H0094-T/W

0048835

RECRA LabNet

a division of Recra Environmental, Inc.

Virtual Laboratories Everywhere

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD
RFW #: 9708L961
SDG #: H0094

W.O. #: 10985-001-001-9999-00
Date Received: 08-21-97

APR 1998 RECEIVED EDMC

SEMIVOLATILE

One (1) soil sample was collected on 08-11-97.

The sample and its associated QC samples were extracted on 08-25-97 and analyzed according to criteria set forth in SW 846 Method 8270 for TCL Semivolatile target compounds on 09-05,11-97.

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. All required holding times for extraction and analysis were met.
3. Non-target compounds were detected in sample B0L8F7.
4. All surrogate recoveries were within EPA QC limits.
5. One (1) of eleven (11) blank spike recoveries was outside EPA QC limits.
6. All matrix spike recoveries were within EPA QC limits.

OCT 1997 RECEIVED Data Log In

Bruce C. Sytter Unit Leader

for J. Michael Taylor
Vice President and Laboratory Manager
Lionville Analytical Laboratory

9-29-97
Date

mmz\bna\08-961b.cn

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.

RECRA LabNet

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

RECRA LabNet

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: 09/22/97 14:20

RFW Batch Number: **9708L961** Client: **TNU-HANFORD** Work Order: 10985001001 Page: 1a

	Cust ID:	B0L8F7		B0L8F7		B0L8F7		SBLKBK		SBLKBK BS	
Sample Information	RFW#:	001		001 MS		001 MSD		97LE1557-MB1		97LE1557-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	79	%	81	%	82	%	88	%	90	%
	2-Fluorobiphenyl	77	%	79	%	81	%	82	%	83	%
	p-Terphenyl-d14	97	%	103	%	103	%	83	%	87	%
	Phenol-d5	83	%	88	%	87	%	103	%	109	%
	2-Fluorophenol	84	%	89	%	86	%	88	%	90	%
	2,4,6-Tribromophenol	67	%	78	%	75	%	84	%	84	%
Phenol		340	U	81	%	81	%	330	U	105 *	%
bis(2-Chloroethyl)ether		340	U	340	U	340	U	330	U	330	U
2-Chlorophenol		340	U	81	%	79	%	330	U	94	%
1,3-Dichlorobenzene		340	U	340	U	340	U	330	U	330	U
1,4-Dichlorobenzene		340	U	71	%	73	%	330	U	79	%
Benzyl alcohol		340	U	340	U	340	U	330	U	330	U
1,2-Dichlorobenzene		340	U	340	U	340	U	330	U	330	U
2-Methylphenol		340	U	340	U	340	U	330	U	330	U
bis(2-Chloroisopropyl)ether		340	U	340	U	340	U	330	U	330	U
4-Methylphenol		340	U	340	U	340	U	330	U	330	U
N-Nitroso-Di-n-propylamine		340	U	76	%	75	%	330	U	100	%
Hexachloroethane		340	U	340	U	340	U	330	U	330	U
Nitrobenzene		340	U	340	U	340	U	330	U	330	U
Isophorone		340	U	340	U	340	U	330	U	330	U
2-Nitrophenol		340	U	340	U	340	U	330	U	330	U
2,4-Dimethylphenol		340	U	340	U	340	U	330	U	330	U
Benzoic acid		1700	U	1700	U	1700	U	1700	U	1700	U
bis(2-Chloroethoxy)methane		340	U	340	U	340	U	330	U	330	U
2,4-Dichlorophenol		340	U	340	U	340	U	330	U	330	U
1,2,4-Trichlorobenzene		340	U	74	%	77	%	330	U	80	%
Naphthalene		340	U	340	U	340	U	330	U	330	U
4-Chloroaniline		340	U	340	U	340	U	330	U	330	U
Hexachlorobutadiene		340	U	340	U	340	U	330	U	330	U
4-Chloro-3-methylphenol		340	U	77	%	76	%	330	U	87	%
2-Methylnaphthalene		340	U	340	U	340	U	330	U	330	U
Hexachlorocyclopentadiene		340	U	340	U	340	U	330	U	330	U

*= Outside of EPA CLP QC limits.

004

RFW Batch Number: 9708L961 Client: TNU-HANFORD Work Order: 10985001001 Page: 1b

Cust ID:	B0L8F7		B0L8F7		B0L8F7		SBLKBK		SBLKBK BS	
RFW#:	001		001 MS		001 MSD		97LE1557-MB1		97LE1557-MB1	
2,4,6-Trichlorophenol	340	U	340	U	340	U	330	U	330	U
2,4,5-Trichlorophenol	1700	U	1700	U	1700	U	1700	U	1700	U
2-Chloronaphthalene	340	U	340	U	340	U	330	U	330	U
2-Nitroaniline	1700	U	1700	U	1700	U	1700	U	1700	U
Dimethylphthalate	340	U	340	U	340	U	330	U	330	U
Acenaphthylene	340	U	340	U	340	U	330	U	330	U
2,6-Dinitrotoluene	340	U	340	U	340	U	330	U	330	U
3-Nitroaniline	1700	U	1700	U	1700	U	1700	U	1700	U
Acenaphthene	340	U	74	%	76	%	330	U	79	%
2,4-Dinitrophenol	1700	U	1700	U	1700	U	1700	U	1700	U
4-Nitrophenol	1700	U	77	%	80	%	1700	U	84	%
Dibenzofuran	340	U	340	U	340	U	330	U	330	U
2,4-Dinitrotoluene	340	U	69	%	72	%	330	U	76	%
Diethylphthalate	340	U	340	U	340	U	330	U	330	U
4-Chlorophenyl-phenylether	340	U	340	U	340	U	330	U	330	U
Fluorene	340	U	340	U	340	U	330	U	330	U
4-Nitroaniline	1700	U	1700	U	1700	U	1700	U	1700	U
4,6-Dinitro-2-methylphenol	1700	U	1700	U	1700	U	1700	U	1700	U
N-Nitrosodiphenylamine (1)	340	U	340	U	340	U	330	U	330	U
4-Bromophenyl-phenylether	340	U	340	U	340	U	330	U	330	U
Hexachlorobenzene	340	U	340	U	340	U	330	U	330	U
Pentachlorophenol	1700	U	81	%	80	%	1700	U	85	%
Phenanthrene	340	U	340	U	340	U	330	U	330	U
Anthracene	340	U	340	U	340	U	330	U	330	U
Di-n-Butylphthalate	340	U	340	U	340	U	330	U	330	U
Fluoranthene	340	U	340	U	340	U	330	U	330	U
Pyrene	340	U	83	%	84	%	330	U	70	%
Butylbenzylphthalate	340	U	340	U	340	U	330	U	330	U
3,3'-Dichlorobenzidine	690	U	690	U	690	U	670	U	670	U
Benzo(a)anthracene	340	U	340	U	340	U	330	U	330	U
Chrysene	340	U	340	U	340	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	340	U	340	U	340	U	330	U	330	U
Di-n-Octyl phthalate	340	U	340	U	340	U	330	U	330	U
Benzo(b)fluoranthene	340	U	340	U	340	U	330	U	330	U
Benzo(k)fluoranthene	340	U	340	U	340	U	330	U	330	U
Benzo(a)pyrene	340	U	340	U	340	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	340	U	340	U	340	U	330	U	330	U
Dibenzo(a,h)anthracene	340	U	340	U	340	U	330	U	330	U
Benzo(g,h,i)perylene	340	U	340	U	340	U	330	U	330	U
Carbazole	340	U	340	U	340	U	330	U	330	U

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

1F

SEMIVOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0L8F7

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD

Matrix: SOIL Lab Sample ID: 9708L961-001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: D091027

Level: (low/med) LOW Date Received: 08/21/97

% Moisture: not dec. 3 dec. Date Extracted: 08/25/97

Extraction: (SepF/Cont/Sonc) SONC Date Analyzed: 09/11/97

GPC Cleanup: (Y/N) N pH: 8.3 Dilution Factor: 1.00

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	9.00	200	JA
2.	UNKNOWN	21.59	200	J

Sample Disposition Record

Control #: B97-050
Revision#: 0
Date Initiated: 7/1/97

Section 1 - BACKGROUND

SAF#: B97-120, B97-129, B97-133, B97-136
OU: 300-FF-1
Project ID: 300-FF-1 RD
Task ID: 1
Sampling Event: 300-FF-1 Process Trenches Verification Sampli, 300FF-1 SOUTH PROCESS POND, 300FF-1 NORTH PROCESS POND, AND 300FF-1 ASHPITS/CLEAN SOIL.
Laboratory: Quanterra, TMA
Project Coordinator: Koerner, CC
Task Manager: Johnson, CR

Section 2 - SAMPLE INFORMATION

Number of Samples:
ID Numbers: ALL OFF-SITE SAMPLES.
MATRIX: Soil
Collection Date:

Section 3 - ISSUE

Class: Lab Direction
NCR Number: N/A
Type: Clarification of Direction
Description: Chain of Custody (COC) for off-site analysis requests SemiVOA (8270A) TCL list with benzo(a)pyrene and chrysene. COC also requests ICP metals (6010A) with add-ons for arsenic and thallium.

N/A

NCR Validation (Print/Sign) Date

Section 4 - DISPOSITION

Type: Repair
Description: All off-site samples requesting SemiVOA or ICP metals analysis for SAF's B97-120, B97-129, B97-133, and B97-136 should be specifically analyzed for the mentioned tests as follows: Perform SemiVOA (8270A) analysis for benzo(a)pyrene and chrysene only. Perform ICP metals (6010A) analysis for arsenic and thallium only. Other requested analysis shall be performed according to COC directions.

Koerner, CC — 7-8-97
Project Coordinator (Print/Sign) Date

Johnson, CR — 7/16/97
Task Manager (Print/Sign) Date

N/A
QA (Print/Sign) Date

Section 5 - INSPECTION (Issue Class: Nonconformance Only)

Inspection Number: N/A
Inspection Results: N/A

N/A
Inspector (Print/Sign) Date

Recra LabNet - Lionville Laboratory
BNA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD

DATE RECEIVED: 08/21/97 RFW LOT # :9708L961

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0L8F7	001	S	97LE1557	08/11/97	08/25/97	09/11/97
B0L8F7	001 MS	S	97LE1557	08/11/97	08/25/97	09/11/97
B0L8F7	001 MSD	S	97LE1557	08/11/97	08/25/97	09/11/97

LAB QC:

SBLKBK	MB1	S	97LE1557	N/A	08/25/97	09/05/97
SBLKBK	MB1 BS	S	97LE1557	N/A	08/25/97	09/05/97

RECRA LabNet Use Only
97081961

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client: TNU - HANFORD
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: KB
QC: STD Del: STD TAT: 30 DAY
Date Rec'd: 8-21-97 Date Due: 9-20-97
Account #: TNUHANFORD

Refrigerator #			6	6					6								
#/Type Container	Liquid																
	Solid		1AG	1AG					1AG								
Volume	Liquid																
	Solid		250	250					250								
Preservatives																	
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	~~Pest~~ PCB	Herb				Metal	CN							
RECRA LabNet Use Only			OGASH	OPCB					MHSUTS								

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	BOL8F7	✓	✓	S	8/11/97	1139		✓	✓					✓						

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
RSA - CLIENT INFO
AMSC - COMP

SDG# H0094

DATE/REVISIONS:
4/26/97 SDG# ADDED TO COC
2 PER UNIT REVIEW REVISION
3
4
5
6

11.4°C

RECRA LabNet Use Only

Samples were:
1) Shipped or Hand Delivered
Airbill # 4172141528
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'l Y or N

Discrepancies Between Samples Lables and COC Record? Y or N
NOTES

Relinquished by	Received by	Date	Time
FEDEX	[signature]	8/21/97	1000

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B97-133-04	Page 1 of 1

Collector: Doug Bowers/RT Fahlberg / RJNidson	Company Contact: Frank Gustafson — Telephone No.: 373-5904	Project Coordinator: Koerner, CC	Date Turnaround: 45 Days
Project Designation: 300-FF-1 North Process Pond	Sampling Location: 300 area (300 FF-1)	SAF No.: B97-133	
Ice Chest No.: ER-1A	Field Logbook No.: EFL 1133-4	Method of Shipment: ~~Gov vehicle~~ Fed EX	
Shipped To: TMA NORCAL	Offsite Property No.: W97-0-0001-21	Bill of Lading/Air Bill No.: 423579503057	

POSSIBLE SAMPLE HAZARDS/REMARKS: Possible radioactive

Special Handling and/or Storage: cool 4C

SAMPLE ANALYSIS											
Preservation	None	None	Cool 4C	Cool 4C	None	None					
Type of Container	G/P	P	aG	aG	aG	aG					
No. of Container(s)	1	1	1	1	1	1					
Volume	20ml	20ml	250ml	250ml	250ml	1000ml					
	Activity Scan	Isotopic Uranium	PCBs - 8080	Semi-VOA - 8270A (TCL) (Benzo(a)pyrene, Chrysene)	ICP Metals - 6010A (Add-on) (Arsenic, Thallium)	Gamma Spectroscopy (Cobalt-60)					
Sample No.	Matrix *	Sample Date	Sample Time								
BOL8F2	S	8-11-97	1135	X	X	X	X	X	X	BOL671	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: RJNidson	Date/Time: 8/19/97 1030	Received By: Fed. Ex. Shippment	Date/Time:
Relinquished By: Federal Express	Date/Time:	Received By: [signature]	Date/Time: 8/20/97 2:30PM
Relinquished By:	Date/Time:	Received By:	Date/Time:
Relinquished By:	Date/Time:	Received By:	Date/Time:

SPECIAL INSTRUCTIONS:

Matrix *
- S = Soil
- SS = Sediment
- SO = Solid
- SL = 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: [signature] Title: Date/Time:

 Thermo NUtech CHAIN OF CUSTODY ORD # N7-08-039

RCVD: 08/20/97 DUE: 10/01/97 08/20/97 14:59:26 KEEP: 03/30/98 DISP: S

DASH	SAMPLE IDENTIFICATION	STORED	TESTS		
01A-S	BOL8F7	RECRA LABNET	WB029	WB185	WB215
01B-S	BOL8F7 MS	RECRA LABNET	WB029	WB185	WB215
01C-S	BOL8F7 DUP	RECRA LABNET	WB029	WB185	WB215

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
Ellen Yamimoto	8/20/97	RECRA LABNET	8/20/97		
FEDEX	8/21/97		8/21/97		

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

OCT 1997
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD
RFW# : 9708L961

W.O. #: 10985-001-001-9999-00
Date Received: 08-21-97

PCB

1. One (1) soil sample was collected on 08-11-97.
2. The sample and its associated QC samples were extracted on 08-25-97 and analyzed based on SW846, 3rd Edition, procedures on 09-11-97. The extraction procedure used was based on Method 3540 and the extracts were analyzed based on Method 8081.
3. The cooler temperature upon receipt has been recorded on the chain-of-custody.
4. All required holding times for extraction and analysis were met.
5. The sample and its associated QC samples received a sulfuric acid cleanup.
6. The method blank was below the reporting limits for all target compounds.
7. Two (2) of ten (10) surrogate recoveries were outside acceptance criteria.
8. All blank spike recoveries were within acceptance criteria.
9. One (1) of two (2) matrix spike recoveries were outside acceptance criteria.
10. All initial calibrations associated with this data set were within acceptance criteria.
11. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

Bruce C [illegible] unit leader
for J. Michael Taylor
Vice President and Laboratory Manager
Lionville Analytical Laboratory

9-22-97
Date

jab\pcb\08-961.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

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 #: 97GC214

Initiator: V. Patel
Date: 9/17/97
Client: INU - Hanford

RFW Batch: 97081961
Samples: -001S
Method: (SW846)/MCAWW/CLP/

Parameter: OPCB
Matrix: solid
Prep Batch: 97LE1555

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)

Recovery for surrogate & spike in MS is high but met criteria for MSD & BS please advise! No target compounds were identified - rule in narrative.

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)

4. Project Manager Instructions...signature/date: [signature] 9/17/97

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

5. Final Action...signature/date: [signature] 9/17/97 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
1	X Initiator	__	__ Metals: Doughty
__	X Lab Manager: J. Michael Taylor	__	__ Inorganic: Perrone/Leonards
3	X Project Mgr: K.B.	2	__ GC/LC: Jarvis/~~Skrzat~~/Schnell D. Richlach
__	X Section Mgr: Siery/Durke/Daniels	__	__ MS: LeMin/McIntyre/Taylor/Kasdras/Steele
__	X QA File: Feldman/Racioppi/Basuthakur	__	__ Log-in: Dodson
__	__ Data Management: Miller	__	__ Admin: Brewer/Keehn/Shafer
__	__ Sample Prep: Schnell/Swisher	__	__ Other: _____

RFW 21-21-006/E-05/97

Record Cabinet - Richville Laboratory

PCBs by GC

Report Date: 09/17/97 08:49

RFW Batch Number: **9708L961** Client: **TNU-HANFORD** Work Order: 10985001001 Page: 1

005

	Cust ID:	B0L8F7	B0L8F7	B0L8F7	PBLKUC	PBLKUC BS
Sample Information	RFW#:	001	001 MS	001 MSD	97LE1555-MB1	97LE1555-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	95 %	152 * %	108 %	108 %	98 %
	Decachlorobiphenyl	93 %	163 * %	104 %	107 %	96 %
Aroclor-1016		34 U	34 U	34 U	33 U	33 U
Aroclor-1221		69 U	69 U	69 U	67 U	67 U
Aroclor-1232		34 U	34 U	34 U	33 U	33 U
Aroclor-1242		34 U	34 U	34 U	33 U	33 U
Aroclor-1248		34 U	34 U	34 U	33 U	33 U
Aroclor-1254		34 U	174 * %	96 %	33 U	97 %
Aroclor-1260		34 U	34 U	34 U	33 U	33 U

gw 09-19-97

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

DATE RECEIVED: 08/21/97 RFW LOT # :9708L961

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0L8F7	001	S	97LE1555	08/11/97	08/25/97	09/11/97
B0L8F7	001 MS	S	97LE1555	08/11/97	08/25/97	09/11/97
B0L8F7	001 MSD	S	97LE1555	08/11/97	08/25/97	09/11/97
LAB QC:						
PBLKUC	MB1	S	97LE1555	N/A	08/25/97	09/11/97
PBLKUC	MB1 BS	S	97LE1555	N/A	08/25/97	09/11/97

gw 09-14-97

RECRA LabNet Use Only

9708L961

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client: TNU - HANFORD
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: KB
QC: STD Del: STD TAT: 30 DAY
Date Rec'd: 8-21-97 Date Due: 9-20-97
Account #: TNUHANFORD

Refrigerator #			6	6					6							
#/Type Container	Liquid															
	Solid		1AG	1AG					1AG							
Volume	Liquid															
	Solid		250	250					250							
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	~~Pest~~ PCB	Herb				Metal	CN						
		RECRA LabNet Use Only														
			8270 SIM	OPCB					MHSL/TOS							

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	BOL8F7	✓	✓	S	8/11/97	1139		✓	✓					✓				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
RSA - CLIENT INFO
AMSC - COMP

DATE/REVISIONS:
1
2
3
4
5
6

11.9°C

RECRA LabNet Use Only

Samples were:
1) Shipped or Hand Delivered
Airbill # 4172191528
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'd Y or N

Discrepancies Between Samples Lables and COC Record? Y or N
NOTES

Relinquished by	Received by	Date	Time
FEDEX	[signature]	8/21/97	1000

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B97-133-04	Page 1 of 1

Collector Doug Bowers/RT Fahlberg / RJNielson	Company Contact Frank Gustafson	Telephone No. 373-5904	Project Coordinator Koerner, CC	Data Turnaround 45 Days
Project Designation 300-FF-1 North Process Pond	Sampling Location 300 area (300 FF-1)		SAF No. B97-133	
Ice Chest No. ER-1A	Field Logbook No. EFL 1133-4		Method of Shipment ~~Gov vehicle~~ Fed EX	
Shipped To TMA NORCAL	Offsite Property No. W97-0-0001-21		Bill of Lading/Air Bill No. 423579503057	

POSSIBLE SAMPLE HAZARDS/REMARKS
Possible radioactive

Special Handling and/or Storage
cool 4C

SAMPLE ANALYSIS											
Preservation	None	None	Cool 4C	Cool 4C	None	None					
Type of Container	O/P	P	sG	sG	sG	sG					
No. of Container(s)	1	1	1	1	1	1					
Volume	20ml	20ml	250ml	250ml	250ml	1000ml					
	Activity Scan	Isotopic Uranium	PCBs - 8080	Semi-VOA - 8270A (TCL) (Benzo(a)pyrene, Chrysene)	ICP Metals - 6010A (Add-on) (Arsenic, Thallium)	Gamma Spectroscopy (Cobalt-60)					
		✓	X	X	X						

Sample No.	Matrix *	Sample Date	Sample Time										
BOL8F7	S	8-11-97	1135	X	X	X	X	X	X		BOL671		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By RJNielson 8/19/97 1030	Received By Fed. Ex. Shippment	Date/Time	
Relinquished By Federal Express	Received By	Date/Time 8/20/97 2:34 PM	
Relinquished By	Received By	Date/Time	
Relinquished By	Received By	Date/Time	

SPECIAL INSTRUCTIONS

Matrix *

S	= Soil
SE	= Sediment
SO	= Solid
SL	= 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
			8/21/97 1000

Thermo NUtech CHAIN OF CUSTODY ORD # 97-08-039

RCVD: 08/20/97 DUE: 10/01/97 08/20/97 14:59:26 KEEP: 03/30/98 DISP: S

DASH	SAMPLE IDENTIFICATION	STORED	TESTS		
01A-S	BOL8F7	RECRA LABNET	WB029	WB185	WB215
01B-S	BOL8F7 MS	RECRA LABNET	WB029	WB185	WB215
01C-S	BOL8F7 DUP	RECRA LABNET	WB029	WB185	WB215

RELEASED BY	DATE	TRANSFERRED TO	DATE	RECEIVED BY	DATE
Elky Yamamoto	8/20/97	RECRA LABNET	8/20/97		
FEDEX	8/21/97	[illegible]	8/21/97		

RECRA LabNet

a division of Recra Environmental, Inc.

Virtual Laboratories Everywhere

OCT 1997
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD
RFW# : 9708L961

W.O.# : 10985-001-001-9999-00
Date Received: 08-21-97

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 control limits.

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

7. All preparation/method blanks were within method criteria. 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 2 analytes and matrix spike duplicate (MSD) recoveries for 3 analytes were outside the 80-120% control limits. Refer to the Inorganics Accuracy Report.

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 meaningful concentration levels, due to high concentrations of the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
9708L961-001	Aluminum	25000	96.2
	Iron	25000	79.1

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 16 pages.

12. The MSs and MSDs for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Matrix Spike Duplicate Report.

13. The duplicate analyses for 4 analytes were outside the 20% RPD control limits. Refer to the Inorganics Precision Report.

14. 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.

15. As of May 24, 1997, WESTON Lionville Laboratory became Recra LabNet Philadelphia. Some forms may still reference WESTON Lionville Laboratory.

Bruce C. [illegible] unit leader

pR J. Michael Taylor
Vice President and Laboratory Manager
Lionville Analytical Laboratory

9-29-97
Date

jch\m08-961

METALS METHODS GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this RFW Lot#: 9708L961

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

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

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	✓6010A		__200.7				__99
Antimony	✓6010A	__7041 [5]	__200.7	__204.2			__99
Arsenic	✓6010A	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	✓6010A		__200.7				__99
Beryllium	✓6010A		__200.7				__99
Bismuth	__6010A [1]		__200.7 [1]			__1620	__99
Boron	__6010A [1]		__200.7				__99
Cadmium	✓6010A	__7131A [5]	__200.7	__213.2			__99
Calcium	✓6010A		__200.7				__99
Chromium	✓6010A	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	✓6010A		__200.7				__99
Copper	✓6010A	__7211 [5]	__200.7	__220.2			__99
Iron	✓6010A		__200.7				__99
Lead	✓6010A	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010A	__7430 [4]	__200.7			__1620	__99
Magnesium	✓6010A		__200.7				__99
Manganese	✓6010A		__200.7				__99
Mercury	__7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010A		__200.7				__99
Nickel	✓6010A		__200.7				__99
Potassium	✓6010A	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010A [1]		__200.7 [1]			__1620	__99
Selenium	✓6010A	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010A [1]		__200.7			__1620	__99
Silica	__6010A [1]		__200.7			__1620	__99
Silver	✓6010A	__7761 [5]	__200.7	__272.2			__99
Sodium	✓6010A	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010A		__200.7				__99
Thallium	✓6010A	__7841 [5]	__200.7	__279.2__200.9			__99
Tin	__6010A [1]		__200.7				__99
Titanium	__6010A [1]		__200.7				__99
Uranium	__6010A [1]		__200.7 [1]			__1620	__99
Vanadium	✓6010A		__200.7				__99
Zinc	✓6010A		__200.7				__99
Zirconium	__6010A [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

RFW 21-21-033/M-01/97

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.

Recra LabNet Lionville

INORGANICS DATA SUMMARY REPORT 09/25/97

CLIENT: TNU-HANFORD

RECRA LOT #: 970812061

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0L8F7	Silver, Total	0.91 u	MG/KG	0.91	1.0
		Aluminum, Total	2890	MG/KG	3.0	1.0
		Arsenic, Total	3.3 u	MG/KG	3.3	1.0
		Barium, Total	63.1	MG/KG	0.29	1.0
		Beryllium, Total	0.20	MG/KG	0.02	1.0
		Calcium, Total	4090	MG/KG	1.6	1.0
		Cadmium, Total	0.42	MG/KG	0.26	1.0
		Cobalt, Total	6.2	MG/KG	0.48	1.0
		Chromium, Total	4.0	MG/KG	0.38	1.0
		Copper, Total	38.1	MG/KG	0.43	1.0
		Iron, Total	10200	MG/KG	0.33	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Potassium, Total	379	MG/KG	78.7	1.0
		Magnesium, Total	2000	MG/KG	3.4	1.0
		Manganese, Total	186	MG/KG	0.09	1.0
		Sodium, Total	94.3	MG/KG	4.5	1.0
		Nickel, Total	6.2	MG/KG	0.92	1.0
		Lead, Total	3.9	MG/KG	3.5	1.0
		Antimony, Total	3.1 u	MG/KG	3.1	1.0
		Selenium, Total	4.4 u	MG/KG	4.4	1.0
		Thallium, Total	8.2	MG/KG	2.5	1.0
		Vanadium, Total	15.5	MG/KG	0.47	1.0
		Zinc, Total	20.1	MG/KG	0.45	1.0

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

DATE RECEIVED: 08/21/97 RFW LOT # :9708L961

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0L8F7						
SILVER, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
SILVER, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
SILVER, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
SILVER, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
ALUMINUM, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
ALUMINUM, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
ALUMINUM, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
ALUMINUM, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
ARSENIC, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
ARSENIC, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
ARSENIC, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
ARSENIC, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
BARIUM, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
BARIUM, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
BARIUM, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
BARIUM, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
BERYLLIUM, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
BERYLLIUM, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
BERYLLIUM, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
BERYLLIUM, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
CALCIUM, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
CALCIUM, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
CALCIUM, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
CALCIUM, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
CADMIUM, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
CADMIUM, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
CADMIUM, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
CADMIUM, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
COBALT, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
COBALT, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
COBALT, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
COBALT, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
CHROMIUM, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
CHROMIUM, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
CHROMIUM, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97

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

DATE RECEIVED: 08/21/97 RFW LOT # :9708L961

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
COPPER, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
COPPER, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
COPPER, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
COPPER, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
IRON, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
IRON, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
IRON, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
IRON, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
MERCURY, TOTAL	001	S	97C0668	08/11/97	08/29/97	09/03/97
MERCURY, TOTAL	001 REP	S	97C0668	08/11/97	08/29/97	09/03/97
MERCURY, TOTAL	001 MS	S	97C0668	08/11/97	08/29/97	09/03/97
MERCURY, TOTAL	001 MSD	S	97C0668	08/11/97	08/29/97	09/03/97
POTASSIUM, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
POTASSIUM, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
POTASSIUM, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
POTASSIUM, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
MAGNESIUM, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
MAGNESIUM, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
MAGNESIUM, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
MAGNESIUM, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
MANGANESE, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
MANGANESE, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
MANGANESE, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
MANGANESE, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
SODIUM, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
SODIUM, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
SODIUM, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
SODIUM, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
NICKEL, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
NICKEL, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
NICKEL, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
NICKEL, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
LEAD, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
LEAD, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
LEAD, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
LEAD, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
ANTIMONY, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97

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

DATE RECEIVED: 08/21/97 RFW LOT # :9708L961

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ANTIMONY, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
ANTIMONY, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
ANTIMONY, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
SELENIUM, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
SELENIUM, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
SELENIUM, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
SELENIUM, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
THALLIUM, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
THALLIUM, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
THALLIUM, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
THALLIUM, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
VANADIUM, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
VANADIUM, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
VANADIUM, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
VANADIUM, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97
ZINC, TOTAL	001	S	97L1818	08/11/97	09/16/97	09/24/97
ZINC, TOTAL	001 REP	S	97L1818	08/11/97	09/16/97	09/24/97
ZINC, TOTAL	001 MS	S	97L1818	08/11/97	09/16/97	09/24/97
ZINC, TOTAL	001 MSD	S	97L1818	08/11/97	09/16/97	09/24/97

LAB QC:

SILVER LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
SILVER, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
ALUMINUM LABORTORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
ALUMINUM, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
ARSENIC LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
ARSENIC, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
BARIUM LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
BARIUM, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
BERYLLIUM LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
BERYLLIUM, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
CALCIUM LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
CALCIUM, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
CADMIUM LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
CADMIUM, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
COBALT LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
COBALT, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97

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

DATE RECEIVED: 08/21/97 RFW LOT # :9708L961

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
CHROMIUM, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
COPPER LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
COPPER, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
IRON LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
IRON, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
MERCURY LABORATORY	LC1 BS	S	97C0668	N/A	08/29/97	09/03/97
MERCURY, TOTAL	MB1	S	97C0668	N/A	08/29/97	09/03/97
POTASSIUM LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
POTASSIUM, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
MAGNESIUM LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
MAGNESIUM, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
MANGANESE LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
MANGANESE, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
SODIUM LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
SODIUM, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
NICKEL LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
NICKEL, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
LEAD LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
LEAD, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
ANTIMONY LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
ANTIMONY, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
SELENIUM LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
SELENIUM, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
THALLIUM LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
THALLIUM, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
VANADIUM LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
VANADIUM, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97
ZINC LABORATORY	LC1 BS	S	97L1818	N/A	09/16/97	09/24/97
ZINC, TOTAL	MB1	S	97L1818	N/A	09/16/97	09/24/97

RECRA LabNet Use Only

9708L961

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client: TNU - HANFORD
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: KB
QC: STD Del: STD TAT: 30 DAY
Date Rec'd: 8-21-97 Date Due: 9-20-97
Account #: TNUHANFORD

Refrigerator #			6	6					6								
#/Type Container	Liquid																
	Solid		1AG	1AG					1AG								
Volume	Liquid																
	Solid		250	250					250								
Preservatives																	
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	~~Pest~~ PCB	Herb				Metal	CN							
RECRA LabNet Use Only			062SH	OPCB					MHSL05								

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	VOA	BNA	PCB	Herb				Metal	CN						
001	BOL8F7	✓	✓	S	8/11/97	1139		✓	✓					✓							

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
RSA - CLIENT INFO
AMSC - COMP

DATE/REVISIONS:
1
2
3
4
5
6

11.9°C

RECRA LabNet Use Only

Samples were:
1) Shipped ✓ or Hand Delivered
Airbill # 4177141528 26
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'l (Y) or N

Discrepancies Between Samples Lables and COC Record? Y or (N)
NOTES:

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
FEDEX	[signature]	8/21/97	1000				

ORIGINAL REWRITTEN

016

Case Narrative

1.0 GENERAL

Thermo NUtech Sample Delivery Group H0094 is comprised of the single soil sample designated as SAF B97-133 delivered under Project Designation 300-FF-1 North Process Pond.

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

2.0 ANALYSIS NOTES

2.1 Isotopic Uranium Analyses

No problems were encountered with the analysis.

2.2 Gamma Scan Analyses

There was insufficient sample received to perform a duplicate analysis. No other problems were encountered during analysis.

THERMO NUTECH

SAMPLE DELIVERY GROUP H0094

N708041-01

DATA SHEET

BOL8F7

SDG 7447 Client/Case no Westinghouse Hanford SDG H0094
Contact N. Joseph Verville Case no TSH-SBV-207925

Lab sample id N708041-01 Client sample id BOL8F7
Dept sample id 7447-001 Location/Matrix 300 area (300 FF-1) SOLID
Received 08/20/97 Collected 08/11/97 11:35
Custody/SAF No B97-133-04 B97-133

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	1.5	0.086	0.022	0.30		U
Uranium 235	15117-96-1	0.11	0.023	0.009	0.30	J	U
Uranium 238	U-238	1.5	0.085	0.017	0.30		U
GAMMA SCAN ANALYTES		U					
Potassium 40	13966-00-2	11	0.28				GAM
Cobalt 60	10198-40-0	U		0.012	0.050	U	GAM
Cesium 137	10045-97-3	U		0.011	0.050	U	GAM
Europium 152	14683-23-9	U		0.026	0.10	U	GAM
Europium 154	15585-10-1	U		0.017	0.10	U	GAM
Europium 155	14391-16-3	U		0.031	0.10	U	GAM
Radium 226	13982-63-3	0.38	0.025		0.10		GAM
Radium 228	15262-20-1	0.58	0.056		0.20		GAM
Thorium 228	14274-82-9	0.49	0.015				GAM
Thorium 232	7440-29-1	0.58	0.056				GAM
Americium 241	14596-10-2	U		0.043		U	GAM
Uranium 238	U-238	1.4	0.98				GAM

Lab id TMANC
Protocol WHC-HASM-1
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 09/12/97

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B97-133-04 | Page 1 of 1

Collector: Doug Bowers/RT Fahlberg / RJNielson	Company Contact: Frank Gustafson	Telephone No.: 373-5904	Project Coordinator: Koerner, CC	Data Turnaround: 45 Days
Project Designation: 300-FF-1 North Process Pond	Sampling Location: 300 area (300 FF-1)		SAF No.: B97-133	
Ice Chest No.: ER-1A	Field Logbook No.: EFL 1133-4		Method of Shipment: ~~Gov vehicle~~ Fed EX	
Shipped To: TMA NORCAL	Offsite Property No.: W97-0-0001-21		Bill of Lading/Air Bill No.: 423579503057	

POSSIBLE SAMPLE HAZARDS/REMARKS: Possible radioactive

Special Handling and/or Storage: cool 4C

SAMPLE ANALYSIS: SDG #CE94

Preservation	None	None	Cool 4C	Cool 4C	None	None				
Type of Container	G/P	P	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1				
Volume	20ml	20ml	250ml	250ml	250ml	1000ml				
	Activity Scan	Isotopic Uranium	PCBs - 8080	Semi-VOA - 8270A (TCL) (Benzo(a)pyrene, Chrysene)	ICP Metals - 6010A (Add-on) (Arsenic, Thallium)	Gamma Spectroscopy (Cobalt-60)				

Sample No.	Matrix *	Sample Date	Sample Time									
BOL8F7	S	8-11-97	1135	X	X	X	X	X	X		BOL6T1	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Renee Nielson	8-19-97 / 1030	Fed. Ex. Shippment	
Federal Express		[illegible]	8/20/97 2:30 PM

SPECIAL INSTRUCTIONS

Matrix *
- S = Soil
- SE = Sediment
- SO = Solid
- SL = 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

For B0265 1/4 B0L8F7

GAMMA-RAY ENERGY ANALYSIS REPORT

Thermo Hanford Inc.
Radiological Counting Facility THI - RCF

Project	300 - FF - 1 North Process Pond		
Customer ID	B0L8T1 Soil		
RCF ID	RCF1484		
	Sample time, date	1139	8/11/97
	Analysis date		8/12/97

Isotope		Activity pCi/gm		2 s err	Ci/gm
K40		1.4e+01	+/-	4.7e+00	1.4e-11
Co60		1.1e+01	+/-	6.9e-01	1.1e-11
I129	<	2.0e+00			2.0e-12
Cs137	<	2.6e-01			2.6e-13
Eu152	<	7.1e-01			7.1e-13
Eu154	<	3.5e-01			3.5e-13
Eu155	<	4.3e-01			4.3e-13
Th32dau	<	1.6e+00			1.6e-12
U235	<	1.6e+00			1.6e-12
U238	<	4.4e+01			4.4e-11
U238dau	<	6.3e-01			6.3e-13
Np237	<	5.1e-01			5.1e-13
Am241	<	6.2e-01			6.2e-13
Tot Act Gam (pCi/gm)		2.4e+01		Ci/gm	2.4e-11
Y/Sr-90	<	N/R			
Gross Alpha	<	1.2e+00			1.2e-12
Gross Beta		1.5e+01	+/-	2.9e+00	1.5e-11
AEA total	<	N/R			

Reported as 137-Cs Betas.

Total Activity (pCi/gm) 2.4e+01
(Ci/gm) 2.4e-11

Note! 152-Eu is not a 100% Beta emitter.

Definitions.

All errors reported at 2 standard deviations
A Assigned as residual beta from Gamma/Beta balance
For soils and natural samples, the following applies:
The analysis of U238 is based on the activity of Pa234m

The analysis of Np237 is based on the activity of Pa233

U238dau is the activity of Pb214 and Bi214, short lived daughter products of U238. Equilibrium between parent and daughter products probably does not exist in disturbed materials.

Th32dau is the activity of Ac228, Pb212, and Tl208, short lived daughter products of 232Th. Equilibrium between parent and daughter products may not exist in disturbed materials.

Other samples, not containing natural materials, may have inapplicable results for the Th, U, transuranics and daughter products. The results must then be balanced for the gross alpha analysis.

N/R means no result or analysis not requested.

SE Hilty	8-13-97	Albert I. Davis	08-13-97
Radiological analyst	Date	Albert I. Davis Radiological Manager	Date
Project review	Date		