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**Recra LabNet Philadelphia
Analytical Report
REVISION**

Client : TNU-HANFORD B99-085
RFW# : 9909L006
SDG# : H0515
SAF# : B99-085

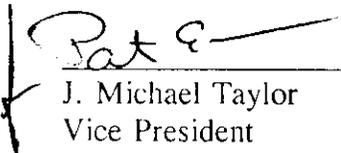
W.O. # : 10985-001-001-9999-00
Date Received: 09-03-99

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INORGANIC CASE NARRATIVE

This report is revised to included matrix quality control analyses **EDMC** Ammonia and Nitrate Nitrite.

1. This narrative covers the analyses of 1 water sample.
2. The sample was 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 with the exception of Nitrate, Nitrite, Phosphate and pH which were received past hold; Ammonia and Nitrate Nitrite matrix quality control analyses were performed 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. The matrix spike duplicate for Sulfide was within the 20% RPD control limit.
8. The replicate analyses were within the 20% RPD control limit.



J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory
njv09-006

1-17-00
Date

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 SOIL/SOLIDS SAMPLE ANALYSIS

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
% Ash	___ D2216-80		
% Moisture	___ D2216-80		___ ILMO4.0 (e)
% Solids	<u>✓</u> D2216-80		___ ILMO4.0 (e)
% Volatile Solids	___ D2216-80		
ASTM Extraction in Water	___ D3987-81/85		
BTU	___ D240-87		
CEC		___ 9081	___ c
Chromium VI		<u>✓</u> 3060A/7196A	
Corrosivity ___ by coupon ___ by pH		___ 1110(mod) ___ 9045C	
Cyanide, Total		<u>✓</u> 9010B	___ ILMO4.0 (e)
Cyanide, Reactive		___ Section 7.3	
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)
Oxygne Bomb Prep for Anions	___ D240-87(mod)	___ 5050	
Petroleum Hydrocarbons, Total Recoverable		___ 9071	___ EPA 418.1
pH, Soil		<u>✓</u> 9045C	
Sulfide, Reactive		___ Section 7.3	
Sulfide		<u>✓</u> 9030B(mod)	
Specific Gravity	___ D1429-76C/	___ D5057-90	
Sulfur, Total		___ 9056	
Synthetic Prpeparation Leach		___ 1312	
Paint Filter		9095A	

Other: nitrate, nitrite Method: EPA 353.2

Other: Ammonia Method: EPA 350.3

Chloride, Fluoride, Phosphate
Nitrate, Nitrite, Sulfate } EPA 300.0

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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 12/31/99

CLIENT: TNU-MANFORD B99-085
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9909L006

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING	DILUTION
					LIMIT	FACTOR
-002	B0W9P1	Chloride 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
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
		Nitrate Nitrite	0.02 u	MG-N/L	0.02	1.0
		Ammonia, as N	0.10 u	MG/L	0.10	1.0
		pH	5.8	PH UNITS	0.01	1.0
		Sulfide	1.0 u	MG/L	1.0	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 12/31/99

CLIENT: TNU-HANFORD B99-085
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9909L006

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
*****	*****	*****	*****	*****	*****	*****
BLANK10	99LICA77-MB1	Chloride 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
BLANK10	99LICB77-MB1	Phosphate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	99LN3046-MB1	Nitrate Nitrite	0.02 u	MG-N/L	0.02	1.0
BLANK10	99LN3059-MB1	Nitrate Nitrite	0.02 u	MG-N/L	0.02	1.0
BLANK10	99LAMA35-MB1	Ammonia, as N	0.10 u	MG/L	0.10	1.0
BLANK10	99LAMA50-MB1	Ammonia, as N	0.10 u	MG/L	0.10	1.0
BLANK10	99LSD044-MB1	Sulfide	1.0 u	MG/L	1.0	1.0

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INORGANICS ACCURACY REPORT 12/31/99

CLIENT: TNU-HANFORD B99-085

RECRA LOT #: 9909L006

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-002	BOW9P1	Chloride by IC	5.2	0.00	5.0	104.5	1.0
		Fluoride by IC	10.9	0.00	10.0	108.8	1.0
		Nitrite by IC	5.2	0.25u	5.0	104.4	1.0
		Nitrate by IC	5.2	0.25u	5.0	103.1	1.0
		Phosphate by IC	5.2	0.25u	5.0	104.1	1.0
		Sulfate by IC	5.1	0.25u	5.0	102.0	1.0
		Nitrate Nitrite	0.49	0.02u	0.50	98.6	1.0
		Ammonia, as N	0.96	0.10u	1.0	95.5	1.0
		Sulfide	10.0	0.80	10.0	92.0	1.0
		Sulfide MSD	10.1	0.80	10.0	92.4	1.0
BLANK10	99LICA77-MB1	Chloride by IC	4.8	0.25u	5.0	96.3	1.0
		Fluoride by IC	10.3	0.50u	10.0	102.8	1.0
		Nitrite by IC	5.0	0.25u	5.0	99.9	1.0
		Nitrate by IC	4.9	0.25u	5.0	97.8	1.0
		Sulfate by IC	4.9	0.25u	5.0	97.2	1.0
BLANK10	99LICB77-MB1	Phosphate by IC	4.9	0.25u	5.0	98.8	1.0
BLANK10	99LN3046-MB1	Nitrate Nitrite	0.51	0.02u	0.50	102.8	1.0
		Nitrate Nitrite MSD	0.51	0.02u	0.50	102.4	1.0
BLANK10	99LN3059-MB1	Nitrate Nitrite	0.47	0.02u	0.50	94.6	1.0
BLANK10	99LAMA35-MB1	Ammonia, as N	1.0	0.10u	1.0	103.0	1.0
		Ammonia, as N MSD	1.0	0.10u	1.0	101.0	1.0
BLANK10	99LAMA50-MB1	Ammonia, as N	4.0	0.10u	4.0	99.0	1.0
		Ammonia, as N MSD	4.0	0.10u	4.0	100.5	1.0
BLANK10	99LSD044-MB1	Sulfide	10.0	1.0 u	10.0	100	1.0
		Sulfide MSD	10.0	1.0 u	10.0	100	1.0

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INORGANICS DUPLICATE SPIKE REPORT 12/31/99

CLIENT: TNU-HANFORD E99-085

RECRA LOT #: 9909L006

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1		SPIKE#2	
			%RECOV	%RECOV	%RECOV	%DIFF
-002	B0W9P1	Sulfide	92.0	92.4	0.43	
BLANK10	99LN3046-MB1	Nitrate Nitrite	102.8	102.4	0.39	
BLANK10	99LAMA35-MB1	Ammonia, as N	103.0	101.0	2.0	
BLANK10	99LAMA50-MB1	Ammonia, as N	99.0	100.5	1.5	
BLANK10	99LSD044-MB1	Sulfide	100	100	0.00	

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INORGANICS PRECISION REPORT 12/31/99

CLIENT: TNU-HANFORD E99-085
 WORK ORDER: 10985-001-001-9999-00

RECRA LOT #: 9909L006

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR (REP)
			RESULT	REPLICATE	RPD	
-002REP	BCW9P1	Chloride by IC	0.25u	0.25u	NC	1.0
		Fluoride by IC	0.50u	0.50u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	0.25u	0.25u	NC	1.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	0.25u	0.25u	NC	1.0
		Nitrate Nitrite	0.02u	0.02u	NC	1.0
		Ammonia, as N	0.10u	0.10u	NC	1.0
		Sulfide	1.0 u	1.0 u	NC	1.0

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 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-085

DATE RECEIVED: 09/03/99

RFW LOT # :9909L006

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0W9P1						
CHLORIDE BY IC	002	W	99LICA77	09/01/99	09/16/99	09/16/99
CHLORIDE BY IC	002 REP	W	99LICA77	09/01/99	09/16/99	09/16/99
CHLORIDE BY IC	002 MS	W	99LICA77	09/01/99	09/16/99	09/16/99
FLUORIDE BY IC	002	W	99LICA77	09/01/99	09/16/99	09/16/99
FLUORIDE BY IC	002 REP	W	99LICA77	09/01/99	09/16/99	09/16/99
FLUORIDE BY IC	002 MS	W	99LICA77	09/01/99	09/16/99	09/16/99
NITRITE BY IC	002	W	99LICA77	09/01/99	09/16/99	09/16/99
NITRITE BY IC	002 REP	W	99LICA77	09/01/99	09/16/99	09/16/99
NITRITE BY IC	002 MS	W	99LICA77	09/01/99	09/16/99	09/16/99
NITRATE BY IC	002	W	99LICA77	09/01/99	09/16/99	09/16/99
NITRATE BY IC	002 REP	W	99LICA77	09/01/99	09/16/99	09/16/99
NITRATE BY IC	002 MS	W	99LICA77	09/01/99	09/16/99	09/16/99
PHOSPHATE BY IC	002	W	99LICB77	09/01/99	09/16/99	09/16/99
PHOSPHATE BY IC	002 REP	W	99LICB77	09/01/99	09/16/99	09/16/99
PHOSPHATE BY IC	002 MS	W	99LICB77	09/01/99	09/16/99	09/16/99
SULFATE BY IC	002	W	99LICA77	09/01/99	09/16/99	09/16/99
SULFATE BY IC	002 REP	W	99LICA77	09/01/99	09/16/99	09/16/99
SULFATE BY IC	002 MS	W	99LICA77	09/01/99	09/16/99	09/16/99
NITRATE NITRITE	002	W	99LN3046	09/01/99	09/22/99	09/22/99
NITRATE NITRITE	002 REP	W	99LN3059	09/01/99	12/08/99	12/08/99
NITRATE NITRITE	002 MS	W	99LN3059	09/01/99	12/08/99	12/08/99
AMMONIA	002	W	99LAMA35	09/01/99	09/15/99	09/15/99
AMMONIA	002 REP	W	99LAMA50	09/01/99	12/28/99	12/29/99
AMMONIA	002 MS	W	99LAMA50	09/01/99	12/28/99	12/29/99
PH	002	W	99LPH102	09/01/99	09/23/99	09/23/99
SULFIDE	002	W	99LSD044	09/01/99	09/07/99	09/07/99
SULFIDE	002 REP	W	99LSD044	09/01/99	09/07/99	09/07/99
SULFIDE	002 MS	W	99LSD044	09/01/99	09/07/99	09/07/99
SULFIDE	002 MSD	W	99LSD044	09/01/99	09/07/99	09/07/99

LAB QC:

CHLORIDE BY IC	MB1	W	99LICA77	N/A	09/16/99	09/16/99
CHLORIDE BY IC	MB1 BS	W	99LICA77	N/A	09/16/99	09/16/99
FLUORIDE BY IC	MB1	W	99LICA77	N/A	09/16/99	09/16/99

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-085

DATE RECEIVED: 09/03/99

RFW LOT # :9909L006

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
FLUORIDE BY IC	MB1 BS	W	99LICA77	N/A	09/16/99	09/16/99
NITRITE BY IC	MB1	W	99LICA77	N/A	09/16/99	09/16/99
NITRITE BY IC	MB1 BS	W	99LICA77	N/A	09/16/99	09/16/99
NITRATE BY IC	MB1	W	99LICA77	N/A	09/16/99	09/16/99
NITRATE BY IC	MB1 BS	W	99LICA77	N/A	09/16/99	09/16/99
PHOSPHATE BY IC	MB1	W	99LICB77	N/A	09/16/99	09/16/99
PHOSPHATE BY IC	MB1 BS	W	99LICB77	N/A	09/16/99	09/16/99
SULFATE BY IC	MB1	W	99LICA77	N/A	09/16/99	09/16/99
SULFATE BY IC	MB1 BS	W	99LICA77	N/A	09/16/99	09/16/99
NITRATE NITRITE	MB1	W	99LN3046	N/A	09/22/99	09/22/99
NITRATE NITRITE	MB1 BS	W	99LN3046	N/A	09/22/99	09/22/99
NITRATE NITRITE	MB1 BSD	W	99LN3046	N/A	09/22/99	09/22/99
NITRATE NITRITE	MB1	W	99LN3059	N/A	12/08/99	12/08/99
NITRATE NITRITE	MB1 BS	W	99LN3059	N/A	12/08/99	12/08/99
AMMONIA	MB1	W	99LAMA35	N/A	09/15/99	09/15/99
AMMONIA	MB1 BS	W	99LAMA35	N/A	09/15/99	09/15/99
AMMONIA	MB1 BSD	W	99LAMA35	N/A	09/15/99	09/15/99
AMMONIA	MB1	W	99LAMA50	N/A	12/28/99	12/29/99
AMMONIA	MB1 BS	W	99LAMA50	N/A	12/28/99	12/29/99
AMMONIA	MB1 BSD	W	99LAMA50	N/A	12/28/99	12/29/99
SULFIDE	MB1	W	99LSD044	N/A	09/07/99	09/07/99
SULFIDE	MB1 BS	W	99LSD044	N/A	09/07/99	09/07/99
SULFIDE	MB1 BSD	W	99LSD044	N/A	09/07/99	09/07/99

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			B99-085-03	Page 1 of 1
Collector Doug Bowers/Brent Porter		Company Contact Chris Cearlock	Telephone No. 372-9574	Project Coordinator Trent, SJ	Price Code 7N	Data Turnaround 45 Days
Project Designation 200 Area Source characterization - 200-CW-1 OU - QC Sa		Sampling Location 200 East 200 CW1 GP-12 9-1-99 75-1B		SAF No. B99-085		
Ice Chest No. ELC06-035		Field Logbook No. EL-1511		Method of Shipment Federal Express		
Shipped To TMA/RECRA 9/1/99		Offsite Property No. A090243		Bill of Lading/Air Bill No. 423570529057		
COA B20CW1671C						

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	ZnAc+NaOH to pH >9 Cool	Cool 4C	H2SO4 to pH <2 Cool 4C	Cool 4C	HNO3 to pH <2	HCl to pH <2 Cool 4C	HNO3 to pH <2			
	Type of Container	P	P	P	aG	G/P	aGs*	P			
	No. of Container(s)	1	1	1	2	2	3	3			
Special Handling and/or Storage	Volume	500mL	1000mL	1000mL	1000mL	1000mL	40mL	500mL			

SAMPLE ANALYSIS	Sulfides - 9010	See item (1) in Special Instructions	NO2/NO3 - 353 I, Ammonia - 350 J	Semi-VOA - 8270A (TCL)	Gross Alpha, Gross Beta	VOA - 8260A (TCL), VOA - 8260A (Add- On) (I- Propanol, Ethanol)	See item (2) in Special Instructions			

Sample No.	Matrix *	Sample Date	Sample Time								
BOW9P0	Water	9-1-99	0500						X		
BOW9P1	Water	9-1-99	0630	X	X	X	X		X	X	

CHAIN OF POSSESSION		Sign/Print Names				SPECIAL INSTRUCTIONS See Chain of Custody comments on SAF for special instructions				Matrix *	
Relinquished By Doug Bowers	Date/Time 9-1-99/1200	Received By Aof IA	Date/Time 9-1-99/1200	(1) IC Anions - 300 0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040 (2) ICP Metals - 6010A (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); ICP Metals - 6010A (Supertrace Add-On) (Copper, Nickel, Vanadium, Zinc) collector unavailable to relinquish samples. From non Rad area				Soil Water Vapor Other Solid Other Liquid			
Relinquished By Kef #1A	Date/Time 9/2/99 1230	Received By Gene Nickerson	Date/Time 9/2/99 1230								
Relinquished By Gene Nickerson	Date/Time 9/2/99 1330	Received By FedEx	Date/Time								
Relinquished By FedEx	Date/Time 9-5-99 0930	Received By T Murray	Date/Time 9-5-99 0930								
LABORATORY SECTION	Received By	Title				Date/Time					
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By				Date/Time					

012