

H1031

0054047



**RECRA
ENVIRONMENTAL
INC.**

Chemical and Environmental Measurement Information



**Recra LabNet Philadelphia
Analytical Report**

**Client : TNU-HANFORD B00-068
RFW# : 0009L519
SDG# : H1031
SAF# : B00-068**

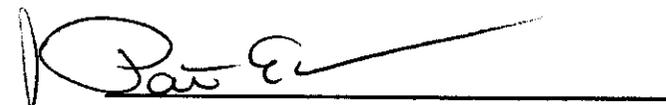
**W.O. # : 10985-001-001-9999-00
Date Received: 09-08-00**



INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 1 soil sample.
2. The sample was prepared and analyzed in accordance with the methods checked on the attached glossary.
3. Sample holding times as required by the method and/or contract were met with the exception of Total Cyanide which was analyzed past hold and Sulfide which was received 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.
7. The matrix spike recoveries were within the 75-125% control limits.
8. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit.
9. Results for solid samples are reported on a dry weight basis.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

EDMC



J. Michael Taylor
 Vice President
 Philadelphia Analytical Laboratory

10-4-00
Date

njp109-519
The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 11 pages.

Recra LabNet Philadelphia

WET CHEMISTRY
METHODS GLOSSARY FOR SOIL/SOLIDS SAMPLE ANALYSIS

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% Ash	___ D2216-80		
% Moisture	___ D2216-80		___ ILMO4.0 (e)
% Solids	✓ D2216-80		___ ILMO4.0 (e)
% Volatile Solids	___ D2216-80		
ASTM Extraction in Water	___ D3987-81/85		
BTU	___ D240-87		
CEC		___ 9081	___ c
Chromium VI		___ 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		___ 1110(mod) ___ 9045C	
Sulfide, Total		✓ 9010B/9014	___ ILMO4.0 (e)
Sulfide, Reactive		___ Section 7.3/9014	
Halides, Extractable Organic		___ 9020B	___ EPA 600/4/84-008
Halides, Total		___ 9020B	___ EPA 600/4/84-008
EP Toxicity		___ 1310A	
Flash Point		___ 1010	
Ignitability		___ 1010	
Oil & Grease		___ 9071A	
Carbon, Total Organic		___ 9060	___ Lloyd Kahn (mod)
Oxygen Bomb Prep for Anions	___ D240-87(mod)	___ 5050	
Petroleum Hydrocarbons, Total Recoverable		___ 9071	___ EPA 418.1
pH, Soil		✓ 9045C	
Sulfide, Reactive		___ Section 7.3/9030B	
Sulfide		✓ 9030B(mod)	
Specific Gravity	___ D1429-76C/	___ D5057-90	
Sulfur, Total		___ 9056	
Synthetic Preparation Leach		___ 1312	
Paint Filter		9095A	
Other: <i>Nitrate</i>		Method: <i>EPA 300.0</i>	
Other:		Method	

Recra LabNet Philadelphia
METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

MB = Method or Preparation Blank.

MS = Matrix Spike.

MSD = Matrix Spike Duplicate.

REP = Sample Replicate

LC = Laboratory Control Sample.

NC = Not calculated.

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.
2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).
3. Test Methods for Evaluating Solid Waste (USEPA SW-846).
 - a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).
 - b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).
 - c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).
 - d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).
 - e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.
 - f. Code of Federal Regulations.

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INORGANICS DATA SUMMARY REPORT 09/28/00

CLIENT: TNU-HANFORD B00-068
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0009LS19

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	BOYN00	% Solids	89.6	%	0.01	1.0
		Nitrate by IC	1.6	MG/KG	1.4	1.0
		Cyanide, Total	0.54 u	MG/KG	0.54	1.0
		pH	9.1	SOIL PH	0.01	1.0
		Sulfide	40.6 u	MG/KG	40.6	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/28/00

CLIENT: TNU-HANFORD B00-068
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0009LS19

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	00LCC058-MB1	Nitrate by IC	1.2	u MG/KG	1.2	1.0
BLANK1	00LCC85-MB1	Cyanide, Total	0.50	u MG/KG	0.50	1.0
BLANK10	00LSD034-MB1	Sulfide	1.0	u MG/KG	1.0	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 09/28/00

CLIENT: TNU-MANFORD B00-068

RECRA LOT #: 0009L519

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	BOYW00	Nitrate by IC	29	1.6	28	96.7	1.0
		Cyanide, Total	5.2	0.54u	5.2	98.4	1.0
		Sulfide	373	8.1	436	83.8	1.0
BLANK10	00LCC058-MB1	Nitrate by IC	25	1.2 u	25	100.1	1.0
BLANK10	00LSD034-MB1	Sulfide	9.2	1.0 u	10.5	87.6	1.0

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INORGANICS PRECISION REPORT 09/28/00

CLIENT: TNU-HANFORD B00-068

RECRA LOT #: 0009L519

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

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-001REP	BOYW00	% Solids	89.6	88.5	1.2	1.0
		Nitrate by IC	1.6	1.6	3.5	1.0
		Cyanide, Total	0.54u	0.46u	NC	1.0
		pH	9.1	8.9	1.3	1.0
		Sulfide	40.6 u	39.0 u	NC	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 09/28/00

CLIENT: TNU-HANFORD B00-068

RECRA LOT #: 0009L519

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

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
LCSS1	00LCC85-LCS1	Cyanide, Total LCS	1.9	2.0	MG/KG	96.8
LCSS2	00LCC85-LCS2	Cyanide, Total LCS	10	10	MG/KG	103.4

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B00-068

DATE RECEIVED: 09/08/00

RFW LOT # :0009L519

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOYW00						
% SOLIDS	001	S	00L*S140	08/28/00	09/11/00	09/12/00
% SOLIDS	001 REP	S	00L*S140	08/28/00	09/11/00	09/12/00
NITRATE BY IC	001	S	00LCC058	08/28/00	09/26/00	09/26/00
NITRATE BY IC	001 REP	S	00LCC058	08/28/00	09/26/00	09/26/00
NITRATE BY IC	001 MS	S	00LCC058	08/28/00	09/26/00	09/26/00
TOTAL CYANIDE	001	S	00LCC85	08/28/00	09/18/00	09/18/00
TOTAL CYANIDE	001 REP	S	00LCC85	08/28/00	09/18/00	09/18/00
TOTAL CYANIDE	001 MS	S	00LCC85	08/28/00	09/18/00	09/18/00
PH	001	S	00LPH076	08/28/00	09/11/00	09/11/00
PH	001 REP	S	00LPH076	08/28/00	09/11/00	09/11/00
SULFIDE	001	S	00LSD034	08/28/00	09/19/00	09/19/00
SULFIDE	001 REP	S	00LSD034	08/28/00	09/19/00	09/19/00
SULFIDE	001 MS	S	00LSD034	08/28/00	09/19/00	09/19/00

LAB QC:

NITRATE BY IC	MB1	S	00LCC058	N/A	09/26/00	09/26/00
NITRATE BY IC	MB1 BS	S	00LCC058	N/A	09/26/00	09/26/00
TOTAL CYANIDE	LCS L	S	00LCC85	N/A	09/18/00	09/18/00
TOTAL CYANIDE	LCS L	S	00LCC85	N/A	09/18/00	09/18/00
TOTAL CYANIDE	MB1	S	00LCC85	N/A	09/18/00	09/18/00
SULFIDE	MB1	S	00LSD034	N/A	09/19/00	09/19/00
SULFIDE	MB1 BS	S	00LSD034	N/A	09/19/00	09/19/00

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B00-068-41	Page 1 of 1
Collector Johansen / <i>Buehler</i>	Company Contact Dave Weeks	Telephone No. 372-9524	Project Coordinator TRENT, SJ		Price Code 8L	Data Turnaround 21 Days
Project Designation 200 Area Groundwater Well Drilling Waste Designation for		Sampling Location 200 Area Groundwater Drilling		SAF No. B00-068	Air Quality <input type="checkbox"/>	
Ice Chest No. <i>SM1526 (10FB)</i>	Field Logbook No. EL 1516	COA XL0008LMHC	Method of Shipment Federal Express			
Shipped To TMA/RECRA <i>RECRA</i>	Offsite Property No. <i>A04031Z</i>		Bill of Lading/Air Bill No. <i>42357953-884Z</i>			

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	Cool 4C	Cool 4C	None	None				
	Type of Container	aG	aG	aG	aG	aG	aG				
	No. of Container(s)	1	1	1	1	1	1				
	Special Handling and/or Storage	Volume	1L	120mL	250mL	250mL	250mL	250mL			

SAMPLE ANALYSIS				See item (1) in Special Instructions.	IC Anions - 300.0 (Nitrate)	Semi-VOA - 8270A (TCL); Semi-VOA - 8270A (Add-On) (m-Cresol)	VOA - 8260A (TCL)	ICP Metals - 6010A (Supertrace); Mercury - 7471 - (CV)	pH (Soil) - 9045				
Sample No.	Matrix *	Sample Date	Sample Time										
BOYWOOD	SOIL	<i>1/28/00</i>	<i>1006</i>		X	X	X	X	X				

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By <i>M. Buehler</i>	Date/Time <i>1/25/00</i>	Received By <i>Stouder</i>	Date/Time <i>1/25/00</i>
Relinquished By <i>Removed from</i>	Date/Time <i>9/7/00</i>	Received By <i>R. Thoren</i>	Date/Time <i>9/7/00</i>
Relinquished By <i>R. Thoren</i>	Date/Time <i>9/7/00</i>	Received By <i>FEOR</i>	Date/Time
Relinquished By <i>W. Ex</i>	Date/Time <i>9/8/00/0945</i>	Received By <i>D. J. ...</i>	Date/Time <i>9/8/00/0945</i>
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228, Uranium-235, Uranium-238); Isotopic Plutonium; Isotopic Thorium (Thorium-228, Thorium-232); Americium-241; Iodine-129; Techn

Samples stored in Ref. # *2B* at the 3728 Shipping Facility on *9/28/00*
Collector not available to relinquish samples on *9/7/00* for shipment.

temp. 3.40
9.700

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



**Recra LabNet Philadelphia
Analytical Report**

Client: TNU-HANFORD B00-068
RFW#: 0009L519
SDG/SAF#: H1031/B00-068

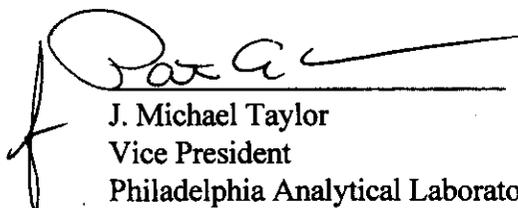
W.O.#: 10985-001-001-9999-00
Date Received: 09-08-00

METALS CASE NARRATIVE

1. This narrative covers the analyses of 1 soil sample.
2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary.
3. All analyses were performed within the required holding times.
4. The cooler temperature has been recorded on the Chain of Custody.
5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).
6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).
7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.
8. All ICP Interference Check Standards were within control limits.
9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.
10. The matrix spike (MS) recovery for 1 analyte was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A serial dilution is performed for Mercury. A PDS was prepared at meaningful concentration levels, due to high concentrations of the following analytes:

<u>Sample ID</u>	<u>Element</u>	<u>PDS Concentration (ppb)</u>	<u>PDS % Recovery</u>
B0YW00	Chromium	1000	100.2

12. The duplicate analyses for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.
14. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.



J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

10-17-00
Date

gmb/m09-519



METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this

Recra Lot#: 0009L519

Leaching Procedure: 1310 1311 1312 Other:

CLP Metals Digestion and Analysis Methods: ILM03.0 ILM04.0

Metals Digestion Methods: 3005A 3010A 3015 3020A 3050B 3051 200.7 SS17
 Other:

Metals Analysis Methods

	SW846	EPA	STD MTD	EPA OSWR	USATHAMA
Aluminum	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Antimony	<u> </u> 6010B <u> </u> 7041 ⁵	<u> </u> 200.7 <u> </u> 204.2			<u> </u> 99
Arsenic	<input checked="" type="checkbox"/> 6010B <u> </u> 7060A ⁵	<u> </u> 200.7 <u> </u> 206.2	<u> </u> 3113B		<u> </u> 99
Barium	<input checked="" type="checkbox"/> 6010B	<u> </u> 200.7			<u> </u> 99
Beryllium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Bismuth	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99
Boron	<input checked="" type="checkbox"/> 6010B	<u> </u> 200.7			<u> </u> 99
Cadmium	<input checked="" type="checkbox"/> 6010B <u> </u> 7131A ⁵	<u> </u> 200.7 <u> </u> 213.2			<u> </u> 99
Calcium	<input checked="" type="checkbox"/> 6010B	<u> </u> 200.7			<u> </u> 99
Chromium	<input checked="" type="checkbox"/> 6010B <u> </u> 7191 ⁵	<u> </u> 200.7 <u> </u> 218.2			<u> </u> SS17
Cobalt	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Copper	<u> </u> 6010B <u> </u> 7211 ⁵	<u> </u> 200.7 <u> </u> 220.2			<u> </u> 99
Iron	<input checked="" type="checkbox"/> 6010B	<u> </u> 200.7			<u> </u> 99
Lead	<input checked="" type="checkbox"/> 6010B <u> </u> 7421 ⁵	<u> </u> 200.7 <u> </u> 239.2	<u> </u> 3113B		<u> </u> 99
Lithium	<u> </u> 6010B <u> </u> 7430 ⁴	<u> </u> 200.7		<u> </u> 1620	<u> </u> 99
Magnesium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Manganese	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Mercury	<u> </u> 7470A ³ <input checked="" type="checkbox"/> 7471A ³	<u> </u> 245.1 ² <u> </u> 245.5 ²			<u> </u> 99
Molybdenum	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Nickel	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Potassium	<u> </u> 6010B <u> </u> 7610 ⁴	<u> </u> 200.7 <u> </u> 258.1 ⁴			<u> </u> 99
Rare Earths	<input checked="" type="checkbox"/> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99
Selenium	<input checked="" type="checkbox"/> 6010B <u> </u> 7740 ⁵	<u> </u> 200.7 <u> </u> 270.2	<u> </u> 3113B		<u> </u> 99
Silicon	<u> </u> 6010B ¹	<u> </u> 200.7		<u> </u> 1620	<u> </u> 99
Silica	<u> </u> 6010B	<u> </u> 200.7		<u> </u> 1620	<u> </u> 99
Silver	<input checked="" type="checkbox"/> 6010B <u> </u> 7761 ⁵	<u> </u> 200.7 <u> </u> 272.2			<u> </u> 99
Sodium	<u> </u> 6010B <u> </u> 7770 ⁴	<u> </u> 200.7 <u> </u> 273.1 ⁴			<u> </u> 99
Strontium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Thallium	<u> </u> 6010B <u> </u> 7841 ⁵	<u> </u> 200.7 <u> </u> 279.2 <u> </u> 200.9			<u> </u> 99
Tin	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Titanium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Uranium	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99
Vanadium	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Zinc	<u> </u> 6010B	<u> </u> 200.7			<u> </u> 99
Zirconium	<u> </u> 6010B ¹	<u> </u> 200.7 ¹		<u> </u> 1620	<u> </u> 99

Other:

Method:

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

- U = Indicates that the parameter was not detected at or above the reported limit. The associated numerical value is the sample detection limit.
- * = Indicates that the original sample result is greater than 4x the spike amount added.

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.
2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).
3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).
4. Flame AA.
5. Graphite Furnace AA.

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

Recre LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 09/26/00

CLIENT: TNU-HANFORD B00-068
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 0009L519

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	BOYM00	Silver, Total	0.12 u	MG/KG	0.12	1.0
		Arsenic, Total	0.89	MG/KG	0.36	1.0
		Barium, Total	23.4	MG/KG	0.02	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	302	MG/KG	0.09	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	1.6	MG/KG	0.22	1.0
		Selenium, Total	0.45 u	MG/KG	0.45	1.0

Recre LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/26/00

CLIENT: THU-HANFORD B00-068

RECRA LOT #: 0009L519

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L1571-MB1	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	0.34 u	MG/KG	0.34	1.0
		Barium, Total	0.03	MG/KG	0.02	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.09 u	MG/KG	0.09	1.0
		Lead, Total	0.21 u	MG/KG	0.21	1.0
		Selenium, Total	0.43 u	MG/KG	0.43	1.0
BLANK1	00C0295-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Recra LabWet - Lionville

INORGANICS ACCURACY REPORT 09/26/00

CLIENT: TWU-HANFORD B00-068

RECRA LOT #: 0009L519

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	BOYWOOD	Silver, Total	5.0	0.12u	5.2	96.2	1.0
		Arsenic, Total	196	0.89	209	93.6	1.0
		Barium, Total	232	23.4	209	100	1.0
		Cadmium, Total	4.9	0.03u	5.2	94.2	1.0
		Chromium, Total	31.0	302	20.9	-1300. *	1.0
		Mercury, Total	0.21	0.02u	0.19	111.3	1.0
		Lead, Total	51.0	1.6	52.2	94.6	1.0
		Selenium, Total	189	0.45u	209	90.5	1.0

Recre LabNet - Lionville

INORGANICS PRECISION REPORT 09/26/00

CLIENT: TWU-HANFORD B00-068

RECRA LOT #: 0009L519

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

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION
			RESULT	REPLICATE	RPD	FACTOR (REP)
-001REP	BOYW00	Silver, Total	0.12u	0.11u	NC	1.0
		Arsenic, Total	0.89	0.60	39.4	1.0
		Barium, Total	23.4	22.7	3.0	1.0
		Cadmium, Total	0.03u	0.03u	NC	1.0
		Chromium, Total	302	11.4	185.5	1.0
		Mercury, Total	0.02u	0.02u	NC	1.0
		Lead, Total	1.6	1.4	13.3	1.0
		Selenium, Total	0.45u	0.45u	NC	1.0

Recre LabNet - Licnville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 09/26/00

CLIENT: TWU-HANFORD B00-068

RECRA LOT #: 0009L519

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

SAMPLE	SITE ID	ANALYTE	SPIKED		UNITS	%RECOV
			SAMPLE	AMOUNT		
LCS1	99L1571-LC1	Silver, LCS	49.1	50.0	MG/KG	98.2
		Arsenic, LCS	954	1000	MG/KG	95.4
		Barium, LCS	494	500	MG/KG	98.7
		Cadmium, LCS	24.6	25.0	MG/KG	98.4
		Chromium, LCS	49.8	50.0	MG/KG	99.6
		Lead, LCS	244	250	MG/KG	97.6
		Selenium, LCS	923	1000	MG/KG	92.3
LCS1	00C0295-LC1	Mercury, LCS	0.68	0.7	MG/KG	95.4

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B00-068

DATE RECEIVED: 09/08/00

RFW LOT # :0009L519

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOYW00						
SILVER, TOTAL	001	S	99L1571	08/28/00	09/21/00	09/21/00
SILVER, TOTAL	001 REP	S	99L1571	08/28/00	09/21/00	09/21/00
SILVER, TOTAL	001 MS	S	99L1571	08/28/00	09/21/00	09/21/00
ARSENIC, TOTAL	001	S	99L1571	08/28/00	09/21/00	09/21/00
ARSENIC, TOTAL	001 REP	S	99L1571	08/28/00	09/21/00	09/21/00
ARSENIC, TOTAL	001 MS	S	99L1571	08/28/00	09/21/00	09/21/00
BARIUM, TOTAL	001	S	99L1571	08/28/00	09/21/00	09/21/00
BARIUM, TOTAL	001 REP	S	99L1571	08/28/00	09/21/00	09/21/00
BARIUM, TOTAL	001 MS	S	99L1571	08/28/00	09/21/00	09/21/00
CADMIUM, TOTAL	001	S	99L1571	08/28/00	09/21/00	09/21/00
CADMIUM, TOTAL	001 REP	S	99L1571	08/28/00	09/21/00	09/21/00
CADMIUM, TOTAL	001 MS	S	99L1571	08/28/00	09/21/00	09/21/00
CHROMIUM, TOTAL	001	S	99L1571	08/28/00	09/21/00	09/21/00
CHROMIUM, TOTAL	001 REP	S	99L1571	08/28/00	09/21/00	09/21/00
CHROMIUM, TOTAL	001 MS	S	99L1571	08/28/00	09/21/00	09/21/00
MERCURY, TOTAL	001	S	00C0295	08/28/00	09/18/00	09/19/00
MERCURY, TOTAL	001 REP	S	00C0295	08/28/00	09/18/00	09/19/00
MERCURY, TOTAL	001 MS	S	00C0295	08/28/00	09/18/00	09/19/00
LEAD, TOTAL	001	S	99L1571	08/28/00	09/21/00	09/21/00
LEAD, TOTAL	001 REP	S	99L1571	08/28/00	09/21/00	09/21/00
LEAD, TOTAL	001 MS	S	99L1571	08/28/00	09/21/00	09/21/00
SELENIUM, TOTAL	001	S	99L1571	08/28/00	09/21/00	09/21/00
SELENIUM, TOTAL	001 REP	S	99L1571	08/28/00	09/21/00	09/21/00
SELENIUM, TOTAL	001 MS	S	99L1571	08/28/00	09/21/00	09/21/00

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L1571	N/A	09/21/00	09/21/00
SILVER, TOTAL	MB1	S	99L1571	N/A	09/21/00	09/21/00
ARSENIC LABORATORY	LC1 BS	S	99L1571	N/A	09/21/00	09/21/00
ARSENIC, TOTAL	MB1	S	99L1571	N/A	09/21/00	09/21/00
BARIUM LABORATORY	LC1 BS	S	99L1571	N/A	09/21/00	09/21/00
BARIUM, TOTAL	MB1	S	99L1571	N/A	09/21/00	09/21/00
CADMIUM LABORATORY	LC1 BS	S	99L1571	N/A	09/21/00	09/21/00
CADMIUM, TOTAL	MB1	S	99L1571	N/A	09/21/00	09/21/00

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B00-068

DATE RECEIVED: 09/08/00

RFW LOT # :0009L519

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM LABORATORY	LC1 BS	S	99L1571	N/A	09/21/00	09/21/00
CHROMIUM, TOTAL	MB1	S	99L1571	N/A	09/21/00	09/21/00
MERCURY LABORATORY	LC1 BS	S	00C0295	N/A	09/18/00	09/19/00
MERCURY, TOTAL	MB1	S	00C0295	N/A	09/18/00	09/19/00
LEAD LABORATORY	LC1 BS	S	99L1571	N/A	09/21/00	09/21/00
LEAD, TOTAL	MB1	S	99L1571	N/A	09/21/00	09/21/00
SELENIUM LABORATORY	LC1 BS	S	99L1571	N/A	09/21/00	09/21/00
SELENIUM, TOTAL	MB1	S	99L1571	N/A	09/21/00	09/21/00

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST					B00-068-41		Page 1 of 1						
Collector Johansen <i>Buehler</i>		Company Contact Dave Weeks		Telephone No. 372-9524		Project Coordinator TRENT, SJ		Price Code 8L		Data Turnaround 21 Days					
Project Designation 200 Area Groundwater Well Drilling Waste Designation for		Sampling Location 200 Area Groundwater Drilling			SAF No. B00-068		Air Quality <input type="checkbox"/>								
Ice Chest No. <i>Smi-526 LIOF2</i>		Field Logbook No. EL 1516		COA XL0008LMHC		Method of Shipment Federal Express									
Shipped To TMA/RECRA <i>RECRA</i>		Offsite Property No. <i>A04031Z</i>			Bill of Lading/Air Bill No. <i>42357953-8842</i>										
POSSIBLE SAMPLE HAZARDS/REMARKS Special Handling and/or Storage				Preservation	None	None	Cool 4C	Cool 4C	None	None					
				Type of Container	aG	aG	aG	aG	aG	aG					
				No. of Container(s)	1	1	1	1	1	1					
				Volume	1L	120mL	250mL	250mL	250mL	250mL					
SAMPLE ANALYSIS				See Item (1) in Special Instructions	IC Anions - 300.0 (Nitrate)	Semi-VOA - 8270A (TCL); Semi-VOA - 8270A (Add-On) (m-Cruid)	VOA - 8260A (TCL)	ICP Metals - 8818A (Supertrace); Mercury - 7471 - (CV)	pH (Soil) - 9045						
Sample No.	Matrix *	Sample Date	Sample Time												
BOYW00	SOIL	<i>1/28/00</i>	<i>1006</i>		X	X	X	X	X						
CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS					Matrix *						
Relinquished By <i>M. Buehler</i>		Date/Time <i>1/25/00</i>		Received By <i>Stouder</i>		Date/Time <i>1/25/00</i>		(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228, Uranium-235, Uranium-238); Isotopic Plutonium; Isotopic Thorium (Thorium-228, Thorium-232); Americium-241; Iodine-129; Technetium-99m Samples stored in Ref. #2B at the 3728 Shipping Facility on <i>1/28/00</i> . Collector not available to relinquish samples on <i>1/17/00</i> for shipment.					S=Soil SE=Soil/vein SO=Solid S=Sludge W=Water O=Oil A=Air DS=Drum Solids DL=Drum Liquids T=Trash WI=Wipe L=Liquid V=Vegetation X=Other		
Relinquished By <i>Removed</i>		Date/Time <i>1/25/00</i>		Received By <i>R. Thoren</i>		Date/Time <i>1/25/00</i>									
Relinquished By <i>R. Thoren</i>		Date/Time <i>1/25/00</i>		Received By <i>RECRA</i>		Date/Time <i>1/25/00</i>									
Relinquished By <i>Med Ex</i>		Date/Time <i>9.800/0945</i>		Received By <i>D. J. ...</i>		Date/Time <i>9.800/0945</i>									
Relinquished By <i>9/19/00</i>		Date/Time		Received By		Date/Time									
Relinquished By		Date/Time		Received By		Date/Time									
LABORATORY SECTION		Received By		Title					Date/Time						
FINAL SAMPLE DISPOSITION		Disposal Method		Disposed By					Date/Time						

013



Client: TNU-HANFORD B00-068
RFW #: 0009L519
SDG/SAF #: H1031/B00-068

W.O. #: 10985001-9989-00
Date Received: 09-08-2000

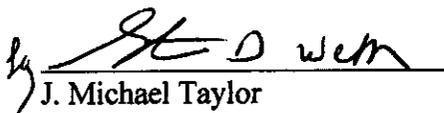
SEMIVOLATILE

One (1) soil sample was collected on 08-28-2000.

The sample and its associated QC samples were extracted on 09-11-2000 and analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 09-14,29-2000.

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. The sample was extracted and analyzed within required holding times.
3. Non-target compounds were detected in the sample.
4. Eight (8) of thirty-six (36) surrogate recoveries were outside EPA QC limits. Out of criteria surrogate recoveries were biased high. There was no target compounds detected above the CRQL and the associated matrix spike recoveries were within criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
5. All blank spike recoveries were within EPA QC limits.
6. All matrix spike recoveries were within EPA QC limits.
7. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."


J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

11-19-00
Date

som\group\data\bna\tmu-hanford-09-519.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 11 pages.

RECRA

Sample Discrepancy Report (SDR)

SDR #: 00MS242

Initiator: S Layman Batch: 0009L 519 Parameter: BNA
Date: 10-2-00 Samples: 001 Matrix: Soil
Client: TNU - Hanford Method: (SW846)MCAWW/CLP/ Prep Batch: 00LE 1124

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)

4 surr recoveries fail criteria high in 001MS.

2. Known or Probable Causes(s) (To be used for trend analysis)

- Lack of Organization Other (Please explain):
- Lack of Training
- Lack of Discipline
- Lack of Resources
- Lack of Time
- Lack of Management Support

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)

narrate - minimal impact on lab.
all spikes met criteria

[Signature] 10/2/00

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

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

5. Final Action...signature/date:

Other Explanation:

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

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

Route/Distribution of SDR

Route

Distribution of Completed SDR

- Initiator
- Lab Manager: M. Taylor
- Project Mgr: Stone/Carey/Johnson
- Section Mgr: Wesson/Daniels
- QA (file): Schrenkel
- Data Management: Feldman
- Sample Prep: Bickel/Kauffman

- Metals: Doughty
- Inorganic: Perrone
- GC/LC: Pastor
- MS: Layman/Rycklak
- Log-in: Keppel
- Admin: Soos
- Other: _____

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.



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.



Recra LabNet - Lionville Laboratory

Semivolatiles by GC/MS, HSL List

Report Date: 10/07/00 12:32

RFW Batch Number: 0009L519

Client: TNU-HANFORD B00-068

Work Order: 10985001001

Page: 1a

Cust ID:	BOYW00	BOYW00	BOYW00	SBLKZZ	SBLKZZ BS	SBLKZZ BSD
Sample Information	RFW#: 001	001 MS	001 MSD	00LE1124-MB1	00LE1124-MB1	00LE1124-MB1
	Matrix: SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.: 1.00	1.00	1.00	1.00	1.00	1.00
	Units: ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Nitrobenzene-d5	110 %	116 %	105 %	104 %	111 %	105 %
Surrogate 2-Fluorobiphenyl	110 %	121 * %	110 %	103 %	112 %	107 %
Recovery Terphenyl-d14	150 * %	179 * %	156 * %	126 %	154 * %	146 * %
Phenol-d5	106 %	115 * %	105 %	90 %	110 %	103 %
2-Fluorophenol	117 %	125 * %	112 %	83 %	114 %	109 %
2,4,6-Tribromophenol	111 %	116 %	110 %	83 %	98 %	106 %
-----fl-----fl-----fl-----fl-----fl-----fl-----fl-----						
Phenol	370 U	87 %	80 %	330 U	84 %	79 %
bis(2-Chloroethyl) ether	370 U	370 U	370 U	330 U	330 U	330 U
2-Chlorophenol	370 U	84 %	78 %	330 U	81 %	76 %
1,3-Dichlorobenzene	370 U	370 U	370 U	330 U	330 U	330 U
1,4-Dichlorobenzene	370 U	67 %	63 %	330 U	72 %	63 %
1,2-Dichlorobenzene	370 U	370 U	370 U	330 U	330 U	330 U
2-Methylphenol	370 U	370 U	370 U	330 U	330 U	330 U
2,2'-oxybis(1-Chloropropane)	370 U	370 U	370 U	330 U	330 U	330 U
3- and/or 4-Methylphenol	370 U	370 U	370 U	330 U	330 U	330 U
N-Nitroso-di-n-propylamine	370 U	73 %	72 %	330 U	76 %	67 %
Hexachloroethane	370 U	370 U	370 U	330 U	330 U	330 U
Nitrobenzene	370 U	370 U	370 U	330 U	330 U	330 U
Isophorone	370 U	370 U	370 U	330 U	330 U	330 U
2-Nitrophenol	370 U	370 U	370 U	330 U	330 U	330 U
2,4-Dimethylphenol	370 U	370 U	370 U	330 U	330 U	330 U
bis(2-Chloroethoxy)methane	370 U	370 U	370 U	330 U	330 U	330 U
2,4-Dichlorophenol	370 U	370 U	370 U	330 U	330 U	330 U
1,2,4-Trichlorobenzene	370 U	74 %	67 %	330 U	73 %	67 %
Naphthalene	370 U	370 U	370 U	330 U	330 U	330 U
4-Chloroaniline	370 U	370 U	370 U	330 U	330 U	330 U
Hexachlorobutadiene	370 U	370 U	370 U	330 U	330 U	330 U
4-Chloro-3-methylphenol	370 U	90 %	82 %	330 U	83 %	81 %
2-Methylnaphthalene	370 U	370 U	370 U	330 U	330 U	330 U
Hexachlorocyclopentadiene	370 U	370 U	370 U	330 U	330 U	330 U
2,4,6-Trichlorophenol	370 U	370 U	370 U	330 U	330 U	330 U
2,4,5-Trichlorophenol	930 U	920 U	930 U	830 U	830 U	830 U

*= Outside of EPA CLP QC limits.

6

Cust ID: BOYW00 BOYW00 BOYW00 SBLKZZ SBLKZZ BS SBLKZZ BSD
 RFW#: 001 001 MS 001 MSD 00LE1124-MB1 00LE1124-MB1 00LE1124-MB1

2-Chloronaphthalene	370 U	370 U	370 U	330 U	330 U	330 U
2-Nitroaniline	930 U	920 U	930 U	830 U	830 U	830 U
Dimethylphthalate	370 U	370 U	370 U	330 U	330 U	330 U
Acenaphthylene	370 U	370 U	370 U	330 U	330 U	330 U
2,6-Dinitrotoluene	370 U	370 U	370 U	330 U	330 U	330 U
3-Nitroaniline	930 U	920 U	930 U	830 U	830 U	830 U
Acenaphthene	370 U	81 %	76 %	330 U	78 %	73 %
2,4-Dinitrophenol	930 U	920 U	930 U	830 U	830 U	830 U
4-Nitrophenol	930 U	83 %	88 %	830 U	85 %	83 %
Dibenzofuran	370 U	370 U	370 U	330 U	330 U	330 U
2,4-Dinitrotoluene	370 U	77 %	76 %	330 U	77 %	72 %
Diethylphthalate	370 U	370 U	370 U	330 U	330 U	330 U
4-Chlorophenyl-phenylether	370 U	370 U	370 U	330 U	330 U	330 U
Fluorene	370 U	370 U	370 U	330 U	330 U	330 U
4-Nitroaniline	930 U	920 U	930 U	830 U	830 U	830 U
4,6-Dinitro-2-methylphenol	930 U	920 U	930 U	830 U	830 U	830 U
N-Nitrosodiphenylamine (1)	370 U	370 U	370 U	330 U	330 U	330 U
4-Bromophenyl-phenylether	370 U	370 U	370 U	330 U	330 U	330 U
Hexachlorobenzene	370 U	370 U	370 U	330 U	330 U	330 U
Pentachlorophenol	930 U	92 %	92 %	830 U	92 %	80 %
Phenanthrene	370 U	370 U	370 U	330 U	330 U	330 U
Anthracene	370 U	370 U	370 U	330 U	330 U	330 U
Carbazole	370 U	370 U	370 U	330 U	330 U	330 U
Di-n-butylphthalate	370 U	370 U	370 U	330 U	330 U	330 U
Fluoranthene	370 U	370 U	370 U	330 U	330 U	330 U
Pyrene	370 U	102 %	91 %	330 U	95 %	88 %
Butylbenzylphthalate	370 U	370 U	370 U	330 U	330 U	330 U
3,3'-Dichlorobenzidine	370 U	370 U	370 U	330 U	330 U	330 U
Benzo (a) anthracene	370 U	370 U	370 U	330 U	330 U	330 U
Chrysene	370 U	370 U	370 U	330 U	330 U	330 U
bis (2-Ethylhexyl) phthalate	21 J	370 U	370 U	330 U	330 U	330 U
Di-n-octyl phthalate	370 U	370 U	370 U	330 U	330 U	330 U
Benzo (b) fluoranthene	370 U	370 U	370 U	330 U	330 U	330 U
Benzo (k) fluoranthene	370 U	370 U	370 U	330 U	330 U	330 U
Benzo (a) pyrene	370 U	370 U	370 U	330 U	330 U	330 U
Indeno (1,2,3-cd) pyrene	370 U	370 U	370 U	330 U	330 U	330 U
Dibenz (a, h) anthracene	370 U	370 U	370 U	330 U	330 U	330 U
Benzo (g, h, i) perylene	370 U	370 U	370 U	330 U	330 U	330 U

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

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

BOYW00

Lab Name: Recra, LabNet Work Order: 10985001001

Client: TNU-HANFORD B00-068

Matrix: (soil/water) SOIL Lab Sample ID: 0009L519-001

Sample wt/vol: 30.1 (g/mL) G Lab File ID: A092925

Level: (low/med) LOW Date Received: 09/08/00

% Moisture: 10 decanted: (Y/N) Date Extracted: 09/11/00

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 09/29/00

Injection Volume: 2.0 (uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH:

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

Number TICs found: 6

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.36	1000	JAB
2.	ALDOL CONDENSATE	8.71	100	JAB
3.	ORGANIC ACID	20.79	100	J
4.	ALKANE	25.24	200	J
5.	ALKANE	25.39	200	J
6.	UNKNOWN	26.42	70	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKZZ

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B00-068

Matrix: (soil/water) SOIL

Lab Sample ID: 00LE1124-MB1

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: A091407

Level: (low/med) LOW

Date Received: 09/11/00

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 09/11/00

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 09/14/00

Injection Volume: 2.0 (uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: _____

CONCENTRATION UNITS:

Number TICs found: 2

(ug/L or ug/Kg) ug/Kg

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.65	1000	JA
2.	ALDOL CONDENSATE	8.99	100	JA

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Recra LabNet - Lionville Laboratory
BNA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-068

DATE RECEIVED: 09/08/00

RFW LOT # :0009L519

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOYW00	001	S	00LE1124	08/28/00	09/11/00	09/29/00
BOYW00	001 MS	S	00LE1124	08/28/00	09/11/00	09/29/00
BOYW00	001 MSD	S	00LE1124	08/28/00	09/11/00	09/29/00

LAB QC:

SBLKZZ	MB1	S	00LE1124	N/A	09/11/00	09/14/00
SBLKZZ	MB1 BS	S	00LE1124	N/A	09/11/00	09/29/00
SBLKZZ	MB1 BSD	S	00LE1124	N/A	09/11/00	09/29/00

0009L519

Custody Transfer Record/Lab Work Request Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

⑨ BMA Perrone



10

Client <u>Tny - Hanford 800-068</u>				Refrigerator #		1	3					3	3	3					
Est. Final Proj. Sampling Date				#Type Container		Liquid													
Project # <u>10985-001-001-9999-00</u>				Solid		by		by				by	by	by					
Project Contact/Phone #				Volume		Liquid													
RECRA Project Manager <u>AS</u>				Solid		250		250				250	250	250					
QC Spec <u>Del Std TAT 21 day</u>				Preservatives		-		-				-	-	-					
Date Rec'd <u>9-8-00</u> Date Due <u>9-29-00</u>				ANALYSES REQUESTED		ORGANIC					INORG								
Account #				TEL		VOA	BNA	Pes/PCB	Herb			ICP	Metal	CN	IC	ICNO3	IPH	ICNO	ISFD
MATRIX CODES:				RECRA LabNet Use Only															
S - Soil				Lab ID	Client ID/Description	Matrix QC Chosen (M)	Matrix	Date Collected	Time Collected	ICNO3	IPH	ICNO	ISFD						
SE - Sediment						MS	MSD												
SO - Solid																			
SL - Sludge																			
W - Water																			
O - Oil																			
A - Air																			
DS - Drum Solids																			
DL - Drum Liquids																			
L - EP/TCLP Leachate																			
WI - Wipe																			
X - Other																			
F - Fish																			
				001	Boylow	X	X	S	8/28/00	1006	X	X					X	X	✓

Special Instructions: Saf 800-068

DATE/REVISIONS:

- 9-11-00 1. ICNO3 cancelled ICNO3H added
- 1 2. CN & SFD added
-
-
-
-

RECRA LabNet Use Only

Samples were: 1) Shipped <input checked="" type="checkbox"/> or Hand Delivered <input type="checkbox"/>	COC Tape was: 1) Present on Outer Package <input type="checkbox"/> or N
Airbill # _____	2) Unbroken on Outer Package <input checked="" type="checkbox"/> or N
2) Ambient or <input checked="" type="checkbox"/> (Cooled)	3) Present on Sample <input checked="" type="checkbox"/> or N
3) Received in Good Condition <input checked="" type="checkbox"/> or N	4) Unbroken on Sample <input type="checkbox"/> or N
4) Labels Indicate Property Preserved <input checked="" type="checkbox"/> or N	COC Record Present Upon Sample Rec'd <input checked="" type="checkbox"/> or N
5) Received Within Holding Times <input checked="" type="checkbox"/> or N	Cooler Temp. <u>34</u> °C

Relinquished by	Received by	Date	Time
<u>Steve Er</u>	<u>D. J. ...</u>	<u>9/8/00</u>	<u>0945</u>

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N
NOTES:
10-25-1953-12242

COMPOSITE:

ORIGINAL



Client: TNU-HANFORD B00-068
RFW #: 0009L519
SDG/SAF #: H1031/B00-068

W.O. #: 10985-001-001-9999-00
Date Received: 09-08-2000

GC/MS VOLATILE

One (1) soil sample was collected on 08-28-2000.

The sample and its associated QC samples were analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8260B for TCL Volatile target compounds on 09-11-2000.

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

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
2. The sample was analyzed within required holding time.
3. Non-target compounds were detected in the sample.
4. All surrogate recoveries were within EPA QC limits.
5. All matrix spike recoveries were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. The method blank contained the common laboratory contaminants Methylene Chloride and Acetone at levels less than 2x the CRQL.
8. "I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."



J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

10/5/00
Date

son\group\data\voatnu-hanford-09-519.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 11 pages.

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.



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, HSL List

Report Date: 10/02/00 12:48

RFW Batch Number: 0009L519

Client: TNU-HANFORD B00-068

Work Order: 10985001001 Page: 1a

Cust ID:	BOYW00	BOYW00	BOYW00	VBLKRD	VBLKRD BS	
Sample Information	RFW#:	001	001 MS	001 MSD	00LVH399-MB1	00LVH399-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.04	1.02	0.980	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate	Toluene-d8	98 %	95 %	98 %	99 %	97 %
Recovery	Bromofluorobenzene	88 %	89 %	87 %	92 %	90 %
	1,2-Dichloroethane-d4	84 %	88 %	87 %	90 %	90 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====						
Chloromethane		12 U	11 U	11 U	10 U	10 U
Bromomethane		12 U	11 U	11 U	10 U	10 U
Vinyl Chloride		12 U	11 U	11 U	10 U	10 U
Chloroethane		12 U	11 U	11 U	10 U	10 U
Methylene Chloride		14 B	15 B	14 B	6	5 B
Acetone		14 B	12 B	12 B	3 J	4 JB
Carbon Disulfide		6 U	6 U	6 U	5 U	5 U
1,1-Dichloroethene		6 U	72 %	74 %	5 U	73 %
1,1-Dichloroethane		6 U	6 U	6 U	5 U	5 U
1,2-Dichloroethene (total)		6 U	6 U	6 U	5 U	5 U
Chloroform		6 U	6 U	6 U	5 U	5 U
1,2-Dichloroethane		6 U	6 U	6 U	5 U	5 U
2-Butanone		12 U	11 U	11 U	10 U	10 U
1,1,1-Trichloroethane		6 U	6 U	6 U	5 U	5 U
Carbon Tetrachloride		6 U	6 U	6 U	5 U	5 U
Bromodichloromethane		6 U	6 U	6 U	5 U	5 U
1,2-Dichloropropane		6 U	6 U	6 U	5 U	5 U
cis-1,3-Dichloropropene		6 U	6 U	6 U	5 U	5 U
Trichloroethene		6 U	86 %	86 %	5 U	85 %
Dibromochloromethane		6 U	6 U	6 U	5 U	5 U
1,1,2-Trichloroethane		6 U	6 U	6 U	5 U	5 U
Benzene		6 U	99 %	100 %	5 U	98 %
Trans-1,3-Dichloropropene		6 U	6 U	6 U	5 U	5 U
Bromoform		6 U	6 U	6 U	5 U	5 U
4-Methyl-2-pentanone		12 U	11 U	11 U	10 U	10 U
2-Hexanone		12 U	11 U	11 U	10 U	10 U
Tetrachloroethene		6 U	6 U	6 U	5 U	5 U
1,1,2,2-Tetrachloroethane		6 U	6 U	6 U	5 U	5 U
Toluene		6 U	102 %	105 %	5 U	101 %

*= Outside of EPA CLP QC limits.

Cust ID: BOYW00 BOYW00 BOYW00 VBLKRD VBLKRD BS

RFW#: 001 001 MS 001 MSD 00LVH399-MB1 00LVH399-MB1

Chlorobenzene	6 U	103 %	103 %	5 U	99 %
Ethylbenzene	6 U	6 U	6 U	5 U	5 U
Styrene	6 U	6 U	6 U	5 U	5 U
Xylene (total)	6 U	6 U	6 U	5 U	5 U

*= Outside of EPA CLP QC limits.

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

BOYW00

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B00-068

Matrix: SOIL Lab Sample ID: 0009L519-001

Sample wt/vol: 4.80 (g/mL) G Lab File ID: h091111

Level: (low/med) LOW Date Received: 09/08/00

% Moisture: not dec. 10 Date Analyzed: 09/11/00

Column: (pack/cap) CAP Dilution Factor: 1.04

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

Number TICs found: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	18.402	10	JB

6

1E
VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLKRD

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B00-068

Matrix: SOIL Lab Sample ID: 00LVH399-MB1

Sample wt/vol: 5.00 (g/mL) G Lab File ID: h091105

Level: (low/med) LOW Date Received: 09/11/00

% Moisture: not dec. 0 Date Analyzed: 09/11/00

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 1 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	18.399	7	J

Recra LabNet - Lionville Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B00-068

DATE RECEIVED: 09/08/00

RFW LOT # :0009L519

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOYW00	001	S	00LVH399	08/28/00	N/A	09/11/00
BOYW00	001 MS	S	00LVH399	08/28/00	N/A	09/11/00
BOYW00	001 MSD	S	00LVH399	08/28/00	N/A	09/11/00
LAB QC:						
VBLKRD	MB1	S	00LVH399	N/A	N/A	09/11/00
VBLKRD	MB1 BS	S	00LVH399	N/A	N/A	09/11/00

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B00-068-41	Page 1 of 1
Collector Johansen / Buchler	Company Contact Dave Weeks	Telephone No. 372-9524	Project Coordinator TRENT, SJ		Price Code 8L	Data Turnaround 21 Days
Project Designation 200 Area Groundwater Well Drilling Waste Designation for		Sampling Location 200 Area Groundwater Drilling		SAF No. B00-068	Air Quality <input type="checkbox"/>	
Ice Chest No. SM1-526 (10FB)	Field Logbook No. EL 1516	COA XL0008LMHC	Method of Shipment Federal Express			
Shipped To TMA/RECRA RECLA		Offsite Property No. AD 40031Z		Bill of Lading/Air B/L No. 42357953-8842		

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	Cool 4C	Cool 4C	None	None				
	Type of Container	aG	aG	aG	aG	aG	aG				
	No. of Container(s)	1	1	1	1	1	1				
	Volume	1L	120mL	250mL	250mL	250mL	250mL				
Special Handling and/or Storage											

SAMPLE ANALYSIS				See Item (1) in Special Instructions.	IC Anions - 300.0 (Nitrate)	Semi-VOA - \$270A (TCL); Semi-VOA - \$270A (Add-On) (m-Cresol)	VOA - \$260A (TCL)	ICP Metals - 6010A (Supertrace); Mercury - 7471 - (CV)	pH (Soil) - 9045			
-----------------	--	--	--	---------------------------------------	-----------------------------	--	--------------------	--	------------------	--	--	--

Sample No.	Matrix *	Sample Date	Sample Time						
BOYV00	SOIL	1/28/00	1006		X	X	X	X	X

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By M.H. Buchler	Date/Time 1/25/00	Received By R. Thore	Date/Time 1/25/00
Relinquished By Removed from site	Date/Time 1/25/00	Received By R. Thore	Date/Time 1/25/00
Relinquished By R. Thore	Date/Time 1/25/00	Received By R. Thore	Date/Time 1/25/00
Relinquished By R. Thore	Date/Time 1/25/00	Received By F. O. E. A.	Date/Time 1/25/00
Relinquished By New Ex	Date/Time 9.800/0945	Received By D. J. M. D.	Date/Time 9.800/0945
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Radium-226, Radium-228, Uranium-235, Uranium-238); Isotopic Phosphorus; Isotopic Thorium (Thorium-228, Thorium-232); Americium-241; Iodine-129; Techn

Samples stored in Ref. #2B at the 3728 Shipping Facility on 1/28/00. Collector not available to relinquish samples on 1/17/00 for shipment.

temp. 3.400
9.700

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