H0338-TW

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Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-037
RFW# : 9901L860
SDG# : H0338
SAF# : B99-037

W.O. # : 10985-001-001-9999-00
Date Received: 01-14-99

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 2 water samples.

2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary. For NPDES samples: Ammonia distillations for method 350.3 were not performed as specified in 40 CFR part 136.

3. Sample holding times as required by the method and/or contract were met with the exception of Nitrate, Nitrite and pH which were received past hold and Total Dissolved Solids and Total Suspended Solids which were prepared within hold, but analyzed past hold.

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 were 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.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

Date

njp:i01-860

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 20 pages.

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WET CHEMISTRY METHODS GLOSSARY FOR ANALYSIS OF WATER SAMPLES

	EPA 600	SW846	OTHER
Acidity	__305.1		
__Alkalinity __Bicarbonate __Carbonate	__310.1		
BOD	__405.1		__5210B (b)
Ion Chromatography:			
✓Bromide ✓Chloride ✓Fluoride	✓300.0	__9056	
✓Nitrite ✓Nitrate __Phosphate	✓300.0	__9056	
✓Sulfate __Formate __Acetate __Oxalate	✓300.0	__9056	
Chloride	__325.2	__9251	
Chlorine Residual	__330.5 (mod)		
Cyanide Amenable to Chlorination	__335.2	__9010A	
Cyanide (Total)	__335.2	✓9010A __9012	__ILM04.0 (e)
Cyanide, Weak Acid Dissociable			__412 (a) __4500CN-I (b)
COD	__410.4 (mod)		__5220 C (b)
Color	__110.2		
Corrosivity (by Coupon)		__1110 (mod)	
Chromium VI		__7196A	__3500Cr-D (b)
Fluoride	__340.2		
Hardness, Calcium	__215.2		
Hardness, Total	__130.2		
Iodide			__ASTM D19P202 (1)
Surfactant	__425.1		
__Nitrate-Nitrite __Nitrate __Nitrite	__353.2		
Ammonia	✓350.3		
Total __Kjeldahl Nitrogen __Organic Nitrogen	__351.4		
Total ✓Organic __Inorganic Carbon	✓415.1	__9060	
Oil and Grease	✓413.1	__9070	
✓pH __pH, Paper	__150.1	✓9040A __9041A	
Petroleum Hydrocarbons, Total Recoverable	__418.1		
Phenol	__420.1 __420.2	__9065 __9066	
__Ortho Phosphate ✓Total Phosphate	✓365.2		__4500-P B __C
Salinity			__210A (a) __2520B (b)
Settleable Solids	__160.5		
Sulfide	__376.2 ✓376.1	__9030A	
Reactive __Cyanide __Sulfide		__Sec 7.3	
Silica	__370.1		
Sulfite	__377.1		
Sulfate	__375.4	__9038	
Specific Conductance	✓120.1	__9050	
Specific Gravity			__213E (a)
__TCLP __TCLV		__1311	
Synthetic Precipitation Leach		__1312	
Total ✓Dissolved ✓Suspended __Solids	160 ✓.1 ✓.2 __.3		
Total Organic Halides	__450.1	__9020B	
Turbidity	__180.1		
Volatile Solids __Total __Dissolved __Suspended	__160.4		

Other:_____ Method:_____

RFW 21-21-034/A-08/95

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., (1989).

b. Standard Methods for the Examination of Water and Waste, 17 ed., (1983)

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.

RFW 21-21L-034/D-06/96

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INORGANICS DATA SUMMARY REPORT 02/05/99

CLIENT: TNU-HANFORD B99-037 RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0TL69	Bromide by IC	2.8		MG/L	1.2	5.0
		Fluoride by IC	1.4		MG/L	0.50	1.0
		Nitrite by IC	5.0	u	MG/L	5.0	20
		Nitrate by IC	130		MG/L	5.0	20
		Cyanide, Total	5.0	u	UG/L	5.0	1.0
		Sulfate by IC	324		MG/L	25.0	100
		Ammonia, as N	0.10	u	MG/L	0.10	1.0
		Total Organic Carbon	12.2		MG/L	0.50	1.0
		Oil & Grease Gravimetri	1.1	u	MG/L	1.1	1.0
		pH	7.9		PH UNITS	0.01	1.0
		Phosphate, as P - Total	0.12		MG/L	0.050	1.0
		Sulfide	1.0	u	MG/L	1.0	1.0
		Specific Conductance	1870		UMHOS/CM	1.0	1.0
		Total Dissolved Solids	1600		MG/L	5.0	1.0
		Total Suspended Solids	5.0	u	MG/L	5.0	1.0
-002	B0TL71	Bromide by IC	2.8		MG/L	1.2	5.0
		Fluoride by IC	1.5		MG/L	0.50	1.0
		Nitrite by IC	5.0	u	MG/L	5.0	20
		Nitrate by IC	120		MG/L	5.0	20
		Cyanide, Total	10	u	UG/L	10	1.0
		Sulfate by IC	338		MG/L	25.0	100
		Ammonia, as N	0.10	u	MG/L	0.10	1.0
		Total Organic Carbon	12.3		MG/L	0.50	1.0
		Oil & Grease Gravimetri	1.1	u	MG/L	1.1	1.0
		pH	8.0		PH UNITS	0.01	1.0
		Phosphate, as P - Total	0.12		MG/L	0.050	1.0
		Sulfide	1.0	u	MG/L	1.0	1.0
		Specific Conductance	2100		UMHOS/CM	1.0	1.0
		Total Dissolved Solids	1600		MG/L	5.0	1.0
		Total Suspended Solids	5.0	u	MG/L	5.0	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/05/99

CLIENT: TNU-HANFORD B99-037 RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LIC007-MB1	Bromide by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK1	99LC006-MB1	Cyanide, Total	5.0 u	UG/L	5.0	1.0
BLANK10	99LAMC02-MB1	Ammonia, as N	0.10 u	MG/L	0.10	1.0
BLANK10	99LTCA05-MB1	Total Organic Carbon	0.50 u	MG/L	0.50	1.0
BLANK10	99LOG003-MB1	Oil & Grease Gravimetri	1.0 u	MG/L	1.0	1.0
BLANK10	99LTPA03-MB1	Phosphate, as P - Total	0.050u	MG/L	0.050	1.0
BLANK10	99LSD002-MB1	Sulfide	1.0 u	MG/L	1.0	1.0
BLANK10	99LSP005-MB1	Specific Conductance	1.0 u	UMHOS/CM	1.0	1.0
BLANK10	99LSSA04-MB1	Total Dissolved Solids	5.0 u	MG/L	5.0	1.0
BLANK10	99LSS004-MB1	Total Suspended Solids	5.0 u	MG/L	5.0	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/05/99

CLIENT: TNU-HANFORD B99-037 RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LSP003-MB1	Specific Conductance	1.0	u	UMHOS/CM	1.0	1.0

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INORGANICS ACCURACY REPORT 02/05/99

CLIENT: TNU-HANFORD B99-037 RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0TL69	Bromide by IC	23.4	2.8	25.0	82.5	5.0
		Fluoride by IC	52.4	1.4	50.0	101.9	5.0
		Nitrite by IC	97	5.0 u	100	97.3	20
		Nitrate by IC	240	130	100	111.4	20
		Sulfate by IC	829	324	500	100.9	100
		Phosphate, as P - Tot.	0.38	0.12	0.25	102.4	1.0
-002	B0TL71	Cyanide, Total	95	10 u	100	94.7	1.0
		Ammonia, as N	1.0	0.10u	1.0	103.0	1.0
		Total Organic Carbon	17.2	12.3	5.0	97.9	1.0
		Oil & Grease Gravimetr	33.7	1.1 u	32.2	104.8	1.0
		Sulfide	39.3	0.00	40.0	98.2	1.0
BLANK10	99LIC007-MB1	Bromide by IC	4.8	0.25u	5.0	96.2	1.0
		Fluoride by IC	10.6	0.50u	10.0	106.5	1.0
		Nitrite by IC	4.8	0.25u	5.0	96.0	1.0
		Nitrate by IC	5.1	0.25u	5.0	101.1	1.0
		Sulfate by IC	4.9	0.25u	5.0	97.2	1.0
BLANK10	99LAMC02-MB1	Ammonia, as N	1.0	0.10u	1.0	101.0	1.0
		Ammonia, as N MSD	1.0	0.10u	1.0	103.0	1.0
BLANK10	99LTCA05-MB1	Total Organic Carbon	4.8	0.50u	5.0	96.4	1.0
		Total Organic Carbon	5.0	0.50u	5.0	99.0	1.0
BLANK10	99LOG003-MB1	Oil & Grease Gravimetr	32.3	1.0 u	32.2	100.4	1.0
		Oil & Grease - Grav M	34.9	1.0 u	33.6	103.7	1.0
BLANK10	99LTPA03-MB1	Phosphate, as P - Tot.	0.26	0.05u	0.26	98.5	1.0
		Phosphate, as P - Tot.	0.26	0.05u	0.26	99.2	1.0
BLANK10	99LSD002-MB1	Sulfide	10.1	1.0 u	10.1	100	1.0
		Sulfide MSD	10.1	1.0 u	10.1	100	1.0
BLANK10	99LSP005-MB1	Specific Conductance	149	1.0 u	147	101.6	1.0
BLANK10	99LSSA04-MB1	Total Dissolved Solids	100	5.0 u	100	102.0	1.0
		Total Dissolved Solids	100	5.0 u	100	101.0	1.0

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INORGANICS ACCURACY REPORT 02/05/99

CLIENT: TNU-HANFORD B99-037 RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
BLANK10	99LSS004-MB1	Total Suspended Solids	100	5.0 u	100	100.7	1.0
		Total Suspended Solids	100	5.0 u	100	100.6	1.0
BLANK10	99LSP003-MB1	Specific Conductance	139	1.0 u	147	94.4	1.0
		Spec Conductance MSD	146	1.0 u	147	99.3	1.0

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INORGANICS DUPLICATE SPIKE REPORT 02/05/99

CLIENT: TNU-HANFORD B99-037 RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	99LAMC02-MB1	Ammonia, as N	101.0	103.0	2.0
BLANK10	99LTCA05-MB1	Total Organic Carbon	96.4	99.0	2.7
BLANK10	99LOG003-MB1	Oil & Grease - Grav	100.4	103.7	3.2
BLANK10	99LTPA03-MB1	Phosphate, as P - Tot.	98.5	99.2	0.78
BLANK10	99LSD002-MB1	Sulfide	100	100	0.00
BLANK10	99LSSA04-MB1	Total Dissolved Solids	102.0	101.0	0.99
BLANK10	99LSS004-MB1	Total Suspended Solids	100.7	100.6	0.099
BLANK10	99LSP003-MB1	Specific Conductance	94.4	99.3	5.1

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INORGANICS PRECISION REPORT 02/05/99

CLIENT: TNU-HANFORD B99-037 RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0TL69	Bromide by IC	2.8	2.8	1.9	5.0
		Fluoride by IC	1.4	1.4	0.71	1.0
		Nitrite by IC	5.0 u	5.0 u	NC	20
		Nitrate by IC	130	130	1.2	20
		Sulfate by IC	324	323	0.51	100
		Oil & Grease Gravimetri	1.1 u	2.3	NC	1.0
		pH	0.01u	7.9	NC	1.0
		Phosphate, as P - Total	0.12	0.11	7.6	1.0
		Specific Conductance	1870	1970	5.1	1.0
-002REP	B0TL71	Cyanide, Total	10 u	10 u	NC	1.0
		Ammonia, as N	0.10u	0.10u	NC	1.0
		Total Organic Carbon	12.3	12.5	1.5	1.0
		Sulfide	1.0 u	1.0 u	NC	1.0
		Total Dissolved Solids	1600	1600	1.5	1.0
		Total Suspended Solids	5.0 u	5.0 u	NC	1.0

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INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/05/99

CLIENT: TNU-HANFORD B99-037 RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99LC006-LC1	Cyanide, Total LCS	18	20	UG/L	91.2
LCS2	99LC006-LC2	Cyanide, Total LCS	91	100	UG/L	91.1

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-037

DATE RECEIVED: 01/14/99 RFW LOT # :9901L860

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TL69						
BROMIDE BY IC	001	W	99LIC007	01/12/99	01/19/99	01/19/99
BROMIDE BY IC	001 REP	W	99LIC007	01/12/99	01/19/99	01/19/99
BROMIDE BY IC	001 MS	W	99LIC007	01/12/99	01/19/99	01/19/99
FLUORIDE BY IC	001	W	99LIC007	01/12/99	01/19/99	01/19/99
FLUORIDE BY IC	001 REP	W	99LIC007	01/12/99	01/19/99	01/19/99
FLUORIDE BY IC	001 MS	W	99LIC007	01/12/99	01/19/99	01/19/99
NITRITE BY IC	001	W	99LIC007	01/12/99	01/19/99	01/19/99
NITRITE BY IC	001 REP	W	99LIC007	01/12/99	01/19/99	01/19/99
NITRITE BY IC	001 MS	W	99LIC007	01/12/99	01/19/99	01/19/99
NITRATE BY IC	001	W	99LIC007	01/12/99	01/19/99	01/19/99
NITRATE BY IC	001 REP	W	99LIC007	01/12/99	01/19/99	01/19/99
NITRATE BY IC	001 MS	W	99LIC007	01/12/99	01/19/99	01/19/99
TOTAL CYANIDE	001	W	99LC006	01/12/99	01/20/99	01/20/99
SULFATE BY IC	001	W	99LIC007	01/12/99	01/19/99	01/19/99
SULFATE BY IC	001 REP	W	99LIC007	01/12/99	01/19/99	01/19/99
SULFATE BY IC	001 MS	W	99LIC007	01/12/99	01/19/99	01/19/99
AMMONIA	001	W	99LAMC02	01/12/99	01/21/99	01/21/99
TOTAL ORGANIC CARBON	001	W	99LTCA05	01/12/99	01/21/99	01/21/99
OIL & GREASE BY GRAV	001	W	99LOG003	01/12/99	01/25/99	01/26/99
OIL AND GREASE BY GR	001 REP	W	99LOG003	01/12/99	01/25/99	01/26/99
PH	001	W	99LPH005	01/12/99	01/14/98	01/14/98
PH	001 REP	W	99LPH005	01/12/99	01/14/98	01/14/98
TOTAL PHOSPHATE AS P	001	W	99LTPA03	01/12/99	01/27/99	01/27/99
TOTAL PHOSPHATE AS P	001 REP	W	99LTPA03	01/12/99	01/27/99	01/27/99
TOTAL PHOSPHATE AS P	001 MS	W	99LTPA03	01/12/99	01/27/99	01/27/99
SULFIDE	001	W	99LSD002	01/12/99	01/18/99	01/18/99
SPECIFIC CONDUCTANCE	001	W	99LSP005	01/12/99	02/05/99	02/05/99
SPECIFIC CONDUCTANCE	001 REP	W	99LSP005	01/12/99	02/05/99	02/05/99
TOTAL DISSOLVED SOLI	001	W	99LSSA04	01/12/99	01/19/99	01/20/99
TOTAL SUSPENDED SOLI	001	W	99LSS004	01/12/99	01/19/99	01/20/99
B0TL71						
BROMIDE BY IC	002	W	99LIC007	01/12/99	01/19/99	01/19/99
FLUORIDE BY IC	002	W	99LIC007	01/12/99	01/19/99	01/19/99

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-037

DATE RECEIVED: 01/14/99 RFW LOT # :9901L860

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRITE BY IC	002	W	99LIC007	01/12/99	01/19/99	01/19/99
NITRATE BY IC	002	W	99LIC007	01/12/99	01/19/99	01/19/99
TOTAL CYANIDE	002	W	99LC006	01/12/99	01/20/99	01/20/99
TOTAL CYANIDE	002 REP	W	99LC006	01/12/99	01/20/99	01/20/99
TOTAL CYANIDE	002 MS	W	99LC006	01/12/99	01/20/99	01/20/99
SULFATE BY IC	002	W	99LIC007	01/12/99	01/19/99	01/19/99
AMMONIA	002	W	99LAMC02	01/12/99	01/21/99	01/21/99
AMMONIA	002 REP	W	99LAMC02	01/12/99	01/21/99	01/21/99
AMMONIA	002 MS	W	99LAMC02	01/12/99	01/21/99	01/21/99
TOTAL ORGANIC CARBON	002	W	99LTCA05	01/12/99	01/21/99	01/21/99
TOTAL ORGANIC CARBON	002 REP	W	99LTCA05	01/12/99	01/21/99	01/21/99
TOTAL ORGANIC CARBON	002 MS	W	99LTCA05	01/12/99	01/21/99	01/21/99
OIL & GREASE BY GRAV	002	W	99LOG003	01/12/99	01/25/99	01/26/99
OIL AND GREASE BY GR	002 MS	W	99LOG003	01/12/99	01/25/99	01/26/99
PH	002	W	99LPH005	01/12/99	01/14/98	01/14/98
TOTAL PHOSPHATE AS P	002	W	99LTPA03	01/12/99	01/27/99	01/27/99
SULFIDE	002	W	99LSD002	01/12/99	01/18/99	01/18/99
SULFIDE	002 REP	W	99LSD002	01/12/99	01/18/99	01/18/99
SULFIDE	002 MS	W	99LSD002	01/12/99	01/18/99	01/18/99
SPECIFIC CONDUCTANCE	002	W	99LSP003	01/12/99	01/19/99	01/19/99
TOTAL DISSOLVED SOLI	002	W	99LSSA04	01/12/99	01/19/99	01/20/99
TOTAL DISSOLVED SOLI	002 REP	W	99LSSA04	01/12/99	01/19/99	01/20/99
TOTAL SUSPENDED SOLI	002	W	99LSS004	01/12/99	01/19/99	01/20/99
TOTAL SUSPENDED SOLI	002 REP	W	99LSS004	01/12/99	01/19/99	01/20/99

LAB QC:

BROMIDE BY IC	MB1	W	99LIC007	N/A	01/19/99	01/19/99
BROMIDE BY IC	MB1 BS	W	99LIC007	N/A	01/19/99	01/19/99
FLUORIDE BY IC	MB1	W	99LIC007	N/A	01/19/99	01/19/99
FLUORIDE BY IC	MB1 BS	W	99LIC007	N/A	01/19/99	01/19/99
NITRITE BY IC	MB1	W	99LIC007	N/A	01/19/99	01/19/99
NITRITE BY IC	MB1 BS	W	99LIC007	N/A	01/19/99	01/19/99
NITRATE BY IC	MB1	W	99LIC007	N/A	01/19/99	01/19/99
NITRATE BY IC	MB1 BS	W	99LIC007	N/A	01/19/99	01/19/99
TOTAL CYANIDE	LC1 L	W	99LC006	N/A	01/20/99	01/20/99
TOTAL CYANIDE	LC2 L	W	99LC006	N/A	01/20/99	01/20/99
TOTAL CYANIDE	MB1	W	99LC006	N/A	01/20/99	01/20/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-037

DATE RECEIVED: 01/14/99 RFW LOT # :9901L860

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SULFATE BY IC	MB1	W	99LIC007	N/A	01/19/99	01/19/99
SULFATE BY IC	MB1 BS	W	99LIC007	N/A	01/19/99	01/19/99
AMMONIA	MB1	W	99LAMC02	N/A	01/21/99	01/21/99
AMMONIA	MB1 BS	W	99LAMC02	N/A	01/21/99	01/21/99
AMMONIA	MB1 BSD	W	99LAMC02	N/A	01/21/99	01/21/99
TOTAL ORGANIC CARBON	MB1	W	99LTCA05	N/A	01/21/99	01/21/99
TOTAL ORGANIC CARBON	MB1 BS	W	99LTCA05	N/A	01/21/99	01/21/99
TOTAL ORGANIC CARBON	MB1 BSD	W	99LTCA05	N/A	01/21/99	01/21/99
OIL & GREASE BY GRAV	MB1	W	99LOG003	N/A	01/25/99	01/26/99
OIL AND GREASE BY GR	MB1 BS	W	99LOG003	N/A	01/25/99	01/26/99
OIL AND GREASE BY GR	MB1 BSD	W	99LOG003	N/A	01/25/99	01/26/99
TOTAL PHOSPHATE AS P	MB1	W	99LTPA03	N/A	01/27/99	01/27/99
TOTAL PHOSPHATE AS P	MB1 BS	W	99LTPA03	N/A	01/27/99	01/27/99
TOTAL PHOSPHATE AS P	MB1 BSD	W	99LTPA03	N/A	01/27/99	01/27/99
SULFIDE	MB1	W	99LSD002	N/A	01/18/99	01/18/99
SULFIDE	MB1 BS	W	99LSD002	N/A	01/18/99	01/18/99
SULFIDE	MB1 BSD	W	99LSD002	N/A	01/18/99	01/18/99
SPECIFIC CONDUCTANCE	MB1	W	99LSP005	N/A	02/05/99	02/05/99
SPECIFIC CONDUCTANCE	MB1 BS	W	99LSP005	N/A	02/05/99	02/05/99
TOTAL DISSOLVED SOLI	MB1	W	99LSSA04	N/A	01/19/99	01/20/99
TOTAL DISSOLVED SOLI	MB1 BS	W	99LSSA04	N/A	01/19/99	01/20/99
TOTAL DISSOLVED SOLI	MB1 BSD	W	99LSSA04	N/A	01/19/99	01/20/99
TOTAL SUSPENDED SOLI	MB1	W	99LSS004	N/A	01/19/99	01/20/99
TOTAL SUSPENDED SOLI	MB1 BS	W	99LSS004	N/A	01/19/99	01/20/99
TOTAL SUSPENDED SOLI	MB1 BSD	W	99LSS004	N/A	01/19/99	01/20/99
SPECIFIC CONDUCTANCE	MB1	W	99LSP003	N/A	01/19/99	01/19/99
SPECIFIC CONDUCTANCE	MB1 BS	W	99LSP003	N/A	01/19/99	01/19/99
SPECIFIC CONDUCTANCE	MB1 BSD	W	99LSP003	N/A	01/19/99	01/19/99

9901L860

Chain of Custody/Lab Work Request

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU-Hanford B99-037
Est. Final Proj. Sampling Date
Project # 10985-001-001-9999-00
Project Contact/Phone #
RECRA Project Manager OJ
QC spec Del std TAT 15 day
Date Rec'd 1/14/99 Date Due 1/29/99
Account #

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives
ANALYSES REQUESTED

see attachments 1 & 2

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	ORGANIC VOA	BNA	Pest/PCB	Herb		Alcohols	Formaldehyde	INORG Metal	CN
							RECRA LabNet Use Only								
							0624N	0625N	0608H	OHBGX	8310	OGCSCO	OLCSC	Met	ICNTO	INORG
001	BOTL69			W	1/12/99	0910	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
002	BOTL71					0938	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
003	BOTL73					0700	✓									

Special Instructions:
Saj# B99-037

DATE/REVISIONS:
1.
2. See attachment 2 for
3. test definition
4.
5.
6.

Run Matrix QC

Relinquished by	Received by	Date	Time
Jedee	Jodee	1/14/99	10000

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

RECRA LabNet Use Only

Samples were:
1) Shipped ____ or Hand Delivered ____
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or
4) Labels Indicate Proper Preservation 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 3.4 °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES
pH, ICNO2, ICNO3 out of hold

See comments (1)

015

RECRA LabNet Use Only

9901L860

Custody Transfer Record/Lab Work Request

Attachment 1

Page 1 of 1

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU HANFORD B99-037

Est. Final Proj. Sampling Date:

Project #: 10885-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: OJ

QC: SPEC Del: STD TAT: 15 DAY

Date Rec'd: 1/14/99 Date Due: 1/29/99

Account #: TNUHANFORD

Refrigerator #		1	6												
#/Type Container	Liquid														
	Solid														
Volume	Liquid		See below												
	Solid														
Preservatives				GOH	OHBS								2 day Formaldehyde Hold time		1-pounce and neutral
ANALYSES REQUESTED		ORGANIC							INORG						
		VOA	BNA	Pest/PCB	Chlord Herb	Pest/PCB by Ext/Ext/Ins Pesticide		Nitrosamines	Metal	CN			Carbonyls Formaldehyde	Conductivity (pH)	Alcohols ①

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

RECRA LabNet Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624N	0625N	0005X	81507	Delete	0S310	Delete	met①	ICNTD	IPH IOCT	INORG①	8315		8015M
001	BOTL69						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
002	BOTL71						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
003	BOTL73						✓													

bottle purge ✓

Original Rewritten

Special Instructions:

Bottle Sizes

PH - 1P-125ml
TOC - 1AG-500-HCL, H2SO4
Carbonyls - 1AG-500
NONvol by Ext. - 1AG 500ml
Mercury - 1G-500ml - HNO3
Conductivity - 1P - 500ml
Anions (Br, Cl, NO3, NO2, P, SO4) 1P, 500ml
TDS - 1P - 500ml

TSS - 1P-500ml
INH3N - 1P-500ml - H2SO4
Metals - 1P-500ml
Sulfides - 1P-500 - ZnAc+NaOH
CN - 1P-500 - NaOH
OS310 - 2AG - 1000ml
Chlorherb - 2AG - 1000ml
Nitrosamines - 2AG 1000
Pest/PCB - 2AG 1000
BNA - 2AG 1000

Alcohols - 3 AG
IOCLR - 2G - 1000 - H2SO4
VOA - 3G - 40ml - HCL

DATE/REVISIONS

1. ~~Met ① = HSL + AS, PB, SE, SI, TAGN~~
2. ~~INORG① = TCBR, TCN, ICNO3, ICNO2,~~
3. ~~IPO4T, ICSO4, ITDS, ITSS, INH3N,~~
4. ~~IOFD~~
5. Saf # B99-037 * Run Matrix QC *
6. * 423579521413 423579521435 423579521424 423579521446 73.4°C

Relinquished by	Received by	Date	Time
Jedeu	Jodur	1/14/99	1000

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES

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

Iph, ICNO2, ICNO3 only

COC Attachment 2

~~Attachment 1~~ Batch# 9901L860

624N1= 8260A AppIX + 8260A AppIX Addon:

1,1,2-Trichloro-1,2,2-trifluoroethane,
1,3-Butadiene,
1-Butanol,
2-Chloroethyl vinyl ether,
Allyl alcohol,
cis-1,2-Dichloroethylene,
Crotonaldehyde,
Dichloropropanol,
Diethyl ether,
Ethyl acetate,
Isoprop

625N1=8270A AppIX + 8270A AppIX Addon:

1,2-Diphenylhydrazine,
1,4-Dinitrobenzene,
1-Acetyl-2-thiourea,
2,5-Diaminotoluene,
2-Cyclohexyl-4,6-dinitrophenol

MET1=TAL + [redacted], Si, [redacted], Sn

OGCSCO= 1-Butanol,
Methanol

OLCSC=Formaldehyde

INORG1= ICBR,
ICFL,
ICNO3,
ICN02,
IPO4T,
ICSO4,
ITDS,
ITSS,
INH3N,
ISFD,
IOGGR,
ISPCD,
IPH,
IOTC

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-037-01

Collector: Doug Bowers/Renee Neilson	Company Contact: Fred Roeck	Telephone No.: 372-9086	Project Coordinator: WEISS, RL
Project Designation: ERDF Leachate Delisting Analysis	Sampling Location: ERDF (200 west)		SAF No.: B99-037
Ice Chest No.: ERC96-0551, ERC96-053, ERC96-052, ERC96-007	Field Logbook No.: EFL 1133-7		Method of Shipment: Fed Ex
Shipped To: ~~TMA~~/RECRA RN 1-13-99	Offsite Property No.: A990060, A990061		Bill of Lading/Air Bill No.: 423579521413, 423579521424, 423579521435, 423579521446

Price Code:

Data Turnaround: ~~45 Days~~ 15 Days 1-12-99 DZB

COA: TERDFK117

POSSIBLE SAMPLE HAZARDS/REMARKS: 9901L860

Special Handling and/or Storage: cool to 4C

Preservation	None	HCl or H2SO4 to pH <2 Coo	Cool 4C	Cool 4C	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C	Cool 4C	H2SO4 to pH 2 Cool 4C
Type of Container	P	aG	aG	aG	G	P	P	P	P	P
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL ~~250ml~~ DZB 1-12-99	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL
SAMPLE ANALYSIS	pH (Water) - 9040	TOC - 9060	Carbonyls - 8315 (Formaldehyde) 1	NonVOA by EXT/ISMS (Bromide)	Mercury - 7470 (CV)	Conductivity - 9050	See item (1) on Special Instructions	TDS - 160.1	TSS - 160.2	Ammonia - 350.1

Sample No.	Matrix *	Sample Date	Sample Time	pH (Water) - 9040	TOC - 9060	Carbonyls - 8315 (Formaldehyde) 1	NonVOA by EXT/ISMS (Bromide)	Mercury - 7470 (CV)	Conductivity - 9050	See item (1) on Special Instructions	TDS - 160.1	TSS - 160.2	Ammonia - 350.1
1 B0TL69	Water	1-12-99	0910	X	X	X	X	X	X	X	X	X	X
2 B0TL71	Water	1-12-99	0938	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers / Doug Bowers	1-12-99 / 1135	Renee Nielson / R Nielson	1-13-99 / 1135
Renee Nielson / R Nielson	1-13-99 / 1300	Fed Ex	
Fed Ex		Yoder	1/14/99 1000

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples

(1) IC Anions - 9056 {Bromide, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}

Matrix *: Soil, Water, Vapor, Other Solid, Other Liquid

LABORATORY SECTION — Received By: Title: Date/Time:

FINAL SAMPLE DISPOSITION — Disposal Method: Disposed By: Date/Time:

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-037-01

Collector: Doug Bowers/Renee Neilson	Company Contact: Fred Roeck	Telephone No.: 372-9086	Project Coordinator: WEISS, RL
Price Code	Data Turnaround: B&B 1-12-99 ~~45 Days~~ 15 Days		
Project Designation: ERDF Leachate Delisting Analysis	Sampling Location: ERDF (200 west)		SAF No.: B99-037
Ice Chest No.: ERC96-051, ERC96-053, ERC96-052, ERC96-062	Field Logbook No.: EFL 1133-7		Method of Shipment: Fed Ex
Shipped To: ~~HMA~~ RECRA RUN 1-13-99	Offsite Property No.: A9910060, A9910061		Bill of Lading/Air Bill No.: 42357952 1413, 42357952 1424, 42357952 1435, 42357952 1446
			COA: TERDF4K117

POSSIBLE SAMPLE HAZARDS/REMARKS

99010860

Special Handling and/or Storage: cool to 4C

Preservation	HNO3 to pH < 2	ZnAc+NaOH to pH >9 Cool	NaOH to pH >= 12 Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	H2SO4 to pH 2 Cool 4C	Cool 4C
Type of Container	P	P	P	aG	aG	aG	aG	aG	G	aG*
No. of Container(s)	1	1	1	2	2	2	2	2	2	1
Volume	500mL	500mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	40mL
SAMPLE ANALYSIS	See item (1) in Special Instructions	Sulfides - 9030	Total Cyanide - 9010	See item (2) in Special Instructions	Chloro Herbicides - EPA8151	See item (3) in Special Instructions	Pest/PCBs - 8081	See item (4) in Special Instructions	Oil & Grease 9020	See item (5) in Special Instructions

Sample No	Matrix *	Sample Date	Sample Time										
B0TL69	Water	1-12-99	0910	X	X	X	X	X	X	X	X	X	X
B0TL71	Water	1-12-99	0938	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-13-99/1135	Renee Nelson/R. Nielson	1-13-99 1135
Renee Nelson/R Nielson	1-13-99 1200	Fed Ex	
Fed Ex		Fedex	1/14/99 1000

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples

(1) ICP Metals - 6010A (TAL), ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium, Silicon, Thallium, Tin}
(2) 8310 SVOA HPLC {Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenz[a,h]anthracene}
(3) Nitrosamines - 8070 {N-Nitroso-di-n-dipropylamine, N-Nitrosodimethylamine}
(4) Semi-VOA - 8270A (App IX), Semi-VOA -- 8270A (App IX Add-On) {1,2-Diphenylhydrazine, 1,4-Dinitrobenzene, 1-Acetyl-2-thiourea, 2,5-Diaminotoluene, 2-Cyclohexyl-4,6-dinitrophenol}
(5) Alcohols, Glycols, & Ketones - 8015M {1-Butanol, Diethylether, Methanol}

Matrix *: Soil, Water, Vapor, Other Solid, Other Liquid

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

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-037-01

Collector Doug Bowers/Renee Neilson	**Company Contact** Fred Roeck	**Telephone No.** 372-9086	**Project Coordinator** WEISS, RL
Project Designation ERDF Leachate Delisting Analysis	**Sampling Location** ERDF (200 west)		**SAF No.** B99-037
Ice Chest No. ERC96-051, ERC 96-053, ERC 96-052, ERC FS 002	**Field Logbook No.** EFL 1133-7		**Method of Shipment** Fed Ex
Shipped To ~~TMA/RICRA~~ RUN 1-13-99	**Offsite Property No.** A990060, A990061		**Bill of Lading/Air Bill No.** 42357952 1413, 42357952 1424, 42357952 1435, 42357952 1446
			COA TERDF4K117

Price Code

Data Turnaround ~~45 Days~~ 15 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

9901L860

Special Handling and/or Storage
cool to 4C

Preservation	HCl Cool 4C	NaOH										
Type of Container	aGs*	aG										
No. of Container(s)	3	1										
Volume	40mL	1000 ml										
SAMPLE ANALYSIS	See item (1) in Special Instructions	Activity scan										
Sample No	Matrix *	Sample Date	Sample Time									
B0TL69	Water	1-13-99	0910	X	X							
B0TL71	Water	1-13-99	0938	X	X			DOTL70				
B0TL73	water	1-12-99	0700	X				B0TL72				

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

Relinquished By	Date Time	Received By	Date Time
Doug Bowers	1-13-99/1135	Renee Nielson/R Nielson	1-13-99 1135
Renee Nielson/R. Nielson	1302 1-13-99	Fed Ex	Date/Time
Fedex	Date Time	Fedex	1/14/99 1000
Relinquished By	Date Time	Received By	Date Time

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples

(1) VOA - 8260A (App.IX). VOA - 8260A (App IX Add-On) [1,1,2-Trichloro-1,2,2-trifluoroethane, 1,3-Butadiene, 1-Butanol, 2-Chloroethyl vinyl ether, Allyl alcohol, cis-1,2-Dichloroethylene, Crotonaldehyde, Dichloropropanol, Diethyl Ether, Ethyl Acetate, Isoprop

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION — Received By — Title — Date Time

FINAL SAMPLE DISPOSITION — Disposal Method — Disposed By — Date Time

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

FEB 1999
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU HANFORD B99-037
RFW# : 9901L860
SDG/SAF# : H0338/B99-037

W.O.# : 10985-001-001-9999-00
Date Received: 01-14-99

METALS CASE NARRATIVE

1. This narrative covers the analyses of 2 water samples.

2. The samples were 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.

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

7. All preparation/method blanks were within method criteria (less than the PQL or samples greater than 20X MB value) with the exception of Zinc. Refer to the Inorganics Method Blank Data Summary.

   a.) The MB result for Zinc was greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and sample BOTL71 read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample result was reported herein "uncorrected" for the levels found in the MB.

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

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

10. The matrix spike (MS) recoveries for 2 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 21 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 meaningful concentration levels, due to high concentrations of the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
BOTL69	Potassium	20,000	121.5
	Silicon	5,000	86.2

12. The duplicate analyses for 4 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

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

Pat Ea

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

1-29-99
Date

mld/m01-860

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 9901L860

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	✓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/M1-03/98

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.

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INORGANICS DATA SUMMARY REPORT 01/28/99

CLIENT: TNU-HANFORD B99-037

RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0TL69	Silver, Total	0.90 u	UG/L	0.90	1.0
		Aluminum, Total	17.8 u	UG/L	17.8	1.0
		Arsenic, Total	14.9	UG/L	3.3	1.0
		Barium, Total	64.6	UG/L	0.10	1.0
		Beryllium, Total	0.12	UG/L	0.10	1.0
		Calcium, Total	158000	UG/L	6.8	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	0.60 u	UG/L	0.60	1.0
		Chromium, Total	14.1	UG/L	0.60	1.0
		Copper, Total	6.4	UG/L	0.90	1.0
		Iron, Total	17.9 u	UG/L	17.9	1.0
		Mercury, Total	0.10 u	UG/L	0.10	1.0
		Potassium, Total	23900	UG/L	11.8	1.0
		Magnesium, Total	47700	UG/L	6.2	1.0
		Manganese, Total	0.20 u	UG/L	0.20	1.0
		Sodium, Total	258000	UG/L	31.6	1.0
		Nickel, Total	6.3	UG/L	1.1	1.0
		Lead, Total	1.8 u	UG/L	1.8	1.0
		Antimony, Total	2.3 u	UG/L	2.3	1.0
		Selenium, Total	3.6 u	UG/L	3.6	1.0
		Silicon, Total	16900	UG/L	5.6	1.0
		Tin, Total	2.7 u	UG/L	2.7	1.0
		Thallium, Total	4.0	UG/L	3.7	1.0
		Vanadium, Total	25.9	UG/L	0.60	1.0
		Zinc, Total	1.0	UG/L	0.80	1.0

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INORGANICS DATA SUMMARY REPORT 01/28/99

CLIENT: TNU-HANFORD B99-037 RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B0TL71	Silver, Total	0.90 u	UG/L	0.90	1.0
		Aluminum, Total	21.5	UG/L	17.8	1.0
		Arsenic, Total	14.4	UG/L	3.3	1.0
		Barium, Total	64.2	UG/L	0.10	1.0
		Beryllium, Total	0.16	UG/L	0.10	1.0
		Calcium, Total	159000	UG/L	6.8	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	0.60 u	UG/L	0.60	1.0
		Chromium, Total	15.7	UG/L	0.60	1.0
		Copper, Total	6.7	UG/L	0.90	1.0
		Iron, Total	17.9 u	UG/L	17.9	1.0
		Mercury, Total	0.10 u	UG/L	0.10	1.0
		Potassium, Total	24100	UG/L	11.8	1.0
		Magnesium, Total	47800	UG/L	6.2	1.0
		Manganese, Total	0.20 u	UG/L	0.20	1.0
		Sodium, Total	260000	UG/L	31.6	1.0
		Nickel, Total	6.1	UG/L	1.1	1.0
		Lead, Total	1.8 u	UG/L	1.8	1.0
		Antimony, Total	2.3 u	UG/L	2.3	1.0
		Selenium, Total	3.6 u	UG/L	3.6	1.0
		Silicon, Total	17000	UG/L	5.6	1.0
		Tin, Total	2.7 u	UG/L	2.7	1.0
		Thallium, Total	3.7 u	UG/L	3.7	1.0
		Vanadium, Total	26.3	UG/L	0.60	1.0
		Zinc, Total	0.80 u	UG/L	0.80	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/28/99

CLIENT: TNU-HANFORD B99-037 RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L0032-MB1	Silver, Total	0.90 u	UG/L	0.90	1.0
		Aluminum, Total	17.8 u	UG/L	17.8	1.0
		Arsenic, Total	3.3 u	UG/L	3.3	1.0
		Barium, Total	0.33	UG/L	0.10	1.0
		Beryllium, Total	0.11	UG/L	0.10	1.0
		Calcium, Total	50.1	UG/L	6.8	1.0
		Cadmium, Total	0.40 u	UG/L	0.40	1.0
		Cobalt, Total	0.60 u	UG/L	0.60	1.0
		Chromium, Total	0.60 u	UG/L	0.60	1.0
		Copper, Total	1.8	UG/L	0.90	1.0
		Iron, Total	179	UG/L	17.9	1.0
		Potassium, Total	13.2	UG/L	11.8	1.0
		Magnesium, Total	32.4	UG/L	6.2	1.0
		Manganese, Total	1.0	UG/L	0.20	1.0
		Sodium, Total	118	UG/L	31.6	1.0
		Nickel, Total	1.1 u	UG/L	1.1	1.0
		Lead, Total	1.8 u	UG/L	1.8	1.0
		Antimony, Total	2.3 u	UG/L	2.3	1.0
		Selenium, Total	3.6 u	UG/L	3.6	1.0
		Silicon, Total	10.0	UG/L	5.6	1.0
		Tin, Total	2.7 u	UG/L	2.7	1.0
		Thallium, Total	3.7 u	UG/L	3.7	1.0
		Vanadium, Total	0.60 u	UG/L	0.60	1.0
		Zinc, Total	3.0	UG/L	0.80	1.0
BLANK1	99C0016-MB1	Mercury, Total	0.10 u	UG/L	0.10	1.0
BLANK2	99C0016-MB2	Mercury, TCLP Leachate	0.10 u	UG/L	0.10	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 01/28/99

CLIENT: TNU-HANFORD B99-037

RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0TL69	Silver, Total	51.1	0.90u	50.0	102.2	1.0
		Aluminum, Total	2120	17.8 u	2000	106.1	1.0
		Arsenic, Total	2100	14.9	2000	104.3	1.0
		Barium, Total	2020	64.6	2000	97.9	1.0
		Beryllium, Total	50.7	0.12	50.0	101.2	1.0
		Calcium, Total	187000	158000	25000	115.1*	1.0
		Cadmium, Total	47.6	0.40u	50.0	95.2	1.0
		Cobalt, Total	485	0.60u	500	97.0	1.0
		Chromium, Total	212	14.1	200	99.1	1.0
		Copper, Total	260	6.4	250	101.5	1.0
		Iron, Total	984	17.9 u	1000	98.4	1.0
		Potassium, Total	55500	23900	25000	126.5	1.0
		Magnesium, Total	74100	47700	25000	105.4	1.0
		Manganese, Total	512	0.20u	500	102.5	1.0
		Sodium, Total	280000	258000	25000	86.8*	1.0
		Nickel, Total	482	6.3	500	95.1	1.0
		Lead, Total	485	1.8 u	500	97.1	1.0
		Antimony, Total	518	2.3 u	500	103.5	1.0
		Selenium, Total	2140	3.6 u	2000	106.8	1.0
		Silicon, Total	18300	16900	1000	145.2*	1.0
		Tin, Total	990	2.7 u	1000	99.0	1.0
		Thallium, Total	1970	4.0	2000	98.5	1.0
		Vanadium, Total	540	25.9	500	102.8	1.0
		Zinc, Total	498	1.0	500	99.5	1.0

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INORGANICS ACCURACY REPORT 01/28/99

CLIENT: TNU-HANFORD B99-037

RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B0TL71	Mercury, Total	0.99	0.10u	1.0	99.4	1.0

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INORGANICS PRECISION REPORT 01/28/99

CLIENT: TNU-HANFORD B99-037 RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0TL69	Silver, Total	0.90u	0.90u	NC	1.0
		Aluminum, Total	17.8 u	17.8 u	NC	1.0
		Arsenic, Total	14.9	13.8	7.7	1.0
		Barium, Total	64.6	65.4	1.2	1.0
		Beryllium, Total	0.12	0.10u	~~NC~~ 200	1.0
		Calcium, Total	158000	165000	4.2	1.0
		Cadmium, Total	0.40u	0.40u	NC	1.0
		Cobalt, Total	0.60u	0.60u	NC	1.0
		Chromium, Total	14.1	14.8	4.8	1.0
		Copper, Total	6.4	5.6	13.3	1.0
		Iron, Total	17.9 u	17.9 u	NC	1.0
		Potassium, Total	23900	24300	1.9	1.0
		Magnesium, Total	47700	49400	3.5	1.0
		Manganese, Total	0.20u	0.20u	NC	1.0
		Sodium, Total	258000	255000	1.4	1.0
		Nickel, Total	6.3	5.6	11.8	1.0
		Lead, Total	1.8 u	1.8 u	NC	1.0
		Antimony, Total	2.3 u	2.4	~~NC~~ 200	1.0
		Selenium, Total	3.6 u	3.6 u	NC	1.0
		Silicon, Total	16900	17400	2.9	1.0
		Tin, Total	2.7 u	2.7 u	NC	1.0
		Thallium, Total	4.0	3.7 u	~~NC~~ 200	1.0
		Vanadium, Total	25.9	26.0	0.39	1.0
		Zinc, Total	1.0	0.80u	~~NC~~ 200	1.0

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INORGANICS PRECISION REPORT 01/28/99

CLIENT: TNU-HANFORD B99-037

RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	B0TL71	Mercury, Total	0.10u	0.10u	NC	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/28/99

CLIENT: TNU-HANFORD B99-037 RECRA LOT #: 9901L860

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L0032-LC1	Silver, LCS	507	500	UG/L	101.5
		Aluminum, LCS	5150	5000	UG/L	103.0
		Arsenic, LCS	10300	10000	UG/L	103.3
		Barium, LCS	4880	5000	UG/L	97.6
		Beryllium, LCS	254	250	UG/L	101.8
		Calcium, LCS	25800	25000	UG/L	103.1
		Cadmium, LCS	252	250	UG/L	101.0
		Cobalt, LCS	2520	2500	UG/L	100.9
		Chromium, LCS	506	500	UG/L	101.2
		Copper, LCS	1250	1250	UG/L	100
		Iron, LCS	5020	5000	UG/L	100.4
		Potassium, LCS	26000	25000	UG/L	104.2
		Magnesium, LCS	25800	25000	UG/L	103.3
		Manganese, LCS	792	750	UG/L	105.6
		Sodium, LCS	24700	25000	UG/L	98.9
		Nickel, LCS	1980	2000	UG/L	99.1
		Lead, LCS	2570	2500	UG/L	102.9
		Antimony, LCS	3080	3000	UG/L	102.5
		Selenium, LCS	10600	10000	UG/L	106.2
		Silicon, LCS	5020	5000	UG/L	100.4
		Tin, LCS	5070	5000	UG/L	101.4
		Thallium, LCS	10300	10000	UG/L	103.0
		Vanadium, LCS	2590	2500	UG/L	103.5
		Zinc, LCS	1010	1000	UG/L	101.2
LCS1	99C0016-LC1	Mercury, LCS	4.6	5.0	UG/L	92.9

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-037

DATE RECEIVED: 01/14/99 RFW LOT # :9901L860

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TL69						
SILVER, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
SILVER, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
SILVER, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
ALUMINUM, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
ALUMINUM, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
ALUMINUM, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
ARSENIC, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
ARSENIC, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
ARSENIC, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
BARIUM, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
BARIUM, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
BARIUM, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
BERYLLIUM, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
BERYLLIUM, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
BERYLLIUM, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
CALCIUM, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
CALCIUM, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
CALCIUM, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
CADMIUM, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
CADMIUM, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
CADMIUM, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
COBALT, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
COBALT, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
COBALT, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
CHROMIUM, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
CHROMIUM, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
CHROMIUM, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
COPPER, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
COPPER, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
COPPER, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
IRON, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
IRON, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
IRON, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
MERCURY, TOTAL	001	W	99C0016	01/12/99	01/21/99	01/22/99
POTASSIUM, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-037

DATE RECEIVED: 01/14/99 RFW LOT # :9901L860

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
POTASSIUM, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
POTASSIUM, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
MAGNESIUM, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
MAGNESIUM, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
MAGNESIUM, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
MANGANESE, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
MANGANESE, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
MANGANESE, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
SODIUM, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/22/99
SODIUM, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/22/99
SODIUM, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/22/99
NICKEL, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
NICKEL, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
NICKEL, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
LEAD, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
LEAD, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
LEAD, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
ANTIMONY, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
ANTIMONY, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
ANTIMONY, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
SELENIUM, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
SELENIUM, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
SELENIUM, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
SILICON, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
SILICON, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
SILICON, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
TIN, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
TIN, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
TIN, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
THALLIUM, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
THALLIUM, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
THALLIUM, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
VANADIUM, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
VANADIUM, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
VANADIUM, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99
ZINC, TOTAL	001	W	99L0032	01/12/99	01/20/99	01/21/99
ZINC, TOTAL	001 REP	W	99L0032	01/12/99	01/20/99	01/21/99
ZINC, TOTAL	001 MS	W	99L0032	01/12/99	01/20/99	01/21/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-037

DATE RECEIVED: 01/14/99 RFW LOT # :9901L860

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TL71						
SILVER, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
ALUMINUM, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
ARSENIC, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
BARIUM, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
BERYLLIUM, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
CALCIUM, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
CADMIUM, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
COBALT, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
CHROMIUM, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
COPPER, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
IRON, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
MERCURY, TOTAL	002	W	99C0016	01/12/99	01/21/99	01/22/99
MERCURY, TOTAL	002 REP	W	99C0016	01/12/99	01/21/99	01/22/99
MERCURY, TOTAL	002 MS	W	99C0016	01/12/99	01/21/99	01/22/99
POTASSIUM, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
MAGNESIUM, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
MANGANESE, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
SQDIUM, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/22/99
NICKEL, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
LEAD, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
ANTIMONY, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
SELENIUM, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
SILICON, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
TIN, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
THALLIUM, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
VANADIUM, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99
ZINC, TOTAL	002	W	99L0032	01/12/99	01/20/99	01/21/99

LAB QC:

SILVER LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
SILVER, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
ALUMINUM LABORTORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
ALUMINUM, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
ARSENIC LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-037

DATE RECEIVED: 01/14/99 RFW LOT # :9901L860

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
BARIUM LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
BARIUM, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
BERYLLIUM LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
BERYLLIUM, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
CALCIUM LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
CALCIUM, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
CADMIUM LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
CADMIUM, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
COBALT LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
COBALT, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
CHROMIUM LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
CHROMIUM, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
COPPER LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
COPPER, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
IRON LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
IRON, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
MERCURY LABORATORY	LC1 BS	W	99C0016	N/A	01/21/99	01/22/99
MERCURY, TOTAL	MB1	W	99C0016	N/A	01/21/99	01/22/99
MERCURY, TCLP LEACHA	MB2	W	99C0016	N/A	01/21/99	01/22/99
POTASSIUM LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
POTASSIUM, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
MAGNESIUM LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
MAGNESIUM, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
MANGANESE LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
MANGANESE, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
SODIUM LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/22/99
SODIUM, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/22/99
NICKEL LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
NICKEL, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
LEAD LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
LEAD, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
ANTIMONY LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
ANTIMONY, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
SELENIUM LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
SELENIUM, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
SILICON LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
SILICON, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-037

DATE RECEIVED: 01/14/99 RFW LOT # :9901L860

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
TIN LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
TIN, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
THALLIUM LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
THALLIUM, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
VANADIUM LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
VANADIUM, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99
ZINC LABORATORY	LC1 BS	W	99L0032	N/A	01/20/99	01/21/99
ZINC, TOTAL	MB1	W	99L0032	N/A	01/20/99	01/21/99

RECRA LabNet Use Only
99011860

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS (8) All

Client INU - Hanford B99-037
Est. Final Proj. Sampling Date
Project # 10985-001-001-9999-00
Project Contact/Phone #
RECRA Project Manager OJ
QC spec Del std TAT 15 day
Date Rec'd 1/14/99 Date Due 1/29/99
Account #

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

See attachments 1 & 2

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; Alcohols; Formaldehyde; INORG: 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	C624N	C625N	C6087	OHBX	8310	OGCSCD	OLCSC	Met	ICNT	INORG
001	BOTL69			W	1/12/99	0916	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
002	BOTL71			↓	↓	0938	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
003	BOTL73					0700	✓									

Special Instructions:
Sag # B99-037

Run Matrix QC

DATE/REVISIONS:
1.
2. See attachment 2 for
3. test definition
4.
5.
6.
Run Matrix QC

Relinquished by	Received by	Date	Time
Jackie	Jordan	1/14/99	1000

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

RECRA LabNet Use Only

Samples were:
1) Shipped ____ or Hand Delivered ____
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or
4) Labels Indicate Properly Preserved Y or
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. 3.4 C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
pH, ICNO2, ICNO3 out of hold

Discrepancies (1)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-037-01

Collector: Doug Bowers/Renee Neilson	Company Contact: Fred Roeck	Telephone No.: 372-9086	Project Coordinator: WEISS, RL
Price Code	Data Turnaround: 0 ~~45 Days~~ 15 D.W. 1-12-99		
Project Designation: ERDF Leachate Delisting Analysis	Sampling Location: ERDF (200 west)		SAF No.: B99-037
Ice Chest No.: EFC916-051, EFC916-053, EFC916-052, EFC15-007	Field Logbook No.: EFL 1133-7		Method of Shipment: Fed Ex
Shipped To: ~~TMA~~/RI CRA RIN 1-13-99	Offsite Property No.: A99D060, A99D061		Bill of Lading/Air Bill No.: 423579521413, 423579521424, 423579521435, 423579521446
			COA: TERDFK117

POSSIBLE SAMPLE HAZARDS/REMARKS: 9901L860

Special Handling and/or Storage: cool to 4C

SAMPLE ANALYSIS

Preservation	None	HCl or H2SO4 to pH <2 Cool	Cool 4C	Cool 4C	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C	Cool 4C	H2SO4 to pH <2 Cool 4C
Type of Container	P	aG	aG	aG	G	P	P	P	P	P
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL ~~250mL~~ 0 2/3 1-12-99	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL
	pH (Water) - 9040	TOC - 9060	Carbonyls - 8315 (Formaldehyde)	NonVOA by 8270/8310 (Bromide only)	Mercury - 7470 - (CV)	Conductivity - 9050	See item (1) in Special Instructions	TDS - 160.1	TSS - 160.2	Ammonia - 350.1

Sample No	Matrix *	Sample Date	Sample Time										
1 B0TL69	Water	1-12-99	0910	X	X	X	X	X	X	X	X	X	X
2 B0TL71	Water	1-12-99	0938	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-12-99 1135	Renee Nielson / R Nielson	1-13-99 1135
Renee Nielson / R Nielson	1-13-99 1300	Fed Ex	
Fed Ex		Yoder	1/14/99 1000

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples

(1) IC Anions - 9056 {Bromide, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}

Matrix *: Soil, Water, Vapor, Other Solid, Other Liquid

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

019

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-037-01

Collector: Doug Bowers/Renee Neilson	Company Contact: Fred Roeck	Telephone No.: 372-9086	Project Coordinator: WEISS, RL
Project Designation: ERDF Leachate Delisting Analysis	Sampling Location: ERDF (200 west)		SAF No.: B99-037
Ice Chest No.: ERC96-051, ERC96-053, ERC96-052, ERC96-054	Field Logbook No.: EFL 1133-7		Method of Shipment: Fed Ex
Shipped To: ~~IMAR~~ RCRA RJN 1-13-99	Offsite Property No.: A9910860, A9910861		Bill of Lading/Air Bill No.: 42357952 1413, 42357952 1424, 42357952 1435, 42357952 1446

Price Code:

Data Turnaround: ~~45 Days~~ 15 Days 8 BB 1-12-99

COA: TERDF4K117

POSSIBLE SAMPLE HAZARDS/REMARKS: 99018860

Special Handling and/or Storage: cool to 4C

Preservation	HNO3 to pH < 2	ZnAc+NaOH to pH >9 Cool	NaOH to pH >= 12 Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	H2SO4 to pH < 2 Cool 4C	Cool 4C
Type of Container	P	P	P	aG	aG	aG	aG	aG	G	aGs*
No. of Container(s)	1	1	1	2	2	2	2	2	2	3
Volume	500mL	500mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	10mL
SAMPLE ANALYSIS	See item (1) in Special Instructions	Sulfides - 9030	Total Cyanide - 9010	See item (2) in Special Instructions	Chloro-Herbicides - EPA8151	See item (3) in Special Instructions	Pest/PCBs - 8081	See item (4) in Special Instructions	Oil & Grease - 9070	See item (5) in Special Instructions

Sample No	Matrix *	Sample Date	Sample Time										
B0TL69	Water	1-12-99	0910	X	X	X	X	X	X	X	X	X	X
B0TL71	Water	1-12-99	0938	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-13-99/1135	Renee Nielson/R. Nielson	1-13-99 1135
Renee Nielson/R Nielson	1-13-99 1300	Fed Ex	
Fed Ex		Fedex	1/14/99 1000

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples

(1) ICP Metals - 6010A (TAL), ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium, Silicon, Thallium, Tin}
(2) 8310 SVOA HPLC {Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenz[a,h]anthracene}
(3) Nitrosamines - 8070 {N-Nitroso-di-n-dipropylamine, N-Nitrosodimethylamine}
(4) Semi-VOA - 8270A (App IX), Semi-VOA -- 8270A (App IX Add-On) {1,2-Diphenylhydrazine, 1,4-Dinitrobenzene, 1-Acetyl-2-thiourea, 2,5-Diaminotoluene, 2-Cyclohexyl-4,6-dinitrophenol}
(5) Alcohols, Glycols, & Ketones - 8015M {1-Butanol, Diethylether, Methanol}

Matrix *: Soil, Water, Vapor, Other Solid, Other Liquid

LABORATORY SECTION — Received By: Title: Date/Time

FINAL SAMPLE DISPOSITION — Disposal Method: Disposed By: Date/Time

020

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-037-01

Collector: Doug Bowers/Renee Neilson	Company Contact: Fred Roeck · Telephone No.: 372-9086	Project Coordinator: WEISS, RL	Price Code
Project Designation: ERDF Leachate Delisting Analysis	Sampling Location: ERDF (200 west)	SAF No.: B99-037	Data Turnaround: ~~45 Days~~ 15 Days
Ice Chest No.: ERC96-051, ERC 96-053, ERC 96-052, ERC FS 002	Field Logbook No.: EFL 1133-7	Method of Shipment: Fed Ex	
Shipped To: TMARECRA RUN 1-13-99	Offsite Property No.: A990069, A990061	Bill of Lading/Air Bill No.: 4235 7952 1413, 4235 7952 1424, 4235 7952 1435, 4235 7952 1446	
		COA: TERDF4K117	

POSSIBLE SAMPLE HAZARDS/REMARKS

9901L860

Special Handling and/or Storage: cool to 4C

Preservation	HCl Cool 4C	None										
Type of Container	aGs*	aG										
No. of Container(s)	3	1										
Volume	40mL	60 ml										
SAMPLE ANALYSIS	See item (1) in Special Instructions	Activity scan										
Sample No	Matrix *	Sample Date	Sample Time									
B0TL69	Water	1-13-99	0910	X	X							
B0TL71	Water	1-12-99	0938	X	X							
B0TL73	water	1-12-99	0700	X								

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By: Doug Bowers	Doug Bowers	1-13-99/1135
Received By: Renee Nielson/R Nielson	Renee Nielson/R Nielson	1-13-99 1135
Relinquished By: Renee Nielson/R. Nielson	Renee Nielson/R. Nielson	1-13-99 1352
Received By: Fed Ex	Fed Ex	
Relinquished By: Fed Ex	Fed Ex	
Received By: Fedex	Fedex	1/14/99 1000
Relinquished By:		
Received By:		

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples

(1) VOA - 8260A (App IX), VOA - 8260A (App IX Add-On) [1,1,2-Trichloro-1,2,2-trifluoroethane, 1,3-Butadiene, 1-Butanol, 2-Chloroethyl vinyl ether, Allyl alcohol, cis-1,2-Dichloroethylene, Crotonaldehyde, Dichloropropanol, Diethyl Ether, Ethyl Acetate, Isoprop

Matrix *: Soil, Water, Vapor, Other Solid, Other Liquid

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

021

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

FEB 1999
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD
RFW# : 9901L860
SDG/SAF#: H0338/B99-037

W.O #: 10985-001-001-9999-00
Date Received: 01-14-99

POLYNUCLEAR AROMATIC HYDROCARBONS BY HPLC

The set of samples consisted of two (2) water samples collected on 01-12-99.

The samples and their associated QC samples were prepared on 01-19-99 and analyzed by criteria set forth in EPA Method 8310 for Polynuclear Aromatic Hydrocarbon target compounds on 01-21-99.

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 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. Continuing calibration criteria were met for all continuing calibration verification standards analyzed prior to the sample extracts.
5. All surrogate recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria

Pat E

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

2-2-99
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 6 pages.

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

GLOSSARY OF PAH 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

PAH'S by HPLC / Method 8310

RFW Batch Number: **9901L860** Client: **TNU-HANFORD B99-037** Work Order: **10985-001-001-9999-00** Report Date: 01/26/99 11:44 Page: 1

	Cust ID:	B0TL69	B0TL71	B0TL71	B0TL71	BLK	BLK BS
Sample Information	RFW#:	001	002	002 MS	002 MSD	99LE0061-MB1	99LE0061-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L

Surrogate:	Triphenylene	100 %	93 %	96 %	91 %	87 %	101 %
		fl	fl	fl	fl	fl	fl
Naphthalene		18 U	18 U	86 %	74 %	18 U	82 %
Acenaphthylene		23 U	23 U	89 %	86 %	23 U	89 %
Acenaphthene		18 U	18 U	91 %	89 %	18 U	91 %
Fluorene		2.1 U	2.1 U	91 %	89 %	2.1 U	91 %
Phenanthrene		6.5 U	6.5 U	90 %	89 %	6.4 U	90 %
Anthracene		6.7 U	6.7 U	94 %	92 %	6.6 U	95 %
Fluoranthene		2.1 U	2.1 U	94 %	94 %	2.1 U	96 %
Pyrene		2.8 U	2.8 U	85 %	85 %	2.7 U	86 %
Benzo(a)anthracene		0.13 U	0.13 U	94 %	94 %	0.13 U	95 %
Chrysene		1.5 U	1.5 U	90 %	92 %	1.5 U	93 %
Benzo(b)fluoranthrene		0.18 U	0.18 U	93 %	94 %	0.18 U	96 %
Benzo(k)fluoranthrene		0.17 U	0.17 U	93 %	95 %	0.17 U	98 %
Benzo(a)pyrene		0.23 U	0.23 U	86 %	88 %	0.23 U	89 %
Dibenzo(a,h)anthracene		0.31 U	0.31 U	91 %	91 %	0.30 U	95 %
Benzo(ghi)perylene		0.78 U	0.78 U	86 %	87 %	0.76 U	89 %
Indeno(1,2,3-cd)pyrene		0.44 U	0.44 U	93 %	93 %	0.43 U	93 %

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.

01/25/99

Cust ID: **BLK BSD**

Sample Information

RFW#: **99LE0061-MB1**
Matrix: WATER
D.F.: 1.00
Units: ug/L

Surrogate:	Triphenylene	92	%

Naphthalene	82	%
Acenaphthylene	92	%
Acenaphthene	94	%
Fluorene	95	%
Phenanthrene	95	%
Anthracene	100	%
Fluoranthene	100	%
Pyrene	90	%
Benzo(a)anthracene	100	%
Chrysene	96	%
Benzo(b)fluoranthrene	99	%
Benzo(k)fluoranthrene	100	%
Benzo(a)pyrene	93	%
Dibenzo(a,h)anthracene	97	%
Benzo(ghi)perylene	92	%
Indeno(1,2,3-cd)pyrene	97	%

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
8310 ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-037

DATE RECEIVED: 01/14/99 RFW LOT # :9901L860

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TL69	001	W	99LE0061	01/12/99	01/19/99	01/21/99
B0TL71	002	W	99LE0061	01/12/99	01/19/99	01/21/99
B0TL71	002 MS	W	99LE0061	01/12/99	01/19/99	01/21/99
B0TL71	002 MSD	W	99LE0061	01/12/99	01/19/99	01/21/99

LAB QC:

BLK	MB1	W	99LE0061	N/A	01/19/99	01/21/99
BLK	MB1 BS	W	99LE0061	N/A	01/19/99	01/21/99
BLK	MB1 BSD	W	99LE0061	N/A	01/19/99	01/21/99

01/27/99

9901L860

Chain of Custody Transfer Record/Lab Work Request

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU- Hanford B99-037
Est. Final Proj. Sampling Date
Project # 10985-001-001-9999-00
Project Contact/Phone #
RECRA Project Manager OJ
QC spec Del std TAT 15 day
Date Rec'd 1/14/99 Date Due 1/29/99
Account #

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

See attachments 1 & 2

ANALYSES REQUESTED →

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	ORGANIC: VOA	BNA	Pest/PCB	Herb	Alcohols	Formaldehyde	INORG: Metal	CN
							RECRA LabNet Use Only							
							0624N	0625N	0608H	OHBSX	8310	OGCSCD	OLCSC	Met	ICNT	INORG
001	BOTL69			W	1/12/99	0910	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
002	BOTL71			↓	↓	0938	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
003	BOTL73					0700	✓									

Special Instructions:
Saj # B99-037

DATE/REVISIONS:
1.
2. See attachment 2 for
3. test definition
4.
5.
6.

Run Matrix QC

Relinquished by	Received by	Date	Time
Jeder	Jeder	1/14/99	1000

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

RECRA LabNet Use Only

Samples were:
1) Shipped ____ or Hand Delivered ____
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or
4) Labels Indicate Properly Preserved Y or
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 3.4 °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
pH, ICNO2, ICNO3 out of hold

See attachments

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

FEB 1999
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B99-037
RFW#: 9901L860
SDG/SAF#: H0338/B99-037

W.O.#: 10985-001-001-9999-00
Date Received: 01-14-99

PESTICIDE/PCB

The set of samples consisted of two (2) water samples collected on 01-12-99.

The samples and their associated QC samples were extracted on 01-18-99 and analyzed based on SW846, 3rd Edition on 01-21-99. The extraction procedure was based on method 3520 and the extracts were analyzed based on method 8081.

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

1. All cooler temperatures have 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. All surrogate recoveries were within acceptance criteria.
5. All blank spike recoveries were within acceptance criteria.
6. All matrix spike recoveries were within acceptance criteria.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

02-03-99
Date

pef\r:\group\data\pcb\01L-860.pes

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 10 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.

Recra LabNet Philadelphia

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 - Lionville Laboratory

Pesticide/PCBs by GC, CLP List

RFW Batch Number: **9901L860** Client: **TNU-HANFORD B99-037** Work Order: 10985001001 Page: 1 Report Date: 01/21/99 12:43

004

	Cust ID:	B0TL69		B0TL69		B0TL69		B0TL71		PBLKZY		PBLKZY BS	
Sample Information	RFW#:	001		001 MS		001 MSD		002		99LE0058-MB1		99LE0058-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	UG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
Surrogate:	Decachlorobiphenyl	88	%	75	%	85	%	87	%	92	%	92	%
	Tetrachloro-m-xylene	68	%	52	%	58	%	72	%	58	%	55	%
		fl		fl		fl		fl		fl		fl	
Alpha-BHC		0.050	U	0.10	U	0.10	U	0.050	U	0.050	U	0.050	U
Beta-BHC		0.050	U	0.10	U	0.10	U	0.050	U	0.050	U	0.050	U
Delta-BHC		0.050	U	0.10	U	0.10	U	0.050	U	0.050	U	0.050	U
gamma-BHC (Lindane)		0.050	U	65	%	75	%	0.050	U	0.050	U	85	%
Heptachlor		0.050	U	60	%	80	%	0.050	U	0.050	U	85	%
Aldrin		0.050	U	55	%	70	%	0.050	U	0.050	U	70	%
Heptachlor epoxide		0.050	U	0.10	U	0.10	U	0.050	U	0.050	U	0.050	U
Endosulfan I		0.050	U	0.10	U	0.10	U	0.050	U	0.050	U	0.050	U
Dieldrin		0.10	U	74	%	84	%	0.10	U	0.10	U	92	%
4,4'-DDE		0.10	U	0.20	U	0.20	U	0.10	U	0.10	U	0.10	U
Endrin		0.10	U	90	%	104	%	0.10	U	0.10	U	118	%
Endosulfan II		0.10	U	0.20	U	0.20	U	0.10	U	0.10	U	0.10	U
4,4'-DDD		0.10	U	0.20	U	0.20	U	0.10	U	0.10	U	0.10	U
Endosulfan sulfate		0.10	U	0.20	U	0.20	U	0.10	U	0.10	U	0.10	U
4,4'-DDT		0.10	U	74	%	86	%	0.10	U	0.10	U	98	%
Methoxychlor		0.50	U	1.0	U	1.0	U	0.50	U	0.50	U	0.50	U
Endrin ketone		0.10	U	0.20	U	0.20	U	0.10	U	0.10	U	0.10	U
Endrin aldehyde		0.10	U	0.20	U	0.20	U	0.10	U	0.10	U	0.10	U
alpha-Chlordane		0.050	U	0.10	U	0.10	U	0.050	U	0.050	U	0.050	U
gamma-Chlordane		0.050	U	0.10	U	0.10	U	0.050	U	0.050	U	0.050	U
Toxaphene		5.0	U	10	U	10	U	5.0	U	5.0	U	5.0	U
Aroclor-1016		1.0	U	2.0	U	2.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1221		2.0	U	4.0	U	4.0	U	2.0	U	2.0	U	2.0	U
Aroclor-1232		1.0	U	2.0	U	2.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1242		1.0	U	2.0	U	2.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1248		1.0	U	2.0	U	2.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1254		1.0	U	2.0	U	2.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1260		1.0	U	2.0	U	2.0	U	1.0	U	1.0	U	1.0	U

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

BTP 1/28/99

Recra LabNet - Lionville Laboratory
PEST/PCB ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-037

DATE RECEIVED: 01/14/99 RFW LOT # :9901L860

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TL69	001	W	99LE0058	01/12/99	01/18/99	01/21/99
B0TL69	001 MS	W	99LE0058	01/12/99	01/18/99	01/21/99
B0TL69	001 MSD	W	99LE0058	01/12/99	01/18/99	01/21/99
B0TL71	002	W	99LE0058	01/12/99	01/18/99	01/21/99

LAB QC:

PBLKZY	MB1	W	99LE0058	N/A	01/18/99	01/21/99
PBLKZY	MB1 BS	W	99LE0058	N/A	01/18/99	01/21/99

B1/21/99

RECRA LabNet Use Only
9901L860

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS (8) All

Client TNU-Hanford B99-037
Est. Final Proj. Sampling Date
Project # 10985-001-001-9999-00
Project Contact/Phone #
RECRA Project Manager OJ
QC spec Del std TAT 15 day
Date Rec'd 1/14/99 Date Due 1/29/99
Account #

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

See attachments 1 & 2

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; Alcohols; Formaldehyde; INORG: 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	0624N	0625N	0608H	OHBSX	8310	OGCSCD	OLCSC	Met	ICNTD	INORG
001	BOTL69			W	1/12/99	0910	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
002	BOTL71			↓	↓	0938	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
003	BOTL73					0700	✓									

Special Instructions:
Sag # B99-037

Run Matrix QC

DATE/REVISIONS:
1
2 See attachment 2 for
3 test definition
4
5
6

Run Matrix QC

Relinquished by	Received by	Date	Time
Jedee	Jodee	1/14/99	1000

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

RECRA LabNet Use Only

Samples were 1) Shipped or Hand Delivered
Airbill #
2) Ambient or Chilled
3) Received in Good Condition Y or
4) Labels Indicate Properly Preserved Y or
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 3.4 C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES
pH, ICNO2, ICNO3 out of hold

pH discrepancies (1)

RECRA LabNet Use Only: 9901L860

Custody Transfer Record/Lab Work Request

Attachment 1

Page 1 of 1

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU HANFORD B99-037
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: QJ
QC: SPEC Del: STD TAT: 25 DAY
Date Rec'd: 1/14/99 Date Due: 1/29/99
Account #: TNUHANFORD

Refrigerator #: 1 6

#/Type Container: Liquid / Solid — See below
Volume: Liquid / Solid
Preservatives: HCl, OHBS

ANALYSES REQUESTED

Lab ID	Client ID/Description	Matrix	Date Collected	Time Collected	VOA (8260/W)	BNA (8270)	Pest/PCB (8081)	Chlorp Herb (8151)	Total Cyanide by Ext/Extr Benzidine (Delete)	Nitrosamines (8310)	Delete	Metal ① (INORG)	ICNTD (INORG)	IPH (IOCT)	INORG ①	8315 (Carbonyls Formaldehyde Hold 2 days)	Carbohyd. (pH)	8015M (Alcohols ① 1-butanol and methanol Hold 14 days)
001	BOTL69				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
002	BOTL71				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
003	BOTL73				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

MS / MSD

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

bottle purge ✓

Original Rewritten

RECRA LabNet Use Only

Special Instructions:
Bottle Sizes
PH - 1P-125ml
TOC - 1AG-500-HCl, H2SO4
Carbonyls - 1AG-500
NONVOA by Ext. - 1AG 500ml
Mercury - 1G-500ml - HNO3
Conductivity - 1P-500ml
Anions (Br, Cl, NO3, NO2, P, SO4) 1P, 500ml
TDS - 1P-500ml
TSS - 1P-500ml
INH3N - 1P-500ml - H2SO4
Metals - 1P-500ml
Sulfides - 1P-500 - ZnAc+NaOH
CN - 1P-500 - NaOH
8310 - 2AG - 1000ml
Chlorpherb - 2AG - 1000ml
Nitrosamines - 2AG 1000
Pest/PCB - 2AG 1000
BNA - 2AG 1000
Alcohols - 3 AG
IOCR - 2G - 1000 - H2SO4
VOA - 3G 40ml - HCL

DATE/REVISIONS
1. ~~MET ① = HSL + AS, PB, SE, SI, TL, SN~~
2. ~~INORG ① = TCBR, ICCL, ICNO3, ICNO2,~~
3. ~~IPO4T, ICCN, ITDS, ITSS, INH3N,~~
4. ~~ISFD~~
5. Sof # B99-037 * Run Matrix QC #
* 4235745214134235745214354
6. 4235745214244235745214464 73.4°C

Relinquished by	Received by	Date	Time
Jeder	Jodur	1/14/99	1000

Relinquished by	Received by	Date	Time

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

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

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-037-01

Collector: Doug Bowers/Renee Neilson	Company Contact: Fred Roeck	Telephone No.: 372-9086	Project Coordinator: WEISS, RL
Price Code	Data Turnaround: ~~45 Days~~ 15 D-11		
Project Designation: ERDF Leachate Delisting Analysis	Sampling Location: ERDF (200 west)		SAF No.: B99-037
Ice Chest No.: EPC96-0531, EPC96-053, EPC96-052, EPC95-002	Field Logbook No.: EFL 1133-7		Method of Shipment: Fed Ex
Shipped To: ~~TMA~~/RCRA RJN 1-13-99	Offsite Property No.: AC99D060, AC99D061		Bill of Lading/Air Bill No.: 423579521413, 423579521424, 423579521435, 423579521446
			COA: TERDF/K117

POSSIBLE SAMPLE HAZARDS/REMARKS: 9901L860

Special Handling and/or Storage: cool to 4C

SAMPLE ANALYSIS

	Preservation	None	HCl or H2SO4 to pH < 2 Cool	Cool 4C	Cool 4C	HNO3 to pH < 2	Cool 4C	Cool 4C	Cool 4C	Cool 4C	H2SO4 to pH < 2 Cool 4C
	Type of Container	P	aG	aG	aG	G	P	P	P	P	P
	No. of Container(s)	1	1	1	1	1	1	1	1	1	1
	Volume	125mL	500 ml ~~250ml~~ BJB 1-13-99	500mL	500mL	500mL	500mL	500mL	500mL	500ml	500ml
		pH (Water) - 9040	TOC - 9060	Carbonyls - RCRA (Formaldehyde)	Non VOA by EXF/IS/MS (Bromide only)	Mercury - 7470 (CV)	Conductivity - 9050	See item (1) in Special Instructions	TDS - 160.1	TSS - 160.2	Ammonia - 350.1
Sample No	Matrix * / Sample Date / Sample Time										
1 B0TL69	Water / 1-12-99 / 0910	X	X	X	X	X	X	X	X	X	X
2 B0TL71	Water / 1-12-99 / 0938	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By	Doug Bowers	1-13-99 1135
Received By	Renee Nielson / R Nielson	1-13-99 1135
Relinquished By	Renee Nielson / R Nielson	1-13-99 1300
Received By	Fed Ex	
Relinquished By	Fedex	
Received By	Fedex	1/14/99 1000
Relinquished By		
Received By		

SPECIAL INSTRUCTIONS
** Close SDG upon receipt of samples
(1) IC Anions - 9056 {Bromide, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}

Matrix *: Soil, Water, Vapor, Other Solid, Other Liquid

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

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-037-01

Collector: Doug Bowers/Renee Neilson	Company Contact: Fred Roeck	Telephone No.: 372-9086	Project Coordinator: WEISS, RL
Project Designation: ERDF Leachate Delisting Analysis	Sampling Location: ERDF (200 west)		SAF No.: B99-037
Ice Chest No.: ERC96-051, ERC96-053, ERC96-052, ERCFS-062	Field Logbook No.: EFL 1133-7		Method of Shipment: Fed Ex
Shipped To: ~~IAMRI CRA~~ RUN 1-13-99	Offsite Property No.: A9910060, A9910061		Bill of Lading/Air Bill No.: 42357952 1413, 42357952 1424, 42357952 1435, 42357952 1446
			COA: TERDF4K117

Price Code:

Data Turnaround: ~~45 Days~~ B99 1-12-99 15 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

99012860

Special Handling and/or Storage
cool to 4C

Preservation	HNO3 to pH < 2	ZnAc+NaOH to pH > 9 Cool	NaOH to pH > 12 Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	H2SO4 to pH < 2 Cool 4C	Cool 4C
Type of Container	P	P	P	aG	aG	aG	aG	aG	G	aGs*
No. of Container(s)	1	1	1	2	2	2	2	2	2	3
Volume	500ml	500ml	1000ml	1000ml	1000ml	1000ml	1000ml	1000ml	1000ml	10ml

SAMPLE ANALYSIS

Sample No	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions	Sulfides 9030	Total Cyanide - 9010	See item (2) in Special Instructions	Chloro Herbicides - EPA8151	See item (3) in Special Instructions	PesCPCBs - 8081	See item (4) in Special Instructions	Oil & Grease 9070	See item (5) in Special Instructions
B0TL69	Water	1-12-99	0910	X	X	X	X	X	X	X	X	X	X
B0TL71	Water	1-12-99	0938	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-13-99/1135	Renee Nelson/R. Nielson	1135 1-13-99
Renee Nelson/R Nielson	1-13-99 1300	Fed Ex	
Fed Ex		Fedex	1/14/99 1000

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples

(1) ICP Metals - 6010A (TAL), ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium, Silicon, Thallium, Tin}
(2) 8310, SVOA, HPLC {Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenz[a,h]anthracene}
(3) Nitrosamines - 8070 {N-Nitroso-di-n-dipropylamine, N-Nitrosodimethylamine}
(4) Semi-VOA - 8270A (App IX), Semi-VOA -- 8270A (App IX Add-On) {1,2-Diphenylhydrazine, 1,4-Dinitrobenzene, 1-Acetyl-2-thiourea, 2,5-Dinitrotoluene, 2-Cyclohexyl-4,6-dinitrophenol}
(5) Alcohols, Glycols, & Ketones - 8015M {1-Butanol, Diethyl Ether, Methanol}

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION — Received By: _____ Title: _____ Date/Time: _____

FINAL SAMPLE DISPOSITION — Disposal Method: _____ Disposed By: _____ Date/Time: _____

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-037-01

010

Collector: Doug Bowers/Renee Neilson	Company Contact: Fred Roeck	Telephone No.: 372-9086	Project Coordinator: WEISS, RL
Price Code	Data Turnaround: ~~45 Days~~ 15 Days (OAB 1-12-99)		
Project Designation: ERDF Leachate Delisting Analysis	Sampling Location: ERDF (200 west)		SAF No.: B99-037
Ice Chest No.: ERC 96-051, ERC 96-053, ERC 96-052, ERC FS 002	Field Logbook No.: EFL 1133-7		Method of Shipment: Fed Ex
Shipped To: TMA/RECRA RN 1-13-99	Offsite Property No.: A9910060, A9900061		Bill of Lading/Air Bill No.: 4235 7952 1413, 4235 7952 1424, 4235 7952 1435, 4235 7952 1446
			COA: TERDF4K117

POSSIBLE SAMPLE HAZARDS/REMARKS

9901L860

Special Handling and/or Storage
cool to 4C

Preservation	HCl Cool 4C	None										
Type of Container	aGs*	aG										
No. of Container(s)	3	1										
Volume	40ml	60 ml										
SAMPLE ANALYSIS	See item (1) in Special Instructions	Activity scan										
Sample No	Matrix *	Sample Date	Sample Time									
B0TL69	Water	1-12-99	0910	X	X							
B0TL71	Water	1-12-99	0938	X	X			B0TL70				
B0TL73	water	1-12-99	0700	X				B0TL72				

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date Time	Received By	Date Time
Doug Bowers	1-13-99 1125	Renee Nielson/R Nielson	1-13-99 1135
Renee Nielson/R. Nielson	1-13-99 1350	Fred Roeck	
Fed Ex		Fed Ex	
		Fedex	1/14/99 1000

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples

(1) VOA - 8260A (App IX), VOA - 8260A (App IX Add On) [1,1,2-Trichloro-1,2,2-trifluoroethane, 1,3-Butadiene, 1-Butanol, 2-Chloroethyl vinyl ether, Allyl alcohol, cis-1,2-Dichloroethylene, Crotonaldehyde, Dichloropropanol, Diethyl Ether, Ethyl Acetate, Isoprop

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION — Received By — Title — Date Time

FINAL SAMPLE DISPOSITION — Disposal Method — Disposed By — Date Time

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

FEB 1999
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD
RFW# : 9901L860
SDG/SAF#: H0338/B99-037

W.O #: 10985-001-001-9999-00
Date Received: 01-14-99

FORMALDEHYDE

The set of samples consisted of two (2) water samples collected 01-12-99.

The samples and their associated QC samples were prepared on 01-15-99 and analyzed by EPA Method 8315 for Aldehydes and Ketones on 01-18,19-99.

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

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

2. All blank spike recoveries were within advisory limits (50%-150%).

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

4. Surrogates were not used in this analysis.

5. Matrix QC was not performed on this sample set. A copy of the Sample Discrepancy Report (SDR) has been enclosed in the data package.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

2-5-99
Date

R:\SHARE\LC\GCSCAN\01-860F.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 6 pages.

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OLCSC

GLOSSARY OF ~~OGCSC~~ 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 #: 99LC

Initiator: J. Rost
Date: 1/18/99
Client: TNU

RFW Batch: 99QL860, B99-037
Samples: 001, 002
Method: ~~SW846~~/MCAWW/CLP/

Parameter: ausc
Matrix: W
Prep Batch: 99LC004

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)

- Matrix QC was not preformed due to extracting prior to receiving chain and notification of QC on sample. and, subsequent expiration of extraction holdtime.

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] 1/20/99

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
X Include in Case Narrative
X Client Contacted:
Date/Person 1/19/99 Larry Johnson
__ Add
__ Cancel

5. Final Action...signature/date: [signature] 1/25/99 Other Explanation:

__ Verified re-[log][leach][extract][digest][analysis] (circle)
X 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: C. Stefanosky	__	__ Inorganic: Perrone
X	X Project Mgr: [signature]	__	__ GC/LC: Rycklak/Schnell
__	X Section Mgr: Siery/Wesson/Daniels	__	__ MS: LeMin/Taylor/Kasdras
__	X QA (file): Racioppi	__	__ Log-in: Toder
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Schnell/Doughty/Kauffman	__	__ Other: _____

L-WI-006/E-08/98

Recra LabNet - Lionville Laboratory

HPLC scan

RFW Batch Number: **9901L860** Client: **TNU-HANFORD B99-037** Work Order: **10985-001-001-9999-00** Report Date: 01/20/99 12:33 Page: 004

	Cust ID:	B0TL69	B0TL71	BLK	BLK BS	BLK BSD
Sample Information	RFW#:	001	002	99LLC004-MB1	99LLC004-MB1	99LLC004-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L
Formaldehyde		12 U	12 U	12 U	111 %	111 %

01/28/99

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
LCSC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-037

DATE RECEIVED: 01/14/99 RFW LOT # :9901L860

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TL69	001	W	99LLC004	01/12/99	01/15/99	01/19/99
B0TL71	002	W	99LLC004	01/12/99	01/15/99	01/19/99
LAB QC:						
BLK	MB1	W	99LLC004	N/A	01/15/99	01/18/99
BLK	MB1 BS	W	99LLC004	N/A	01/15/99	01/18/99
BLK	MB1 BSD	W	99LLC004	N/A	01/15/99	01/19/99

01/28/99

RECRA LabNet Use Only
9901L860

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS (8) All

Client TNU - Hanford B99-037
Est. Final Proj. Sampling Date
Project # 10985-001-001-9999-00
Project Contact/Phone #
RECRA Project Manager OJ
QC spec Del std TAT 15 day
Date Rec'd 1/14/99 Date Due 1/29/99
Account #

Refrigerator #																
#/Type Container	Liquid															
	Solid															
Volume	Liquid															
	Solid															
Preservatives																
ANALYSES REQUESTED →		ORGANIC							INORG							
		VOA	BNA	Pest/ PCB	Herb		Alcohols	Formaldehyde	Metal	CN						

See attachments 1 & 2

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	0624N	0625N	0608H	OHBSX	8310	0GCSCD	OLCSC	Met	ICNTD	INORG
001	BOTL69			W	1/12/99	0910	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
002	BOTL71			⊥	⊥	0938	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
003	BOTL73					0700	✓									

Special Instructions:

Saj # B99-037

Run Matrix QC

DATE/REVISIONS:

1
2. See attachment 2 for
3. test definition
4
5
6

Run Matrix QC

Relinquished by	Received by	Date	Time
Jedee	Jooler	1/14/99	1000

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

RECRA LabNet Use Only

Samples were
1) Shipped ___ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received in Good Condition Y or
4) Labels Indicate Properly Preserved Y or
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 3.4 C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES
pH, ICNO2, ICNO3 out of hold

See comments (1)

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a division of Recra Environmental, Inc.
Virtual Laboratories Everywhere

FEB 1999
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B99-037
RFW#: 9901L860
SDG/SAF#: H0338/B99-037

W.O.#: 10985-001-001-9999-00
Date Received: 01-14-99

HERBICIDE

The set of samples consisted of two (2) water samples collected on 01-12-99.

The samples and their associated QC samples were extracted on 01-20-99 and analyzed based on SW846, 3rd Edition on 01-29-99. The extraction and analysis procedure was based on method 8151.

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 analysis have been met. The samples were extracted one day out of hold. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

3. The method blank was below the reporting limits for all target compounds.

4. All surrogate recoveries were within acceptance criteria.

5. All blank spike recoveries were within acceptance criteria.

6. All matrix spike recoveries were within acceptance criteria.

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

8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

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 13 pages.

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9. Retention time criteria were exceeded for some target compounds. Larger retention time windows were used to evaluate the associated data. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

02-15-99
Date

pef\r:\group\data\her\01L-860.her

GLOSSARY OF HERBICIDE 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.

I = Interference.

SUFFIXES

BS = Indicates blank spike in which reagent grade water is spiked with the 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.

ABBREVIATIONS

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

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Reported.

SP = Indicates spiked compound.

Recra LabNet Philadelphia Sample Discrepancy Report (SDR) SDR #: 99EX012

Initiator: L. Kauffman
Date: 2/10/99
Client: TNU

RFW Batch: 9901L860
Samples: 001, 002
Method: SW846/MCAWW/CLP/

Parameter: OHLO
Matrix: Water
Prep Batch: 99LE0067

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
X 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)

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)

incl in Case Narrative

4. Project Manager Instructions...signature/date: [signature] 2/15/99

__ 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] 2/15/99 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: C. Stefanosky	__	__ Inorganic: Perrone
I	X Project Mgr: Ornette J.	2	X GC/LC: Rycklak/Schnell
__	X Section Mgr: Siery/Wesson/Daniels	__	__ MS: LeMin/Taylor/Kasdras
__	X QA (file): Racioppi	__	__ Log-in: Toder
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Schnell/Doughty/Kauffman	__	__ Other: _____

L-WI-006/E-08/98

Recra LabNet Philadelphia Sample Discrepancy Report (SDR) SDR #: 996C020

Initiator: Billie Pasto RFW Batch: 9901L860 Parameter: 01HBCX
Date: 1/31/99 Samples: all Matrix: water
Client: TUC Method: SW846/MCAWW/CLP/ Prep Batch: 99CE006

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)

The final CCV had an RT shift on the confirmation column. Larger RT windows were used to evaluate the data. No hits were found

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description: Note in Narrative

__ 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]

__ 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] 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: G. Stefanosky	__	__ Inorganic: Perrone
__	X Project Mgr: [signature]	__	__ GC/LC: Rycklak/Schnell
__	X Section Mgr: Siery/Wesson/Daniels	__	__ MS: LeMin/Taylor/Kasdras
__	X QA (file): Racioppi	__	__ Log-in: Toder
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Schnell/Doughty/Kauffman	__	__ Other: _____

L-WI-006/E-08/98

Recra LabNet - Lionville Laboratory

Herbicides, Special List

Report Date: 02/05/99 15:39

RFW Batch Number: **9901L860** Client: **TNU-HANFORD B99-037** Work Order: 10985001001 Page: 1

90

	Cust ID:	B0TL69	B0TL71	B0TL71	B0TL71	PBLKAD	PBLKAD BS
Sample Information	RFW#:	001	002	002 MS	002 MSD	99LE0067-MB1	99LE0067-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate:	DCAA	93 %	90 %	90 %	69 %	94 %	90 %
Dalapon		5.0 U	5.0 U	96 %	79 %	5.0 U	96 %
Dicamba		2.0 U	2.0 U	96 %	75 %	2.0 U	97 %
Dichloroprop		5.0 U	5.0 U	95 %	76 %	5.0 U	99 %
2,4-D		1.0 U	1.0 U	84 %	64 %	1.0 U	97 %
2,4,5-TP (Silvex)		0.50 U	0.50 U	66 %	49 %	0.50 U	67 %
2,4,5-T		0.50 U	0.50 U	112 %	98 %	0.50 U	108 %
2,4-DB		5.0 U	5.0 U	84 %	69 %	5.0 U	93 %
Dinoseb		0.50 U	0.50 U	65 %	51 %	0.50 U	77 %

JWK 2/11/99

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
HBGX ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-037

DATE RECEIVED: 01/14/99 RFW LOT # :9901L860

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TL69	001	W	99LE0067	01/12/99	01/20/99	01/29/99
B0TL71	002	W	99LE0067	01/12/99	01/20/99	01/29/99
B0TL71	002 MS	W	99LE0067	01/12/99	01/20/99	01/29/99
B0TL71	002 MSD	W	99LE0067	01/12/99	01/20/99	01/29/99

LAB QC:

PBLKAD	MB1	W	99LE0067	N/A	1/20/99	01/29/99
PBLKAD	MB1 BS	W	99LE0067	N/A	01/20/99	01/29/99

2/11/99

9901L860

Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU-Hanford B99-037
Est. Final Proj. Sampling Date
Project # 10985-001-001-9999-00
Project Contact/Phone #
RECRA Project Manager OJ
QC spec Del std TAT 15 day
Date Rec'd 1/14/99 Date Due 1/29/99
Account #

Refrigerator #
#/Type Container Liquid / Solid
Volume Liquid / Solid
Preservatives

see attachments 1 & 2

ANALYSES REQUESTED

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624N (ORGANIC VOA)	0625N (BNA)	0608H (Pest/PCB)	0HERX (Herb)	8310	0GCSCD (Alcohols)	0LCSC (Formaldehyde)	Met (INORG Metal)	ICNTO (CN)	INORG
001	BOTL69			W	1/12/99	0910	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
002	BOTL71			↓	↓	0938	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
003	BOTL73					0700	✓									

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

Special Instructions:
Sag # B99-037

DATE/REVISIONS:
1.
2. See attachment 2 for
3. test definition
4.
5.
6.

Run Matrix QC

Relinquished by	Received by	Date	Time
Jackie	Fowler	1/14/99	1000

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

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 3.4 °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES
pH, ICNO2, ICNO3 out of hold

RECRA LabNet Use Only

9901L860

Custody Transfer Record/Lab Work Request

Attachment 1

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client TNU HANFORD B99-037

Est. Final Proj. Sampling Date

Project # 10985-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager CJ

QC SPEC Del STD TAT 15 DAY

Date Rec'd 1/14/99 Date Due 1/29/99

Account # TNUHANFORD

Refrigerator #		1	6														
#/Type Container	Liquid																
	Solid																
Volume	Liquid		See below														
	Solid																
Preservatives				COOH	OHBS												
ANALYSES REQUESTED →		ORGANIC								INORG							
		VOA	BNA	Pest/PCB	Chlord Herb	Nitrosamines				Metal	CN			Carbonyls Formaldehyde 2 day hold time	Conductivity (pH)	Alcohols ①	1-purge and reserve

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

RECRA LabNet Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8624N	8625N	8605X	8150	Delete	8330	Delete	METH ①	ICNTD	IPH IOCT	INORG ①	8315		8015M
001	BOTL69						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
002	BOTL71						✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
003	BOTL73						✓													

bottle purge ✓

Original Rewritten

Special Instructions:

Bottle Sizes

PH - 1P-125ml
TOC - 1AG-500-HCL
Carbonyls - 1AG-500
NONVOA by EXT. . . 1AG 500ml
Mercury - 1G-500ml - HNO3
Conductivity - 1P - 500ml
Anions (Br, Cl, NO3, NO2, P, SO4) 1P, 500ml
TDS - 1P - 500ml

TSS - 1P-500ml
INH3N - 1P-500ml - H2SO4
metals - 1P-500ml
Sulfides - 1P-500 - ZnAC+NaOH
CN - 1P-500 - NaOH
8310 - 2AG - 1000ml
chlorherb - 2AG - 1000ml
Nitrosamines - 2AG 1000
Pest/PCB - 2AG 1000
BNA - 2AG 1000

Alcohols - 3 AG
IOGR - 2G - 1000 - H2SO4
VOA - 3G - 40ml - HCL

DATE/REVISIONS

1. ~~Met ① = HSL + AS, PB, SE, SI, TL, SN~~
2. ~~INORG ① = TCBR, TCN, ICNO3, ICNO2,~~
3. ~~IPO4T, ICSO4, ITDS, ITSS, INH3N,~~
4. ~~IGFD~~
5. Sof # B99-037 * Run Matrix QC *
6. * 4235745214 13 4235745214 35 4235745214 24 4235745214 46 73.4°C

Relinquished by	Received by	Date	Time
Jedee	Jodie	1/14/99	1000

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES

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

IPH, ICNO2, ICNO3 out

COC Attachment 2

[redacted] - Batch# 9901L860

624N1= 8260A AppIX + 8260A AppIX Addon:

1,1,2-Trichloro-1,2,2-trifluoroethane,
1,3-Butadiene,
1-Butanol,
2-Chloroethyl vinyl ether,
Allyl alcohol,
cis-1,2-Dichloroethylene,
Crotonaldehyde,
Dichloropropanol,
Diethyl ether,
Ethyl acetate,
Isoprop

625N1=8270A AppIX + 8270A AppIX Addon:

1,2-Diphenylhydrazine,
1,4-Dinitrobenzene,
1-Acetyl-2-thiourea,
2,5-Diaminotoluene,
2-Cyclohexyl-4,6-dinitrophenol

MET1=TAL + [redacted], Si, [redacted], Sn

OGCSCO= 1-Butanol,
Methanol

OLCSC=Formaldehyde

INORG1= ICBR,
ICFL,
ICNO3,
ICN02,
IPO4T,
ICSO4,
ITDS,
ITSS,
INH3N,
ISFD,
IOGGR,
ISPCD,
IPH,
IOTC

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-037-01

11

Collector: Doug Bowers/Renee Neilson	Company Contact: Fred Roeck	Telephone No.: 372-9086	Project Coordinator: WEISS, RL
Price Code	Data Turnaround: DZB 1-12-99 ~~45 Days~~ 15 Days		
Project Designation: ERDF Leachate Delisting Analysis	Sampling Location: ERDF (200 west)		SAF No.: B99-037
Ice Chest No.: ERC96-0051, ERC96-053, ERC96-052, ERC96-002	Field Logbook No.: EFL 1133-7		Method of Shipment: Fed Ex
Shipped To: ~~TMA~~/RECRA RIN 1-13-99	Offsite Property No.: A99D060, A99D061		Bill of Lading/Air Bill No.: 423579521413, 423579521424, 423579521435, 423579521446
			COA: TERDF4K117

POSSIBLE SAMPLE HAZARDS/REMARKS: 9901L860

Special Handling and/or Storage: cool to 4C

SAMPLE ANALYSIS

Preservation	None	HCl or H2SO4 to pH <2 Coo	Cool 4C	Cool 4C	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C	Cool 4C	H2SO4 to pH 2 Cool 4C
Type of Container	P	aG	aG	aG	G	P	P	P	P	P
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500ml ~~250ml~~ DZB 1-12-99	500ml	500ml	500mL	500mL	500mL	500mL	500mL	500mL
	pH (Water) - 9040	TOC - 9060	Carbonyls - 8315 (Formaldehyde) 1	NonVOA by TXT/TS/MS (Bromide only)	Mercury - 7470 (CV)	Conductivity - 9050	See item (1) on Special Instructions	TDS - 160.1	TSS - 160.2	Ammonia - 350.1

Sample No.	Matrix *	Sample Date	Sample Time	pH (Water) - 9040	TOC - 9060	Carbonyls - 8315 (Formaldehyde) 1	NonVOA by TXT/TS/MS (Bromide only)	Mercury - 7470 (CV)	Conductivity - 9050	See item (1) on Special Instructions	TDS - 160.1	TSS - 160.2	Ammonia - 350.1
1 B0TL69	Water	1-12-99	0910	X	X	X	X	X	X	X	X	X	X
2 B0TL71	Water	1-12-99	0938	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By: Doug Bowers	Doug Bowers	1-12-99 1135
Received By: Renee Nielson	R Nielson	1-13-99 1135
Relinquished By: Renee Nielson	R Nielson	1-13-99 1300
Received By: Fed Ex		
Relinquished By: Fed Ex		
Received By: Fedex		1/14/99 1000
Relinquished By		
Received By		

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples

(1) IC Anions - 9056 {Bromide, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}

Matrix *: Soil, Water, Vapor, Other Solid, Other Liquid

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

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-037-01

12

Collector	Doug Bowers/Renee Neilson
Company Contact	Fred Roeck
Telephone No.	372-9086
Project Coordinator	WEISS, RL
Price Code	
Data Turnaround	BAB 1-12-99 ~~45 Days~~ 15 Days
Project Designation	ERDF Leachate Delisting Analysis
Sampling Location	ERDF (200 west)
SAF No.	B99-037
Ice Chest No.	ERC96-051, ERC96-053, ERC96-052, ERC96-062
Field Logbook No.	EFL 1133-7
Method of Shipment	Fed Ex
Shipped To	~~HMA~~ RECRA RUN 1-13-99
Offsite Property No.	A9960060, A9960061
Bill of Lading/Air Bill No.	42357952 1413, 42357952 1424, 42357952 1435, 42357952 1446
COA	TERDF4K117

POSSIBLE SAMPLE HAZARDS/REMARKS

99012860

Special Handling and/or Storage
cool to 4C

Preservation	HNO3 to pH < 2	ZnAc+NaOH to pH >9 Cool	NaOH to pH >= 12 Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	H2SO4 to pH 2 Cool 4C	Cool 4C
Type of Container	P	P	P	aG	aG	aG	aG	aG	G	aGs*
No. of Container(s)	1	1	1	2	2	2	2	2	2	3
Volume	500mL	500mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	1000mL	10mL
SAMPLE ANALYSIS	See item (1) in Special Instructions	Sulfides - 9030	Total Cyanide - 9010	See item (2) in Special Instructions	Chloro Herbicides - EPA8151	See item (3) in Special Instructions	Pest/PCBs - 8081	See item (4) in Special Instructions	Oil & Grease 9070	See item (5) in Special Instructions

Sample No.	Matrix *	Sample Date	Sample Time										
B0TL69	Water	1-12-99	0910	X	X	X	X	X	X	X	X	X	X
B0TL71	Water	1-12-99	0938	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-13-99/1135	Renee Nelson/R. Nielson	1-13-99 1135
Renee Nelson/R Nielson	1-13-99 1300	Fed Ex	
Fed Ex		Fedex	1/14/99 1000

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples

(1) ICP Metals - 6010A (TAL), ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium, Silicon, Thallium, Tin}
(2) 8310 SVOA HPLC {Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenz[a,h]anthracene}
(3) Nitrosamines - 8070 {N-Nitroso-di-n-dipropylamine, N-Nitrosodimethylamine}
(4) Semi-VOA - 8270A (App IX), Semi-VOA -- 8270A (App IX Add On) {1,2-Diphenylhydrazine, 1,4-Dinitrobenzene, 1-Acetyl-2-thiourea, 2,5-Diaminotoluene, 2-Cyclohexyl-4,6-dinitrophenol}
(5) Alcohols, Glycols, & Ketones - 8015M {1-Butanol, Diethylether, Methanol}

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION — Received By — Title — Date/Time

FINAL SAMPLE DISPOSITION — Disposal Method — Disposed By — Date/Time

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-037-01

13

Collector Doug Bowers/Rence Neilson	**Company Contact** Fred Roeck	**Telephone No.** 372-9086	**Project Coordinator** WEISS, RL
Project Designation ERDF Leachate Delisting Analysis	**Sampling Location** ERDF (200 west)		**SAF No.** B99-037
Ice Chest No. ERC96-051, ERC 96-053, ERC 96-052, ERC FS 002	**Field Logbook No.** EFL 1133-7		**Method of Shipment** Fed Ex
Shipped To ~~TMA/RI CRA~~ RJN 1-13-99	**Offsite Property No.** A990069, A990061		**Bill of Lading/Air Bill No.** 4235 7952 1413, 4235 7952 1424, 4235 7952 1435, 4235 7952 1446

Price Code

Data Turnaround ~~45 Days~~ 15 Days 0813 1-12-99

COA TERDF4K117

POSSIBLE SAMPLE HAZARDS/REMARKS

9901L860

Special Handling and/or Storage cool to 4C

Preservation	HCl Cool 4C	None										
Type of Container	aGs*	aG										
No. of Container(s)	3	1										
Volume	40mL	60 ml										
SAMPLE ANALYSIS	See item (1) in Special Instructions	Activity scan										
Sample No	Matrix *	Sample Date	Sample Time									
B0TL69	Water	1-12-99	0910	X	X							
B0TL71	Water	1-12-99	0938	X	X			B0TL70				
B0TL73	water	1-12-99	0700	X				B0TL72				

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

Relinquished By	Date Time	Received By	Date Time
Doug Bowers	1-13-99/1135	R Nielson/R Nielson	1-13-99 1135
R Nielson/R. Nielson	1-13-99 1300	Fed Ex	Date/Time
Fed Ex	Date Time	Fedex	Date/Time 1/14/99 1000
Relinquished By	Date Time	Received By	Date Time

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples

(1) VOA - 8260A (App IX), VOA - 8260A (App IX Add-On) [1,1,2-Trichloro-1,2,2-trifluoroethane, 1,3-Butadiene, 1-Butanol, 2-Chloroethyl vinyl ether, Allyl alcohol, cis-1,2-Dichloroethylene, Crotonaldehyde, Dichloropropanol, Diethyl Ether, Ethyl Acetate, Isoprop

Matrix *

Soil
Water
Vapor
Other Solid
Other Liquid

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

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

FEB 1999
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Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-037
RFW# : 9901L860
SDG/SAF #: H0338/ B99-037

W.O. #: 10985-001-001-9999-00
Date Received: 01-14-99

GC/MS VOLATILE

Three (3) water samples were collected on 01-12-99.

The samples and their associated QC samples were analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8260A for TCL Volatile target compounds on 01-25-99.

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 required holding time for analysis was met.
3. Non-target compounds were not detected in these 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. The method blank contained the common laboratory contaminant Methylene Chloride at a level less than the CRQL.
8. A spectral search was conducted for the compounds 1,3-Butadiene, Allyl Alcohol, Crotonaldehyde, Dichloropropanol, and Isopropanol; these compounds were not identified in these samples.

By J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

02-03-99
Date

som\group\data\ voa\tnu01860.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.

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.

Recra LabNet - Lionville Laboratory
Volatiles by GC/MS, Appendix IX List
Report Date: 02/02/99 09:32

RFW Batch Number: **9901L860** Client: **TNU-HANFORD B99-037** Work Order: 10985001001 Page: 1a

	Cust ID:	B0TL69		B0TL71		B0TL73		B0TL73		B0TL73		VBLKRQ	
Sample Information	RFW#:	001		002		003		003 MS		003 MSD		99LVX004-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	UG/L		UG/L		UG/L		UG/L		UG/L		UG/L	
Surrogate Recovery	1,2 Dichloroethane d4	93	%	93	%	94	%	90	%	100	%	94	%
	Toluene-d8	105	%	100	%	101	%	96	%	102	%	100	%
	Bromofluorobenzene	96	%	96	%	97	%	92	%	98	%	96	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride		3	JB	2	JB	2	BJ	3	BJ	3	BJ	3	J
Acetone		10	U	10	U	10	U	10	U	10	U	10	U
Carbon Disulfide		5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	5	U	5	U	98	%	83	%	5	U
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
trans-1,2-Dichloroethene		5	U	5	U	5	U	5	U	5	U	5	U
cis-1,2-Dichloroethene		5	U	5	U	5	U	5	U	5	U	5	U
Chloroform		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	5	U	5	U	5	U
Vinyl Acetate		10	U	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene		5	U	5	U	5	U	92	%	92	%	5	U
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Benzene		5	U	5	U	5	U	97	%	98	%	5	U
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **9901L860** Client: **TNU-HANFORD B99-037** Work Order: 10985001001 Page: 1b

Cust ID:	B0TL69		B0TL71		B0TL73		B0TL73		B0TL73		VBLKRQ	
RFW#:	001		002		003		003 MS		003 MSD		99LVX004-MB1	
1,1,2,2-Tetrachloroethane	5	U	5	U	5	U	5	U	5	U	5	U
Toluene	5	U	5	U	5	U	98	%	99	%	5	U
Chlorobenzene	5	U	5	U	5	U	96	%	96	%	5	U
Ethylbenzene	5	U	5	U	5	U	5	U	5	U	5	U
Styrene	5	U	5	U	5	U	5	U	5	U	5	U
Xylene (total)	5	U	5	U	5	U	5	U	5	U	5	U
Acrolein	20	U	20	U	20	U	20	U	20	U	20	U
Acrylonitrile	5	U	5	U	5	U	5	U	5	U	5	U
Trichlorofluoromethane	5	U	5	U	5	U	5	U	5	U	5	U
Dichlorodifluoromethane	10	U	10	U	10	U	10	U	10	U	10	U
Acetonitrile	20	U	20	U	20	U	20	U	20	U	20	U
Iodomethane	5	U	5	U	5	U	5	U	5	U	5	U
Propionitrile (Ethyl Cyanide)	50	U	50	U	50	U	50	U	50	U	50	U
3-Chloropropene	10	U	10	U	10	U	10	U	10	U	10	U
Methacrylonitrile	10	U	10	U	10	U	10	U	10	U	10	U
Dibromomethane	10	U	10	U	10	U	10	U	10	U	10	U
Isobutyl alcohol	100	U	100	U	100	U	100	U	100	U	100	U
1,2-Dibromoethane	10	U	10	U	10	U	10	U	10	U	10	U
1,1,1,2-Tetrachloroethane	5	U	5	U	5	U	5	U	5	U	5	U
1,2,3-Trichloropropane	10	U	10	U	10	U	10	U	10	U	10	U
trans-1,4-Dichloro-2-butene	20	U	20	U	20	U	20	U	20	U	20	U
1,2-Dibromo-3-chloropropane	10	U	10	U	10	U	10	U	10	U	10	U
2-Chloro-1,3-Butadiene	5	U	5	U	5	U	5	U	5	U	5	U
2-Chloroethylvinylether	10	U	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichlorotrifluoroethane	10	U	10	U	0.7	J	3	J	2	J	10	U
Ethyl acetate	10	U	10	U	10	U	10	U	10	U	10	U
Diethylether	10	U	10	U	10	U	10	U	10	U	10	U
N-Butanol	250	U	250	U	250	U	250	U	250	U	250	U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory
Volatiles by GC/MS, Appendix IX List

RFW Batch Number: **9901L860** Client: **TNU-HANFORD B99-037** Work Order: 10985001001 Page: 2a Report Date: 02/02/99 09:32

Cust ID: **VBLKRQ BS**

Sample Information

RFW#: **99LVX004-MB1**
Matrix: WATER
D.F.: 1.00
Units: UG/L

Surrogate Recovery	1,2-Dichloroethane-d4	94	%
	Toluene-d8	100	%
	Bromofluorobenzene	100	%

==========fl==========fl==========fl==========fl==========fl==========fl

Chloromethane	10	U
Bromomethane	10	U
Vinyl Chloride	10	U
Chloroethane	10	U
Methylene Chloride	2	BJ
Acetone	10	U
Carbon Disulfide	5	U
1,1-Dichloroethene	92	%
1,1-Dichloroethane	5	U
trans-1,2-Dichloroethene	5	U
cis-1,2-Dichloroethene	5	U
Chloroform	5	U
1,2-Dichloroethane	5	U
2-Butanone	10	U
1,1,1-Trichloroethane	5	U
Carbon Tetrachloride	5	U
Vinyl Acetate	10	U
Bromodichloromethane	5	U
1,2-Dichloropropane	5	U
cis-1,3-Dichloropropene	5	U
Trichloroethene	93	%
Dibromochloromethane	5	U
1,1,2-Trichloroethane	5	U
Benzene	98	%
Trans-1,3-Dichloropropene	5	U
Bromoform	5	U
4-Methyl-2-pentanone	10	U
2-Hexanone	10	U
Tetrachloroethene	5	U

*= Outside of EPA CLP QC limits.

Cust ID: **VBLKRQ BS**

RFW#: **99LVX004-MB1**

1,1,2,2-Tetrachloroethane	5	U
Toluene	98	%
Chlorobenzene	93	%
Ethylbenzene	5	U
Styrene	5	U
Xylene (total)	5	U
Acrolein	20	U
Acrylonitrile	5	U
Trichlorofluoromethane	5	U
Dichlorodifluoromethane	10	U
Acetonitrile	20	U
Iodomethane	5	U
Propionitrile (Ethyl Cyanide)	50	U
3-Chloropropene	10	U
Methacrylonitrile	10	U
Dibromomethane	10	U
Isobutyl alcohol	100	U
1,2-Dibromoethane	10	U
1,1,1,2-Tetrachloroethane	5	U
1,2,3-Trichloropropane	10	U
trans-1,4-Dichloro-2-butene	20	U
1,2-Dibromo-3-chloropropane	10	U
2-Chloro-1,3-Butadiene	5	U
2-Chloroethylvinylether	10	U
1,1,2-Trichlorotrifluoroethane	10	U
Ethyl acetate	10	U
Diethylether	10	U
N-Butanol	250	U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-037

DATE RECEIVED: 01/14/99 RFW LOT # :9901L860

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TL69	001	W	99LVX004	01/12/99	N/A	01/25/99
B0TL71	002	W	99LVX004	01/12/99	N/A	01/25/99
B0TL73	003	W	99LVX004	01/12/99	N/A	01/25/99
B0TL73	003 MS	W	99LVX004	01/12/99	N/A	01/25/99
B0TL73	003 MSD	W	99LVX004	01/12/99	N/A	01/25/99

LAB QC:

VBLKRQ	MB1	W	99LVX004	N/A	N/A	01/25/99
VBLKRQ	MB1 BS	W	99LVX004	N/A	N/A	01/25/99

RECRA LabNet Use Only
99011860

Custody Transfer Record/Lab Work Request

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS (8) All

Client TNU-Hanford B99-037
Est. Final Proj. Sampling Date
Project # 10985-001-001-9999-00
Project Contact/Phone #
RECRA Project Manager OJ
QC spec Del std TAT 15 day
Date Rec'd 1/14/99 Date Due 1/29/99
Account #

Refrigerator #
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives

See attachments 1 & 2

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; Alcohols; Formaldehyde; INORG: 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	0624N	0625N	0608H	OHBGX	8310	OGCSCO	OLCSC	Met	ICNT	INORG
001	BOTL69			W	1/12/99	0910	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
002	BOTL71			↓	↓	0938	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
003	BOTL73					0700	✓									

Special Instructions:
Sag # B99-037

Run Matrix QC

DATE/REVISIONS:
1
2. See attachment 2 for
3. test definition
4
5
6

Run Matrix QC

Relinquished by	Received by	Date	Time
Jackie	Jorler	1/14/99	1000

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

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 3.4 C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES
pH, ICNO2, ICNO3 out of hold

See comments (1)

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

FEB ... Data Log In

Recra LabNet Philadelphia
Analytical Report

Client: TNU-HANFORD B99-037
RFW #: 9901L860
SDG/SAF #: H0338/B99-037

W.O. #: 10985-001-001-9999-00
Date Received: 01-14-99

SEMIVOLATILE

Two (2) water samples were collected on 01-12-99.

The samples and their associated QC samples were extracted on 01-18-99 and analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8270B for Appendix IX Semivolatile target compounds on 02-04,05-99.

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

3. Non-target compounds were not detected in these samples.

4. Two (2) of thirty-six (36) surrogate recoveries were outside EPA QC limits. However, EPA CLP surrogate recovery criteria were met (i.e., no more than one outlier per fraction {acid and base neutral} and no recoveries less than 10%).

5. Four (4) of twenty-two (22) matrix spike recoveries were outside EPA QC limits.

6. Three (3) of eleven (11) blank spike recoveries were outside EPA QC limits.

7. A spectral search was conducted for the compounds 1-Acetyl-2-thiourea, 2,5-Diaminotoluene, and 2-Cyclohexyl-4,6-Dinitrophenol; these compounds were not identified in the samples.

for J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

02-12-99
Date

som\gorup\data\bna\tnu01860.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 18 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, Appendix IX List

RFW Batch Number: **9901L860** Client: **TNU-HANFORD B99-037** Work Order: 10985001001 Report Date: 02/11/99 14:21 Page: 1a

	Cust ID:	B0TL69	B0TL71	B0TL71	B0TL71	SBLKPD	SBLKPD BS
Sample Information	RFW#:	001	002	002 MS	002 MSD	99LE0059-MB1	99LE0059-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	ug/L	ug/L	ug/L	ug/L	ug/L	ug/L
Surrogate Recovery	Nitrobenzene-d5	67 %	68 %	54 %	36 %	59 %	36 %
	2-Fluorobiphenyl	66 %	63 %	51 %	34 * %	61 %	35 * %
	p-Terphenyl-d14	68 %	63 %	51 %	37 %	57 %	36 %
	Phenol-d5	60 %	55 %	29 %	20 %	46 %	17 %
	2-Fluorophenol	60 %	57 %	48 %	31 %	57 %	34 %
	2,4,6-Tribromophenol	59 %	49 %	47 %	30 %	44 %	32 %
	Phenol	10 U	10 U	53 %	30 %	10 U	38 %
	bis(2-Chloroethyl)ether	10 U	10 U	20 U	20 U	10 U	10 U
	2-Chlorophenol	10 U	10 U	53 %	34 %	10 U	37 %
	1,3-Dichlorobenzene	10 U	10 U	20 U	20 U	10 U	10 U
	1,4-Dichlorobenzene	10 U	10 U	44 %	30 * %	10 U	30 * %
	Benzyl alcohol	10 U	10 U	20 U	20 U	10 U	10 U
	1,2-Dichlorobenzene	10 U	10 U	20 U	20 U	10 U	10 U
	2-Methylphenol	10 U	10 U	20 U	20 U	10 U	10 U
	bis(2-Chloroisopropyl)ether	10 U	10 U	20 U	20 U	10 U	10 U
	4-Methylphenol	10 U	10 U	20 U	20 U	10 U	10 U
	N-Nitroso-Di-n-propylamine	10 U	10 U	58 %	38 * %	10 U	46 %
	Hexachloroethane	10 U	10 U	20 U	20 U	10 U	10 U
	Nitrobenzene	10 U	10 U	20 U	20 U	10 U	10 U
	Isophorone	10 U	10 U	20 U	20 U	10 U	10 U
	2-Nitrophenol	10 U	10 U	20 U	20 U	10 U	10 U
	2,4-Dimethylphenol	10 U	10 U	20 U	20 U	10 U	10 U
	Benzoic acid	25 U	25 U	50 U	50 U	25 U	25 U
	bis(2-Chloroethoxy)methane	10 U	10 U	20 U	20 U	10 U	10 U
	2,4-Dichlorophenol	10 U	10 U	20 U	20 U	10 U	10 U
	1,2,4-Trichlorobenzene	10 U	10 U	49 %	33 * %	10 U	32 * %
	Naphthalene	10 U	10 U	20 U	20 U	10 U	10 U
	4-Chloroaniline	10 U	10 U	20 U	20 U	10 U	10 U
	Hexachlorobutadiene	10 U	10 U	20 U	20 U	10 U	10 U
	4-Chloro-3-methylphenol	10 U	10 U	51 %	29 %	10 U	36 %
	2-Methylnaphthalene	10 U	10 U	20 U	20 U	10 U	10 U
	Hexachlorocyclopentadiene	10 U	10 U	20 U	20 U	10 U	10 U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **9901L860** Client: **TNU-HANFORD B99-037** Work Order: 10985001001 Page: 1b

5

Cust ID:	B0TL69	B0TL71	B0TL71	B0TL71	SBLKPD	SBLKPD BS
RFW#:	001	002	002 MS	002 MSD	99LE0059-MB1	99LE0059-MB1
2,4,6-Trichlorophenol	10 U	10 U	20 U	20 U	10 U	10 U
2,4,5-Trichlorophenol	25 U	25 U	50 U	50 U	25 U	25 U
2-Chloronaphthalene	10 U	10 U	20 U	20 U	10 U	10 U
2-Nitroaniline	25 U	25 U	50 U	50 U	25 U	25 U
Dimethylphthalate	10 U	10 U	20 U	20 U	10 U	10 U
Acenaphthylene	10 U	10 U	20 U	20 U	10 U	10 U
2,6-Dinitrotoluene	10 U	10 U	20 U	20 U	10 U	10 U
3-Nitroaniline	25 U	25 U	50 U	50 U	25 U	25 U
Acenaphthene	10 U	10 U	53 %	34 * %	10 U	35 * %
2,4-Dinitrophenol	25 U	25 U	50 U	50 U	25 U	25 U
4-Nitrophenol	25 U	25 U	40 %	25 %	25 U	25 %
Dibenzofuran	10 U	10 U	20 U	20 U	10 U	10 U
2,4-Dinitrotoluene	10 U	10 U	51 %	34 %	10 U	33 %
Diethylphthalate	10 U	10 U	20 U	20 U	10 U	10 U
4-Chlorophenyl-phenylether	10 U	10 U	20 U	20 U	10 U	10 U
Fluorene	10 U	10 U	20 U	20 U	10 U	10 U
4-Nitroaniline	25 U	25 U	50 U	50 U	25 U	25 U
4,6-Dinitro-2-methylphenol	25 U	25 U	50 U	50 U	25 U	25 U
N-Nitrosodiphenylamine (1)	10 U	10 U	20 U	20 U	10 U	10 U
4-Bromophenyl-phenylether	10 U	10 U	20 U	20 U	10 U	10 U
Hexachlorobenzene	10 U	10 U	20 U	20 U	10 U	10 U
Pentachlorophenol	25 U	25 U	54 %	29 %	25 U	32 %
Phenanthrene	10 U	10 U	20 U	20 U	10 U	10 U
Anthracene	10 U	10 U	20 U	20 U	10 U	10 U
Di-n-Butylphthalate	0.5 J	0.5 J	20 U	20 U	10 U	10 U
Fluoranthene	10 U	10 U	20 U	20 U	10 U	10 U
Pyrene	10 U	10 U	56 %	35 %	10 U	36 %
Butylbenzylphthalate	10 U	10 U	20 U	20 U	10 U	10 U
3,3'-Dichlorobenzidine	10 U	10 U	20 U	20 U	10 U	10 U
Benzo(a)anthracene	10 U	10 U	20 U	20 U	10 U	10 U
Chrysene	10 U	10 U	20 U	20 U	10 U	10 U
bis(2-Ethylhexyl)phthalate	10 U	10 U	1 J	20 U	10 U	10 U
Di-n-Octyl phthalate	10 U	10 U	20 U	20 U	10 U	10 U
Benzo(b)fluoranthene	10 U	10 U	20 U	20 U	10 U	10 U
Benzo(k)fluoranthene	10 U	10 U	20 U	20 U	10 U	10 U
Benzo(a)pyrene	10 U	10 U	20 U	20 U	10 U	10 U
Indeno(1,2,3-cd)pyrene	10 U	10 U	20 U	20 U	10 U	10 U
Dibenzo(a,h)anthracene	10 U	10 U	20 U	20 U	10 U	10 U
Benzo(g,h,i)perylene	10 U	10 U	20 U	20 U	10 U	10 U
1,4-Dioxane	10 U	10 U	20 U	20 U	10 U	10 U

*= Outside of EPA CLP QC limits.

Cust ID:	B0TL69		B0TL71		B0TL71		B0TL71		SBLKPD		SBLKPD BS	
RFW#:	001		002		002 MS		002 MSD		99LE0059-MB1		99LE0059-MB1	
Methyl methacrylate	10	U	10	U	20	U	20	U	10	U	10	U
Pyridine	10	U	10	U	20	U	20	U	10	U	10	U
N-Nitrosodimethylamine	10	U	10	U	20	U	20	U	10	U	10	U
Ethyl methacrylate	10	U	10	U	20	U	20	U	10	U	10	U
2-Picoline	10	U	10	U	20	U	20	U	10	U	10	U
N-Nitrosomethylethylamine	10	U	10	U	20	U	20	U	10	U	10	U
Methyl methanesulfonate	10	U	10	U	20	U	20	U	10	U	10	U
N-Nitrosodiethylamine	10	U	10	U	20	U	20	U	10	U	10	U
Ethyl methanesulfonate	10	U	10	U	20	U	20	U	10	U	10	U
Aniline	10	U	10	U	20	U	20	U	10	U	10	U
Pentachloroethane	10	U	10	U	20	U	20	U	10	U	10	U
3-Methylphenol	10	U	10	U	20	U	20	U	10	U	10	U
N-Nitrosopyrrolidine	10	U	10	U	20	U	20	U	10	U	10	U
Acetophenone	10	U	10	U	20	U	20	U	10	U	10	U
N-Nitrosomorpholine	10	U	10	U	20	U	20	U	10	U	10	U
o-Toluidine	10	U	10	U	20	U	20	U	10	U	10	U
N-Nitrosopiperidine	50	U	50	U	100	U	100	U	50	U	50	U
a,a-Dimethylphenethylamine	10	U	10	U	20	U	20	U	10	U	10	U
2,6-Dichlorophenol	10	U	10	U	20	U	20	U	10	U	10	U
Hexachloropropene	10	U	10	U	20	U	20	U	10	U	10	U
p-Phenylenediamine	10	U	10	U	20	U	20	U	10	U	10	U
N-Nitroso-di-n-butylamine	10	U	10	U	20	U	20	U	10	U	10	U
Safrole	10	U	10	U	20	U	20	U	10	U	10	U
1,2,4,5-Tetrachlorobenzene	10	U	10	U	20	U	20	U	10	U	10	U
Isosafrole	10	U	10	U	20	U	20	U	10	U	10	U
1,4-Naphthoquinone	10	U	10	U	20	U	20	U	10	U	10	U
1,3-Dinitrobenzene	10	U	10	U	20	U	20	U	10	U	10	U
Pentachlorobenzene	10	U	10	U	20	U	20	U	10	U	10	U
1-Naphthylamine	10	U	10	U	20	U	20	U	10	U	10	U
2-Naphthylamine	10	U	10	U	20	U	20	U	10	U	10	U
2,3,4,6-Tetrachlorophenol	10	U	10	U	20	U	20	U	10	U	10	U
1,3,5-Trinitrobenzene	10	U	10	U	20	U	20	U	10	U	10	U
Diallate	10	U	10	U	20	U	20	U	10	U	10	U
Phenacetin	10	U	10	U	20	U	20	U	10	U	10	U
Diphenylamine	10	U	10	U	20	U	20	U	10	U	10	U
5-Nitro-o-toluidine	10	U	10	U	20	U	20	U	10	U	10	U
4-Aminobiphenyl	10	U	10	U	20	U	20	U	10	U	10	U
Pronamide	10	U	10	U	20	U	20	U	10	U	10	U
2-sec-Butyl-4,6-dinitrophenol	50	U	50	U	100	U	100	U	50	U	50	U
Pentachloronitrobenzene	50	U	50	U	100	U	100	U	50	U	50	U

*= Outside of EPA CLP QC limits.

Cust ID:	B0TL69		B0TL71		B0TL71		B0TL71		SBLKPD		SBLKPD BS	
RFW#:	001		002		002 MS		002 MSD		99LE0059-MB1		99LE0059-MB1	
4-Nitroquinoline-1-oxide	20	U	20	U	40	U	40	U	20	U	20	U
Methapyrilene	10	U	10	U	20	U	20	U	10	U	10	U
Aramite	20	U	20	U	40	U	40	U	20	U	20	U
Chlorobenzilate	10	U	10	U	20	U	20	U	10	U	10	U
p-Dimethylaminoazobenzene	10	U	10	U	20	U	20	U	10	U	10	U
3,3'-Dimethylbenzidine	10	U	10	U	20	U	20	U	10	U	10	U
2-Acetylaminofluorene	10	U	10	U	20	U	20	U	10	U	10	U
7,12-Dimethylbenz(a)anthracene	10	U	10	U	20	U	20	U	10	U	10	U
Hexachlorophene	100	U	100	U	200	U	200	U	100	U	100	U
3-Methylcholanthrene	10	U	10	U	20	U	20	U	10	U	10	U
1,2-Diphenylhydrazine	10	U	10	U	20	U	20	U	10	U	10	U
1,4-Dinitrobenzene	10	U	10	U	20	U	20	U	10	U	10	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.

B0TL69

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-037

Matrix: (soil/water) WATER Lab Sample ID: 9901L860-001

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A020410

Level: (low/med) LOW Date Received: 01/14/99

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 01/18/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/04/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 3

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	CHLORINATED UNKNOWN	7.25	3	J
2.	UNKNOWN	17.40	4	J
3.	BROMOCIL	20.98	20	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0TL71

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-037

Matrix: (soil/water) WATER Lab Sample ID: 9901L860-002

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A020411

Level: (low/med) LOW Date Received: 01/14/99

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 01/18/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/04/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 4

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	8.08	5	J
2.	UNKNOWN	11.90	3	J
3.	UNKNOWN	17.40	3	J
4.	BROMOCIL	20.98	20	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKPD

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-037

Matrix: (soil/water) WATER Lab Sample ID: 99LE0059-MB1

Sample wt/vol: 1000 (g/mL) ML Lab File ID: A020414

Level: (low/med) LOW Date Received: 01/18/99

% Moisture: _____ decanted: (Y/N)__ Date Extracted: 01/18/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 02/05/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH: 7.0

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	17.26	5	J
2.	UNKNOWN	21.45	4	J
3.	UNKNOWN	22.55	5	J
4.	ALKANE	23.24	4	J
5.	UNKNOWN	23.71	4	J

Recra LabNet - Lionville Laboratory
BNA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-037

DATE RECEIVED: 01/14/99 RFW LOT # :9901L860

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TL69	001	W	99LE0059	01/12/99	01/18/99	02/04/99
B0TL71	002	W	99LE0059	01/12/99	01/18/99	02/04/99
B0TL71	002 MS	W	99LE0059	01/12/99	01/18/99	02/04/99
B0TL71	002 MSD	W	99LE0059	01/12/99	01/18/99	02/04/99

LAB QC:

SBLKPD	MB1	W	99LE0059	N/A	01/18/99	02/05/99
SBLKPD	MB1 BS	W	99LE0059	N/A	01/18/99	02/05/99

RECRA LabNet Use Only
9901L860

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

(8) All

Client: TNU-Hanford B99-037
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: spec Del: std TAT: 15 day
Date Rec'd: 1/14/99 Date Due: 1/29/99
Account #:

Refrigerator #:
#/Type Container: Liquid / Solid
Volume: Liquid / Solid
Preservatives:

See attachments 1 & 2

ANALYSES REQUESTED ►

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb		Alcohols	Formaldehyde	INORG Metal	CN
								RECRA LabNet Use Only								
								0624N	0625N	0608H	OHBGX	8310	OGCSC	OLCSC	MetD	ICNTD	INORG
S - Soil	001	BOTL69			W	1/12/99	0910	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SE - Sediment	002	BOTL71			↓	↓	0938	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SO - Solid	003	BOTL73					0700	✓									
SL - Sludge																	
W - Water																	
O - Oil																	
A - Air																	
DS - Drum Solids																	
DL - Drum Liquids																	
L - EP/TCLP Leachate																	
WI - Wipe																	
X - Other																	
F - Fish																	

Special Instructions:
Saj # B99-037

Run Matrix QC

DATE/REVISIONS:
1.
2. See attachment 2 for
3. test definition
4.
5.
6.

Run Matrix QC

Relinquished by	Received by	Date	Time
Jackie	Jordan	1/14/99	1000

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

RECRA LabNet Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill #
2) Ambient or Chilled
3) Received in Good Condition Y or
4) Labels Indicate Properly Preserved Y or
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 3.4 C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES
pH, ICNO2, ICNO3 out of hold

pH Requirement (N)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-037-01

13

Collector: Doug Bowers/Renee Neilson	Company Contact: Fred Roeck	Telephone No.: 372-9086	Project Coordinator: WEISS, RL
Project Designation: ERDF Leachate Delisting Analysis	Sampling Location: ERDF (200 west)		SAF No.: B99-037
Ice Chest No.: EFC96-0051, EFC96-053, EFC96-052, EFC95-007	Field Logbook No.: EFL 1133-7		Method of Shipment: Fed Ex
Shipped To: ~~TMA~~/RECRA RUN 1-13-99	Offsite Property No.: AC99D060, AC99D061		Bill of Lading/Air Bill No.: 423579521413, 423579521424, 423579521435, 423579521446
			COA: TERDF4K117

Price Code:

Data Turnaround: ~~45 Days~~ 15 D.W. 1-12-99

POSSIBLE SAMPLE HAZARDS/REMARKS: 9901L869

Special Handling and/or Storage: cool to 4C

Preservation	None	HCl or H2SO4 to pH <2 Cool	Cool 4C	Cool 4C	HNO3 to pH <2	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	H2SO4 to pH 2 Cool 4C
Type of Container	P	aG	aG	aG	G	P	P	P	P	P	P
No. of Container(s)	1	1	1	1	1	1	1	1	1	1	1
Volume	125mL	500mL ~~250mL~~ DZB 1-12-99	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL	500mL
SAMPLE ANALYSIS	pH (Water) - 9040	TOC - 9060	Carbonyls - 8315 (Formaldehyde)	Non VOA by EXTENSIVE (Headspace)	Mercury - 7470 (CVA)	Conductivity - 9050	See item (1) in Special Instructions	TDS - 160.1	TSS - 160.2	Ammonia - 350.1

Sample No.	Matrix *	Sample Date	Sample Time	pH (Water) - 9040	TOC - 9060	Carbonyls - 8315 (Formaldehyde)	Non VOA by EXTENSIVE (Headspace)	Mercury - 7470 (CVA)	Conductivity - 9050	See item (1) in Special Instructions	TDS - 160.1	TSS - 160.2	Ammonia - 350.1
1 B0TL69	Water	1-12-99	0910	X	X	X	X	X	X	X	X	X	X
2 B0TL71	Water	1-12-99	0938	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers / Doug Bowers	1-13-99 / 1135	Renee Nielson / R Nielson	1-13-99 / 1135
Renee Nielson / R Nielson	1-13-99 / 1300	Fed Ex	
Fed Ex		Yoder	1/14/99 1000

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples

(1) IC Anions - 9056 {Bromide, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}

Matrix *: Soil, Water, Vapor, Other Solid, Other Liquid

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

[illegible] CONTROLLED SAMPLE ANALYSIS REQUEST

B99-037-01

Collector: Doug Bowers/Renee Neilson	Company Contact: Fred Roeck	Telephone No.: 372-9086	Project Coordinator: WEISS, RL
Price Code	Data Turnaround: B99 1-12-99 ~~45 Days~~ 15 Days		
Project Designation: ERDF Leachate Delisting Analysis	Sampling Location: ERDF (200 west)		SAF No.: B99-037
Ice Chest No.: ERC96-051, ERC 96-053, ERC 96-052, ERC96-062	Field Logbook No.: EFL 1133-7		Method of Shipment: Fed Ex
Shipped To: ~~HAZ~~RECRA RUN 1-13-99	Offsite Property No.: A9610060, A9610061		Bill of Lading/Air Bill No.: 423579521413, 423579521424, 423579521435, 423579521446
			COA: TERDF4K117

POSSIBLE SAMPLE HAZARDS/REMARKS

9901L860

Special Handling and/or Storage: cool to 4C

SAMPLE ANALYSIS

Preservation	HNO3 to pH < 2	ZnAc+NaOH to pH >9 Cool	NaOH to pH >= 12 Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	H2SO4 to pH 2 Cool 4C	Cool 4C
Type of Container	P	P	P	aG	aG	aG	aG	aG	G	aGs*
No. of Container(s)	1	1	1	2	2	2	2	2	2	1
Volume	500mL	500ml	1000ml	1000ml	1000mL	1000mL	1000mL	1000ml	1000ml	10ml
	See item (1) in Special Instructions	Sulfides 9030	Total Cyanide - 9010	See item (2) in Special Instructions	Chloro-Herbicides - EPA8151	See item (3) in Special Instructions	Pest/PCBs - 8081	See item (4) in Special Instructions	oil & Grease 9070	See item (5) in Special Instructions

Sample No	Matrix *	Sample Date	Sample Time										
B0TL69	Water	1-12-99	0910	X	X	X	X	X	X	X	X	X	X
B0TL71	Water	1-12-99	0938	X	X	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-13-99/1135	Renee Nielson/R. Nielson	1-13-99 1135
Renee Nielson/R Nielson	1-13-99 1200	Fedex	
Fedex		Fedex	1/14/99 1000

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples

(1) ICP Metals - 6010A (TAL), ICP Metals - 6010A (Add-on) {Arsenic, Lead, Selenium, Silicon, Thallium, Tin}
(2) 8310 SVOA HPLC {Benzo(a)anthracene, Benzo(b)fluoranthene, Dibenz[a,h]anthracene}
(3) Nitrosamines - 8070 {N-Nitroso-di-n-dipropylamine, N-Nitrosodimethylamine}
(4) Semi-VOA - 8270A (App IX), Semi-VOA -- 8270A (App IX Add-On) {1,2-Diphenylhydrazine, 1,4-Dinitrobenzene, 1-Acetyl-2-thiourea, 2,5-Diaminotoluene, 2-Cyclohexyl-4,6-dinitrophenol}
(5) Alcohols, Glycols & Ketones - 8015M {1-Butanol, Diethylether, Methanol}

Matrix *: Soil, Water, Vapor, Other Solid, Other Liquid

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

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-037-01

Collector: Doug Bowers/Renee Neilson	Company Contact: Fred Roeck	Telephone No.: 372-9086	Project Coordinator: WEISS, RL
Project Designation: ERDF Leachate Delisting Analysis	Sampling Location: ERDF (200 west)		SAF No.: B99-037
Ice Chest No.: ERC96-051, ERC 96-053, ERC 96-052, ERC FS 002	Field Logbook No.: EFL 1133-7		Method of Shipment: Fed Ex
Shipped To: TSA/RECRA RJN 1-13-99	Offsite Property No.: A9900660, A9900661		Bill of Lading/Air Bill No.: 42357952 1413, 42357952 1424, 42357952 1435, 42357952 1446

Price Code:

Data Turnaround: ~~45 Days~~ 15 Days

COA: TERDF4K117

POSSIBLE SAMPLE HAZARDS/REMARKS: 99012860

Special Handling and/or Storage: cool to 4C

Preservation	HCl Cool 4C	None											
Type of Container	aGs*	aG											
No. of Container(s)	1	1											
Volume	40mL	1.0 L											
SAMPLE ANALYSIS	See item (1) in Special Instructions	Activity scan											

Sample No	Matrix *	Sample Date	Sample Time										
B0TL69	Water	1-13-99	0910	X	X								
B0TL71	Water	1-13-99	0938	X	X			B0TL70					
B0TL73	water	1-12-99	0700	X				B0TL72					

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date Time	Received By	Date Time
Doug Bowers	1-13-99/1135	Renee Nielson/R Nielson	1-13-99 1135
Renee Nielson/R. Nielson	1-13-99 1352	Fed Ex	Date/Time
Fedex	Date Time	Fedex	1/14/99 1000
Relinquished By	Date Time	Received By	Date Time

SPECIAL INSTRUCTIONS

** Close SDG upon receipt of samples

(1) VOA - 8260A (App IX), VOA - 8260A (App IX Add-On) [1,1,2-Trichloro-1,2,2-trifluoroethane, 1,3-Butadiene, 1-Butanol, 2-Chloroethyl vinyl Ether, Allyl alcohol, cis-1,2-Dichloroethylene, Crotonaldehyde, Dichloropropanol, Diethyl Ether, Ethyl Acetate, Isoprop

Matrix *: Soil, Water, Vapor, Other Solid, Other Liquid

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

GAMMA-RAY ENERGY ANALYSIS REPORT

Therme Hanford Inc.
Radiological Counting Facility THI - RCF

BOTL 71

Project	ERDF Leachate	
Customer ID	BOTL72 Water	
RCF ID	RCF5180	
	Sample time, date	938 1/12/99
	Analysis date	1/12/99

Isotope		Activity pCi/gm	2 s err	Ci/gm
K40	<	1.1e+00		1.1e-12
Co60	<	9.8e-02		9.8e-14
I129	<	1.1e+00		1.1e-12
Cs137	<	1.8e-02		1.8e-14
Eu152	<	5.5e-01		5.5e-13
Eu154	<	3.4e-01		3.4e-13
Eu155	<	2.7e-01		2.7e-13
Th232dau	<	3.4e-01		3.4e-13
U235	<	7.2e-02		7.2e-14
U238	<	3.4e+01		3.4e-11
U238dau	<	7.4e-02		7.4e-14
Np237	<	2.6e-01		2.6e-13
Am241	<	1.6e-01		1.6e-13
Tot Act Gam (pCi/gm)		0.0e+00	Ci/gm	0.0e+00
Y/Sr-90	<	N/R		
Gross Alpha	<	8.3e-02		8.3e-14
Gross Beta	<	4.6e-01		4.6e-13 Reported as 137-Cs Betas.
AEA total	<	N/R		

Total Activity (pCi/gm) 1.0e+00
(Ci/gm) 1.0e-12

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.

S.W. & HMH [illegible] 1-13-99
Radiological analyst Date

Albert I. Davis 1/13/99
Radiological Manager Date

Post-it® Fax Note 7671 | Date 1/13/99 | # of pages ▶ 2
To Doug Barnes | From A. I. Davis
Co./Dept. | Co.
Phone # | Phone # 373-9731
Fax # 372-9487 | Fax #

GAMMA-RAY ENERGY ANALYSIS REPORT

Thermo Hanford Inc.
Radiological Counting Facility THI - RCF

BOTL69

Project	ERDF Leachate		
Customer ID	BOTL70	Water	
RCF ID	RCF8179		
	Sample time, date	910	1/12/99
	Analysis date		1/12/99

Isotope		Activity pCi/gm	2 s err	Ci/gm
K40	<	1.2e+00		1.2e-12
Co60	<	7.4e-02		7.4e-14
I129	<	8.8e-01		8.8e-13
Cs137	<	1.3e-01		1.3e-13
Eu152	<	6.8e-01		6.8e-13
Eu154	<	1.8e-01		1.8e-13
Eu155	<	2.4e-01		2.4e-13
Th232dau	<	1.3e-01		1.3e-13
U235	<	6.2e-01		6.2e-13
U238	<	1.2e+01		1.2e-11
U238dau	<	6.5e-01		6.5e-13
Np237	<	1.2e-01		1.2e-13
Am241	<	1.7e-01		1.7e-13
Tot Act Gam (pCi/gm)		0.0e+00	Ci/gm	0.0e+00
Y/Sr-90	<	N/R		
Gross Alpha	<	2.5e-01		2.5e-13
Gross Beta	<	1.0e+00		1.0e-12 Reported as 137-Cs Betas.
AEA total	<	N/R		

Total Activity (pCi/gm) 2.0e+00
(Ci/gm) 2.0e-12

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.

Th232dau 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.

Radiological analyst — 1-13-99 Date

Albert I. Davis
Radiological Manager — 1/13/99 Date

COC Attachment 2

[redacted] - Batch# 9901L860

624N1= 8260A AppIX + 8260A AppIX Addon:

1,1,2-Trichloro-1,2,2-trifluoroethane,
1,3-Butadiene,
1-Butanol,
2-Chloroethyl vinyl ether,
Allyl alcohol,
cis-1,2-Dichloroethylene,
Crotonaldehyde,
Dichloropropanol,
Diethyl ether,
Ethyl acetate,
Isoprop

625N1=8270A AppIX + 8270A AppIX Addon:

1,2-Diphenylhydrazine,
1,4-Dinitrobenzene,
1-Acetyl-2-thiourea,
2,5-Diaminotoluene,
2-Cyclohexyl-4,6-dinitrophenol

MET1=TAL + [redacted], Si, [redacted], Sn

OGCSCO= 1-Butanol,
Methanol

OLCSC=Formaldehyde

INORG1= ICBR,
ICFL,
ICNO3,
ICN02,
IPO4T,
ICSO4,
ITDS,
ITSS,
INH3N,
ISFD,
IOGGR,
ISPCD,
IPH,
IOTC

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Virtual Laboratories Everywhere

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Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD
RFW# : 9901L860
SDG/SAF#: H0338/B99-037

W.O #: 10985-001-001-9999-00
Date Received: 01-14-99

GC SCAN

The set of samples consisted of two (2) water samples collected on 01-12-99.

The samples and their associated QC samples were prepared on 01-20-99 and analyzed by methodology based on EPA Method 8015B for Methanol and Butanol on 01-20-99.

1. The cooler temperature has been recorded on the chain-of-custody.
2. All required holding times for analysis were met.
3. All initial calibrations associated with this data set were within acceptance criteria.
4. Continuing calibration criteria were met for all continuing calibration verification standards analyzed prior to the samples.
5. Surrogates were not used in this analysis.
6. All blank spike recoveries were within acceptance criteria of 50%-150%.
7. All matrix spike recoveries were within acceptance criteria of 50%-150%.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

2-5-99
Date

R:\SHARE\LC\GCSCAN\01-860a.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 5 pages.

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

GLOSSARY OF OGCSC 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
GC SCAN

RFW Batch Number: **9901L860** Client: **TNU-HANFORD B99-037** Work Order: **10985-001-001-9999-00** Report Date: 01/29/99 11:28 Page: 3

	Cust ID:	B0TL69	B0TL69	B0TL69	B0TL71	BLK	BLK BS
Sample Information	RFW#:	001	001 MS	001 MSD	002	99LLC005-MB1	99LLC005-MB1
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Methanol		6.5 U	103 %	105 %	6.5 U	6.5 U	102 %
Butanol		5.6 U	99 %	102 %	5.6 U	5.6 U	99 %

QA 1/29/99

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
GCSC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-037

DATE RECEIVED: 01/14/99 RFW LOT # :9901L860

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TL69	001	W	99LLC005	01/12/99	01/20/99	01/20/99
B0TL69	001 MS	W	99LLC005	01/12/99	01/20/99	01/20/99
B0TL69	001 MSD	W	99LLC005	01/12/99	01/20/99	01/20/99
B0TL71	002	W	99LLC005	01/12/99	01/20/99	01/20/99

LAB QC:

BLK	MB1	W	99LLC005	N/A	01/20/99	01/20/99
BLK	MB1 BS	W	99LLC005	N/A	01/20/99	01/20/99

9901L860

Chain of Custody Record/Lab Work Request

Page 1 of 1

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU - Hanford B99-037
Est. Final Proj. Sampling Date
Project # 10985-001-001-9999-00
Project Contact/Phone #
RECRA Project Manager OJ
QC spec Del std TAT 15 days
Date Rec'd 1/14/99 Date Due 1/29/99
Account #

Refrigerator #
#/Type Container Liquid / Solid
Volume Liquid / Solid
Preservatives

See attachments 1 & 2

ANALYSES REQUESTED

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb		Alcohols	Formaldehyde	INORG Metal	CN
								RECRA LabNet Use Only								
								0624N	0625N	0608H	0HBGX	8310	0GCSCD	OLCSC	Met	ICNT	INORG
	001	BOTL69			W	1/12/99	0910	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	002	BOTL71			↓	↓	0938	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	003	BOTL73					0700	✓									

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

Special Instructions:
Sa# B99-037

DATE/REVISIONS:
1.
2. See attachment 2 for
3. test definition
4.
5.
6.

Run Matr. x QC

Relinquished by	Received by	Date	Time
Jedee	Jodee	1/14/99	1000

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

RECRA LabNet Use Only

Samples were:
1) Shipped ____ or Hand Delivered ____
Airbill # ____
2) Ambient or Chilled
3) Received in Good Condition Y or
4) Labels Indicate Proper Preservation Y or
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
Cooler Temp 3.4 °C

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES
pH, ICNO2, ICNO3 out of hold

See attachments (1)