350	U	350	U	350	U	330	U	330	U
Chrysene	350	U	350	U	350	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	260	J	170	J	190	J	330	U	330	U
Di-n-octyl phthalate	350	U	350	U	350	U	330	U	330	U
Benzo(b)fluoranthene	350	U	350	U	350	U	330	U	330	U
Benzo(k)fluoranthene	350	U	350	U	350	U	330	U	330	U
Benzo(a)pyrene	350	U	350	U	350	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	350	U	350	U	350	U	330	U	330	U
Dibenz(a,h)anthracene	350	U	350	U	350	U	330	U	330	U
Benzo(g,h,i)perylene	350	U	350	U	350	U	330	U	330	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0X0B6

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B00-006

Matrix: (soil/water) SOIL Lab Sample ID: 9912L912-001

Sample wt/vol: 30.2 (g/mL) G Lab File ID: A123106

Level: (low/med) LOW Date Received: 12/04/99

% Moisture: 6 decanted: (Y/N) __ Date Extracted: 12/15/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 12/31/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: _____

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.82	90	J
2.	UNKNOWN	21.12	100	J
3.	UNKNOWN	26.01	100	J

RECRA LabNet Use Only

99121912

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

B00-

Client: TNU-Hanford ~~B00~~-006

Est. Final Proj. Sampling Date: 12/4/99

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

Project Contact/Phone #:

RECRA Project Manager: DJ

QC: Spec Del: Std TAT: 30 day

Date Rec'd: 12/4/99 Date Due: 1/3/00

Account #:

Refrigerator #		3	1			3	1		3					
#/Type Container	Liquid													
	Solid	1g	1			1g	1	w/ Ag ①	1g					
Volume	Liquid													
	Solid	120	1			250	1		60					
Preservatives														

ANALYSES REQUESTED →

	ORGANIC							INORG						
	VOA	BNA	Pest/ PCB	Herb				Metal	CN					
RECRA LabNet Use Only		8025H 8DRO	8PCB			Ag①	1CR6	*	1CNTO	1PH				

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													
0001	BOX OB6	X	X	S	12/2/99	1345		✓	✓			✓	✓	✓	✓	✓			

Special Instructions:

saf# B00-006

COMPOSITE WASTE

DATE/REVISIONS:

1. * As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu,
2. Ni, V, Zn, Hg
3. Ag① = 1N3N2, 1CCL, 1CFL, 1CNO2, 1CNO3,
4. 1CPO4, 1SO4, 1SFD, 1NH3N
5.
6.

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___

Airbill # *

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. 3.1 °C

Relinquished by	Received by	Date	Time
FedEx	Jansson	12/4/99	1000

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

* 423579532476

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B00-006-16	Page 1 of 2
Collector R Fahlberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N Air Quality ☐
Project Designation 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006	Data Turnaround 45 Days
Ice Chest No. ERC 99028	Field Logbook No. EL 1435	COA B20CS1671G	Method of Shipment Fed Ex	
Shipped To ~~FMA~~/RECRA RF 12-2-99	Offsite Property No. A000055		Bill of Lading/Air Bill No. 42357953 2476	

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	~~GP~~ 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	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										
B0X0B6	Soil	12.2.99	1345				X	X	X				X

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By R Fahlberg / R Fahlberg	12-2-99 1530	Received By Raf 2.C	12.2.99 1530
Relinquished By Raf 2C	12.3.99/0700	Received By R. Thoren	12.3.99/0700
Relinquished By R. Thoren	12.3.99/1430	Received By FEDEX	
Relinquished By FedEx		Received By Anson	12/4/99 1000
Relinquished By		Received By	
Relinquished By		Received By	

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 BOX069

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	B00-006-16	Page 2 of 2

Collector R Fahlberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N Air Quality ☐	Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006		
Ice Chest No. SBC 99028	Field Logbook No. EL 1435	COA B20CS167C	Method of Shipment Fed Ex		
Shipped To ~~TMA~~/RECRA RF 12.2.99	Offsite Property No. A0000055		Bill of Lading/Air Bill No. 42357953 2476		

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C											
Type of Container	aG											
No. of Container(s)	1											
Volume	250mL											
SAMPLE ANALYSIS	See item (1) in Special Instructions											
Sample No.	Matrix *	Sample Date	Sample Time									
B0X0B6	Soil	12.2.99	1345	X								

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By R. Fahlberg	Date/Time 1530 R Fahlberg 12-2-99	Received By Ref 2.C	Date/Time 1530 12.2.99
Relinquished By Ref 2C	Date/Time 12.3.99/0700	Received By R. Thoren	Date/Time 12.3.99/0700
Relinquished By R. Thoren	Date/Time 12.3.99/1430	Received By FED EX	Date/Time
Relinquished By FedEx	Date/Time	Received By Johnson 12/4/99	Date/Time 1000
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

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) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

TIE TO BOX069

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)

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B00-006
RFW #: 9912L912
SDG/SAF #: H0673/B00-006

W.O. #: 10985-001-001-9999-00
Date Received: 12-04-99

GC/MS VOLATILE

One (1) soil sample was collected on 12-02-99.

The sample and its associated QC samples were analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8260A for the client specified Volatile target compounds on 01-11-2000.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.

2. The sample was inadvertently analyzed outside of holding time. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

3. A non-target compound was detected in the sample.

4. All surrogate recoveries were within EPA QC limits.

5. All matrix spike recoveries were within EPA QC limits.

6. All blank spike recoveries were within EPA QC limits.

7. The method blank contained the common laboratory contaminants Methylene Chloride and Acetone at levels less than 2x the CRQL.

By J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

02-22-00
Date

FEB 2000
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Data
Log In

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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.

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

GLOSSARY OF VOA DATA

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

D = Identifies all compounds identified in an analysis at a secondary dilution factor.

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).

Y = Additional qualifiers used as required are explained in the case narrative.

mmz\10-94\gloss.voa

GLOSSARY OF VOA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

mmz\10-94\gloss.voa

Recra LabNet Philadelphia **Sample Discrepancy Report (SDR)** SDR #: 00 PM 007

Initiator: Orlette Johnson RFW Batch: 9912L923 + 912 Parameter: VOA
Date: 1/10/00 Samples: Matrix:
Client: TNu Hanford Method: SW846/MCAWW/CLP/ Prep Batch:

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other _____

b. General Discrepancy

__ Missing Sample/Extract __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
✓ Hold Time Exceeded __ Insufficient Sample __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

c. QC Problem (Include all relevant specific results; attach data if necessary)

H0682 (B99-085)
H0673 (B00-006)

2. Known or Probable Causes(s)

New employee error; employee has received additional instruction

3. Discussion and Proposed Action Other Description:

__ Re-log
__ Entire Batch
__ Following Samples: _____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to _____
__ Place On/Take Off Hold (circle)

run out of hold

Orlette S. Johnson 1/10/00

4. Project Manager Instructions...signature/date:

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
✓ Include in Case Narrative
✓ Client Contacted:
Date/Person Joan Kessner 1/10/00
__ Add
__ Cancel

5. Final Action...signature/date: _____ Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
__ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
__	X Initiator	__	__ Metals: Doughty
__	X Lab Manager: M. Taylor	__	__ Inorganic: Perrone
__	X Project Mgr: Stone/Carey/Schrenkel/Johnson	__	__ GC/LC: Schnell
__	X Section Mgr: Wesson/Daniels	__	__ MS: Taylor
__	X QA (file): Racioppi	__	__ Log-in: Janson
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Doughty/Kauffman	X	__ Other: BCMS VOA Rychlak

L-WI-006/E-03/99

04

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 02/21/00 14:58

RFW Batch Number: **9912L912** Client: **TNU-HANFORD B00-006** Work Order: 10985001001 Page: 1a

	Cust ID:	B0X0B6		B0X0B6		B0X0B6		VBLKLI		VBLKLI BS	
Sample Information	RFW#:	001		001 MS		001 MSD		00LVN017-MB1		00LVN017-MB1	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.02		1.04		1.06		1.00		1.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Toluene-d8	96	%	104	%	98	%	106	%	102	%
	Bromofluorobenzene	96	%	103	%	99	%	90	%	91	%
	1,2-Dichloroethane-d4	97	%	105	%	100	%	98	%	94	%
Chloromethane		11	U	11	U	11	U	10	U	10	U
Bromomethane		11	U	11	U	11	U	10	U	10	U
Vinyl Chloride		11	U	11	U	11	U	10	U	10	U
Chloroethane		11	U	11	U	11	U	10	U	10	U
Methylene Chloride		4	BJ	3	BJ	4	BJ	5		3	BJ
Acetone		6	BJ	13	B	11	BJ	3	J	10	U
Carbon Disulfide		6	U	6	U	6	U	5	U	5	U
1,1-Dichloroethene		6	U	96	%	91	%	5	U	92	%
1,1-Dichloroethane		6	U	6	U	6	U	5	U	5	U
1,2-Dichloroethene (total)		6	U	6	U	6	U	5	U	5	U
Chloroform		6	U	6	U	6	U	5	U	5	U
1,2-Dichloroethane		6	U	6	U	6	U	5	U	5	U
2-Butanone		11	U	11	U	11	U	10	U	10	U
1,1,1-Trichloroethane		6	U	6	U	6	U	5	U	5	U
Carbon Tetrachloride		6	U	6	U	6	U	5	U	5	U
Bromodichloromethane		6	U	6	U	6	U	5	U	5	U
1,2-Dichloropropane		6	U	6	U	6	U	5	U	5	U
cis-1,3-Dichloropropene		6	U	6	U	6	U	5	U	5	U
Trichloroethene		6	U	108	%	99	%	5	U	100	%
Dibromochloromethane		6	U	6	U	6	U	5	U	5	U
1,1,2-Trichloroethane		6	U	6	U	6	U	5	U	5	U
Benzene		6	U	106	%	100	%	5	U	101	%
Trans-1,3-Dichloropropene		6	U	6	U	6	U	5	U	5	U
Bromoform		6	U	6	U	6	U	5	U	5	U
4-Methyl-2-pentanone		11	U	11	U	11	U	10	U	10	U
2-Hexanone		11	U	11	U	11	U	10	U	10	U
Tetrachloroethene		6	U	6	U	6	U	5	U	5	U
1,1,2,2-Tetrachloroethane		6	U	6	U	6	U	5	U	5	U
Toluene		6	U	111	%	106	%	5	U	108	%

*= Outside of EPA CLP QC limits.

RFW Batch Number: **9912L912** Client: **TNU-HANFORD B00-006** Work Order: 10985001001 Page: 1b

90

Cust ID:	B0X0B6	B0X0B6	B0X0B6	VBLKLI	VBLKLI BS
RFW#:	001	001 MS	001 MSD	00LVN017-MB1	00LVN017-MB1
Chlorobenzene	6 U	107 %	102 %	5 U	104 %
Ethylbenzene	6 U	6 U	6 U	5 U	5 U
Styrene	6 U	6 U	6 U	5 U	5 U
Xylene (total)	6 U	6 U	6 U	5 U	5 U

*= Outside of EPA CLP QC limits.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0X0B6

Lab Name: Recra.LabNet Contract: 10985001001

Lab Code: Recra Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) SOIL Lab Sample ID: 9912L912-001

Sample wt/vol: 4.90 (g/mL) G Lab File ID: n011112

Level: (low/med) LOW Date Received: 12/04/99

% Moisture: not dec. 6 Date Analyzed: 01/11/00

Column: (pack/cap) CAP Dilution Factor: 1.02

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	20.764	10	NJ

FORM 1 VOA-TIC 1/87 Rev.

RECRA LabNet Use Only

9912L912

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

All FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

B00-

Client: TNU-Hanford ~~B00~~-006

Est. Final Proj. Sampling Date: 8/12/4/99

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

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: Spec Del: std TAT: 30 day

Date Rec'd: 12/4/99 Date Due: 1/3/00

Account #:

Refrigerator #			3			3			3					
#/Type Container	Liquid													
	Solid		1g			1g			1g					
Volume	Liquid													
	Solid		120			250			60					
Preservatives														

ANALYSES REQUESTED →

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	Metal	CN

RECRA LabNet Use Only

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	0624H 0G0Si	0025H 0DRO	0PCB			Ang①	1CR6	*	1CN/TO	1PH
0001	BØX0B6	X	X	S	12/2/99	1345	✓	✓	✓			✓	✓	✓	✓	✓

Special Instructions:

Staf# B00-006

COMPOSITE WASTE

DATE/REVISIONS:

* 1. As, Ba, Cd, Cr, Pb, Se, Ag, Be, Cu,

2. Ni, V, Zn, Hg

Ang① 3. 1N3N2, 1CCL, 1CFL, 1CN02, 1CN03,

4. 1CP04, 1CS04, 1SFD, 1NH3N

5.

6.

RECRA LabNet Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___

Airbill # *

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. 3.1 °C

Relinquished by	Received by	Date	Time
FedEx	Janson	12/4/99	1000

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

* 423579532476

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-16	Page 1 of 2

Collector R Fahlberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N Air Quality ☐	Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006		
Ice Chest No. ERC 99028	Field Logbook No. EL 1435	COA B20051671G	Method of Shipment Fed Ex		
Shipped To ~~TMA~~/RECRA RF 12.2.99	Offsite Property No. A00055		Bill of Lading/Air Bill No. 42357953 2476		

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	~~GP~~ 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
B0X0B6	Soil	12.2.99	1345				X	X	X				X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Fahlberg / R Fahlberg	1530 12.2.99	R F 2.C	1530 12.2.99
R F 2C	12.3.99 / 0700	R. Thoren	12.3.99 / 0700
R. Thoren	12.3.99 / 1430	FEDEX	
FedEx		Johnson	12/4/99 1000

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 BOX069

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	B00-006-16	Page 2 of 2

Collector R Fahlberg	Company Contact C Cearlock	Telephone No. 372-9574	Project Coordinator TRENT, SJ	Price Code 8N Air Quality ☐	Data Turnaround 45 Days
Project Designation 200 Area Source Characterization 200-CS-1 Operable Unit	Sampling Location 200 West		SAF No. B00-006		
Ice Chest No. EBC 99028	Field Logbook No. EL 1435	COA B20CS167/C	Method of Shipment Fed Ex		
Shipped To ~~TMA~~/RECRA RF 12.2.99	Offsite Property No. A0000055		Bill of Lading/Air Bill No. 4235795P 2476		

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	Cool 4C											
Type of Container	aG											
No. of Container(s)	1											
Volume	250mL											
SAMPLE ANALYSIS	See item (1) in Special Instructions											
Sample No.	Matrix *	Sample Date	Sample Time									
B0X0B6	Soil	12.2.99	1345	X								

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By	Date/Time
Relinquished By	R. Fahlberg / R. Fahlberg	12.2.99 1530	Received By Ref 2.C	12.2.99 1530
Relinquished By Ref 2C		12.3.99/0700	Received By R. Thoren	12.3.99/0700
Relinquished By R. Thoren		12.3.99/1430	Received By FED EX	
Relinquished By FedEx			Received By Johnson	12/4/99 1000
Relinquished By			Received By	
Relinquished By			Received By	

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) NO2/NO3 - 353.1; IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Sulfides - 9030; Ammonia - 350.3; Total Cyanide - 9010

TIE TO BOX069

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)

RECRA
ENVIRONMENTAL
INC.
Chemical and Environmental Measurement Information

MAR 2000
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B00-006
RFW# : 0002L575
Relog of RFW#: 9912L912
SDG/SAF# : H0673/B00-006

W.O.# : 10985-001-001-9999-00
Date Received: 02-28-00

METALS CASE NARRATIVE

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

2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary. This batch was relogged for Mercury as it was not reported from the original batch.

3. Mercury analysis was requested after the sample was out of hold.

4. The cooler temperature has been recorded on the original 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. The preparation/method blank (MB) was within method criteria {less than the Practical Quantitation Limit (3X the IDL) or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

8. The laboratory control sample (LCS) was within the laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.

9. The matrix spike (MS) recovery was within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

10. The duplicate analysis was within the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision 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 11 pages.

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

11. 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.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

3-9-00
Date

mld/m02-575

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 00021575

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 03/03/00

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 0002L575

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0X0B6	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/03/00

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 0002L575

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	00C0055-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 03/03/00

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 0002L575

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0X0B6	Mercury, Total	0.17	0.02u	0.17	100	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 03/03/00

CLIENT: TNU-HANFORD B00-006

RECRA LOT #: 0002L575

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0X0B6	Mercury, Total	0.02u	0.02u	NC	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/03/00

CLIENT: TNU-HANFORD B00-006 RECRA LOT #: 0002L575

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	00C0055-LC1	Mercury, LCS	0.88	1.0	MG/KG	87.6

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-006

DATE RECEIVED: 02/28/00 RFW LOT # :0002L575

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	LEACH DATE	EXTR/PREP	ANALYSIS
B0X0B6						
MERCURY, TOTAL	001	S	00C0055	12/02/99	02/28/00	02/29/00
MERCURY, TOTAL	001 REP	S	00C0055	12/02/99	02/28/00	02/29/00
MERCURY, TOTAL	001 MS	S	00C0055	12/02/99	02/28/00	02/29/00
LAB QC:						
MERCURY LABORATORY	LC1 BS	S	00C0055	N/A	02/28/00	02/29/00
MERCURY, TOTAL	MB1	S	00C0055	N/A	02/28/00	02/29/00

RECRA LabNet Use Only

0002L575

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TMU-Hanford B00-006
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999.00
Project Contact/Phone #:
RECRA Project Manager: QS
QC: Spec Del: Std TAT: 4 day

Date Rec'd: 2-28-00 Date Due: 3-3-00
Account #:

Refrigerator #									5							
#/Type Container	Liquid															
	Solid								1AG							
Volume	Liquid															
	Solid								250							
Preservatives									-							
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						
		↓ RECRA LabNet Use Only ↓														
									MHGTO							

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
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	001	BØXØBLe	✓	✓	S	12-2-99	1345								✓					

Special Instructions:
Saf #B00006

COMPOSITE WASTE

DATE/REVISIONS:
1. Relog of 9912L912-001
2.
3.
4.
5.
6.

RECRA LabNet Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ___
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. ___ °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
Relog	TBoppd	2-28-00	-

Relinquished by	Received by	Date	Time
	ORIGINAL		
	REWRITTEN		

FEB 2000
RECEIVED
Data
Log In

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H0673 was composed of one solid (soil) sample designated under SAF No. B00-006 with a Project Designation of: 200 Area Source Characterization 200-CS-1 Operable Unit.

The sample was 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.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

The gross alpha and gross beta samples were batched with SDG H0662 (7306). The associated method blank in SDG H0662 had gross beta contamination above the RDL (15 pCi/g) for the analysis. No other problems were encountered during the course of the analyses.

2.2 Tritium Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

The Ni-63 samples were batched with SDG H0662 (7306). The Ni-63 matrix spike is of a sample from SDG H0662. No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.6 Isotopic Thorium Analyses

The isotopic thorium samples were batched with SDG H0662 (7306). 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

No problems were encountered during the course of the analyses.

2.10 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.11 Gamma Spec Analyses

No problems were encountered during the course of the analyses.

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

SAMPLE SUMMARY

SDG 7313
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0673

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B0X0B6	200 West	SOLID		N912068-01	B00-006	B00-006-16	12/02/99 13:45
Method Blank		SOLID		N912041-12	B00-006		
Method Blank		SOLID		N912068-03	B00-006		
Method Blank		SOLID		N912068-07	B00-006		
Lab Control Sample		SOLID		N912041-11	B00-006		
Lab Control Sample		SOLID		N912068-02	B00-006		
Lab Control Sample		SOLID		N912068-06	B00-006		
Duplicate (N912068-01)	200 West	SOLID		N912068-04	B00-006		12/02/99 13:45
Duplicate (N912068-01)	200 West	SOLID		N912068-08	B00-006		12/02/99 13:45
Spike (N912068-01)	200 West	SOLID		N912068-05	B00-006		12/02/99 13:45

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

QC SUMMARY

SDG 7313
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0673

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7306		Method Blank	SOLID						N912041-12	7306-012
		Lab Control Sample	SOLID						N912041-11	7306-011
7313	B00-006-16	B0X0B6	SOLID	95.8			12/04/99	2	N912068-01	7313-001
		Method Blank	SOLID						N912068-03	7313-003
		Method Blank	SOLID						N912068-07	7313-007
		Lab Control Sample	SOLID						N912068-02	7313-002
		Lab Control Sample	SOLID						N912068-06	7313-006
		Duplicate (N912068-01)	SOLID				12/04/99	2	N912068-04	7313-004
		Duplicate (N912068-01)	SOLID				12/04/99	2	N912068-08	7313-008
		Spike (N912068-01)	SOLID				12/04/99	2	N912068-05	7313-005

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

SDG 7313
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0673

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
NP	SOLID	Neptunium in Soil	6909-161	5.0	1			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6909-161	5.0	1			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	6909-161	10.0	1			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	6909-161	20.0	1			1	1	1/1		
80B	SOLID	Gross Beta in Soil	6909-161	15.0	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6909-161	15.0	1			1	1	1/1		
Kinetic Phosphorimetry												
U_T	SOLID	Uranium, Total in Soil	6909-161	9.0	1			1	1	1/1		
Liquid Scintillation Counting												
H	SOLID	Tritium in Soil	6909-161	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		

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 02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

WORK SUMMARY

SDG 7313
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0673

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0X0B6			N912068-01	7313-001	80A/80		01/26/00	02/09/00	MCM	Gross Alpha in Soil
200 West		SOLID	12/02/99	7313-001	80B/80		01/26/00	02/09/00	MCM	Gross Beta in Soil
B00-006-16	B00-006		12/04/99	7313-001	GAM		01/22/00	02/09/00	MCM	Gamma Scan
				7313-001	H		01/23/00	02/09/00	MCM	Tritium in Soil
				7313-001	NI_L		01/31/00	02/09/00	MCM	Nickel 63 in Soil
				7313-001	NP		01/26/00	02/09/00	MCM	Neptunium in Soil
				7313-001	PU		01/25/00	02/09/00	MCM	Plutonium, Isotopic in Solids
				7313-001	SR		01/24/00	02/09/00	MCM	Total Strontium in Soil
				7313-001	TC		02/02/00	02/09/00	MCM	Technetium 99 in Soil
				7313-001	TH		01/28/00	02/09/00	MCM	Thorium, Isotopic in Soil
				7313-001	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			N912068-03	7313-003	80A/80		01/26/00	02/09/00	MCM	Gross Alpha in Soil
		SOLID		7313-003	80B/80		01/26/00	02/09/00	MCM	Gross Beta in Soil
	B00-006			7313-003	GAM		01/26/00	02/09/00	MCM	Gamma Scan
				7313-003	H		01/23/00	02/09/00	MCM	Tritium in Soil
				7313-003	NP		01/26/00	02/09/00	MCM	Neptunium in Soil
				7313-003	PU		01/25/00	02/09/00	MCM	Plutonium, Isotopic in Solids
				7313-003	SR		01/24/00	02/09/00	MCM	Total Strontium in Soil
Method Blank			N912068-07	7313-007	U_T		01/12/00	01/17/00	MCM	Uranium, Total in Soil
		SOLID								
	B00-006									
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			N912068-02	7313-002	80A/80		01/26/00	02/09/00	MCM	Gross Alpha in Soil
		SOLID		7313-002	80B/80		01/26/00	02/09/00	MCM	Gross Beta in Soil
	B00-006			7313-002	GAM		01/22/00	02/09/00	MCM	Gamma Scan
				7313-002	H		01/23/00	02/09/00	MCM	Tritium in Soil
				7313-002	NP		01/26/00	02/09/00	MCM	Neptunium in Soil
				7313-002	PU		01/25/00	02/09/00	MCM	Plutonium, Isotopic in Solids
				7313-002	SR		01/24/00	02/09/00	MCM	Total Strontium in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

SDG 7313
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0673

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Lab Control Sample			N912068-06	7313-006	U_T		01/12/00	01/17/00	MCM	Uranium, Total in Soil
		SOLID								
	B00-006									
Duplicate (N912068-01)			N912068-04	7313-004	80A/80		01/26/00	02/09/00	MCM	Gross Alpha in Soil
200 West		SOLID	12/02/99	7313-004	80B/80		01/26/00	02/09/00	MCM	Gross Beta in Soil
	B00-006		12/04/99	7313-004	GAM		01/26/00	02/09/00	MCM	Gamma Scan
				7313-004	H		01/23/00	02/09/00	MCM	Tritium in Soil
				7313-004	NI_L		01/31/00	02/09/00	MCM	Nickel 63 in Soil
				7313-004	NP		01/26/00	02/09/00	MCM	Neptunium in Soil
				7313-004	PU		01/25/00	02/09/00	MCM	Plutonium, Isotopic in Solids
				7313-004	SR		01/24/00	02/09/00	MCM	Total Strontium in Soil
				7313-004	TC		01/31/00	02/09/00	MCM	Technetium 99 in Soil
				7313-004	TH		01/28/00	02/09/00	MCM	Thorium, Isotopic in Soil
Duplicate (N912068-01)			N912068-08	7313-008	U_T		01/12/00	01/17/00	MCM	Uranium, Total in Soil
200 West		SOLID	12/02/99							
	B00-006		12/04/99							
Spike (N912068-01)			N912068-05	7313-005	H		01/23/00	02/09/00	MCM	Tritium in Soil
200 West		SOLID	12/02/99							
	B00-006		12/04/99							

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

SDG 7313
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0673

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	1			1	1	1		4
80B/80	B00-006	Gross Beta in Soil	EPA900.0	1			1	1	1		4
GAM	B00-006	Gamma Scan	GAMMAHI	1			1	1	1		4
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		4
NP	B00-006	Neptunium in Soil	NP237PLATE	1			1	1	1		4
PU	B00-006	Plutonium, Isotopic in Solids	PUPLATE	1			1	1	1		4
SR	B00-006	Total Strontium in Soil	SRTOTAL	1			1	1	1		4
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	1			1	1	1		4
TOTALS				11			11	11	11	1	45

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

N912041-12

Method Blank

METHOD BLANK

SDG	7313	Client/Case no	Hanford	SDG	H0673
Contact	Melissa C. Mannion	Contract	TRB-SBB-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	02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

N912068-03

Method Blank

METHOD BLANK

SDG	7313	Client/Case no	Hanford	SDG H0673	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N912068-03	Client sample id	Method Blank		
Dept sample id	7313-003	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	-0.777	1.5	3.7	10	U	80A
Gross Beta	12587-47-2	-0.761	3.2	5.6	15	U	80B
Tritium	10028-17-8	0.117	0.12	0.20	400	U	H
Neptunium 237	13994-20-2	-0.013	0.027	0.060		U	NP
Plutonium 238	13981-16-3	0.027	0.045	0.073	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.018	0.050	1.0	U	PU
Total Strontium	SR-RAD	-0.079	0.18	0.24	1.0	U	SR
Potassium 40	13966-00-2	U		1.2		U	GAM
Cobalt 60	10198-40-0	U		0.14	0.050	U	GAM
Cesium 137	10045-97-3	U		0.11	0.10	U	GAM
Europium 152	14683-23-9	U		0.22	0.10	U	GAM
Europium 154	15585-10-1	U		0.42	0.10	U	GAM
Europium 155	14391-16-3	U		0.13	0.10	U	GAM
Radium 226	13982-63-3	U		0.19	0.10	U	GAM
Radium 228	15262-20-1	U		0.47	0.20	U	GAM
Thorium 228	14274-82-9	U		0.10		U	GAM
Thorium 232	TH-232	U		0.47		U	GAM
Americium 241	14596-10-2	U		0.075		U	GAM
Uranium 238	U-238	U		14		U	GAM
Uranium 235	15117-96-1	U		0.23		U	GAM

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

QC-BLANK 33165

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/09/00

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0673

N912068-07

Method Blank

METHOD BLANK

SDG	7313	Client/Case no	Hanford	SDG H0673	
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925		
Lab sample id	N912068-07	Client sample id	Method Blank		
Dept sample id	7313-007	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
Total Uranium (ug/g)	7440-61-1	0	0.001	0.002	1.0	U	U_T

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

QC-BLANK 33096

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

N912041-11

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7313

Contact Melissa C. Mannion

Client/Case no Hanford SDG H0673

Case no TRB-SBB-207925

Lab sample id N912041-11

Dept sample id 7306-011

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
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 02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

N912068-02

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7313

Contact Melissa C. Mannion

Client/Case no Hanford SDG H0673

Case no TRB-SBB-207925

Lab sample id N912068-02

Dept sample id 7313-002

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
Gross Alpha	152	13	3.0	10		80A	215	8.6	71	76-124	70-130
Gross Beta	238	11	6.4	15		80B	247	9.9	96	77-123	70-130
Tritium	12.9	0.42	0.30	400	J	H	13.0	0.52	99	83-117	80-120
Neptunium 237	11.1	0.45	0.011			NP	11.9	0.48	93	89-111	
Plutonium 238	13.3	1.0	0.048	1.0		PU	12.5	0.50	106	84-116	80-120
Plutonium 239/240	14.1	1.1	0.033	1.0		PU	13.2	0.53	107	84-116	80-120
Total Strontium	13.1	0.35	0.13	1.0		SR	12.4	0.50	106	83-117	80-120
Cobalt 60	5.96	0.70	0.24	0.050		GAM	6.30	0.25	95	72-128	80-120
Cesium 137	7.04	0.66	0.49	0.10		GAM	7.05	0.28	100	73-127	80-120

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

QC-LCS 33164

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-LCS

Version 3.06

Report date 02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

N912068-06

Lab Control Sample

LAB CONTROL SAMPLE

SDG	7313	Client/Case no	Hanford SDG H0673
Contact	Melissa C. Mannion	Case no	TRB-SBB-207925
Lab sample id	N912068-06	Client sample id	Lab Control Sample
Dept sample id	7313-006	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
Total Uranium (ug/g)	35.0	4.3	0.021	1.0		U_T	33.0	1.3	106	75-125	80-120

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

QC-LCS 33095

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-LCS
Version	3.06
Report date	02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

N912068-04 B0X0B6

DUPLICATE

SDG	7313	Client/Case no	Hanford SDG H0673
Contact	Melissa C. Mannion	Case no	TRB-SBB-207925
DUPLICATE		ORIGINAL	
Lab sample id	N912068-04	Lab sample id	N912068-01
Dept sample id	7313-004	Dept sample id	7313-001
		Received	12/04/99
		% solids	95.8
		Client sample id	B0X0B6
		Location/Matrix	200 West SOLID
		Collected	12/02/99 13:45
		Custody/SAF No	B00-006-16 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	6.56	3.2	3.1	10	J	80A	9.03	3.7	3.1	J	32	104
Gross Beta	9.52	4.9	7.4	15	J	80B	8.18	4.0	5.9	J	15	112
Tritium	0.039	0.063	0.10	400	U	H	-0.001	0.060	0.10	U	-	
Neptunium 237	0.014	0.021	0.034		U	NP	0.008	0.011	0.020	U	-	
Technetium 99	0.145	0.28	0.76	15	U	TC	0.114	0.23	0.39	U	-	
Plutonium 238	-0.015	0.023	0.063	1.0	U	PU	0.004	0.032	0.064	U	-	
Plutonium 239/240	0.015	0.016	0.030	1.0	U	PU	0.012	0.024	0.038	U	-	
Nickel 63	1.95	1.3	2.0	30	U	NI_L	-0.088	1.2	2.0	U	-	
Total Strontium	-0.014	0.13	0.18	1.0	U	SR	-0.023	0.15	0.20	U	-	
Thorium 228	0.289	0.16	0.20	1.0	J	TH	0.484	0.17	0.16	J	50	91
Thorium 230	0.407	0.18	0.19	1.0	J	TH	0.738	0.22	0.16	J	58	75
Thorium 232	0.368	0.13	0.10	1.0	J	TH	0.387	0.15	0.093	J	5	80
Potassium 40	8.38	1.6	1.2			GAM	8.51	3.3	3.6		2	72
Cobalt 60	U		0.11	0.050	U	GAM	U		0.29	U	-	
Cesium 137	U		0.086	0.10	U	GAM	U		0.22	U	-	
Europium 152	U		0.22	0.10	U	GAM	U		0.41	U	-	
Europium 154	U		0.26	0.10	U	GAM	U		0.91	U	-	
Europium 155	U		0.21	0.10	U	GAM	U		0.30	U	-	
Radium 226	0.381	0.17	0.17	0.10		GAM	0.515	0.37	0.38		30	140
Radium 228	0.638	0.32	0.33	0.20		GAM	U		1.2	U	61	205
Thorium 228	0.677	0.13	0.15			GAM	0.649	0.28	0.27		4	77
Thorium 232	0.638	0.32	0.33			GAM	U		1.2	U	61	205
Americium 241	U		0.26		U	GAM	U		0.17	U	-	
Uranium 238	U		10		U	GAM	U		27	U	-	
Uranium 235	U		0.27		U	GAM	U		0.49	U	-	

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

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

N912068-04 B0X0B6

DUPLICATE, cont.

SDG	7313		Client/Case no	Hanford	SDG H0673
Contact	Melissa C. Mannion		Case no	TRB-SBB-207925	
DUPLICATE		ORIGINAL			
Lab sample id	N912068-04	Lab sample id	N912068-01	Client sample id	B0X0B6
Dept sample id	7313-004	Dept sample id	7313-001	Location/Matrix	200 West SOLID
		Received	12/04/99	Collected	12/02/99 13:45
		% solids	95.8	Custody/SAF No	B00-006-16 B00-006

QC-DUP#1 33166

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

N912068-08

B0X0B6

DUPLICATE

SDG	7313			Client/Case no	Hanford SDG H0673
Contact	Melissa C. Mannion			Case no	TRB-SBB-207925
DUPLICATE		ORIGINAL			
Lab sample id	N912068-08	Lab sample id	N912068-01	Client sample id	B0X0B6
Dept sample id	7313-008	Dept sample id	7313-001	Location/Matrix	200 West SOLID
		Received	12/04/99	Collected	12/02/99 13:45
		% solids	95.8	Custody/SAF No	B00-006-16 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
Total Uranium (ug/g)	0.796	0.096	0.021	1.0	J	U_T	0.782	0.094	0.002	J	2	32	

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

QC-DUP#1 33097

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	02/09/00

MATRIX SPIKE

SDG	7313			Client/Case no	Hanford SDG H0673
Contact	Melissa C. Mannion			Case no	TRB-SBB-207925
	MATRIX SPIKE		ORIGINAL		
Lab sample id	N912068-05	Lab sample id	N912068-01	Client sample id	B0X0B6
Dept sample id	7313-005	Dept sample id	7313-001	Location/Matrix	200 West SOLID
		Received	12/04/99	Collected	12/02/99 13:45
		% solids	95.8	Custody/SAF No	B00-006-16 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	43.7	0.50	0.15	400	J	H	47.4	1.9	-0.001	0.060	92	85-115	60-140

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

QC-MS#1 33167

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-MS
Version	3.06
Report date	02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

N912068-01 B0X0B6

DATA SHEET

SDG	7313	Client/Case no	Hanford SDG H0673
Contact	Melissa C. Mannion	Contract	TRB-SBB-207925
Lab sample id	N912068-01	Client sample id	B0X0B6
Dept sample id	7313-001	Location/Matrix	200 West SOLID
Received	12/04/99	Collected	12/02/99 13:45
% solids	95.8	Custody/SAF No	B00-006-16 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	9.03	3.7	3.1	10	J	80A
Gross Beta	12587-47-2	8.18	4.0	5.9	15	J	80B
Tritium	10028-17-8	-0.001	0.060	0.10	400	U	H
Neptunium 237	13994-20-2	0.008	0.011	0.020		U	NP
Technetium 99	14133-76-7	0.114	0.23	0.39	15	U	TC
Total Uranium (ug/g)	7440-61-1	0.782	0.094	0.002	1.0	J	U_T
Plutonium 238	13981-16-3	0.004	0.032	0.064	1.0	U	PU
Plutonium 239/240	PU-239/240	0.012	0.024	0.038	1.0	U	PU
Nickel 63	13981-37-8	-0.088	1.2	2.0	30	U	NI_L
Total Strontium	SR-RAD	-0.023	0.15	0.20	1.0	U	SR
Thorium 228	14274-82-9	0.484	0.17	0.16	1.0	J	TH
Thorium 230	14269-63-7	0.738	0.22	0.16	1.0	J	TH
Thorium 232	TH-232	0.387	0.15	0.093	1.0	J	TH
Potassium 40	13966-00-2	8.51	3.3	3.6			GAM
Cobalt 60	10198-40-0	U		0.29	0.050	U	GAM
Cesium 137	10045-97-3	U		0.22	0.10	U	GAM
Europium 152	14683-23-9	U		0.41	0.10	U	GAM
Europium 154	15585-10-1	U		0.91	0.10	U	GAM
Europium 155	14391-16-3	U		0.30	0.10	U	GAM
Radium 226	13982-63-3	0.515	0.37	0.38	0.10		GAM
Radium 228	15262-20-1	U		1.2	0.20	U	GAM
Thorium 228	14274-82-9	0.649	0.28	0.27			GAM
Thorium 232	TH-232	U		1.2		U	GAM
Americium 241	14596-10-2	U		0.17		U	GAM
Uranium 238	U-238	U		27		U	GAM
Uranium 235	15117-96-1	U		0.49		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	02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

Test NP Matrix SOLID
SDG 7313
Contact Melissa C. Mannion

METHOD SUMMARY

NEPTUNIUM IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0673

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 6909-161						
B0X0B6	N912068-01			7313-001	U	
BLK (QC ID=33165)	N912068-03			7313-003	U	
LCS (QC ID=33164)	N912068-02			7313-002	ok	
Duplicate (N912068-01)	N912068-04			7313-004	-	U

Nominal values and limits from method RDLs (pCi/g)
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 6909-161 2σ prep error 5.0 % Reference Lab Notebook 6909 pg. 161																
B0X0B6	N912068-01			0.020	0.500			78		1116			55	01/21/00	01/26	SS-55
BLK (QC ID=33165)	N912068-03			0.060	0.500			46		1108				01/21/00	01/26	SS-63
LCS (QC ID=33164)	N912068-02			0.011	0.500			55		1112				01/21/00	01/26	SS-62
Duplicate (N912068-01) (QC ID=33166)	N912068-04			0.034	0.500			59		1108			55	01/21/00	01/26	SS-64
Nominal values and limits from method					0.500			20-105		100			180			

PROCEDURES	REFERENCE	NP237PLATE
	EP-060	Soil Preparation, rev 0
	EP-070	Soil Dissolution, rev 0
	EP-930	Neptunium Purification, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.031 ± 0.043
YIELD 60 ± 27

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

Test PU Matrix SOLID
SDG 7313
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0673

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 6909-161								
B0X0B6	N912068-01			7313-001	U		U	
BLK (QC ID=33165)	N912068-03			7313-003	U		U	
LCS (QC ID=33164)	N912068-02			7313-002	ok		ok	
Duplicate (N912068-01)	N912068-04			7313-004	-	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 6909-161	2σ prep error 5.0 %				Reference Lab Notebook 6909 pg. 161											
B0X0B6	N912068-01			0.064	0.500			83		723			54	01/21/00	01/25	SS-035
BLK (QC ID=33165)	N912068-03			0.073	0.500			74		723				01/21/00	01/25	SS-036
LCS (QC ID=33164)	N912068-02			0.048	0.500			74		744				01/21/00	01/25	SS-066
Duplicate (N912068-01) (QC ID=33166)	N912068-04			0.063	0.500			88		723			54	01/21/00	01/25	SS-038
Nominal values and limits from method				1.0	0.500			20-105		50	100		180			

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

AVERAGES ± 2 SD FOR 4 SAMPLES				
MDA	0.062	±	0.021
YIELD	80	±	14

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

METHOD SUMMARY

THORIUM, ISOTOPIC IN SOIL

ALPHA SPECTROSCOPY

Test TH Matrix SOLID
SDG 7313
Contact Melissa C. Mannion

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0673

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 228	Thorium 230	Thorium 232
Preparation batch 6909-138							
B0X0B6	N912068-01			7313-001	0.484 J	0.738 J	0.387 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 (N912068-01)	N912068-04			7313-004	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																
B0X0B6	N912068-01			0.16	0.250			91		434			57	01/24/00	01/28	SS-035
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 (N912068-01) (QC ID=33166)	N912068-04			0.20	0.250			86		434			57	01/24/00	01/28	SS-036
Nominal values and limits from method				1.0	0.250			20-105		200			180			

PROCEDURES	REFERENCE	THPLATE
	EP-000	Data Entry and Document Preparation, rev 0
	EP-001	Q.C. Preparation, rev 0
	EP-003	Tracing, rev 0
	EP-008	Heavy Elements Electroplating, rev 0
	EP-070	Soil Dissolution, rev 0
	RP-901	Thorium Purification - Small Aliquot, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.20 ± 0.075
YIELD 85 ± 9

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

Test SR	Matrix SOLID
SDG 7313	
Contact Melissa C. Mannion	

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG H0673	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium	
Preparation batch 6909-161						
B0X0B6	N912068-01			7313-001	U	
BLK (QC ID=33165)	N912068-03			7313-003	U	
LCS (QC ID=33164)	N912068-02			7313-002	ok	
Duplicate (N912068-01)	N912068-04			7313-004	-	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 6909-161	2σ prep error 10.0 % Reference Lab Notebook 6909 pg. 161															
B0X0B6	N912068-01			0.20	1.00			86		400			53	01/21/00	01/24	GRB-229
BLK (QC ID=33165)	N912068-03			0.24	1.00			69		400				01/21/00	01/24	GRB-231
LCS (QC ID=33164)	N912068-02			0.13	1.00			73		400				01/21/00	01/24	GRB-228
Duplicate (N912068-01) (QC ID=33166)	N912068-04			0.18	1.00			96		400			53	01/21/00	01/24	GRB-232
Nominal values and limits from method				1.0	1.00					100			180			

PROCEDURES	REFERENCE	SRTOTAL
	RP-500	Strontium - Initial Separation, rev 0
	RP-519	Strontium-89,90 Demounting and Yttrium Purification, rev 0

AVERAGES ± 2 SD	MDA	0.19	± 0.091
FOR 4 SAMPLES	YIELD	81	± 25

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

Test	TC
Matrix	SOLID
SDG	7313
Contact	Melissa C. Mannion

METHOD SUMMARY

TECHNETIUM 99 IN SOIL

BETA COUNTING

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG H0673

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 6909-138						
B0X0B6	N912068-01			7313-001	U	
BLK (QC ID=33199)	N912041-12			7306-012	U	
LCS (QC ID=33198)	N912041-11			7306-011	ok	
Duplicate (N912068-01)	N912068-04			7313-004	-	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															
B0X0B6	N912068-01			0.39	1.02			60		200			62	01/27/00	02/02	GRB-228
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 (N912068-01) (QC ID=33166)	N912068-04			0.76	1.02			44		101			60	01/27/00	01/31	GRB-224
Nominal values and limits from method				15	1.00			20-105		50			180			

PROCEDURES	REFERENCE	TC99TRLSC
	EP-060	Soil Preparation, rev 0
	EP-020	Sample Leach For Technetium-99, rev 0
	EP-540	Technetium-99 Purification, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES				
MDA	0.72	±	0.47
YIELD	46	±	19

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

Test 80A	Matrix SOLID
SDG 7313	
Contact Melissa C. Mannion	

METHOD SUMMARY

GROSS ALPHA IN SOIL

GAS PROPORTIONAL COUNTING

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG H0673	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 6909-161						
B0X0B6	N912068-01	80		7313-001	9.03	J
BLK (QC ID=33165)	N912068-03	80		7313-003	U	
LCS (QC ID=33164)	N912068-02	80		7313-002	LOW	
Duplicate (N912068-01)	N912068-04	80		7313-004	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 6909-161 2σ prep error 20.0 % Reference Lab Notebook 6909 pg. 161																
B0X0B6	N912068-01	80		3.1	0.100			50		100			55	01/25/00	01/26	GRB-113
BLK (QC ID=33165)	N912068-03	80		3.7	0.100			36		100				01/25/00	01/26	GRB-115
LCS (QC ID=33164)	N912068-02	80		3.0	0.100			36		100				01/25/00	01/26	GRB-114
Duplicate (N912068-01) (QC ID=33166)	N912068-04	80		3.1	0.100			49		100			55	01/25/00	01/26	GRB-116
Nominal values and limits from method				10	0.100			5-250		100			180			

PROCEDURES	REFERENCE	EPA900.0
	EP-060	Soil Preparation, rev 0
	EP-070	Soil Dissolution, rev 0
	EP-170	Preparation of Solids for Gross Alpha and Gross Beta Counting, rev 1

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	3.2	±	0.64
	RESIDUE	43	±	16

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

Test 80B Matrix SOLID
SDG 7313
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN SOIL
GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0673

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta	
Preparation batch 6909-161						
B0X0B6	N912068-01	80		7313-001	8.18	J
BLK (QC ID=33165)	N912068-03	80		7313-003	U	
LCS (QC ID=33164)	N912068-02	80		7313-002	ok	
Duplicate (N912068-01)	N912068-04	80		7313-004	ok	J

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 6909-161 2σ prep error 15.0 % Reference Lab Notebook 6909 pg. 161																
B0X0B6	N912068-01	80		5.9	0.100			50		100			55	01/25/00	01/26	GRB-113
BLK (QC ID=33165)	N912068-03	80		5.6	0.100			36		100				01/25/00	01/26	GRB-115
LCS (QC ID=33164)	N912068-02	80		6.4	0.100			36		100				01/25/00	01/26	GRB-114
Duplicate (N912068-01) (QC ID=33166)	N912068-04	80		7.4	0.100			49		100			55	01/25/00	01/26	GRB-116
Nominal values and limits from method				15	0.100			5-250		100			180			

PROCEDURES	REFERENCE	EPA900.0
	EP-060	Soil Preparation, rev 0
	EP-070	Soil Dissolution, rev 0
	EP-170	Preparation of Solids for Gross Alpha and Gross Beta Counting, rev 1

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 6.3 ± 1.6
RESIDUE 43 ± 16

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

Test GAM	Matrix SOLID
SDG 7313	
Contact Melissa C. Mannion	

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford	
Contract TRB-SBB-207925	
Case no SDG H0673	

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137	
Preparation batch 6909-161								
B0X0B6	N912068-01			7313-001	U		U	
BLK (QC ID=33165)	N912068-03			7313-003	U		U	
LCS (QC ID=33164)	N912068-02			7313-002	ok		ok	
Duplicate (N912068-01)	N912068-04			7313-004	-	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 6909-161 2σ prep error 15.0 % Reference Lab Notebook 6909 pg. 161																
B0X0B6	N912068-01			0.60	49.4					113			51	01/19/00	01/22	PD,01,00
BLK (QC ID=33165)	N912068-03			0.21	40.0					494				01/19/00	01/26	PD,01,00
LCS (QC ID=33164)	N912068-02			0.24	40.0					132				01/19/00	01/22	PD,01,00
Duplicate (N912068-01) (QC ID=33166)	N912068-04			0.23	49.4					489			55	01/19/00	01/26	PD,03,00
Nominal values and limits from method				0.050	40.0					100			180			

PROCEDURES	REFERENCE	GAMMAHI
	EP-060	Soil Preparation, rev 0
	EP-100	Ge(Li) Preparation for Environmental Samples, rev 0

AVERAGES ± 2 SD	MDA	0.32	± 0.37
FOR 4 SAMPLES	YIELD		±

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

Test U T Matrix SOLID
SDG 7313
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, TOTAL IN SOIL
KINETIC PHOSPHORIMETRY

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0673

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium
Preparation batch 6909-161					
B0X0B6	N912068-01			7313-001	0.782 J
BLK (QC ID=33096)	N912068-07			7313-007	U
LCS (QC ID=33095)	N912068-06			7313-006	ok
Duplicate (N912068-01)	N912068-08			7313-008	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 6909-161 2σ prep error 9.0 % Reference Lab Notebook 6909 pg. 161																
B0X0B6	N912068-01			0.002	0.0500								41	01/12/00	01/12	KPA-001
BLK (QC ID=33096)	N912068-07			0.002	0.0500									01/12/00	01/12	KPA-001
LCS (QC ID=33095)	N912068-06			0.021	0.0500									01/12/00	01/12	KPA-001
Duplicate (N912068-01) (QC ID=33097)	N912068-08			0.021	0.0500								41	01/12/00	01/12	KPA-001
Nominal values and limits from method				1.0	0.0500								180			

PROCEDURES	REFERENCE	UKPA
	EP-060	Soil Preparation, rev 0
	EP-070	Soil Dissolution, rev 0
	EP-044	Preparation of Total Uranium by Kinetic Phosphorimetry, rev 1
	EP-928	Total Uranium by Kinetic Phosphorimetry, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.012 ± 0.022
YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

Test H Matrix SOLID
SDG 7313
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0673

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6909-161						
B0X0B6	N912068-01			7313-001	U	
BLK (QC ID=33165)	N912068-03			7313-003	U	
LCS (QC ID=33164)	N912068-02			7313-002	ok	J
Duplicate (N912068-01)	N912068-04			7313-004	-	U
Spike (N912068-01)	N912068-05			7313-005	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 6909-161	2σ prep error 10.0 % Reference Lab Notebook 6909 pg. 161															
B0X0B6	N912068-01			0.10	20.4			100		120			52	01/20/00	01/23	LSC-004
BLK (QC ID=33165)	N912068-03			0.20	20.0			50		120				01/20/00	01/23	LSC-004
LCS (QC ID=33164)	N912068-02			0.30	20.0			33		120				01/20/00	01/23	LSC-004
Duplicate (N912068-01) (QC ID=33166)	N912068-04			0.10	20.1			100		120			52	01/20/00	01/23	LSC-004
Spike (N912068-01) (QC ID=33167)	N912068-05			0.15	20.1			68		120			52	01/20/00	01/23	LSC-004
Nominal values and limits from method				400	20.0					25			180			

PROCEDURES	REFERENCE	EPA906.0
	EP-060	Soil Preparation, rev 0
	EP-211	Tritium in Solid Samples by Azeotropic Distillation, rev 0

AVERAGES ± 2 SD	MDA	0.17	± 0.17
FOR 5 SAMPLES	YIELD	70	± 60

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/09/00

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0673

Test NI L Matrix SOLID
SDG 7313
Contact Melissa C. Mannion

METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG H0673

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 6909-138						
B0X0B6	N912068-01			7313-001	U	
BLK (QC ID=33199)	N912041-12			7306-012	U	
LCS (QC ID=33198)	N912041-11			7306-011	ok	
Duplicate (N912068-01)	N912068-04			7313-004	-	U

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																
B0X0B6	N912068-01			2.0	0.500			100		100			60	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 (N912068-01) (QC ID=33166)	N912068-04			2.0	0.500			100		100			60	01/26/00	01/31	LSC-005
Nominal values and limits from method				30	0.500					10			180			

PROCEDURES	REFERENCE	NI63LSC
	EP-060	Soil Preparation, rev 0
	EP-431	Nickel-63 Purification, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 2.0 ± 0
YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/09/00

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B00-006-16	Page 1 of 2

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. ERC 99 021	Field Logbook No. EL 1435	COA B2OCS1671C	Method of Shipment Fed Ex
Shipped To TMA/~~REGRA~~ Ref 12.2.99	Offsite Property No. A0000056		Bill of Lading/Air Bill No. 4235795 32513

Price Code 8N

Air Quality ☐

Data Turnaround 45 Days

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	~~GP~~ 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) (i-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
B0X0B6	Soil	12.2.99	1345	X	X	X				X	X	X	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Fahlberg / R. Fahlberg	1530 12-2-99	Ref 2-C	1530 12-2-99
Ref 2C	12-3-99 / 0700	R. Thoren	12-3-99 / 0100
R. Thoren	12-3-99 / 1430	FEDEX	12-3-99
FedEx	12-4-99 11:00	TNV M. Goldberg	11:00 12-4-99

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

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 12-4-99 11:00

CoC No. B00-006-16

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: 3 (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: 12-4-99 Time: 11:00

LOGIN

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

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name _____ Date/time _____

ORIGINAL Dhyes

SDR # B00-042
Revision #: 0
Date Initiated: 1/11/00

SAMPLE DISPOSITION RECORD

SAF: B00-006
OU: 200-CS-1
Project ID: 200-CS-1
Task ID: 1
Sampling Event: 200 Area Source Characterization 200-CS-1 OU

Laboratory: TMA/RECRA

Task Manager: C. S. Cearlock

Sampling Information:
Number of Samples: 1
ID Numbers: B0X0B6
Matrix: Soil
Collection Date: 12/02/99

Issue Background:

Class: ☒ Project Data Use ☐ General Laboratory Direction ☐ Validation Direction ☐ Sample Management Direction

Type: Analysis Holding Time Exceeded

Description: Laboratory Did Not Analyze Samples Within Required Holding Time for Volatile Organic Analytes

Disposition:

Description: The laboratory reported that the analysis holding time for the listed samples was exceeded for volatile analytes. The laboratory continued with the analyses and will note the holding time issue in the data package case narrative.

Justification: The data associated with the impacted volatile organic analytes are still of use to the 200 Area Source Characterization project. However, validation of these analyses will result in a "J" flag assignment to the associated data.

Approval Signatures:

S. J. Trent — 1/19/00
Project Coordinator (Print/Sign Name) — Date

C. S. Cearlock — 1/19/00
Task Manager (Print/Sign Name) — Date

ORIGINAL Dayes 3/2/20

SDR # B00-056
Revision #: 0
Date Initiated: 2/25/00

SAMPLE DISPOSITION RECORD

SAF: B00-006
OU: 200-CS-1
Project ID: 200-CS-1
Task ID: 1
Sampling Event: 200 Area Source Characterization 200-CS-1 Operable Unit

Laboratory: TMA/RECRA

Task Manager: C.S. Cearlock

Sampling Information:
Number of Samples: 1
ID Numbers: B0X0B6
Matrix: Soil
Collection Date: 12/02/99

Issue Background:

Class: ☒ Project Data Use ☐ General Laboratory Direction ☐ Validation Direction ☐ Sample Management Direction

Type: Analysis Holding Time Exceeded

Description: Analytical Holding Time for Mercury Exceeded

Disposition:

Description: The laboratory did not perform the mercury analysis for the listed sample although this analysis had been requested on the chain of custody. Although the holding time was exceeded, the project requested that the laboratory complete and report the mercury analysis.

Justification: Although the analytical holding time was exceeded, the mercury data may still be usable. The 200 Area Source Characterization project will evaluate the use of the mercury data with respect to project data quality objectives.

Approval Signatures:

S. J. Trent 2/25/00
Project Coordinator (Print/Sign Name) Date

C.S. Cearlock 2/25/00
Task Manager (Print/Sign Name) Date