

**Recra LabNet Philadelphia
Analytical Report**

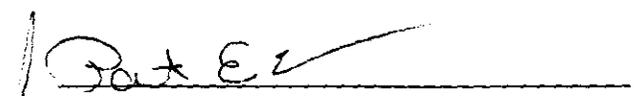
Client : TNU-HANFORD B99-001
RFW# : 9903L518
SDG# : H0365
SAF# : B99-001

W.O. # : 10985-001-001-0001-00
Date Received: 03-23-99



INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 2 soil 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 Samples (LCS) for Chromium VI were within the laboratory control limits.
7. The matrix spike recoveries for Chromium VI were within the 75-125% control limits.
8. The replicate analysis for Chromium VI was within the 20% RPD control limit.
9. Results for solid samples are reported on a dry weight basis.



J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

4-8-99
Date

njphi03-518

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 SOIL/SOLID SAMPLES

	<u>ASTM</u>	<u>SW846</u>	<u>OTHER</u>
%Ash	_ D2216-80		
%Moisture	_ D2216-80		_ ILMO4.0 (e)
%Solids			_ 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/7190A

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 04/06/99

CLIENT: TNU-HANFORD B99-001

RECRA LOT #: 9903L518

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	BOV111	% Solids	90.5	%	0.01	1.0
		Chromium VI	0.88 u	MG/KG	0.88	1.0
-002	BOV112	% Solids	87.7	%	0.01	1.0
		Chromium VI	0.91 u	MG/KG	0.91	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/06/99

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

RECRA LOT #: 9903L518

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LVI030-MB1	Chromium VI	0.80 u	MG/KG	0.80	1.0

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INORGANICS ACCURACY REPORT 04/06/99

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

RECRA LOT #: 9903L518

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RRCOV	DILUTION FACTOR (SPK)
-002	BOV112	Soluble Chromium VI	47.9	0.30	45.6	104.3	1.0
		Insoluble Chromium VI	1360	0.30	1160	117.0	20.0
BLANK10	99LVI030-MB1	Soluble Chromium VI	38.8	0.80u	40.0	97.0	1.0
		Insoluble Chromium VI	1150	0.80u	1160	98.6	20.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 04/06/99

CLIENT: TNU-HANFORD B99-001

RECRA LOT #: 9903L518

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-002REP	BOV112	Chromium VI	0.91u	0.91u	NC	1.0

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-001

DATE RECEIVED: 03/23/99

RFW LOT # :9903L518

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0V111						
% SOLIDS	001	S	99L%S045	03/15/99	03/29/99	03/30/99
CHROMIUM VI	001	S	99LVI030	03/15/99	03/29/99	03/29/99
B0V112						
% SOLIDS	002	S	99L%S045	03/17/99	03/29/99	03/30/99
CHROMIUM VI	002	S	99LVI030	03/17/99	03/29/99	03/29/99
CHROMIUM VI	002 REP	S	99LVI030	03/17/99	03/29/99	03/29/99
CHROMIUM VI	002 MS	S	99LVI030	03/17/99	03/29/99	03/29/99
CHROMIUM VI	002 MSD	S	99LVI030	03/17/99	03/29/99	03/29/99

LAB QC:

CHROMIUM VI	MB1	S	99LVI030	N/A	03/29/99	03/29/99
CHROMIUM VI	MB1 BS	S	99LVI030	N/A	03/29/99	03/29/99
CHROMIUM VI	MB1 BSD	S	99LVI030	N/A	03/29/99	03/29/99

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-001-132

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Collector Lahlberg/Kerkow	Company Contact R Coffman	Telephone No. 373-6425	Project Coordinator TRENT, SJ	Price Code	Data Turnaround 7 days
Project Designation 100 BC Areas - Quick Turn	Sampling Location 100 B/C <i>116-B-4</i>	SAF No. B99-001			
Ice Chest No.	Field Logbook No. EL 1327-02	Method of Shipment			
Shipped To <i>RECARA</i> <i>RS 3-17-99</i>	Offsite Property No. <i>A910090</i>	Bill of Lading/Air Bill No. <i>423579523600450</i>			
		COA <i>R116B4 2F00</i>			

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	Cool 4C	Cool 4C	None					
	Type of Container	P	aG	aG	aG	aG					
	No. of Container(s)	1	1	1	1	1					
Special Handling and/or Storage	Volume	20mL	60mL	60mL	60mL	500mL					

SAMPLE ANALYSIS				Activity Scan	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions				
Sample No.	Matrix *	Sample Date	Sample Time									
BOV110 <i>ES</i>	Soil											
BOV111 <i>B-17-99</i>	Soil											
BOV112	Soil	<i>3/17/99</i>	<i>0750</i>		<i>X</i>	<i>X</i>	<i>X</i>					<i>ticks BOT Y99</i>

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *
Relinquished By		Sign/Print Names		(1) ICP Metals - 6010A (SW-846) (Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196 (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Cesium-134, Uranium-238); Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr; Nickel-63 <i>R. Fahlberg unavailable to relinquish samples.</i>				Soil Water Vapor Other Solid Other Liquid
Received By		Date/Time						
Relinquished By		Date/Time						
Received By		Date/Time						
Relinquished By		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

STATE OF CALIFORNIA DEPARTMENT OF ENVIRONMENTAL AFFAIRS
STATE OF CALIFORNIA SAMPLE ANALYSIS REQUEST

B99-001-132

Page 1 of 1

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Collector Fahlberg/Kerkow	Company Contact R Coffman	Telephone No. 373-6425	Project Coordinator FRENT, SJ	Price Code	Data Turnaround 7 days
Project Designation 100 BC Areas - Quick Turn	Sampling Location 100 B/C 116-B-4	SAF No. B99-001			
Ice Chest No.	Field Logbook No. EL 1327-02	Method of Shipment			
Shipped To TMA RECRA RJN 2/17/99	Offsite Property No. A0010090	Bill of Lading/Air Bill No. 422579523600			

COA R116B4 2FD

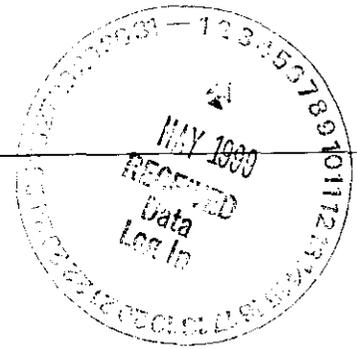
POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	Cool 4C	Cool 4C	None				
		Type of Container	P	aG	aG	aG	aG			
Special Handling and/or Storage	No. of Container(s)	1	1	1	1	1				
	Volume	20mL	60mL	60mL	60mL	500mL				

SAMPLE ANALYSIS				Activity Scan	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions					
Sample No.	Matrix *	Sample Date	Sample Time										
80V110 RS 3-12-99	Soil												
80V111	Soil	3-15-99	1250			X	X	X					
80V112 RS 3-15-99	Soil												

CHAIN OF POSSESSION		Sign/Print Names	
Acquired By Fahlberg	Date/Time 3-22-99	Received By R. Nielsen	Date/Time 3-22-99
Acquired By Fed Ex	Date/Time 3-23-99/0930	Received By K. Tabori	Date/Time 3-23-99/0930
Acquired By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS	Matrix *
(1) ICP Metals - 6010A (SW-846) [Chromium, Lead]; Mercury - 7471 - (CV); Chromium Hex - 7196 (2) Gamma Spectroscopy [Cesium-137, Cobalt-60, Europium-154, Europium-155]; Gamma Spec - Add-on [Americium-241, Cesium-134, Uranium-238]; Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr; Nickel-63	Soil Water Vapor Other Solid Other Liquid
R Fahlberg unavailable to re-mass samples.	

LABORATORY SECTION	Received By K. Tabori	Title Lab Tech	Date/Time 3-23-99/0930
ANAL SAMPLE POSITION	Disposal Method	Disposed By	Date/Time



**Recra LabNet Philadelphia
Analytical Report**

Client : TNU-HANFORD B99-001
RFW# : 9903L518
SDG/SAF# : H0365/B99-001

W.O.# : 10985-001-001-0001-00
Date Received: 03-23-99

METALS CASE NARRATIVE

1. This narrative covers the analyses of 2 soil 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 (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL) 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 laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.
10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. The duplicate analyses for 2 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision 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 13 pages.

12. 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.



J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

mld/m03-518

4-1-99
Date



METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 9903L518

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

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 03/31/99

CLIENT: TNU-HANFORD B99-001

RECRA LOT #: 9903L518

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	BOV111	Chromium, Total	8.9	MG/KG	0.07	1.0
		Mercury, Total	0.02	MG/KG	0.02	1.0
		Lead, Total	3.9	MG/KG	0.20	1.0
-002	BOV112	Chromium, Total	7.4	MG/KG	0.05	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	3.4	MG/KG	0.15	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/31/99

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

RECRA LOT #: 9903L518

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L0183-MB1	Chromium, Total	0.13	MG/KG	0.06	1.0
		Lead, Total	0.18	MG/KG	0.18	1.0
BLANK1	99C0090-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 03/31/99

CLIENT: TNU-HANFORD B99-001

RECRA LOT #: 9903L518

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

SAMPLE	SITE ID	ANALYTE	SPIKED	INITIAL	SPIKED	%RECOV	DILUTION
			SAMPLE	RESULT	AMOUNT		FACTOR (SPK)
-001	B0V111	Chromium, Total	28.5	8.9	21.7	90.3	1.0
		Mercury, Total	0.21	0.02	0.18	109.0	1.0
		Lead, Total	51.5	3.9	54.1	88.0	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 03/31/99

CLIENT: TNU-HANFORD B99-001

RECRA LOT #: 9903L518

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

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION
			RESULT	REPLICATE	RPD	
-001REP	BOV111	Chromium, Total	8.9	7.6	15.8	1.0
		Mercury, Total	0.02	0.02u	200	1.0
		Lead, Total	3.9	3.0	26.1	1.0

*Correction
MRD 3/31/99*

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/31/99

CLIENT: TNU-HANFORD B99-001

RECRA LOT #: 9903L518

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

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
LCS1	99L0183-LC1	Chromium, LCS	50.8	50.0	MG/KG	101.6
		Lead, LCS	243	250	MG/KG	97.2
LCS1	99C0090-LC1	Mercury, LCS	1.3	1.2	MG/KG	114.1

Recra LabNet - Lionville Laboratory
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNU-HANFORD B99-001

DATE RECEIVED: 03/23/99

RFW LOT # :9903L518

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0V111						
CHROMIUM, TOTAL	001	S	99L0183	03/15/99	03/25/99	03/26/99
CHROMIUM, TOTAL	001 REP	S	99L0183	03/15/99	03/25/99	03/26/99
CHROMIUM, TOTAL	001 MS	S	99L0183	03/15/99	03/25/99	03/26/99
MERCURY, TOTAL	001	S	99C0090	03/15/99	03/26/99	03/26/99
MERCURY, TOTAL	001 REP	S	99C0090	03/15/99	03/26/99	03/26/99
MERCURY, TOTAL	001 MS	S	99C0090	03/15/99	03/26/99	03/26/99
LEAD, TOTAL	001	S	99L0183	03/15/99	03/25/99	03/26/99
LEAD, TOTAL	001 REP	S	99L0183	03/15/99	03/25/99	03/26/99
LEAD, TOTAL	001 MS	S	99L0183	03/15/99	03/25/99	03/26/99

B0V112

CHROMIUM, TOTAL	002	S	99L0183	03/17/99	03/25/99	03/26/99
MERCURY, TOTAL	002	S	99C0090	03/17/99	03/26/99	03/26/99
LEAD, TOTAL	002	S	99L0183	03/17/99	03/25/99	03/26/99

LAB QC:

CHROMIUM LABORATORY	LC1 BS	S	99L0183	N/A	03/25/99	03/26/99
CHROMIUM, TOTAL	MB1	S	99L0183	N/A	03/25/99	03/26/99
MERCURY LABORATORY	LC1 BS	S	99C0090	N/A	03/26/99	03/26/99
MERCURY, TOTAL	MB1	S	99C0090	N/A	03/26/99	03/26/99
LEAD LABORATORY	LC1 BS	S	99L0183	N/A	03/25/99	03/26/99
LEAD, TOTAL	MB1	S	99L0183	N/A	03/25/99	03/26/99

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-001-132	Page 1 of 1
Collector Lahlberg/Kerkow	Company Contact R Coffman	Telephone No. 373-6425	Project Coordinator TRENT, SJ	Price Code	Data Turnaround 7 days		
Project Designation 100 BC Areas - Quick Turn	Sampling Location 100 B/C 116-B-4	SAF No. B99-001					
Ice Chest No.	Field Logbook No. EL 1327-02	Method of Shipment					
Shipped To LAHMBERG REARA 3-17-99	Offsite Property No. A900090	Bill of Lading/Air Bill No. 4235795236004.5 ^{cc}					
							COA R116B4 JF00

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	Cool 4C	Cool 4C	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	60mL	60mL	500mL						

SAMPLE ANALYSIS				Activity Scan	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions						
Sample No.	Matrix *	Sample Date	Sample Time											
BOV110 - ES	Soil													
BOV111 - B-17-99	Soil													
BOV112	Soil	3/17/99	0750		X	X	X							ticks BOT YYY

CHAIN OF POSSESSION				SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By for R. Fahlberg		Sign/Print Names		(1) ICP Metals - 6010A (SW-846) [Chromium - Lead]; Mercury - 7471 - (CV); Chromium Hex - 7196 (2) Gamma Spectroscopy [Cesium-137, Cobalt-60, Europium-154, Europium-155]; Gamma Spec - Add-on [Americium-241, Cesium-134, Uranium-238]; Americium-241; Isotopic Plutonium, Isotopic Uranium, Strontium-89,90 -- Total Sr; Nickel-63 R. Fahlberg unavailable to relinquish samples.				Soil Water Vapor Other Solid Other Liquid	
Relinquished By R. Fahlberg	Date/Time 3/30/99	Received By Fed Ex	Date/Time 3/30/99						
Relinquished By Fed Ex	Date/Time 3-23-99/0730	Received By Stevine	Date/Time 3-23-99/0930						
Relinquished By	Date/Time	Received By	Date/Time						
LABORATORY SECTION	Received By A. Stevino	Title Lab Tech	Date/Time 3-23-99/0930						
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time						

012

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-001-132

Page 1 of 1

Collector Fahlberg/Ketkow	Company Contact R Coffman	Telephone No. 373-6425	Project Coordinator TRENT, SJ	Price Code	Data Turnaround 7 days
Project Designation 100 BC Areas - Quick Turn	Sampling Location 100 B/C 116-B-4	SAF No. B99-001			
Ice Chest No.	Field Logbook No. EL 1327-02	Method of Shipment			
Shipped To FMA/RECRA AJN 3/17/99	Offsite Property No. A0010090	Bill of Lading/Air Bill No. 422579523600			
COA R116B4 2FPD					

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	Cool 4C	Cool 4C	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	60mL	60mL	500mL					

SAMPLE ANALYSIS				Activity Scan	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions					
Sample No.	Matrix *	Sample Date	Sample Time										
B0V110 RS 3-12-99	Soil												
B0V111	Soil	3-15-99	1250		X	X	X						
B0V112 RE 3-15-99	Soil												

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By R. Nelson	Date/Time 3-22-99	Received By Fahlberg	Date/Time 3-22-99	(1) ICP Metals - 6010A (SW-846) (Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196 (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Cesium-134, Uranium-238); Americium-241, Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 - Total Sr; Nickel-63 R Fahlberg unavailable to relinquish samples.				Soil Water Vapor Other Solid Other Liquid
Relinquished By Fahlberg	Date/Time 3-23-99/0930	Received By T. J. ...	Date/Time 3-23-99/0930					
Relinquished By	Date/Time	Received By	Date/Time					
Relinquished By	Date/Time	Received By	Date/Time					

LABORATORY SECTION	Received By T. J. ...	Title Lab Tech	Date/Time 3-23-99/0930
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

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.



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.



Recra LabNet - Lionville Laboratory

Semivolatiles by GC/MS, HSL List

Report Date: 03/31/99 14:30

04

RFW Batch Number: 9903L518

Client: TNU-HANFORD B99-001

Work Order: 10985001001

Page: 1a

	Cust ID:	BOV111	BOV111	BOV111	BOV112	SBLKTC	SBLKTC BS
Sample Information	RFW#:	001	001 MS	001 MSD	002	99LE0372-MB1	99LE0372-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
Surrogate	Nitrobenzene-d5	67 %	71 %	67 %	66 %	76 %	63 %
Recovery	2-Fluorobiphenyl	68 %	74 %	67 %	67 %	79 %	67 %
	Terphenyl-d14	84 %	86 %	80 %	81 %	100 %	79 %
	Phenol-d5	66 %	70 %	68 %	63 %	71 %	60 %
	2-Fluorophenol	65 %	71 %	68 %	64 %	72 %	61 %
	2,4,6-Tribromophenol	79 %	69 %	74 %	69 %	69 %	61 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====							
	Phenol	370 U	69 %	67 %	380 U	330 U	59 %
	bis(2-Chloroethyl) ether	370 U	1100 U	1100 U	380 U	330 U	330 U
	2-Chlorophenol	370 U	68 %	66 %	380 U	330 U	59 %
	1,3-Dichlorobenzene	370 U	1100 U	1100 U	380 U	330 U	330 U
	1,4-Dichlorobenzene	370 U	65 %	61 %	380 U	330 U	57 %
	1,2-Dichlorobenzene	370 U	1100 U	1100 U	380 U	330 U	330 U
	2-Methylphenol	370 U	1100 U	1100 U	380 U	330 U	330 U
	2,2'-oxybis(1-Chloropropane)	370 U	1100 U	1100 U	380 U	330 U	330 U
	4-Methylphenol	370 U	1100 U	1100 U	380 U	330 U	330 U
	N-Nitroso-di-n-propylamine	370 U	73 %	72 %	380 U	330 U	63 %
	Hexachloroethane	370 U	1100 U	1100 U	380 U	330 U	330 U
	Nitrobenzene	370 U	1100 U	1100 U	380 U	330 U	330 U
	Isophorone	370 U	1100 U	1100 U	380 U	330 U	330 U
	2-Nitrophenol	370 U	1100 U	1100 U	380 U	330 U	330 U
	2,4-Dimethylphenol	370 U	1100 U	1100 U	380 U	330 U	330 U
	bis(2-Chloroethoxy) methane	370 U	1100 U	1100 U	380 U	330 U	330 U
	2,4-Dichlorophenol	370 U	1100 U	1100 U	380 U	330 U	330 U
	1,2,4-Trichlorobenzene	370 U	68 %	64 %	380 U	330 U	60 %
	Naphthalene	370 U	1100 U	1100 U	380 U	330 U	330 U
	4-Chloroaniline	370 U	1100 U	1100 U	380 U	330 U	330 U
	Hexachlorobutadiene	370 U	1100 U	1100 U	380 U	330 U	330 U
	4-Chloro-3-methylphenol	370 U	67 %	68 %	380 U	330 U	60 %
	2-Methylnaphthalene	370 U	1100 U	1100 U	380 U	330 U	330 U
	Hexachlorocyclopentadiene	370 U	1100 U	1100 U	380 U	330 U	330 U
	2,4,6-Trichlorophenol	370 U	1100 U	1100 U	380 U	330 U	330 U
	2,4,5-Trichlorophenol	920 U	2800 U	2800 U	950 U	840 U	840 U

*= Outside of EPA CLP QC limits.

05

Cust ID:	BOV111	BOV111	BOV111	BOV111	BOV112	SBLKTC	SBLKTC BS
RFW#:	001	001 MS	001 MSD		002	99LE0372-MB1	99LE0372-MB1
2-Chloronaphthalene	370 U	1100 U	1100 U		380 U	330 U	330 U
2-Nitroaniline	920 U	2800 U	2800 U		950 U	840 U	840 U
Dimethylphthalate	370 U	1100 U	1100 U		380 U	330 U	330 U
Acenaphthylene	370 U	1100 U	1100 U		380 U	330 U	330 U
2,6-Dinitrotoluene	370 U	1100 U	1100 U		380 U	330 U	330 U
3-Nitroaniline	920 U	2800 U	2800 U		950 U	840 U	840 U
Acenaphthene	370 U	70 %	67 %		380 U	330 U	64 %
2,4-Dinitrophenol	920 U	2800 U	2800 U		950 U	840 U	840 U
4-Nitrophenol	920 U	65 %	73 %		950 U	840 U	63 %
Dibenzofuran	370 U	1100 U	1100 U		380 U	330 U	330 U
2,4-Dinitrotoluene	370 U	68 %	70 %		380 U	330 U	65 %
Diethylphthalate	370 U	1100 U	1100 U		380 U	330 U	330 U
4-Chlorophenyl-phenylether	370 U	1100 U	1100 U		380 U	330 U	330 U
Fluorene	370 U	1100 U	1100 U		380 U	330 U	330 U
4-Nitroaniline	920 U	2800 U	2800 U		950 U	840 U	840 U
4,6-Dinitro-2-methylphenol	920 U	2800 U	2800 U		950 U	840 U	840 U
N-Nitrosodiphenylamine (1)	370 U	1100 U	1100 U		380 U	330 U	330 U
4-Bromophenyl-phenylether	370 U	1100 U	1100 U		380 U	330 U	330 U
Hexachlorobenzene	370 U	1100 U	1100 U		380 U	330 U	330 U
Pentachlorophenol	920 U	71 %	75 %		950 U	840 U	68 %
Phenanthrene	370 U	1100 U	1100 U		380 U	330 U	330 U
Anthracene	370 U	1100 U	1100 U		380 U	330 U	330 U
Carbazole	370 U	1100 U	1100 U		380 U	330 U	330 U
Di-n-butylphthalate	370 U	1100 U	1100 U		380 U	330 U	330 U
Fluoranthene	370 U	1100 U	1100 U		380 U	330 U	330 U
Pyrene	370 U	85 %	82 %		380 U	330 U	77 %
Butylbenzylphthalate	370 U	1100 U	1100 U		380 U	330 U	330 U
3,3'-Dichlorobenzidine	370 U	1100 U	1100 U		380 U	330 U	330 U
Benzo (a) anthracene	370 U	1100 U	1100 U		380 U	330 U	330 U
Chrysene	370 U	1100 U	1100 U		380 U	330 U	330 U
bis (2-Ethylhexyl) phthalate	370 U	1100 U	1100 U		380 U	330 U	330 U
Di-n-octyl phthalate	370 U	1100 U	1100 U		380 U	330 U	330 U
Benzo (b) fluoranthene	370 U	1100 U	1100 U		380 U	330 U	330 U
Benzo (k) fluoranthene	370 U	1100 U	1100 U		380 U	330 U	330 U
Benzo (a) pyrene	370 U	1100 U	1100 U		380 U	330 U	330 U
Indeno (1,2,3-cd) pyrene	370 U	1100 U	1100 U		380 U	330 U	330 U
Dibenz (a,h) anthracene	370 U	1100 U	1100 U		380 U	330 U	330 U
Benzo (g,h,i) perylene	370 U	1100 U	1100 U		380 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.

B0V111

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-001

Matrix: (soil/water) SOIL Lab Sample ID: 9903L518-001

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E033008

Level: (low/med) LOW Date Received: 03/23/99

% Moisture: 9 decanted: (Y/N) Date Extracted: 03/25/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/30/99

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: 2

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.77	80	JA
2.	UNKNOWN	23.04	70	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B0V112

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-001

Matrix: (soil/water) SOIL Lab Sample ID: 9903L518-002

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E033011

Level: (low/med) LOW Date Received: 03/23/99

% Moisture: 12 decanted: (Y/N) Date Extracted: 03/25/99

Concentrated Extract Volume: 1000(uL) Date Analyzed: 03/30/99

Injection Volume: 2.0(uL) Dilution Factor: 1.00

GPC Cleanup: (Y/N) N pH:

Number TICs found: 4 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.78	100	JA
2.	UNKNOWN	8.60	70	J
3.	ORGANIC ACID	20.67	70	J
4.	UNKNOWN	23.04	200	J

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKTC

Lab Name: Recra.LabNet Work Order: 10985001001

Client: TNU-HANFORD B99-001

Matrix: (soil/water) SOIL Lab Sample ID: 99LE0372-MB1

Sample wt/vol: 30.0 (g/mL) G Lab File ID: E033006

Level: (low/med) LOW Date Received: 03/25/99

% Moisture: decanted: (Y/N) Date Extracted: 03/25/99

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/30/99

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: 1

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	ALDOL CONDENSATE	7.17	80	JA

Recra LabNet - Lionville Laboratory
BNA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-001

DATE RECEIVED: 03/23/99

RFW LOT # :9903L518

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOV111	001	S	99LE0372	03/15/99	03/25/99	03/30/99
BOV111	001 MS	S	99LE0372	03/15/99	03/25/99	03/30/99
BOV111	001 MSD	S	99LE0372	03/15/99	03/25/99	03/30/99
BOV112	002	S	99LE0372	03/17/99	03/25/99	03/30/99
LAB QC:						
SBLKTC	MB1	S	99LE0372	N/A	03/25/99	03/30/99
SBLKTC	MB1 BS	S	99LE0372	N/A	03/25/99	03/30/99

Collector Fahlberg/Kerkow	Company Contact R Coffman	Telephone No. 373-6425	Project Coordinator TRENT, SJ	Price Code	Data Turnaround 7 days
Project Designation 100 BC Areas - Quick Turn	Sampling Location 100 B/C 116 B-4	SAF No. B99-001			
Ice Chest No.	Field Logbook No. EL 1327-02	Method of Shipment			
Shipped To FMA/RECRA RIN 3/17/99	Offsite Property No. A0010090	Bill of Lading/Air Bill No. 422579523600			
COA R116B4 2FPD					

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	Cool 4C	Cool 4C	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	60mL	60mL	500mL					
SAMPLE ANALYSIS		Activity Scan	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions					
Sample No.	Matrix *	Sample Date	Sample Time								
BOV110 RS 3.12.99	Soil										
BOV111	Soil	3.15.99	1250	X	X	X					
BOV112 RE 3.15.99	Soil										

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS			Matrix *
Relinquished By R. Fahlberg	Date/Time 3-22-99	Received By R. Nelson	Date/Time 3-22-99	(1) ICP Metals - 6010A (SW-846) (Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196 (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Cesium-134, Uranium-238); Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr; Nickel-63 R Fahlberg unavailable to relinquish samples.			Soil Water Vapor Other Solid Other Liquid
Relinquished By Ted EX	Date/Time 3-23-99/0930	Received By A. Turini	Date/Time 3-23-99/0930				
Relinquished By	Date/Time	Received By	Date/Time				
Relinquished By	Date/Time	Received By	Date/Time				
LABORATORY SECTION	Received By A. Turini	Title Lab Tech	Disposed By			Date/Time 3-23-99/0930	
FINAL SAMPLE DISPOSITION	Disposal Method				Date/Time		

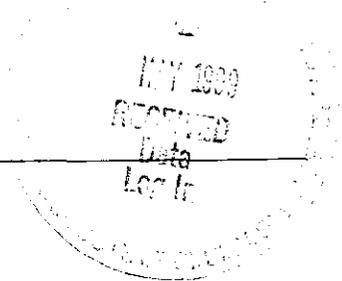
Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-001-132	Page 1 of 1	12
Collector Fahlberg/Kerkow		Company Contact R Coffman		Telephone No. 373-6425		Project Coordinator TRENT, SJ		Price Code
Project Designation 100 BC Areas - Quick Turn		Sampling Location 100 B/C 116-B-4		SAF No. B99-001		Data Turnaround 7 days		
Ice Chest No.		Field Logbook No. EL 1327-02		Method of Shipment				
Shipped To SAVRECA RECARA 3-17-99		Offsite Property No. A990090		Bill of Lading/Air Bill No. 4235795236064.5 ^{cd}				
								COA R116B4 2F00

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	Cool 4C	Cool 4C	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	60mL	60mL	500mL					
SAMPLE ANALYSIS		Activity Scan	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions					
Sample No.	Matrix *	Sample Date	Sample Time								
BOV110	Soil										
BOV111	Soil	3-17-99									
BOV112	Soil	3/17/99	0750	X	X	X					tie to BOT 119

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By <i>R. Fahlberg</i>	Date/Time 3-23-99/0930	Received By <i>R. Nielsen</i>	Date/Time 3-23-99/0930	(1) ICP Metals - 6010A (SW-846) {Chromium, Lead}; Mercury - 7471 - (CV); Chromium Hex - 7196 (2) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-154, Europium-155}; Gamma Spec - Add-on {Americium-241, Cesium-134, Uranium-238}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr; Nickel-63 R. Fahlberg unavailable to relinquish samples.				Soil Water Vapor Other Solid Other Liquid
Relinquished By <i>Fed Ex</i>	Date/Time 3-23-99/0930	Received By <i>Fed Ex</i>	Date/Time 3-23-99/0930					
Relinquished By	Date/Time	Received By	Date/Time					
Relinquished By	Date/Time	Received By	Date/Time					
LABORATORY SECTION	Received By <i>A. [Signature]</i>		Title Lab Tech		Date/Time 3-23-99/0930			
FINAL SAMPLE DISPOSITION	Disposal Method		Disposed By			Date/Time		



**Recra LabNet Philadelphia
Analytical Report**



Client : TNU-HANFORD B99-001
RFW# : 9903L518
SDG/SAF #: H0365/ B99-001

W.O. #: 10985-001-001-0001-00
Date Received: 03-23-99

GC/MS VOLATILE

Two (2) soil samples were collected on 03-15,17-99.

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 03-28-99.

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 the 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 contaminants Methylene Chloride and Acetone at levels less than the CRQL.
8. On 03-23-99, the date on the GC/MS system computer of Instrument 5972H was incorrectly entered as 03-21-99; however, the "file naming sequence" indicated the correct date (e.g., file name H032399 was acquired on 03-23-99). This error was identified and the system date was corrected on 03-25-99. The date acquired was manually corrected for each data file and there was no impact on the data. A copy of the Corrective Action Documentation has been included after the case narrative.

J. Michael Taylor

 J. Michael Taylor
 Vice President
 Philadelphia Analytical Laboratory

04-23-99

 Date

som\group\data\voa\tnu03518.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 10 pages.

CORRECTIVE ACTION DOCUMENTATION

INSTRUCTIONS: 1) ORIGINATOR complete PERSON RESPONSIBLE FOR RESPONSE and DESCRIPTION OF PROBLEM blocks.
2) Originator forward form to PERSON RESPONSIBLE FOR RESPONSE.
3) Develop/plan a SEQUENCE OF CORRECTIVE ACTION and obtain INITIAL CA APPROVAL sign-off from supervisor.
4) Forward original form to QA for sign-off and FOLLOW-UP ACTION. This allows all pertinent action to be documented on the original form. On completion of the corrective action, the form is signed off by QA, distributed, and the original archived with the QA records.

DATE/ORIGINATOR 3/25/99 Megan N. Ritchie	PAGE 1 OF 1
PERSON RESPONSIBLE FOR RESPONSE (corrective action plan and implementation of corrective action plan): Steve Weldon Beth Rubino	DISTRIBUTION: <input type="checkbox"/> LABORATORY MANAGER <input type="checkbox"/> INORGANIC MANAGER <input checked="" type="checkbox"/> GC/MS MANAGER <input type="checkbox"/> GC/EXTR MANAGER <input type="checkbox"/> QA MANAGER <input checked="" type="checkbox"/> QA REPORT FILE <input type="checkbox"/> <input type="checkbox"/>

DESCRIPTION OF PROBLEM and when identified:
Instrument #
Instrument date is two days behind actual date. Problem was identified 3/25/99. Problem started on * 3/22/99.

CAUSE OF PROBLEM if known or suspected:
unknown

SEQUENCE OF CORRECTIVE ACTION (CA) planned (signature/date): Megan N. Ritchie 3/25/99

Date was corrected in instrument PC. Each sample of the following RFD batches and 7 corresponding CLL's, ICL's, blank, and blanks were corrected in ChemServer:

WSRC 9903L410	WSRC 9903L555	TNU-9903L518	BML 3/31/99
9903L430	9903L473	ADLHIE-9903L545	
9903L434	9903L480		
9903L451	9903L477		
9903L503	9903L502		

Any samples analyzed using TCL 5-point from 3/23/99

INITIAL CA APPROVAL: Supervisor signature/date: [Signature] 03-25-99
 QA signature/date: Deborah Abaciano 3-25-99

DESCRIPTION OF QA FOLLOW-UP ACTION (include signature/date):
Review data at completion

FINAL CA APPROVED (QA signature/date): [Signature] 3-25-99

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: 03/31/99 10:02

RFW Batch Number: 9903L518

Client: TNU-HANFORD B99-001

Work Order: 10985001001 Page: 1a

Cust ID:	BOV111	BOV112	BOV112	BOV112	BOV112	VBLKXM	VBLKXM BS
Sample Information	RFW#:	001	002	002 MS	002 MSD	99LVH041-MB1	99LVH041-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	0.943	0.980	1.02	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate	Toluene-d8	96 %	93 %	92 %	90 %	92 %	92 %
Recovery	Bromofluorobenzene	92 %	88 %	88 %	87 %	90 %	88 %
	1,2-Dichloroethane-d4	86 %	78 %	86 %	83 %	83 %	88 %
=====fl=====fl=====fl=====fl=====fl=====fl=====fl=====							
Chloromethane		11 U	11 U	11 U	12 U	10 U	10 U
Bromomethane		11 U	11 U	11 U	12 U	10 U	10 U
Vinyl Chloride		11 U	11 U	11 U	12 U	10 U	10 U
Chloroethane		11 U	11 U	11 U	12 U	10 U	10 U
Methylene Chloride		3 JB	4 BJ	4 BJ	4 BJ	3 J	3 BJ
Acetone		11 U	11 U	11 U	12 U	7 J	10 U
Carbon Disulfide		6 U	6 U	6 U	6 U	5 U	5 U
1,1-Dichloroethene		6 U	6 U	100 %	99 %	5 U	119 %
1,1-Dichloroethane		6 U	6 U	6 U	6 U	5 U	5 U
1,2-Dichloroethene (total)		6 U	6 U	6 U	6 U	5 U	5 U
Chloroform		6 U	6 U	6 U	6 U	5 U	5 U
1,2-Dichloroethane		6 U	6 U	6 U	6 U	5 U	5 U
2-Butanone		11 U	11 U	11 U	12 U	10 U	10 U
1,1,1-Trichloroethane		6 U	6 U	6 U	6 U	5 U	5 U
Carbon Tetrachloride		6 U	6 U	6 U	6 U	5 U	5 U
Bromodichloromethane		6 U	6 U	6 U	6 U	5 U	5 U
1,2-Dichloropropane		6 U	6 U	6 U	6 U	5 U	5 U
cis-1,3-Dichloropropene		6 U	6 U	6 U	6 U	5 U	5 U
Trichloroethene		6 U	6 U	101 %	98 %	5 U	96 %
Dibromochloromethane		6 U	6 U	6 U	6 U	5 U	5 U
1,1,2-Trichloroethane		6 U	6 U	6 U	6 U	5 U	5 U
Benzene		6 U	6 U	105 %	104 %	5 U	104 %
Trans-1,3-Dichloropropene		6 U	6 U	6 U	6 U	5 U	5 U
Bromoform		6 U	6 U	6 U	6 U	5 U	5 U
4-Methyl-2-pentanone		11 U	11 U	11 U	12 U	10 U	10 U
2-Hexanone		11 U	11 U	11 U	12 U	10 U	10 U
Tetrachloroethene		6 U	6 U	6 U	6 U	5 U	5 U
1,1,2,2-Tetrachloroethane		6 U	6 U	6 U	6 U	5 U	5 U
Toluene		6 U	6 U	107 %	106 %	5 U	105 %

*= Outside of EPA CLP QC limits.

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Cust ID: BOV111 BOV112 BOV112 BOV112 VBLKXM VBLKXM BS

RFW#: 001 002 002 MS 002 MSD 99LVH041-MB1 99LVH041-MB1

	001	002	002 MS	002 MSD	99LVH041-MB1	99LVH041-MB1
Chlorobenzene	6 U	6 U	104 %	104 %	5 U	102 %
Ethylbenzene	6 U	6 U	6 U	6 U	5 U	5 U
Styrene	6 U	6 U	6 U	6 U	5 U	5 U
Xylene (total)	6 U	6 U	6 U	6 U	5 U	5 U

*= Outside of EPA CLP QC limits.

!

Recra LabNet - Lionville Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-001

DATE RECEIVED: 03/23/99

RFW LOT # :9903L518

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0V111	001	S	99LVH041	03/15/99	N/A	03/28/99
B0V112	002	S	99LVH041	03/17/99	N/A	03/28/99
B0V112	002 MS	S	99LVH041	03/17/99	N/A	03/28/99
B0V112	002 MSD	S	99LVH041	03/17/99	N/A	03/28/99

LAB QC:

VBLKXM	MB1	S	99LVH041	N/A	N/A	03/28/99
VBLKXM	MB1 BS	S	99LVH041	N/A	N/A	03/28/99

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-001-132	Page 1 of 1 <i>5</i>
Collector Fahlberg/Kerkow		Company Contact R Coffman		Telephone No. 373-6425		Project Coordinator TRENT, SJ	
Project Designation 100 BC Areas - Quick Turn		Sampling Location 100 B/C <i>116-B-4</i>		SAF No. B99-001		Price Code	
Ice Chest No.		Field Logbook No. EL 1327-02		Method of Shipment		Data Turnaround <i>7 days</i>	
Shipped To TMA/RECRA <i>RECRA</i> <i>RS 3-17-99</i>		Offsite Property No. <i>A990090</i>		Bill of Lading/Air Bill No. <i>4235795236006 4.5^{ol}</i>		COA <i>R116B4 2F00</i>	

POSSIBLE SAMPLE HAZARDS/REMARKS	Special Handling and/or Storage	Preservation		None	Cool 4C	Cool 4C	Cool 4C	None						
		Type of Container		P	aG	aG	aG	aG						
		No. of Container(s)		1	1	1	1	1						
		Volume		20mL	60mL	60mL	60mL	500mL						
SAMPLE ANALYSIS				Activity Scan	See item (1) in Special Instructions.	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.						
Sample No.	Matrix *	Sample Date	Sample Time											
<i>BOV110</i> <i>RS</i>	Soil													
<i>BOV111</i> <i>3-17-99</i>	Soil													
<i>BOV112</i>	Soil	<i>3/17/99</i>	<i>0750</i>		<i>X</i>	<i>X</i>	<i>X</i>					<i>ticks</i>	<i>130T Y9</i>	

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By <i>Rene Nielsen</i>	Date/Time <i>3/23/99</i>	Received By <i>Fed Ex</i>	Date/Time <i>3-23-99/0930</i>	(1) ICP Metals - 6010A (SW-846) (Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196 (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Cesium-134, Uranium-238); Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr; Nickel-63 <i>P. Fahlberg unavailable to relinquish samples.</i>				Soil Water Vapor Other Solid Other Liquid
Relinquished By <i>Fed Ex</i>	Date/Time <i>3-23-99/0930</i>	Received By <i>Rene Nielsen</i>	Date/Time <i>3-23-99/0930</i>					
Relinquished By	Date/Time	Received By	Date/Time					
Relinquished By	Date/Time	Received By	Date/Time					
LABORATORY SECTION	Received By <i>R. Nielsen</i>	Title <i>Lab Tech</i>						Date/Time <i>3-23-99/0930</i>
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By						Date/Time

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-001-132

Page 1 of 1

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Collector Fahlberg/Kerkow	Company Contact R Coffman	Telephone No. 373-6425	Project Coordinator TRENT, SJ	Price Code	Data Turnaround 7 days
Project Designation 100 BC Arcas - Quick Turn	Sampling Location 100 B/C 116. B. 4	Field Logbook No. EL 1327-02	SAF No. B99-001		
Ice Chest No.	Offsite Property No. A9910090	Method of Shipment		Bill of Lading/Air Bill No. 422579523600	
Shipped To TMA/RECRA RUN 3/17/99			COA R116B4 2FPD		

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	Cool 4C	Cool 4C	None							
	Type of Container	P	aG	aG	aG	aG							
	No. of Container(s)	1	1	1	1	1							
	Special Handling and/or Storage	Volume	20mL	60mL	60mL	60mL	500mL						
SAMPLE ANALYSIS	Activity Scan	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions								
	Sample No.	Matrix *	Sample Date	Sample Time									
B0V110	RS 3-12-99	Soil											
B0V111		Soil	3-15-99	1250	X	X	X						
B0V112	RS 3-15-99	Soil											

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS			Matrix *
Relinquished By <i>R. Fahlberg</i>	Date/Time 3-22-99	Received By <i>Feder</i>	Date/Time 3-22-99	(1) ICP Metals - 6010A (SW-846) (Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196 (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Cesium-134, Uranium-238); Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr; Nickel-63 R. Fahlberg unavailable to relinquish samples.			Soil Water Vapor Other Solid Other Liquid
Relinquished By <i>Feder</i>	Date/Time 3-23-99/0930	Received By <i>A. Turbine</i>	Date/Time 3-23-99/0930				
Relinquished By	Date/Time	Received By	Date/Time				
Relinquished By	Date/Time	Received By	Date/Time				
LABORATORY SECTION	Received By <i>A. Turbine</i>	Title <i>Lab Tech</i>		Disposed By			Date/Time 3-23-99/0930
FINAL SAMPLE DISPOSITION	Disposal Method						Date/Time

TMA/RICHMOND
 SAMPLE DELIVERY GROUP H0365

SDG 7708
 Contact L.A. Johnson

SAMPLE SUMMARY

Client Hanford
 Contract TRB-SBB-207925
 Case no SDG-H0365

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB		CHAIN OF	
				SAMPLE ID	SAF NO	CUSTODY	COLLECTED
B0V111.	100 B/C	SOLID		N903113-01	B99-001	B99-001-132	03/15/99 12:50
B0V112	100 B/C	SOLID		N903113-02	B99-001	B99-001-132	03/17/99 07:50
Method Blank		SOLID		N903113-04	B99-001		
Lab Control Sample		SOLID		N903113-03	B99-001		
Duplicate (N903113-01)	100 B/C	SOLID		N903113-05	B99-001		03/15/99 12:50

SAMPLE SUMMARY

Page 1

SUMMARY DATA SECTION

Page 3

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CS
 Version 3.06
 Report date 04/06/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0365

SDG 7708
 Contact L.A. Johnson

QC SUMMARY

Client Hanford
 Contract TRB-SBB-207925
 Case no SDG-H0365

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL SAMPLE ID	DEPARTMENT SAMPLE ID
7708	B99-001-132	BOV111	SOLID	88.6			03/23/99 8	N903113-01	7708-001
		BOV112	SOLID	88.1			03/23/99 6	N903113-02	7708-002
		Method Blank	SOLID					N903113-04	7708-004
		Lab Control Sample	SOLID					N903113-03	7708-003
		Duplicate (N903113-01)	SOLID	88.6			03/23/99 8	N903113-05	7708-005

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-QS
 Version 3.06
 Report date 04/06/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0365

SDG 7708

Contact L.A. Johnson

PREP BATCH SUMMARY

Client Hanford

Contract TRB-SBB-207925

Case no SDG-H0365

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI- FIERS	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK		LCS
Alpha Spectroscopy										
AM	SOLID	Americium 241 in Soil	2851-036	5.0	2			1	1	1/1
PU	SOLID	Plutonium, Isotopic in Solids	2851-036	5.0	2			1	1	1/1
U	SOLID	Uranium, Isotopic in Soil	2851-036	5.0	2			1	1	1/1
Beta Counting										
SR	SOLID	Total Strontium in Soil	2851-036	10.0	2			1	1	1/1
Gamma Spectroscopy										
GAM	SOLID	Gamma Scan	2851-036	15.0	2			1	1	1/1
Liquid Scintillation Counting										
NI_L	SOLID	Nickel 63 in Soil	2851-036	10.0	2			1	1	1/1

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.

Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 04/06/99

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0365

SDG 7708
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0365

WORK SUMMARY

CLIENT SAMPLE ID		LAB SAMPLE ID			SUF-				
LOCATION	MATRIX	COLLECTED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD
CUSTODY	SAF No	RECEIVED							
B0V111		N903113-01	7708-001	AM		04/05/99	04/05/99	NJV	Americium 241 in Soil
100 B/C		SOLID	03/15/99	7708-001	GAM	03/25/99	03/30/99	NJV	Gamma Scan
B99-001-132	B99-001		03/23/99	7708-001	NI_L	04/02/99	04/06/99	NJV	Nickel 63 in Soil
				7708-001	PU	03/30/99	04/01/99	NJV	Plutonium, Isotopic in Solids
				7708-001	SR	03/29/99	04/01/99	NJV	Total Strontium in Soil
				7708-001	U	03/30/99	04/01/99	NJV	Uranium, Isotopic in Soil
B0V112		N903113-02	7708-002	AM		04/05/99	04/05/99	NJV	Americium 241 in Soil
100 B/C		SOLID	03/17/99	7708-002	GAM	03/29/99	03/30/99	NJV	Gamma Scan
B99-001-132	B99-001		03/23/99	7708-002	NI_L	04/02/99	04/06/99	NJV	Nickel 63 in Soil
				7708-002	PU	03/30/99	04/01/99	NJV	Plutonium, Isotopic in Solids
				7708-002	SR	03/29/99	04/01/99	NJV	Total Strontium in Soil
				7708-002	U	03/30/99	04/01/99	NJV	Uranium, Isotopic in Soil
Method Blank		N903113-04	7708-004	AM		04/05/99	04/05/99	NJV	Americium 241 in Soil
		SOLID		7708-004	GAM	03/25/99	03/30/99	NJV	Gamma Scan
	B99-001			7708-004	NI_L	04/02/99	04/06/99	NJV	Nickel 63 in Soil
				7708-004	PU	04/01/99	04/06/99	NJV	Plutonium, Isotopic in Solids
				7708-004	SR	03/29/99	04/01/99	NJV	Total Strontium in Soil
				7708-004	U	03/30/99	04/01/99	NJV	Uranium, Isotopic in Soil
Lab Control Sample		N903113-03	7708-003	AM		04/05/99	04/05/99	NJV	Americium 241 in Soil
		SOLID		7708-003	GAM	03/25/99	03/30/99	NJV	Gamma Scan
	B99-001			7708-003	NI_L	04/02/99	04/06/99	NJV	Nickel 63 in Soil
				7708-003	PU	04/01/99	04/06/99	NJV	Plutonium, Isotopic in Solids
				7708-003	SR	03/29/99	04/01/99	NJV	Total Strontium in Soil
				7708-003	U	03/30/99	04/01/99	NJV	Uranium, Isotopic in Soil
Duplicate (N903113-01)		N903113-05	7708-005	AM		04/05/99	04/05/99	NJV	Americium 241 in Soil
100 B/C		SOLID	03/15/99	7708-005	GAM	03/26/99	03/30/99	NJV	Gamma Scan
	B99-001		03/23/99	7708-005	NI_L	04/02/99	04/06/99	NJV	Nickel 63 in Soil
				7708-005	PU	04/01/99	04/06/99	NJV	Plutonium, Isotopic in Solids
				7708-005	SR	03/29/99	04/01/99	NJV	Total Strontium in Soil
				7708-005	U	03/30/99	04/01/99	NJV	Uranium, Isotopic in Soil

WORK SUMMARY

Page 1

SUMMARY DATA SECTION

Page 6

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 04/06/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0365

WORK SUMMARY, cont.

SDG 7708
 Contact L.A. Johnson

Client Hanford
 Contract TRB-SBB-207925
 Case no SDG-H0365

COUNTS OF TESTS BY SAMPLE TYPE										
TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
AM	B99-001	Americium 241 in Soil	AM/CMPLETE	2			1	1	1	5
GAM	B99-001	Gamma Scan	GAMMAHI	2			1	1	1	5
NI_L	B99-001	Nickel 63 in Soil	NI63LSC	2			1	1	1	5
PU	B99-001	Plutonium, Isotopic in Solids	PUPLATE	2			1	1	1	5
SR	B99-001	Total Strontium in Soil		2			1	1	1	5
U	B99-001	Uranium, Isotopic in Soil	UPLATE	2			1	1	1	5
TOTALS				12			6	6	6	30

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-CWS
 Version 3.06
 Report date 04/06/99

TMA / RICHMOND
 SAMPLE DELIVERY GROUP H0365

N903113-04

Method Blank

METHOD BLANK

SDG 7708 Client/Case no Hanford SDG-H0365
 Contact L.A. Johnson Case no TRB-SBB-207925
 Lab sample id N903113-04 Client sample id Method Blank
 Dept sample id 7708-004 Material/Matrix SOLID
 SAF No B99-001

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 233/234	U-233/234	0	0.033	0.13	0.30	U	U
Uranium 235	15117-96-1	0	0.040	0.15	0.30	U	U
Uranium 238	U-238	0	0.033	0.13	0.30	U	U
Plutonium 238	13981-16-3	-0.009	0.018	0.069	0.050	U	PU
Plutonium 239/240	PU-239/240	-0.009	0.018	0.069	0.050	U	PU
Nickel 63	13981-37-8	1.34	1.2	1.9	20	U	NI_L
Americium 241	14596-10-2	-0.003	0.003	0.012	0.050	U	AM
Total Strontium	SR-RAD	-0.036	0.17	0.31	1.0	U	SR
Cobalt 60	10198-40-0	U		0.021	0.050	U	GAM
Cesium 134	13967-70-9	U		0.023		U	GAM
Cesium 137	10045-97-3	U		0.020	0.050	U	GAM
Europium 152	14683-23-9	U		0.055	0.10	U	GAM
Europium 154	15585-10-1	U		0.068	0.10	U	GAM
Europium 155	14391-16-3	U		0.034	0.10	U	GAM
Americium 241	14596-10-2	U		0.018		U	GAM
Uranium 238	U-238	U		2.4		U	GAM
Uranium 235	15117-96-1	U		0.064		U	GAM

100 BD Areas-Quick Turn

QC-BLANK 30376

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
 Form DVD-DS
 Version 3.06
 Report date 04/06/99

TMA/RICHMOND
SAMPLE DELIVERY GROUP H0365

N903113-03

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7708</u>	Client/Case no <u>Hanford</u>	<u>SDG-H0365</u>
Contact <u>L.A. Johnson</u>	Case no <u>TRB-SBB-207925</u>	
Lab sample id <u>N903113-03</u>	Client sample id <u>Lab Control Sample</u>	
Dept sample id <u>7708-003</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>B99-001</u>	

ANALYTE	RESULT	2σ ERR	MDA	RDL	QUALI-	ADDED	2σ ERR	REC	3σ	LMTS	PROTOCOL
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS		TEST	pCi/g	%		
Uranium 233/234	2.43	0.44	0.25	0.30		U	2.28	0.091	107	69-131	80-120
Uranium 235	1.91	0.38	0.11	0.30		U	1.87	0.075	102	68-132	80-120
Uranium 238	2.23	0.41	0.24	0.30		U	2.35	0.094	95	72-128	80-120
Plutonium 238	5.76	0.59	<u>0.071</u>	0.050		PU	5.66	0.23	102	82-118	80-120
Plutonium 239/240	6.17	0.62	<u>0.071</u>	0.050		PU	5.95	0.24	104	82-118	80-120
Nickel 63	165	3.9	1.9	20		NI_L	168	6.7	98	84-116	
Americium 241	4.78	0.30	0.011	0.050		AM	5.27	0.21	91	88-112	80-120
Total Strontium	12.5	0.64	0.24	1.0		SR	12.6	0.50	99	82-118	
Cobalt 60	0.281	0.043	0.036	0.050		GAM	0.359	0.014	<u>78</u>	74-126	80-120
Cesium 137	0.325	0.040	0.031	0.050		GAM	0.383	0.015	85	75-125	80-120

100 BD Areas-Quick Turn

QC-LCS 30375

LAB CONTROL SAMPLES

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Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>04/06/99</u>

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0365

N903113-05

B0V111

DUPLICATE

SDG <u>7708</u>	Client/Case no <u>Hanford</u>	<u>SDG-H0365</u>
Contact <u>L.A. Johnson</u>	Case no <u>TRB-SBB-207925</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>N903113-05</u>	Lab sample id <u>N903113-01</u>	Client sample id <u>B0V111</u>
Dept sample id <u>7708-005</u>	Dept sample id <u>7708-001</u>	Location/Matrix <u>100 B/C</u> <u>SOLID</u>
	Received <u>03/23/99</u>	Collected <u>03/15/99 12:50</u>
% solids <u>88.6</u>	% solids <u>88.6</u>	Custody/SAF No <u>B99-001-132</u> <u>B99-001</u>

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3σ PROT TOT LIMIT
Uranium 233/234	0.544	0.24	0.18	0.30	U	U	0.442	0.26	0.24	U	21	108
Uranium 235	0.057	0.057	0.22	0.30	U	U	0.038	0.076	0.29	U	-	-
Uranium 238	0.591	0.24	0.18	0.30	U	U	0.473	0.26	0.24	U	22	100
Plutonium 238	0.076	0.46	0.84	0.050	U	PU	0.093	0.19	0.71	U	-	-
Plutonium 239/240	0.076	0.15	0.58	0.050	U	PU	0.093	0.19	0.71	U	-	-
Nickel 63	1.02	1.5	2.4	20	U	NI_L	1.18	1.5	2.4	U	-	-
Americium 241	0.004	0.021	0.039	0.050	U	AM	0	0.028	0.066	U	-	-
Total Strontium	0.475	1.5	2.6	1.0	U	SR	0.181	1.6	2.9	U	-	-
Potassium 40	8.65	0.97	0.72			GAM	10.2	2.0	0.79		16	48
Cobalt 60	U		0.065	0.050	U	GAM	U		0.11	U	-	-
Cesium 134	U		0.079		U	GAM	U		0.13	U	-	-
Cesium 137	U		0.075	0.050	U	GAM	U		0.10	U	-	-
Europium 152	U		0.15	0.10	U	GAM	U		0.27	U	-	-
Europium 154	U		0.21	0.10	U	GAM	U		0.35	U	-	-
Europium 155	U		0.12	0.10	U	GAM	U		0.19	U	-	-
Radium 226	0.306	0.12	0.11	0.10		GAM	0.365	0.18	0.18		18	102
Radium 228	0.342	0.25	0.27	0.20		GAM	0.683	0.31	0.33		67	121
Thorium 228	0.558	0.10	0.092			GAM	0.581	0.15	0.15		4	57
Thorium 232	0.342	0.25	0.27			GAM	0.683	0.31	0.33		67	121
Americium 241	U		0.058		U	GAM	U		0.098	U	-	-
Uranium 238	U		7.2		U	GAM	U		12	U	-	-
Uranium 235	U		0.20		U	GAM	U		0.34	U	-	-

100 BD Areas-Quick Turn

QC-DUP#1 30377

DUPLICATES

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 Version 3.06
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TMA / RICHMOND
SAMPLE DELIVERY GROUP H0365

N903113-01

B0V111

DATA SHEET

SDG <u>7708</u>	Client/Case no <u>Hanford</u>	SDG- <u>H0365</u>
Contact <u>L.A. Johnson</u>	Case no <u>TRB-SBB-207925</u>	
Lab sample id <u>N903113-01</u>	Client sample id <u>B0V111</u>	
Dept sample id <u>7708-001</u>	Location/Matrix <u>100 B/C</u>	<u>SOLID</u>
Received <u>03/23/99</u>	Collected <u>03/15/99 12:50</u>	
% solids <u>88.6</u>	Custody/SAF No <u>B99-001-132</u>	<u>B99-001</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 233/234	U-233/234	0.442	0.26	0.24	0.30		U
Uranium 235	15117-96-1	0.038	0.076	0.29	0.30	U	U
Uranium 238	U-238	0.473	0.26	0.24	0.30		U
Plutonium 238	13981-16-3	-0.093	0.19	<u>0.71</u>	0.050	U	PU
Plutonium 239/240	PU-239/240	-0.093	0.19	<u>0.71</u>	0.050	U	PU
Nickel 63	13981-37-8	1.18	1.5	2.4	20	U	NI_L
Americium 241	14596-10-2	0	0.028	<u>0.066</u>	0.050	U	AM
Total Strontium	SR-RAD	0.181	1.6	<u>2.9</u>	1.0	U	SR
Potassium 40	13966-00-2	10.2	2.0	<u>0.79</u>			GAM
Cobalt 60	10198-40-0	U		<u>0.11</u>	0.050	U	GAM
Cesium 134	13967-70-9	U		0.13		U	GAM
Cesium 137	10045-97-3	U		<u>0.10</u>	0.050	U	GAM
Europium 152	14683-23-9	U		<u>0.27</u>	0.10	U	GAM
Europium 154	15585-10-1	U		<u>0.35</u>	0.10	U	GAM
Europium 155	14391-16-3	U		<u>0.19</u>	0.10	U	GAM
Radium 226	13982-63-3	0.365	0.18	<u>0.18</u>	0.10		GAM
Radium 228	15262-20-1	0.683	0.31	<u>0.33</u>	0.20		GAM
Thorium 228	14274-82-9	0.581	0.15	0.15			GAM
Thorium 232	TH-232	0.683	0.31	0.33			GAM
Americium 241	14596-10-2	U		0.098		U	GAM
Uranium 238	U-238	U		12		U	GAM
Uranium 235	15117-96-1	U		0.34		U	GAM

100 BD Areas-Quick Turn

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>04/06/99</u>

TMA / RICHMOND
SAMPLE DELIVERY GROUP H0365

N903113-02

B0V112

DATA SHEET

SDG <u>7708</u>	Client/Case no <u>Hanford</u>	SDG- <u>H0365</u>
Contact <u>L.A. Johnson</u>	Case no <u>TRB-SBB-207925</u>	
Lab sample id <u>N903113-02</u>	Client sample id <u>B0V112</u>	
Dept sample id <u>7708-002</u>	Location/Matrix <u>100 B/C</u>	<u>SOLID</u>
Received <u>03/23/99</u>	Collected <u>03/17/99 07:50</u>	
% solids <u>88.1</u>	Custody/SAF No <u>B99-001-132</u>	<u>B99-001</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Uranium 233/234	U-233/234	0.533	0.24	0.23	0.30		U
Uranium 235	15117-96-1	0.036	0.072	0.27	0.30	U	U
Uranium 238	U-238	0.414	0.24	0.23	0.30		U
Plutonium 238	13981-16-3	-0.219	0.44	<u>1.2</u>	0.050	U	PU
Plutonium 239/240	PU-239/240	0	0.22	<u>0.84</u>	0.050	U	PU
Nickel 63	13981-37-8	2.34	1.5	2.4	20	U	NI_L
Americium 241	14596-10-2	0.004	0.022	0.035	0.050	U	AM
Total Strontium	SR-RAD	0.290	1.4	<u>2.5</u>	1.0	U	SR
Potassium 40	13966-00-2	10.1	0.77	0.38			GAM
Cobalt 60	10198-40-0	U		0.034	0.050	U	GAM
Cesium 134	13967-70-9	U		0.049		U	GAM
Cesium 137	10045-97-3	U		0.034	0.050	U	GAM
Europium 152	14683-23-9	U		0.098	0.10	U	GAM
Europium 154	15585-10-1	U		<u>0.12</u>	0.10	U	GAM
Europium 155	14391-16-3	U		0.091	0.10	U	GAM
Radium 226	13982-63-3	0.342	0.064	0.062	0.10		GAM
Radium 228	15262-20-1	0.548	0.18	0.16	0.20		GAM
Thorium 228	14274-82-9	0.471	0.045	0.046			GAM
Thorium 232	TH-232	0.548	0.18	0.16			GAM
Americium 241	14596-10-2	U		0.090		U	GAM
Uranium 238	U-238	U		4.5		U	GAM
Uranium 235	15117-96-1	U		0.14		U	GAM

100 BD Areas-Quick Turn

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Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>04/06/99</u>

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0365

Test AM Matrix SOLID
 SDG 7708
 Contact L.A. Johnson

Client Hanford
 Contract TRB-SBB-207925
 Case no SDG-H0365

METHOD SUMMARY

AMERICIUM 241 IN SOIL
 ALPHA SPECTROSCOPY

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Americium 241
Preparation batch 2851-036				
BOV111	N903113-01	7708-001		U
BOV112	N903113-02	7708-002		U
BLK (QC ID=30376)	N903113-04	7708-004		U
LCS (QC ID=30375)	N903113-03	7708-003		ok
Duplicate (N903113-01)	N903113-05	7708-005		- U

Nominal values and limits from method RDLs (pCi/g) 0.050
 100 BD Areas-Quick Turn

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/g	MDA g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 2851-036 2σ prep error 5.0 % Reference Lab Notebook #2851 pg. 036																
BOV111	N903113-01		0.066	0.500				43	807				21	04/02/99	04/05	SS-001
BOV112	N903113-02		0.035	0.500				84	807				19	04/02/99	04/05	SS-002
BLK (QC ID=30376)	N903113-04		0.012	1.00				92	807					04/02/99	04/05	SS-006
LCS (QC ID=30375)	N903113-03		0.011	1.00				100	807					04/02/99	04/05	SS-005
Duplicate, (N903113-01)	N903113-05		0.039	0.500				85	807				21	04/02/99	04/05	SS-007
	(QC ID=30377)															

Nominal values and limits from method 0.050 1.00 20-105 700 100 180

PROCEDURES	REFERENCE	AM/CMPLATE
EP-060		Soil Preparation, rev 0
EP-070		Soil Dissolution, rev 0
EP-940		Plutonium Purification, rev 0
EP-960		Americium-Curium Purification, rev 0
EP-008		Heavy Elements Electroplating, rev 0

AVERAGES ± 2 SD	MDA	0.033 ± 0.045
FOR 5 SAMPLES	YIELD	81 ± 44

Lab id TMANC
 Protocol Hanford
 Version Ver 1.0
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METHOD SUMMARIES

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TMA/RICHMOND
SAMPLE DELIVERY GROUP H0365

Test PU Matrix SOLID
SDG 7708
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0365

METHOD SUMMARY
PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUP- TEST FIX	SUP- PLANCHET	Plutonium 238	Plutonium 239/240
Preparation batch 2851-036					
B0V111	N903113-01	7708-001		U	U
B0V112	N903113-02	7708-002		U	U
BLK (QC ID=30376)	N903113-04	7708-004		U	U
LCS (QC ID=30375)	N903113-03	7708-003		ok	ok
Duplicate (N903113-01)	N903113-05	7708-005		- U	- U
Nominal values and limits from method		RDLs (pCi/g)		0.050	0.050
100 BD Areas-Quick Turn					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUP- TEST FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 2851-036		2σ prep error 5.0 %		Reference Lab		Notebook #2851 pg. 036									
B0V111	N903113-01		0.71	0.100			69	203				15	03/29/99	03/30	SS-038
B0V112	N903113-02		1.2	0.100			55	204				13	03/30/99	03/30	SS-039
BLK (QC ID=30376)	N903113-04		0.069	1.00			69	209					03/30/99	04/01	SS-038
LCS (QC ID=30375)	N903113-03		0.071	1.00			65	209					03/30/99	04/01	SS-036
Duplicate (N903113-01)	N903113-05		0.84	0.100			77	209				17	03/30/99	04/01	SS-039
(QC ID=30377)															
Nominal values and limits from method			0.050	1.00			20-105	10	100		180				

PROCEDURES	REFERENCE	PUPLATE
EP-060		Soil Preparation, rev 0
EP-070		Soil Dissolution, rev 0
EP-940		Plutonium Purification, rev 0
EP-008		Heavy Elements Electroplating, rev 0

AVERAGES ± 2 SD	MDA	0.58 ± 0.99
FOR 5 SAMPLES	YIELD	67 ± 16

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 04/06/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0365

Client Hanford

Contract TRB-SBB-207925

Case no SDG-H0365

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Test U Matrix SOLID
SDG 7708
Contact L.A. Johnson

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUF- TEST FIX	PLANCHET	1: Uranium	2: Uranium	3: Uranium	RESULT RATIOS (%)				
				233/234	235	238	1+3	2σ	2+3	2σ	
Preparation batch 2851-036											
BOV111	N903113-01	7708-001		0.442	U	0.473	93	75	8	17	
BOV112	N903113-02	7708-002		0.533	U	0.414	129	94	9	18	
BLK (QC ID=30376)	N903113-04	7708-004		U	U	U					
LCS (QC ID=30375)	N903113-03	7708-003		ok	ok	ok					
Duplicate (N903113-01)	N903113-05	7708-005		ok	- U	ok	92	55	10	10	
Nominal values and limits from method				RDLs (pCi/g)	0.30	0.30	0.30	100		4	
100 BD Areas-Quick Turn							Averages		105		9

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW SUF- TEST FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL-			
													PREPARED	YZED	DETECTOR	
Preparation batch 2851-036													2σ prep error	5.0 %	Reference Lab	Notebook #2851 pg. 036
BOV111	N903113-01		0.29	<u>0.500</u>			67	<u>115</u>				15	03/30/99	03/30	SS-009	
BOV112	N903113-02		0.27	<u>0.500</u>			69	<u>115</u>				13	03/30/99	03/30	SS-010	
BLK (QC ID=30376)	N903113-04		0.15	1.00			63	<u>115</u>					03/30/99	03/30	SS-011	
LCS (QC ID=30375)	N903113-03		0.25	1.00			85	<u>115</u>					03/30/99	03/30	SS-011	
Duplicate (N903113-01)	N903113-05		0.22	<u>0.500</u>			86	<u>115</u>				15	03/30/99	03/30	SS-013	
(QC ID=30377)																
Nominal values and limits from method			0.30	1.00			30-105	150	100		180					

PROCEDURES	REFERENCE	UPLATE
EP-060		Soil Preparation, rev 0
EP-070		Soil Dissolution, rev 0
EP-910		Uranium Purification, rev 0
EP-008		Heavy Elements Electroplating, rev 0

AVERAGES ± 2 SD	MDA	<u>0.24</u> ± <u>0.11</u>
FOR 5 SAMPLES	YIELD	<u>74</u> ± <u>21</u>

METHOD SUMMARIES

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Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 04/06/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0365

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL
BETA COUNTING

Test SR Matrix SOLID
SDG 7708
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0365

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	Total Strontium
Preparation batch 2851-036				
B0V111	N903113-01	7708-001		U
B0V112	N903113-02	7708-002		U
BLK (QC ID=30376)	N903113-04	7708-004		U
LCS (QC ID=30375)	N903113-03	7708-003		ok
Duplicate (N903113-01)	N903113-05	7708-005		- U

Nominal values and limits from method RDLs (pCi/g) 1.0
100 BD Areas-Quick Turn

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MAX pCi/g	MDA	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 2851-036 2σ prep error 10.0 % Reference Lab Notebook #2851 pg. 036																
B0V111	N903113-01			2.9	0.100				79		150			14	03/27/99	03/29 GRB-202
B0V112	N903113-02			2.5	0.100				86		150			12	03/27/99	03/29 GRB-203
BLK (QC ID=30376)	N903113-04			0.31	1.00				78		150				03/27/99	03/29 GRB-204
LCS (QC ID=30375)	N903113-03			0.24	1.00				92		92				03/27/99	03/29 GRB-217
Duplicate (N903113-01)	N903113-05			2.6	0.100				72		200			14	03/27/99	03/29 GRB-205
				(QC ID=30377)												

Nominal values and limits from method 1.0 1.00 100 180

PROCEDURES RP-500 Strontium - Initial Separation, rev 0
RP-519 Strontium-89,90 Demounting and Yttrium Purification, rev 0

AVERAGES ± 2 SD MDA 1.7 ± 2.6
FOR 5 SAMPLES YIELD 81 ± 15

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 04/06/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0365

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Test GAM Matrix SOLID

SDG 7708

Contact L.A. Johnson

Client Hanford

Contract TRB-SBB-207925

Case no SDG-H0365

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 2851-036						
BOV111	N903113-01	7708-001			U	U
BOV112	N903113-02	7708-002			U	U
BLK (QC ID=30376)	N903113-04	7708-004			U	U
LCS (QC ID=30375)	N903113-03	7708-003			<u>LOW</u>	ok
Duplicate (N903113-01)	N903113-05	7708-005			- U	- U

Nominal values and limits from method RDLs (pCi/g) 0.050 0.050
 100 BD Areas-Quick Turn

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	MAX pCi/g	MDA	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 2851-036 2σ prep error 15.0 % Reference Lab Notebook #2851 pg. 036																
BOV111	N903113-01			<u>0.11</u>	<u>168</u>						128			10	03/24/99	JR, 07, 00
BOV112	N903113-02			<u>0.034</u>	<u>149</u>						294			12	03/24/99	JR, 04, 00
BLK (QC ID=30376)	N903113-04			0.021	750						101				03/24/99	JR, 07, 00
LCS (QC ID=30375)	N903113-03			0.036	750						102				03/24/99	JR, 07, 00
Duplicate (N903113-01) (QC ID=30377)	N903113-05			<u>0.075</u>	<u>170</u>						351			11	03/24/99	JR, 07, 00

Nominal values and limits from method 0.050 750 100 180

PROCEDURES	REFERENCE	GAMMAHI
EP-060		Soil Preparation, rev 0
EP-100		Ge(Li) Preparation for Environmental Samples, rev 0

AVERAGES ± 2 SD MDA 0.055 ± 0.072
 FOR 5 SAMPLES YIELD _____ ± _____

METHOD SUMMARIES

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Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 04/06/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0365

Client Hanford

Contract TRB-SBB-207925

Case no SDG-H0365

Test NI L Matrix SOLID

SDG 7708

METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Contact L.A. Johnson

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Nickel 63
Preparation batch 2851-036				
B0V111	N903113-01	7708-001		U
B0V112	N903113-02	7708-002		U
BLK (QC ID=30376)	N903113-04	7708-004		U
LCS (QC ID=30375)	N903113-03	7708-003		ok
Duplicate (N903113-01)	N903113-05	7708-005		- U

Nominal values and limits from method RDLs (pCi/g) 20
100 BD Areas-Quick Turn

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/g	MDA g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- YZED	DETECTOR
Preparation batch 2851-036 2σ prep error 10.0 % Reference Lab Notebook #2851 pg. 036															
B0V111	N903113-01		2.4	0.500						100		18	03/30/99	04/02	LSC-005
B0V112	N903113-02		2.4	0.500						100		16	03/30/99	04/02	LSC-005
BLK (QC ID=30376)	N903113-04		1.9	0.500						100			03/30/99	04/02	LSC-005
LCS (QC ID=30375)	N903113-03		1.9	0.500						100			03/30/99	04/02	LSC-005
Duplicate (N903113-01)	N903113-05		2.4	0.500						100		18	03/30/99	04/02	LSC-005
	(QC ID=30377)														

Nominal values and limits from method 20 0.500 10 180

PROCEDURES REFERENCE NI63LSC
EP-060 Soil Preparation, rev 0
EP-431 Nickel-63 Purification, rev 0

AVERAGES ± 2 SD MDA 2.2 ± 0.55
FOR 5 SAMPLES YIELD _____ ± _____

METHOD SUMMARIES

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Protocol Hanford

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Form DVD-CMS

Version 3.06

Report date 04/06/99

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REPORT GUIDE

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Contract TRB-SBB-207925
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SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

- * LAB SAMPLE ID is the lab's primary identification for a sample.
- * DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.
- * CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.
- * QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

- * All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

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REPORT GUIDE

Client Hanford
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PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches in one Sample Delivery Group (SDG) with information necessary to check the completeness and consistency of the SDG.

The following notes apply to this report:

- * The preparation batches are shown in the same order as the Method Summary Reports are printed.
- * Only analyses of planchets relevant to the SDG are included.
- * Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.
- * The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

These qualifiers should be reviewed as follows:

- X Some data has been manually entered or modified. Transcription errors are possible.
- P One or more results are 'preliminary'. The data is not ready for final reporting.
- 2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

Other lab defined qualifiers may occur. In general, these should be addressed in the SDG narrative.

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WORK SUMMARY

The Work Summary Report shows all samples, including QC samples, and all relevant analyses in one Sample Delivery Group (SDG). This report is often useful as supporting documentation for an invoice.

The following notes apply to this report:

- * TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.
- * SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.
- * The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.
- * PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.
- * For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.
- * The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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REPORT GUIDE

DATA SHEET

The Data Sheet Report shows all results and primary supporting information for one client sample or Method Blank. This report corresponds to both the CLP Inorganics and Organics Data Sheet.

The following notes apply to this report:

- * TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.
- * The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

The Method Summary Report for each TEST has method performance data, such as yield, for each Lab Sample ID and a list of procedures used in the method.

- * ERRORS can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.
- * A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.
- * When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

U The RESULT is less than the MDA (Minimum Detectable Activity).

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DATA SHEET

If the MDA is blank, the ERROR is used as the limit.

- J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.
- B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.
- Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.
- For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.
- L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.
- H Similar to 'L' except the recovery was high.
- P The RESULT is 'preliminary'.
- X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.
- 2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

Other qualifiers are lab defined. Definitions should be in the SDG narrative.

The following values are underlined to indicate possible problems:

- * An MDA is underlined if it is bigger than its RDL.

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DATA SHEET

- * An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.
- * A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.
- * When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

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LAB CONTROL SAMPLE

The Lab Control Sample Report shows all results, recoveries and primary supporting information for one Lab Control Sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.
- * An amount ADDED is the lab's value for the actual amount spiked into this sample with its ERROR an estimate of the error of this amount.

An amount added is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is RESULT divided by ADDED expressed as a percent.
- * The first, computed limits for the recovery reflect:
 1. The error of RESULT, including that introduced by rounding the result prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.
 2. The error of ADDED.
 3. A lab specified, per analyte bias. The bias changes the center of the computed limits.
- * The second limits are protocol defined upper and lower QC limits for the recovery.
- * The recovery is underlined if it is outside either of these ranges.

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DUPLICATE

The Duplicate Report shows all results, differences and primary supporting information for one Duplicate and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Duplicate and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Duplicate has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * The RPD (Relative Percent Difference) is the absolute value of the difference of the RESULTS divided by their average expressed as a percent.

If both RESULTS are less than their MDAs, no RPD is computed and a '-' is printed.

For an analyte, if the lab did work for both samples but has data for only one, the MDA from the sample with data is used as the other's result in the RPD.

- * The first, computed limit is the sum, as square root of sum of squares, of the errors of the results divided by the average result as a percent, hence the relative error of the difference rather than the error of the relative difference. The errors include those introduced by rounding the RESULTS prior to printing.

If this limit is labeled TOT, it includes the preparation error in the RESULTS. If labeled CNT, it does not.

This value reported for this limit is at most 999.

- * The second limit for the RPD is the larger of:
 1. A fixed percentage specified in the protocol.

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DUPLICATE

2. A protocol factor (typically 2) times the average MDA as a percent of the average result. This limit applies when the results are close to the MDAs.

- * The RPD is underlined if it is greater than either limit.
- * If specified by the lab, the second limit column is replaced by the Difference Error Ratio (DER), which is the absolute value of the difference of the results divided by the quadratic sum of their one sigma errors, the same errors as used in the first limit.

Except for differences due to rounding, the DER is the same as the RPD divided by the first RPD limit with the limit scaled to 1 sigma.

- * The DER is underlined if it is greater than the sigma factor, typically 2 or 3, shown in the header for the first RPD limit.

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MATRIX SPIKE

The Matrix Spike Report shows all results, recoveries and primary supporting information for one Matrix Spike and associated Original sample.

The following notes apply to this report:

- * All fields in common with the Data Sheet Report have similar usage. This applies both to the Spiked and Original sample data. Refer to the Data Sheet Report Guide for details.

If the Spike has data for a TEST and the lab did not do this test to the Original, the Original's RESULTS are underlined.

- * An amount ADDED is the lab's value for the actual amount spiked into the Spike sample with its ERROR an estimate of the error of this amount.

An amount is underlined if its ratio to the corresponding RDL is outside protocol specified limits.

- * REC (Recovery) is the Spike RESULT minus the Original RESULT divided by ADDED expressed as a percent.

- * The first, computed limits for the recovery reflect:

1. The errors of the two RESULTS, including those introduced by rounding them prior to printing.

If the limits are labeled (TOTAL), they include preparation error in the result. If labeled (COUNT), they do not.

2. The error of ADDED.

3. A lab specified, per analyte bias. The bias changes the center of the computed limits.

- * The second limits are protocol defined upper and lower QC limits

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MATRIX SPIKE

for the recovery.

These limits are left blank if the Original RESULT is more than a protocol defined factor (typically 4) times ADDED. This is a way of accounting for that when the spike is small compared to the amount in the original sample, the recovery is unreliable.

- * The recovery is underlined (out of spec) if it is outside either of these ranges.

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METHOD SUMMARY

The Method Summary Report has two tables. One shows up to five results measured using one method. The other has performance data for the method. There is one report for each TEST, as used on the Data Sheet Report.

The following notes apply to this report:

- * Each table is subdivided into sections, one for each preparation batch. A preparation batch is a group of aliquots prepared at roughly the same time in one work area of the lab using the same method.

There should be Lab Control Sample and Method Blank results in each preparation batch since this close correspondence makes the QC meaningful. Depending on lab policy, Duplicates need not occur in each batch since they QC sample dependencies such as matrix effects.

- * The RAW TEST column shows the test code used in the raw data to identify a particular analysis if it is different than the test code in the header of the report. This occurs in special cases due to method specific details about how the lab labels work.

The Lab Sample or Planchet ID combined with the (Raw) Test Code and Suffix uniquely identify the raw data for each analysis.

- * If a result is less than both its MDA and RDL, it is replaced by just 'U' on this report. If it is greater than or equal to the RDL but less than the MDA, the result is shown with a 'U' flag.

The J and X flags are as on the data sheet.

- * Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.
- * Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

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GUIDE, cont.

METHOD SUMMARY

means no amount ADDED was specified. 'LOW' and 'HIGH' correspond to when the recovery is underlined on the Lab Control Sample or Matrix Spike Report. See these reports for supporting data.

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
- * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

MDAs are underlined if greater than the printed RDL.
- * Aliquots are underlined if less than the nominal value specified for the method.
- * Preparation factors are underlined if greater than the nominal value specified for the method.
- * Dilution factors are underlined if greater than the nominal value specified for the method.
- * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
- * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
- * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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GUIDE, cont.

METHOD SUMMARY

- * Count times are underlined if less than the nominal value specified for the method.
- * Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.
- * Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.
- * Days Held are underlined if greater than the holding time specified in the protocol.
- * Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

For some methods, ratios as percentages and error estimates for them are computed for pairs of results. A ratio column header like '1-3' means the ratio of the first result column and the third result column.

Ratios are not computed for Lab Control Sample, Method Blank or Matrix Spike results since their matrices are not necessarily similar to client samples'.

The error estimate for a ratio of results from one planchet reflects only counting errors since other errors should be correlated. For a ratio involving different planchets, if QC limits are computed based on total errors, the error for the ratio allows for the preparation errors for the planchets.

The ratio is underlined (out of spec) if the absolute value of its difference from the nominal value is greater than its error estimate. If no nominal value is specified, this test is not done.

For Gross Alpha or Gross Beta results, there may be a column showing the sum of other Alpha or Beta emitters. This sum includes all relevant

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results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

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Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B99-001-132

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Collector Fahlberg/Kerkow	Company Contact R Coffman	Telephone No. 373-6425	Project Coordinator TRENT, SJ	Price Code	Data Turnaround 7 days
Project Designation 100 BC Areas - Quick Turn	Sampling Location 100 B/C 116. B. 4	SAF No. B99-001			
Ice Chest No. SML-223	Field Logbook No. EL 1327-02	Method of Shipment			
Shipped To TMA-RECRA RIN 3/17/99	Offsite Property No. A990091	Bill of Lading/Air Bill No. 423579523611			

COA R116B42F00

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	Cool 4C	Cool 4C	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	60mL	60mL	500mL					
SAMPLE ANALYSIS		Activity Scan	See item (1) in Special Instructions	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions					
Sample No.	Matrix *	Sample Date	Sample Time								
BOV110 RS 3-12-99	Soil			X	RE 3-15-99	X	RE 3-15-99				
BOV111	Soil	3-15-99	1250	X		X					
BOV112 RE 3-15-99	Soil										

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *
Relinquished By R. Nielsen	Date/Time 3-22-99	Received By Fed Ex	Date/Time 3-12-99	(1) ICP Metals - 6010A (SW-846) (Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196 (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Cesium-134, Uranium-238); Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr; Nickel-63 R. Fahlberg unavailable to relinquish samples.				Soil Water Vapor Other Solid Other Liquid
Relinquished By Fed Ex	Date/Time 3-23-99 11:00	Received By APB...	Date/Time 3-23-99					
Relinquished By	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		

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				B99-001-132	Page 1 of 1	
Collector Fahlberg/Kerkow		Company Contact R Coffman		Telephone No. 373-6425		Project Coordinator TRENT, SJ	Price Code	Data Turnaround 7 days
Project Designation 100 BC Areas - Quick Turn		Sampling Location 100 B/C 116-B-4		SAF No. B99-001				
Ice Chest No. SML-223		Field Logbook No. EL 1327-02		Method of Shipment				
Shipped To TMA/RECRE RS 3-17-99		Offsite Property No. A990091		Bill of Lading/Air Bill No. 423579523611				
				COA K116842FOU				

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	Cool 4C	Cool 4C	None				
	Type of Container	P	aG	aG	aG	aG				
	No. of Container(s)	1	1	1	1	1				
Special Handling and/or Storage	Volume	20mL	60mL	60mL	60mL	500mL				

SAMPLE ANALYSIS		Activity Scan	See item (1) in Special Instructions.	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.				
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Sample No.	Matrix *	Sample Date	Sample Time							
BOV110	Soil									
BOV111	Soil	3-17-99								
✓ BOV112	Soil	3/17/99	0750	X				X		tie to BOTYY

CHAIN OF POSSESSION		Sign/Print Names		SPECIAL INSTRUCTIONS				Matrix *	
Relinquished By for R. Fahlberg R. Nielson		Date/Time 14:00 3-22-99		Received By Fed 44		Date/Time 3-22-99		(1) ICP Metals - 6010A (SW-846) (Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196 (2) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-154, Europium-155); Gamma Spec - Add-on (Americium-241, Cesium-134, Uranium-238); Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr; Nickel-63 R. Fahlberg unavailable to Relinquish Sample S.	
Relinquished By Fed Ex		Date/Time 3-23-99 11:00		Received By AC Brown JR		Date/Time 3-23-99			
Relinquished By		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

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT			
Client:	<u>Beechtel Hanford</u>	Date/Time received:	<u>3-23-99 11:00</u>
CoC No.	<u>B99-001-132, B99-054-01</u>		
Container I.D. No.	<u>SML-223</u>	Requested TAT (Days)	<u>5</u> P.O. Received Yes [] No []
INSPECTION			
1.	Custody seals on shipping container intact?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
2.	Custody seals on shipping container dated & signed?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
3.	Custody seals on sample containers intact?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
4.	Custody seals on sample containers dated & signed?	Yes [<input checked="" type="checkbox"/>]	No [] N/A []
5.	Cooler Temperature: _____	Packing material is:	Wet [] Dry [<input checked="" type="checkbox"/>]
6.	Number of samples in shipping container:	<u>6</u>	
7.	Number of containers per sample:	<u>2</u>	(Or see CoC <u>4</u>)
8.	Paperwork agrees with samples?	Yes [<input checked="" type="checkbox"/>]	No []
9.	Samples have: Tape [<input checked="" type="checkbox"/>]	Hazard labels []	Rad labels [<input checked="" type="checkbox"/>] Appropriate sample labels [<input checked="" type="checkbox"/>]
10.	Samples are:	In good condition [<input checked="" type="checkbox"/>]	Leaking [] Broken Container [] Missing []
11.	Describe any anomalies: _____ _____ _____ _____		
13.	Was P.M. notified of any anomalies?	Yes [<input checked="" type="checkbox"/>]	No [] Date <u>3-23-99</u>
14.	Received by	<u>Alonso</u>	Date: <u>3-23-99</u> Time: <u>11:00</u>
LOGIN			
TNU W.O. No.	Group No.	Client W.O. No.	
_____	_____	_____	
PROGRAM MANAGER			
Sample holding times exceeded?	Yes []	No []	
Client Notified: Name	_____	Date/time	_____