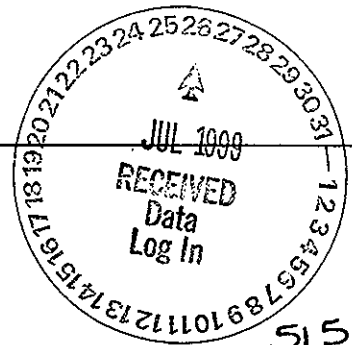




a division of Recra Environmental, Inc.
Virtual Laboratories Everywhere

Original received 6/1/99

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Recra LabNet Philadelphia
Analytical Report
**** REVISION ****

Client : TNU-HANFORD B99-002
RFW# : 9904L807
SDG# : H0393
SAF# : B99-002

W.O. # : 10985-001-001-9999-00
Date Received: 04-29-99



INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 6 solid samples.
2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.
3. Sample holding times as required by the method and/or contract were met.
4. The cooler temperature was recorded on the chain-of-custody.
5. The method blank for Chromium VI was within method criteria.
6. The Laboratory Control Sample (LCS) for Soluble Chromium VI was within the laboratory control limits (LCL), however the Insoluble was above the LCL of 80-120%.
7. The matrix spike recoveries were above 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.

[Signature]

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

[Signature]

Date

njpl04-807

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 12 pages.

WET CHEMISTRY METHODS GLOSSARY FOR ANALYSIS OF SOIL/SOLID SAMPLES

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
%Ash	__ D2216-80		
%Moisture	__ D2216-80		__ ILMO4.0 (e)
%Solids			<input checked="" type="checkbox"/> ILMO4.0 (e)
%Volatile Solids	__ D2216-80		
ASTM Extraction in Water	__ D3987-81/85		
BTU	__ D240-87		
CEC		__ 9081	__ c
Corrosivity __ by coupon __ by pH		__ 1110 (mod) __ 9045	
Cyanide, Total		__ 9010	__ ILMO4.0 (e)
Cyanide, Reactive		__ Sec 7.3	
Density			__ b
Halides, Extractable Organic			__ EPA 600/4/84-008 (mod)
Halides, Total			__ EPA 600/4/84-008 (mod)
EP-Toxicity		__ 1310A	
Flash Point		__ 1010	
Ignitability		__ 1010	
Carbon, Total Organic (by LOI)			__ c
Oil and 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 (mod)
pH, Soil		__ 9045B	
Sulfide, Reactive		__ Sec 7.3	
Specific Gravity	__ D1429-76C		
Sulfur, Total		__ 9056	
TCLP		__ 1311	
TCLV		__ 1311	
Synthetic Precipitation Leach		__ 1312	
Chlorine, Total		__ 9056	
Paint Filter		__ 9095	

Other: Chromium VI

Method: SW 3060A/7196A

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 05/05/99

CLIENT: TNU-HANFORD B99-002
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9904L807

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
*****	*****	*****	*****	*****	*****	*****
-001	B0VDB2	% Solids	100	%	0.01	1.0
		Chromium VI	0.40	u MG/KG	0.40	1.0
-002	B0VDB3	% Solids	97.7	%	0.01	1.0
		Chromium VI	0.41	u MG/KG	0.41	1.0
-003	B0VD36	% Solids	96.1	%	0.01	1.0
		Chromium VI	0.42	u MG/KG	0.42	1.0
-004	B0VD37	% Solids	95.5	%	0.01	1.0
		Chromium VI	0.42	u MG/KG	0.42	1.0
-005	B0VD38	% Solids	94.6	%	0.01	1.0
		Chromium VI	0.42	u MG/KG	0.42	1.0
-006	B0VD39	% Solids	95.6	%	0.01	1.0
		Chromium VI	0.42	u MG/KG	0.42	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/05/99

CLIENT: TNU-HANFORD B99-002
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9904L807

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LVI037-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0

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INORGANICS ACCURACY REPORT 05/05/99

CLIENT: TNU-HANFORD B99-002
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9904L807

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B0VDB2	Soluble Chromium VI	3.7	0.40u	4.0	96.6	1.0
		Insoluble Chromium VI	1360	0.40u	1190	114.3	100
BLANK10	99LVI037-MB1	Soluble Chromium VI	3.8	0.40u	4.0	96.0	1.0
		Insoluble Chromium VI	1550	0.40u	1210	128.0	100

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INORGANICS PRECISION REPORT 05/05/99

CLIENT: TNU-HANFORD B99-002
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9904L807

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-001REP	BOVDB2	Chromium VI	0.40u	0.40u	NC	1.0
-006REP	BOVD39	% Solids	95.6	95.6	0.010	1.0

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Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-002

DATE RECEIVED: 04/29/99

RFW LOT # :9904L807

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0VDB2						
% SOLIDS	001	S	99L%S060	04/27/99	04/30/99	05/03/99
CHROMIUM VI	001	S	99LVI037	04/27/99	05/03/99	05/03/99
CHROMIUM VI	001 REP	S	99LVI037	04/27/99	05/03/99	05/03/99
CHROMIUM VI	001 MS	S	99LVI037	04/27/99	05/03/99	05/03/99
CHROMIUM VI	001 MSD	S	99LVI037	04/27/99	05/03/99	05/03/99
B0VDB3						
% SOLIDS	002	S	99L%S060	04/27/99	04/30/99	05/03/99
CHROMIUM VI	002	S	99LVI037	04/27/99	05/03/99	05/03/99
B0VD36						
% SOLIDS	003	S	99L%S060	04/27/99	04/30/99	05/03/99
CHROMIUM VI	003	S	99LVI037	04/27/99	05/03/99	05/03/99
B0VD37						
% SOLIDS	004	S	99L%S060	04/27/99	04/30/99	05/03/99
CHROMIUM VI	004	S	99LVI037	04/27/99	05/03/99	05/03/99
B0VD38						
% SOLIDS	005	S	99L%S060	04/27/99	04/30/99	05/03/99
CHROMIUM VI	005	S	99LVI037	04/27/99	05/03/99	05/03/99
B0VD39						
% SOLIDS	006	S	99L%S060	04/27/99	04/30/99	05/03/99
% SOLIDS	006 REP	S	99L%S060	04/27/99	04/30/99	05/03/99
CHROMIUM VI	006	S	99LVI037	04/27/99	05/03/99	05/03/99
LAB QC:						
CHROMIUM VI	MB1	S	99LVI037	N/A	05/03/99	05/03/99

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Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-002

DATE RECEIVED: 04/29/99

RFW LOT # :9904L807

<u>CLIENT ID /ANALYSIS</u>	<u>RFW #</u>	<u>MTX</u>	<u>PREP #</u>	<u>COLLECTION</u>	<u>EXTR/PREP</u>	<u>ANALYSIS</u>
CHROMIUM VI	MB1 BS	S	99LVI037	N/A	05/03/99	05/03/99
CHROMIUM VI	MB1 BSD	S	99LVI037	N/A	05/03/99	05/03/99

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010
4/29/99

3/14/99 11:00

Collector Fahlberg/Kerkow	Company Contact R Coffman	Telephone No. 373-6425	Project Coordinator TRENT, SJ	Price Code copy	Data Turnaround 15 Days
Project Designation 100 BC Areas - Full Protocol	Sampling Location 100 B/C 116-B-6B	SAF No. B99-002			
Ice Chest No. L0026	Field Logbook No. EL 1327-3	Method of Shipment Fed. Ex			
Shipped To WRECREA 755-4-27-99	Offsite Property No. A990123	Bill of Lading/Air Bill No. 42575525290 R1686B2600		4/28/99 RUN	
		COA Fed Ex R1686B2600			

POSSIBLE SAMPLE HAZARDS/REMARKS <div style="border: 1px solid black; border-radius: 50%; width: 50px; height: 50px; display: flex; align-items: center; justify-content: center; margin: 10px auto;"> 807 </div> Special Handling and/or Storage	Preservation	None	None	Cool 4C	None	None				
	Type of Container	P	aG	aG	aG	aG				
	No. of Container(s)	1	1	1	1	1				
	Volume	20mL	60mL	125mL	250mL	1000mL				

SAMPLE ANALYSIS				Activity Scan	See item (1) in Special Instructions.	Chromium Hex - 7196	ICP Metals - 6010A (SW-846) (Chromium, Lead); Mercury - 7471 - (CV)	See item (2) in Special Instructions.						
Sample No.	Matrix *	Sample Date	Sample Time											
BOVDB2	Soil	4-27-99	0830			X	X							
BOVDB3	Soil	4-27-99	1045			X	X							tie to Rev 084

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By <i>K. Fahlberg</i>	Date/Time 4-27-99 1620	Received By <i>R. Coffman</i>	Date/Time 4-27-99 1620
Relinquished By <i>R. Coffman</i>	Date/Time 4/28/99 0930	Received By <i>R. Nielsen</i>	Date/Time 4/28/99 0930
Relinquished By <i>R. Nielsen</i>	Date/Time 4/28/99 0930	Received By <i>FedEx</i>	Date/Time
Relinquished By <i>Zeeler</i>	Date/Time	Received By <i>Joder</i>	Date/Time 4/29/99 0930

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

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-002-87

Page 1 of 1

Collector Fahlberg/Kerkow	Company Contact R Coffman	Telephone No. 373-6425	Project Coordinator TRENT, SJ	Price Code copy	Data Turnaround 15 Days
Project Designation 100 BC Areas - Full Protocol	Sampling Location 100 B/C 116-B-6B	Field Logbook No. EL 1327-3	SAF No. B99-002		
Ice Chest No. L002b	36 lbs	Offsite Property No. A990123	Method of Shipment Fed Ex		
Shipped To FMA/RECRA RF 4-27-99			Bill of Lading/Air Bill No. 423579525290		
			COA R1bB6B2600		

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None	Cool 4C	None	None				
	Type of Container	P	aG	aG	aG	aG				
Special Handling and/or Storage	No. of Container(s)	1	1	1	1	1				
	Volume	20mL	60mL	125mL	250mL	1000mL				

SAMPLE ANALYSIS				Activity Scan	See item (1) in Special Instructions.	Chromium Hex - 7196	ICP Metals - 6010A (SW-846) (Chromium, Lead); Mercury - 7471 - (CV)	See item (2) in Special Instructions.			
Sample No.	Matrix *	Sample Date	Sample Time								
BOVD38	Soil	4-27-99	0930			X	X				fiets BOVD13
BOVD37	Soil	4-27-99	1000			X	X				ROVD16
BOVD38	Soil	4-27-99	1015			X	X				BOVDW8
BOVD39	Soil	4-27-99	1015			X	X				BOVDW8

CHAIN OF POSSESSION	Sign/Print Names	SPECIAL INSTRUCTIONS	Matrix *
Relinquished By <i>P. Felle</i>	Date/Time 1620	Received By <i>Ref 1-C</i>	Date/Time 1620
Relinquished By <i>Ref 1-C</i>	Date/Time 4-27-99	Received By <i>R. Nelson</i>	Date/Time 4-27-99
Relinquished By <i>R. Nelson</i>	Date/Time 4-28-99	Received By <i>Fed Ex</i>	Date/Time 0930
Relinquished By <i>Fed Ex</i>	Date/Time 4-29-99	Received By <i>J. Miller</i>	Date/Time 0930

(1) Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr; Nickel-63
(2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Uranium-238)

LABORATORY SECTION	Received By	Title	Date/Time
	<i>J. Miller</i>		
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time