



0052704

Chemical and Environmental Measurement Information

Recra LabNet Philadelphia
Analytical Report
REVISION

Client : TNU-HANFORD B99-078
RFW# : 9908L821
SDG/SAF #: H0497/B99-078

W.O. #: 10985-001-001-9999-00
Date Received: 08-20-99

SEMIVOLATILE

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This narrative was corrected to add the TIC search for Tributylphosphate.

EDMC

Seven (7) soil samples were collected on 08-18-99.

The samples and their associated QC samples were extracted on 08-27-99 and analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8270B for TCL Semivolatile target compounds on 09-01,08-99.

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 temperatures upon receipt have been recorded on the chain-of-custody.
2. The required holding times for extraction and analysis were met.
3. Non-target compounds were detected in the samples.
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. A spectral search was conducted for the compound Butylated Hydroxytoluene and Tributylphosphate; these compounds were not identified in the samples.

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Lab
Log In

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

01-27-00
Date

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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 17 pages.

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.



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.



Cust ID: BOW646 BOW646 BOW646 BOW647 BOW649 BOW650

RFW#: 001 001 MS 001 MSD 002 003 004

2-Chloronaphthalene	360 U	360 U	360 U	360 U	340 U	340 U
2-Nitroaniline	900 U	900 U	900 U	900 U	860 U	860 U
Dimethylphthalate	360 U	360 U	360 U	360 U	340 U	340 U
Acenaphthylene	360 U	360 U	360 U	360 U	340 U	340 U
2,6-Dinitrotoluene	360 U	360 U	360 U	360 U	340 U	340 U
3-Nitroaniline	900 U	900 U	900 U	900 U	860 U	860 U
Acenaphthene	360 U	68 %	60 %	360 U	340 U	340 U
2,4-Dinitrophenol	900 U	900 U	900 U	900 U	860 U	860 U
4-Nitrophenol	900 U	38 %	41 %	900 U	860 U	860 U
Dibenzofuran	360 U	360 U	360 U	360 U	340 U	340 U
2,4-Dinitrotoluene	360 U	54 %	61 %	360 U	340 U	340 U
Diethylphthalate	360 U	360 U	360 U	360 U	340 U	340 U
4-Chlorophenyl-phenylether	360 U	360 U	360 U	360 U	340 U	340 U
Fluorene	360 U	360 U	360 U	360 U	340 U	340 U
4-Nitroaniline	900 U	900 U	900 U	900 U	860 U	860 U
4,6-Dinitro-2-methylphenol	900 U	900 U	900 U	900 U	860 U	860 U
N-Nitrosodiphenylamine (1)	360 U	360 U	360 U	360 U	340 U	340 U
4-Bromophenyl-phenylether	360 U	360 U	360 U	360 U	340 U	340 U
Hexachlorobenzene	360 U	360 U	360 U	360 U	340 U	340 U
Pentachlorophenol	900 U	67 %	69 %	900 U	860 U	860 U
Phenanthrene	360 U	360 U	360 U	360 U	340 U	340 U
Anthracene	360 U	360 U	360 U	360 U	340 U	340 U
Carbazole	360 U	360 U	360 U	360 U	340 U	340 U
Di-n-butylphthalate	100 J	360 U	360 U	360 U	340 U	17 J
Fluoranthene	360 U	360 U	360 U	360 U	340 U	340 U
Pyrene	360 U	71 %	63 %	360 U	340 U	340 U
Butylbenzylphthalate	360 U	360 U	360 U	360 U	340 U	340 U
3,3'-Dichlorobenzidine	360 U	360 U	360 U	360 U	340 U	340 U
Benzo (a) anthracene	360 U	360 U	360 U	360 U	340 U	340 U
Chrysene	360 U	360 U	360 U	360 U	340 U	340 U
bis (2-Ethylhexyl) phthalate	59 J	360 U	360 U	360 U	340 U	340 U
Di-n-octyl phthalate	360 U	360 U	360 U	360 U	340 U	340 U
Benzo (b) fluoranthene	360 U	360 U	360 U	360 U	340 U	340 U
Benzo (k) fluoranthene	360 U	360 U	360 U	360 U	340 U	340 U
Benzo (a) pyrene	360 U	360 U	360 U	360 U	340 U	340 U
Indeno (1,2,3-cd) pyrene	360 U	360 U	360 U	360 U	340 U	340 U
Dibenz (a,h) anthracene	360 U	360 U	360 U	360 U	340 U	340 U
Benzo (g,h,i) perylene	360 U	360 U	360 U	360 U	340 U	340 U

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

Recra LabNet - Lionville Laboratory

Semivolatiles by GC/MS, HSL List

Report Date: 09/18/99 15:10

RFW Batch Number: 9908L821

Client: TNU-HANFORD B99-078

Work Order: 10985001001

Page: 2a

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Sample Information	Cust ID:	BOW651	BOW652	BOW658	SBLKBW	SBLKBW BS
	RFW#:	005	006	007	99LE1041-MB1	99LE1041-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	Nitrobenzene-d5	66 %	69 %	67 %	81 %	81 %
Recovery	2-Fluorobiphenyl	66 %	70 %	63 %	73 %	74 %
	Terphenyl-d14	66 %	58 %	74 %	71 %	73 %
	Phenol-d5	72 %	70 %	70 %	69 %	70 %
	2-Fluorophenol	64 %	65 %	66 %	68 %	71 %
	2,4,6-Tribromophenol	45 %	43 %	49 %	63 %	71 %
-----fl-----fl-----fl-----fl-----fl-----fl-----fl-----						
	Phenol	340 U	340 U	350 U	330 U	62 %
	bis(2-Chloroethyl) ether	340 U	340 U	350 U	330 U	330 U
	2-Chlorophenol	340 U	340 U	350 U	330 U	64 %
	1,3-Dichlorobenzene	340 U	340 U	350 U	330 U	330 U
	1,4-Dichlorobenzene	340 U	340 U	350 U	330 U	75 %
	1,2-Dichlorobenzene	340 U	340 U	350 U	330 U	330 U
	2-Methylphenol	340 U	340 U	350 U	330 U	330 U
	2,2'-oxybis(1-Chloropropane)	340 U	340 U	350 U	330 U	330 U
	4-Methylphenol	340 U	340 U	350 U	330 U	330 U
	N-Nitroso-di-n-propylamine	340 U	340 U	350 U	330 U	88 %
	Hexachloroethane	340 U	340 U	350 U	330 U	330 U
	Nitrobenzene	340 U	340 U	350 U	330 U	330 U
	Isophorone	340 U	340 U	350 U	330 U	330 U
	2-Nitrophenol	340 U	340 U	350 U	330 U	330 U
	2,4-Dimethylphenol	340 U	340 U	350 U	330 U	330 U
	bis(2-Chloroethoxy) methane	340 U	340 U	350 U	330 U	330 U
	2,4-Dichlorophenol	340 U	340 U	350 U	330 U	330 U
	1,2,4-Trichlorobenzene	340 U	340 U	350 U	330 U	79 %
	Naphthalene	340 U	340 U	350 U	330 U	330 U
	4-Chloroaniline	340 U	340 U	350 U	330 U	330 U
	Hexachlorobutadiene	340 U	340 U	350 U	330 U	330 U
	4-Chloro-3-methylphenol	340 U	340 U	350 U	330 U	72 %
	2-Methylnaphthalene	340 U	340 U	350 U	330 U	330 U
	Hexachlorocyclopentadiene	340 U	340 U	350 U	330 U	330 U
	2,4,6-Trichlorophenol	340 U	340 U	350 U	330 U	330 U
	2,4,5-Trichlorophenol	860 U	840 U	870 U	840 U	840 U

*= Outside of EPA CLP QC limits.

Cust ID: BOW651 BOW652 BOW658 SBLKBW SBLKBW BS

RFW#: 005 006 007 99LE1041-MB1 99LE1041-MB1

2-Chloronaphthalene	340 U	340 U	350 U	330 U	330 U
2-Nitroaniline	860 U	840 U	870 U	840 U	840 U
Dimethylphthalate	340 U	340 U	350 U	330 U	330 U
Acenaphthylene	340 U	340 U	350 U	330 U	330 U
2,6-Dinitrotoluene	340 U	340 U	350 U	330 U	330 U
3-Nitroaniline	860 U	840 U	870 U	840 U	840 U
Acenaphthene	340 U	340 U	350 U	330 U	70 %
2,4-Dinitrophenol	860 U	840 U	870 U	840 U	840 U
4-Nitrophenol	860 U	840 U	870 U	840 U	53 %
Dibenzofuran	340 U	340 U	350 U	330 U	330 U
2,4-Dinitrotoluene	340 U	340 U	350 U	330 U	76 %
Diethylphthalate	340 U	340 U	350 U	330 U	330 U
4-Chlorophenyl-phenylether	340 U	340 U	350 U	330 U	330 U
Fluorene	340 U	340 U	350 U	330 U	330 U
4-Nitroaniline	860 U	840 U	870 U	840 U	840 U
4,6-Dinitro-2-methylphenol	860 U	840 U	870 U	840 U	840 U
N-Nitrosodiphenylamine (1)	340 U	340 U	350 U	330 U	330 U
4-Bromophenyl-phenylether	340 U	340 U	350 U	330 U	330 U
Hexachlorobenzene	340 U	340 U	350 U	330 U	330 U
Pentachlorophenol	860 U	840 U	870 U	840 U	79 %
Phenanthrene	340 U	340 U	350 U	330 U	330 U
Anthracene	340 U	340 U	350 U	330 U	330 U
Carbazole	340 U	340 U	350 U	330 U	330 U
Di-n-butylphthalate	340 U	26 J	28 J	330 U	330 U
Fluoranthene	340 U	340 U	350 U	330 U	330 U
Pyrene	340 U	340 U	350 U	330 U	74 %
Butylbenzylphthalate	340 U	340 U	350 U	330 U	330 U
3,3'-Dichlorobenzidine	340 U	340 U	350 U	330 U	330 U
Benzo (a) anthracene	340 U	340 U	350 U	330 U	330 U
Chrysene	340 U	340 U	350 U	330 U	330 U
bis (2-Ethylhexyl) phthalate	340 U	340 U	350 U	330 U	330 U
Di-n-octyl phthalate	340 U	340 U	350 U	330 U	330 U
Benzo (b) fluoranthene	340 U	340 U	350 U	330 U	330 U
Benzo (k) fluoranthene	340 U	340 U	350 U	330 U	330 U
Benzo (a) pyrene	340 U	340 U	350 U	330 U	330 U
Indeno (1,2,3-cd) pyrene	340 U	340 U	350 U	330 U	330 U
Dibenz (a,h) anthracene	340 U	340 U	350 U	330 U	330 U
Benzo (g,h,i) perylene	340 U	340 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.

BOW646

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9908L821-001

Sample wt/vol: 30.1 (g/mL) G Lab File ID: A090808

Level: (low/med) LOW Date Received: 08/20/99

% Moisture: 8 decanted: (Y/N) Date Extracted: 08/27/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 09/08/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH:

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

Number TICs found: 9

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	19.53	100	JB
2.	UNKNOWN	20.52	90	J
3.	UNKNOWN	20.88	100	J
4.	UNKNOWN	21.60	200	J
5.	UNKNOWN	21.88	200	JB
6.	ADIPATE	22.04	100	J
7.	UNKNOWN	22.57	500	J
8.	UNKNOWN	22.63	100	J
9.	ALKANE	24.73	100	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0W647

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9908L821-002

Sample wt/vol: 30.4 (g/mL) G Lab File ID: A090811

Level: (low/med) LOW Date Received: 08/20/99

% Moisture: 8 decanted: (Y/N) __ Date Extracted: 08/27/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 09/08/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.00

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

Number TICs found: 7 (ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	6.37	100	JA
2.	UNKNOWN	21.89	100	JB
3.	UNKNOWN	22.58	200	J
4.	UNKNOWN	22.63	200	J
5.	UNKNOWN	23.71	100	J
6.	ALKANE	24.73	200	J
7.	UNKNOWN	26.55	70	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

BOW649

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9908L821-003

Sample wt/vol: 30.8 (g/mL) G Lab File ID: A090812

Level: (low/med) LOW Date Received: 08/20/99

% Moisture: 5 decanted: (Y/N) Date Extracted: 08/27/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/08/99

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	21.90	100	JB
2.	UNKNOWN	22.63	200	J
3.	UNKNOWN	24.15	100	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

BOW650

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 99081821-004

Sample wt/vol: 30.9 (g/mL) G Lab File ID: A090813

Level: (low/med) LOW Date Received: 08/20/99

% Moisture: 6 decanted: (Y/N) Date Extracted: 08/27/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 09/08/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH:

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	21.89	100	JB
2.	UNKNOWN	22.59	70	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0W651

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL

Lab Sample ID: 9908L821-005

Sample wt/vol: 30.8 (g/mL) G

Lab File ID: A090814

Level: (low/med) LOW

Date Received: 08/20/99

% Moisture: 5 decanted: (Y/N)

Date Extracted: 08/27/99

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 09/08/99

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH:

CONCENTRATION UNITS:

Number TICs found: 3

(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	20.89	80	J
2.	UNKNOWN	21.90	100	JB
3.	UNKNOWN	24.16	80	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

BOW652

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 9908L821-006

Sample wt/vol: 30.6 (g/mL) G Lab File ID: A090815

Level: (low/med) LOW Date Received: 08/20/99

% Moisture: 3 decanted: (Y/N) Date Extracted: 08/27/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 09/08/99

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	20.89	100	J
2.	UNKNOWN	21.90	100	JB
3.	UNKNOWN	22.65	70	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0W658

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL

Lab Sample ID: 9908L821-007

Sample wt/vol: 30.3 (g/mL) G

Lab File ID: A090816

Level: (low/med) LOW

Date Received: 08/20/99

% Moisture: 5 decanted: (Y/N) __

Date Extracted: 08/27/99

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 09/08/99

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: _____

CONCENTRATION UNITS:

Number TICs found: 2

(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	20.90	100	J
2.	UNKNOWN	21.91	100	JB

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKBW

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-078

Matrix: (soil/water) SOIL Lab Sample ID: 99LE1041-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: A090114

Level: (low/med) LOW Date Received: 08/27/99

% Moisture: decanted: (Y/N) Date Extracted: 08/27/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 09/01/99

Injection Volume: 2.0 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH:

Number TICs found: 2 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ORGANIC ACID	19.50	90	J
2.	UNKNOWN	21.86	70	J

Recra LabNet - Lionville Laboratory
BNA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-078

DATE RECEIVED: 08/20/99

RFW LOT # :9908L821

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOW646	001	S	99LE1041	08/18/99	08/27/99	09/08/99
BOW646	001 MS	S	99LE1041	08/18/99	08/27/99	09/08/99
BOW646	001 MSD	S	99LE1041	08/18/99	08/27/99	09/08/99
BOW647	002	S	99LE1041	08/18/99	08/27/99	09/08/99
BOW649	003	S	99LE1041	08/18/99	08/27/99	09/08/99
BOW650	004	S	99LE1041	08/18/99	08/27/99	09/08/99
BOW651	005	S	99LE1041	08/18/99	08/27/99	09/08/99
BOW652	006	S	99LE1041	08/18/99	08/27/99	09/08/99
BOW658	007	S	99LE1041	08/18/99	08/27/99	09/08/99

LAB QC:

SBLKBW	MB1	S	99LE1041	N/A	08/27/99	09/01/99
SBLKBW	MB1 BS	S	99LE1041	N/A	08/27/99	09/01/99

