



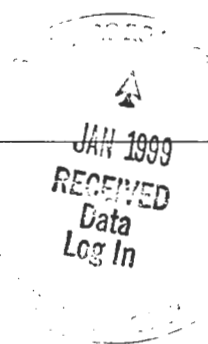
**RECRA
LabNet**

a division of Recra Environmental, Inc.

Virtual Laboratories Everywhere

0050813

H0327-T/W



**Recra LabNet Philadelphia
Analytical Report**

Client : TNU-HANFORD C99-012
RFW# : 9812L744
SDG# : H0327
SAF# : C99-012

W.O. # : 10985-001-001-9999-00
Date Received: 12-22-98

INORGANIC CASE NARRATIVE

1. This narrative covers the analysis of 1 water sample.
2. The sample was prepared and analyzed in accordance with the method checked on the attached glossary.
3. Sample holding time as required by the method and/or contract was not met as the sample was received past hold.
4. The cooler temperature was recorded on the chain-of-custody.
5. The method blank was within method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS was within the 20% Relative Percent Difference (RPD) control limit.
7. The matrix spike recovery was within the 75-125% control limits.
8. The replicate analysis was within the 20% RPD control limit.

J. Taylor

 J. Michael Taylor
 Vice President
 Philadelphia Analytical Laboratory

1-26-99

 Date

nip 112-744

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.

WET CHEMISTRY METHODS GLOSSARY FOR ANALYSIS OF WATER SAMPLES

	<u>EPA 600</u>	<u>SW846</u>	<u>OTHER</u>
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 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

INORGANICS DATA SUMMARY REPORT 01/26/99

CLIENT: TNU-HANFORD C99-012
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9812L744

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-----	-----	-----	-----	-----	-----	-----
-001	B0T804	Chromium VI	0.028	MG/L	0.020	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/11/99

CLIENT: TNU-HANFORD C99-012
WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9812L744

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	98LV1078-MB1	Chromium VI	0.020u	MG/L	0.020	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 01/26/99

CLIENT: TNU-MANFORD C99-012

RECRA LOT #: 9812L744

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

SAMPLE	SITE ID	ANALYTE	SPIKED	INITIAL	SPIKED	DILUTION	
			SAMPLE	RESULT	AMOUNT	%RECOV	FACTOR (SPK)
-001	B0T804	Chromium VI	1.1	0.028	1.0	106.6	1.0
BLANK10	98LV1078-MB1	Chromium VI	1.0	0.02u	1.0	104.0	1.0
		Chromium VI MSD	1.0	0.02u	1.0	101.4	1.0

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INORGANICS DUPLICATE SPIKE REPORT 01/11/99

CLIENT: TNU-HANFORD C99-012

RECRA LOT #: 9812L744

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	98LV1078-MB1	Chromium VI	104.0	101.4	2.5

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INORGANICS PRECISION REPORT 01/26/99

CLIENT: TNU-HANFORD C99-012

RECRA LOT #: 9812L744

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

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-001REP	B0T804	Chromium VI	0.028	0.030	6.9	1.0

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 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD C99-012

DATE RECEIVED: 12/22/98

RFW LOT # :9812L744

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOT804						
CHROMIUM VI	001	W	98LV1078	12/18/98	12/23/98	12/23/98
CHROMIUM VI	001	REP	W 98LV1078	12/18/98	12/23/98	12/23/98
CHROMIUM VI	001	MS	W 98LV1078	12/18/98	12/23/98	12/23/98

LAB QC:

CHROMIUM VI	MB1	W	98LV1078	N/A	12/23/98	12/23/98
CHROMIUM VI	MB1	BS	W 98LV1078	N/A	12/23/98	12/23/98
CHROMIUM VI	MB1	BSD	W 98LV1078	N/A	12/23/98	12/23/98

RECRA LabNet Use Only

9812L 744

Custody Transfer Record/Lab Work Request



RECRA LabNet

0010

Client TNU - HANFORD C99-012 Refrigerator # 6

Est. Final Proj. Sampling Date _____ #/Type Container Liquid IP

Project # 10985-001-001-999700 Volume Liquid Small

Project Contact/Phone # _____ Preservatives _____

RECRA Project Manager OJ ANALYSES REQUESTED → ORGANIC INORG

QC SID Del SPEC TAT 30 DAY VOA BNA Pest/PCB Herb Metal CN

Date Rec'd 12/22/98 Date Due _____ Account # TNUHANFORD

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 OC Chosen (✓)		Matrix	Date Collected	Time Collected	RECRA LabNet Use Only						
			MS	MSD				V	B	P	H	M	C	
	<u>20</u>	<u>BOU804</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<u>W</u>	<u>12/18/98</u>	<u>1004</u>							<u>✓</u>

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
SAF # - C99-012

DATE/REVISIONS:

1 _____

2 _____

3 _____

4 _____

5 *808247156506 @ 5.39

6 _____

RECRA LabNet Use Only

Samples were:
1) Shipped or Hand Delivered _____
Airbill # *

2) Ambient or Chilled

3) Received in Good Condition or N

4) Labels Indicate Properly Preserved or N

5) Received Within Holding _____ or N

COC Tape was:
1) Preserved Outer Package or N

2) Unbroken on Outer Package or N

3) Presented Sample or N

4) Unbroken on Sample or N

COC Record Present Upon Sample Rec'd or N

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time	Discrepancies Between Samples Labels and COC Record? Y or N NOTES
<u>Joe Ex</u>	<u>B Muller</u>	<u>12/22/98</u>	<u>1000</u>					

PNNI.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. #	C99-012-8
		Page 1 of 1	1100

Collector <i>Gostovich</i>	Contact/Requester JH KESSNER	Telephone No. (509) 372-9538	MSIN	FAX
SAF No. C99-012	Sampling Origin HANFORD SITE	Purchase Order/Charge Code		
Project Title 100 KR4 IAM (1) DECEMBER 1998 GROUNDWATER SAMPLING	Logbook No. <i>WM-SITE H 19, PAGE 13</i>	Ice Chest No. <i>Robin</i>	Temp. <i>Cool 4°C</i>	
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No. <i>FULL EX 4235-7952 (1998)</i>		
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.		

POSSIBLE SAMPLE HAZARDS/REMARKS	SPECIAL INSTRUCTIONS	Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
	Submit invoices & deliverables to JH Kessner, BHI FAX copies of TMA log-in to DI Stewart (372-1704) & JM Duncan (372-9052)		

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
BOT804 (F)		W	<i>12-18-98</i>	<i>1004</i>	1x500-mL GP	Chromium Hex - 7196	Cool 4C
BOT805		W	↓	↓	1x20-mL P	Activity Scan	None

Relinquished By <i>Gostovich</i>	Print <i>[Signature]</i>	Sign	Date/Time <i>11:20 DEC 18 1998</i>	Received By <i>Feed Express</i>	Print <i>[Signature]</i>	Sign	Date/Time	Matrix *
Relinquished By <i>Feed Ex</i>			Date/Time <i>12-17-98</i>	Received By <i>[Signature]</i>			Date/Time <i>12-17-98</i>	
Relinquished By <i>[Signature]</i>			Date/Time <i>12-21-98 09:30</i>	Received By <i>JR Covre JR Covre</i>			Date/Time <i>12-21-98 09:30</i>	
Relinquished By <i>JR Covre</i>			Date/Time <i>12-21-98 16:30</i>	Received By <i>Feed Ex</i>			Date/Time <i>12-21-98 16:30</i>	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			Date/Time	