RECRA LabNet

a division of Recra Environmental, Inc.

Virtual Laboratories Everywhere

0051772

AUG 1999 RECEIVED Data Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-072
RFW# : 9907L361
SDG# : H0458
SAF# : B99-072

W.O. # : 10985-001-001-9999-00
Date Received: 07-02-99

SEP 1999 RECEIVED EDMC

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 18 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 analyses were within the 20% Relative Percent Difference (RPD) control limit.

9. Results for solid samples are reported on a dry weight basis.

Pat E

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

7-27-99
Date

njp\i07-361

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 19 pages.

208 Welsh Pool Road • Lionville, PA 19341-1333 • (610) 280-3000 • Fax (610) 280-3041

WET CHEMISTRY
METHODS GLOSSARY FOR ANALYSIS OF SOIL/SOLID SAMPLES

	ASTM	SW846	OTHER
%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/7196A

002

RWW 21-21-034/B-08/95

Recra LabNet Philadelphia
METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

2. USEPA Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020).

3. Test Methods for Evaluating Solid Waste (USEPA SW-846).

a. Standard Methods for the Examination of Water and Waste, 16 ed, (1983).

b. Standard Methods for the Examination of Water and Waste, 17 ed, (1989)/18ed (1992).

c. Method of Soil Analysis, Part 1, Physical and Mineralogical Methods, 2nd ed, (1986).

d. Method of Soil Analysis, Part 2, Chemical and Microbiological Properties, Am. Soc. Agron., Madison, WI (1965).

e. USEPA Contract Laboratory Program, Statement of Work for Inorganic Analysis.

f. Code of Federal Regulations.

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INORGANICS DATA SUMMARY REPORT 07/12/99

CLIENT: TNU-HANFORD B99-072 RECRA LOT #: 9907L361

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0VNH1	% Solids	98.1		0.0	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-002	B0VNH2	% Solids	96.3		0.0	1.0
		Chromium VI	2.3	MG/KG	0.42	1.0
-003	B0VNH3	% Solids	96.1		0.0	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-004	B0VNH4	% Solids	96.6		0.0	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-005	B0VNH5	% Solids	96.1		0.0	1.0
		Chromium VI	0.66	MG/KG	0.42	1.0
-006	B0VNH6	% Solids	96.0		0.0	1.0
		Chromium VI	0.96	MG/KG	0.42	1.0
-007	B0VNH7	% Solids	96.4		0.0	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-008	B0VNH8	% Solids	96.5		0.0	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-009	B0VNH9	% Solids	99.8		0.0	1.0
		Chromium VI	0.40 u	MG/KG	0.40	1.0
-010	B0VNJ0	% Solids	93.4		0.0	1.0
		Chromium VI	0.43 u	MG/KG	0.43	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 07/12/99

CLIENT: TNU-HANFORD B99-072 RECRA LOT #: 9907L361

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	B0VNJ1	% Solids	96.4		0.0	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-012	B0VNJ2	% Solids	94.1		0.0	1.0
		Chromium VI	0.42 u	MG/KG	0.42	1.0
-013	B0VNJ3	% Solids	97.5		0.0	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-014	B0VNJ4	% Solids	97.1		0.0	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-015	B0VNJ5	% Solids	96.8		0.0	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-016	B0VNJ6	% Solids	96.8		0.0	1.0
		Chromium VI	0.41 u	MG/KG	0.41	1.0
-017	B0VNJ7	% Solids	90.9		0.0	1.0
		Chromium VI	0.44 u	MG/KG	0.44	1.0
-018	B0VNJ8	% Solids	92.5		0.0	1.0
		Chromium VI	0.43 u	MG/KG	0.43	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 07/12/99

CLIENT: TNU-HANFORD B99-072

RECRA LOT #: 9907L361

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LVI051-MB1	Chromium VI	0.40 u	MG/KG	0.40	1.0

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INORGANICS ACCURACY REPORT 07/12/99

CLIENT: TNU-HANFORD B99-072 RECRA LOT #: 9907L361

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-013	B0VNJ3	Soluble Chromium VI	4.3	0.0	4.1	105.0	1.0
		Insoluble Chromium VI	1030	0.0	1190	86.8	100
BLANK10	99LVI051-MB1	Soluble Chromium VI	4.2	0.40u	4.0	104.6	1.0
		Insoluble Chromium VI	1120	0.40u	1160	96.4	100

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INORGANICS PRECISION REPORT 07/12/99

CLIENT: TNU-HANFORD B99-072

RECRA LOT #: 9907L361

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-013REP	B0VNJ3	Chromium VI	0.41u	0.41u	NC	1.0
-018REP	B0VNJ8	% Solids	92.5	92.8	0.28	1.0

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-072

DATE RECEIVED: 07/02/99 RFW LOT # :9907L361

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0VNH1						
% SOLIDS	001	S	99L%S094	06/18/99	07/06/99	07/07/99
CHROMIUM VI	001	S	99LVI051	06/18/99	07/07/99	07/07/99
B0VNH2						
% SOLIDS	002	S	99L%S094	06/18/99	07/06/99	07/07/99
CHROMIUM VI	002	S	99LVI051	06/18/99	07/07/99	07/07/99
B0VNH3						
% SOLIDS	003	S	99L%S094	06/18/99	07/06/99	07/07/99
CHROMIUM VI	003	S	99LVI051	06/18/99	07/07/99	07/07/99
B0VNH4						
% SOLIDS	004	S	99L%S094	06/18/99	07/06/99	07/07/99
CHROMIUM VI	004	S	99LVI051	06/18/99	07/07/99	07/07/99
B0VNH5						
% SOLIDS	005	S	99L%S094	06/18/99	07/06/99	07/07/99
CHROMIUM VI	005	S	99LVI051	06/18/99	07/07/99	07/07/99
B0VNH6						
% SOLIDS	006	S	99L%S094	06/18/99	07/06/99	07/07/99
CHROMIUM VI	006	S	99LVI051	06/18/99	07/07/99	07/07/99
B0VNH7						
% SOLIDS	007	S	99L%S094	06/18/99	07/06/99	07/07/99
CHROMIUM VI	007	S	99LVI051	06/18/99	07/07/99	07/07/99
B0VNH8						
% SOLIDS	008	S	99L%S094	06/21/99	07/06/99	07/07/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-072

DATE RECEIVED: 07/02/99 RFW LOT # :9907L361

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	008	S	99LVI051	06/21/99	07/07/99	07/07/99
B0VNH9						
% SOLIDS	009	S	99L%S094	06/21/99	07/06/99	07/07/99
CHROMIUM VI	009	S	99LVI051	06/21/99	07/07/99	07/07/99
B0VNJ0						
% SOLIDS	010	S	99L%S094	06/21/99	07/06/99	07/07/99
CHROMIUM VI	010	S	99LVI051	06/21/99	07/07/99	07/07/99
B0VNJ1						
% SOLIDS	011	S	99L%S094	06/21/99	07/06/99	07/07/99
CHROMIUM VI	011	S	99LVI051	06/21/99	07/07/99	07/07/99
B0VNJ2						
% SOLIDS	012	S	99L%S094	06/21/99	07/06/99	07/07/99
CHROMIUM VI	012	S	99LVI051	06/21/99	07/07/99	07/07/99
B0VNJ3						
% SOLIDS	013	S	99L%S094	06/21/99	07/06/99	07/07/99
CHROMIUM VI	013	S	99LVI051	06/21/99	07/07/99	07/07/99
CHROMIUM VI	013 REP	S	99LVI051	06/21/99	07/07/99	07/07/99
CHROMIUM VI	013 MS	S	99LVI051	06/21/99	07/07/99	07/07/99
CHROMIUM VI	013 MSD	S	99LVI051	06/21/99	07/07/99	07/07/99
B0VNJ4						
% SOLIDS	014	S	99L%S094	06/21/99	07/06/99	07/07/99
CHROMIUM VI	014	S	99LVI051	06/21/99	07/07/99	07/07/99
B0VNJ5						
% SOLIDS	015	S	99L%S094	06/22/99	07/06/99	07/07/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-072

DATE RECEIVED: 07/02/99 RFW LOT # :9907L361

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	015	S	99LVI051	06/22/99	07/07/99	07/07/99
B0VNJ6						
% SOLIDS	016	S	99L%S094	06/22/99	07/06/99	07/07/99
CHROMIUM VI	016	S	99LVI051	06/22/99	07/07/99	07/07/99
B0VNJ7						
% SOLIDS	017	S	99L%S094	06/23/99	07/06/99	07/07/99
CHROMIUM VI	017	S	99LVI051	06/23/99	07/07/99	07/07/99
B0VNJ8						
% SOLIDS	018	S	99L%S094	06/23/99	07/06/99	07/07/99
% SOLIDS	018 REP	S	99L%S094	06/23/99	07/06/99	07/07/99
CHROMIUM VI	018	S	99LVI051	06/23/99	07/07/99	07/07/99

LAB QC:

CHROMIUM VI	MB1	S	99LVI051	N/A	07/07/99	07/07/99
CHROMIUM VI	MB1 BS	S	99LVI051	N/A	07/07/99	07/07/99
CHROMIUM VI	MB1 BSD	S	99LVI051	N/A	07/07/99	07/07/99

RECRA LabNet Use Only

99071361

ALL

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client: TNU - HANFORD # B99-072
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: CJ
QC: SPEC Del: STD TAT: 15 DAY
Date Rec'd: 7/2/99 Date Due: 7/17/99
Account #: TNUHANFORD

Refrigerator #									6		5					
#/Type Container	Liquid															
	Solid								1A6							
Volume	Liquid															
	Solid								250							
Preservatives									—		—					
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						

MATRIX CODES:	
S -	Soil
SE -	Sediment
SO -	Solid
SL -	Sludge
W -	Water
O -	Oil
A -	Air
DS -	Drum Solids
DL -	Drum Liquids
L -	EP/TCLP Leachate
WI -	Wipe
X -	Other
F -	Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	RECRA LabNet Use Only: Met ①	ICP ②
001	BØVNH1			S	6/18/99	0845	✓	✓
2	2					0850	✓	✓
3	3					0900	✓	✓
4	4					0900	✓	✓
5	5					1055	✓	✓
6	6					1140	✓	✓
7	7					1218	✓	✓
8	8				6/21/99	0935	✓	✓
9	9					0950	✓	✓
010	BØVNJØ					1018	✓	✓

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

Saf # - B99-072

COMPOSITE WASTE

DATE/REVISIONS:

1. Met ① = As, Cr, Pb, Hg
2. Run Matrix QC
3.
4.
5.
6. * 423579527238 @ 4.5°c

RECRA LabNet Use Only

Samples were:
1) Shipped X or Hand Delivered ___
Airbill # *
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Lables and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
Fedex	[signature]	7/2/99	0930

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

RECRA LabNet Use Only

9907C361

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client: TUCHANSKO-B99-072
Est. Final Proj. Sampling Date:
Project #:
Project Contact/Phone #:
RECRA Project Manager:
QC: Del: TAT:
Date Rec'd: Date Due:
Account #:

Refrigerator #										5								
#/Type Container	Liquid																	
	Solid									1PG								
Volume	Liquid									8O								
	Solid																	
Preservatives																		
ANALYSES REQUESTED		ORGANIC								INORG								
		VOA	BNA	Pest/PCB	Herb					Metal	CN							

RECRA LabNet Use Only

MATRIX CODES: S - Soil; SE - Sediment; SQ - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leachate; WI - Wipe; X - Other; F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
11	BOVNT1			S	6/21/99	1018								met ①		KCRG			
12	2					1041								✓		✓			
13	3					1301								✓		✓			
14	4					351								✓		✓			
15	5				6/22/99	1032								✓		✓			
16	6					1610								✓		✓			
17	7				6/23/99	0706								✓		✓			
18	8					0810								✓		✓			

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1. met ①= As, Cr, Pb, Hg
2.
3.
4.
5.
6.

RECRA LabNet Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # _____
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Lables and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
Fedex	[illegible]	6/24/99	0930

Relinquished by	Received by	Date	Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-072-01	Page 1 of 1

Collector: Bowers, DL/Neilson, RJ	Company Contact: Frank Corpuz	Telephone No.: 373-1661	Project Coordinator: TRENT, SJ
Price Code: 8L	Data Turnaround: 21 Days		
Project Designation: Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location: 116 DR 1&2		SAF No.: B99-072
Ice Chest No.: SML 555	Field Logbook No.: EFL 1133-7		Method of Shipment: FED EX
Shipped To: TMA/RECRA 7-6-99	Offsite Property No.: A990176		Bill of Lading/Air Bill No.: 4235 7952 7238
			COA: R16DRIN6WO

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None 7-6-99	None									
Type of Container	aG	~~G~~ P	aG									
No. of Container(s)	1	1	1									
Volume	1L	20g	250mL									
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.									
Sample No. / Matrix * / Sample Date / Sample Time												
BOVNH1 / Soil / 6-18-99 / 0845	X	X	X									BOVNK1
BOVNH2 / Soil / 6-18-99 / 0850	X	X	X									BOVNK2
BOVNH3 / Soil / 6-18-99 / 0900	X	X	X									BOVNK3
BOVNH4 / Soil / 6-18-99 / 0900	X	X	X									BOVNK4
BOVNH5 / Soil / 6-18-99 / 1055	X	X	X									BOVNK5

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R.Neilson	6-18-99 1620	Ref #1B	
Ref 1B	7-1-99 / 0900	Doug Bowers	7-1-99 / 0900
Doug Bowers	7-1-99 / 0900	Fed Ex	
Fed Ex	7/2/99 0930		

SPECIAL INSTRUCTIONS

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

(2) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *: Soil, Water, Vapor, Other Solid, Other Liquid

LABORATORY SECTION	Received By: Bruce C Miller Jr	Title: Sample Custodian	Date/Time: 7/2/99 0930
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-072-01	Page 1 of 1

Collector Bowers, DL/Neilson, RJ	Company Contact Frank Corpuz	Telephone No. 373-1661	Project Coordinator TRENT, SJ
Project Designation Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location 116 DR 1&2		SAF No. B99-072
Ice Chest No. SML 555	Field Logbook No. EFL 1133-7		Method of Shipment FED EX
Shipped To TMA/RECRA D7B6-28-99	Offsite Property No. A990176		Bill of Lading/Air Bill No. 4235 7952 7238

Price Code 8L

Data Turnaround 21 Days

COA R16DR1N6WD

D7B6-28-99

POSSIBLE SAMPLE HAZARDS/REMARKS												
	Preservation	None	None D7B6-15-99	None								
	Type of Container	aG	~~GT~~ P	aG								
	No. of Container(s)	1	1	1								
Special Handling and/or Storage	Volume	1L	20g	250mL								
SAMPLE ANALYSIS		See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.								
Sample No.	Matrix * / Sample Date / Sample Time											
BOVNH6	Soil / 6-18-99 / 1140	X	X	X							BOVNK6	
BOVNH7	Soil / 6-18-99 / 1218	X	X	X							BOVNK7	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: R. Nielson / R. Nielson 6-18-99	Date/Time 1620	Received By: REF #1B	Date/Time
Relinquished By: REF 1B	Date/Time 7-1-99 / 0900	Received By: Doug Bowers / Doug Bowers 7-1-99 / 0900	Date/Time
Relinquished By: Doug Bowers / Doug Bowers 7-1-99 / 0900	Date/Time	Received By: Fed Ex	Date/Time
Relinquished By: FedEx	Date/Time 7/2/99	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

(2) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION	Received By: Bruce Miller	Title: Sample Custodian	Date/Time: 7/2/99 0930
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-072-01	Page 1 of 1

Collector Bowers, DL/Neilson, RJ	Company Contact Frank Corpuz	Telephone No. 373-1661	Project Coordinator TRENT, SJ
Project Designation Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location 116 DR 1&2		SAF No. B99-072
Ice Chest No. 3ML555	Field Logbook No. EFL 1133-7		Method of Shipment FED EX
Shipped To TMA/RECRA DZB 6-24-99	Offsite Property No. A990176		Bill of Lading/Air Bill No. 4235 7952 7238
			COA R16DR1N6WO

Price Code 8L

Data Turnaround 21 Days

016

DZB 6-24-99

POSSIBLE SAMPLE HAZARDS/REMARKS												
	Preservation	None	None DZB 6-15-99	None								
	Type of Container	sG	~~G~~ P	sG								
	No. of Container(s)	1	1	1								
Special Handling and/or Storage	Volume	1L	20g	250mL								
SAMPLE ANALYSIS		See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.								
Sample No.	Matrix *	Sample Date	Sample Time									
BOVNH8	Soil	6-21-99	0935	X	X	X						BOVNK8
BOVNH9	Soil	6-21-99	0950	X	X	X						
BOVNJ0	Soil	6-21-99	1018	X	X	X						BOVNL0
BOVNJ1	Soil	6-21-99	1018	X	X	X						BOVNL1
BOVNJ2	Soil	6-21-99	1041	X	X	X						BOVNL2

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By R. Nielson / R. Nielson 6/21/99 1705	Date/Time	Received By Ref #1B	Date/Time
Relinquished By Ref 1B 7-1-99/0900	Date/Time	Received By Doug Bowers 7-1-99/0900	Date/Time
Relinquished By Doug Bowers Doug Bowers 7-1-99/0900	Date/Time	Received By Fed Ex	Date/Time
Relinquished By Fed Ex	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 – Total Sr; Nickel-63
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION	Received By Bruce C Miller Jr	Title Sample Custodian	Date/Time 7/2/99 0930
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-072-01	Page 1 of 1

Collector: Bowers, DL/Neilson, RJ	Company Contact: Frank Corpuz	Telephone No.: 373-1661	Project Coordinator: TRENT, SJ
Price Code: 8L	Data Turnaround: 21 Days		
Project Designation: Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location: 116 DR 1&2	SAF No.: B99-072	
Ice Chest No.: SML 555	Field Logbook No.: EFL 1133-7	Method of Shipment: FED EX	
Shipped To: ~~TMA/RECRA~~ RJB 6-28-99	Offsite Property No.: A990176	Bill of Lading/Air Bill No.: 4235 7952 7238	
		COA: R16DRIN6WO	

RJB 6-28-99

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None RJB 6-15-99	None							
	Type of Container	aG	~~G~~ P	aG							
	No. of Container(s)	1	1	1							
Special Handling and/or Storage	Volume	1L	20g	250mL							
SAMPLE ANALYSIS		See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.							

Sample No.	Matrix *	Sample Date	Sample Time										
B0VNJ3	Soil	6-21-99	1301	X	X	X						B0VNL3	
B0VNJ4	Soil	6-21-99	1351	X	X	X						B0VNL4	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
DL Neilson / R Nielson	6-21-99 1705	Ref # 1B	
Ref 1B	7-1-99/0900	Doug Bowers / Doug Bowers	7-1-99/0900
Doug Bowers / Doug Bowers	7-1-99/0900	Fed Ex	
Fed Ex	7/2/99 0930		

SPECIAL INSTRUCTIONS

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

(2) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION	Received By: Bruce Miller Jr	Title: Sample Custodian	Date/Time: 7/2/99 0930
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-072-01	Page 1 of 1

Collector Bowers, DL/Neilson, RJ	Company Contact Frank Corpuz	Telephone No. 373-1661	Project Coordinator TRENT, SJ
Project Designation Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location 116 DR 1&2		SAF No. B99-072
Ice Chest No. SML 555	Field Logbook No. EFL 1133-7		Method of Shipment FED EX
Shipped To ~~TMA/RECRA~~ RECRA RJB 7-1-99	Offsite Property No. A990176		Bill of Lading/Air Bill No. 4235 7952 7238
			COA R16DR1 N6W0

Price Code 8L

Data Turnaround 21 Days

018

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None RJB 6-15-99	None								
Type of Container	aG	~~GT~~ P	aG								
No. of Container(s)	1	1	1								
Volume	1L	20g	250mL								
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.								

Sample No.	Matrix *	Sample Date	Sample Time										
BOVNJ5	Soil	6-22-99	1033			X						BOVNL5	
BOVNJ6	Soil	6-22-99	1610			X						BOVNL6	

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Robert Nielson / R Nielson	6-22-99 1735	Ref # 1B	
Ref 1B	7-1-99 / 0900	Doug Bowers / Doug Bowers	7-1-99 / 0900
FedEx	7/2/99 0930		

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 – Total Sr; Nickel-63
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION	Received By: Bruce C Murray	Title: Sample Auctioneer	Date/Time: 7/2/99 0930
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-072-01

Collector Bowers, DL/Neilson, RJ	Company Contact Frank Corpuz	Telephone No. 373-1661	Project Coordinator TRENT, SJ	Price Code 8L	Date 21 , 99
Project Designation Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location 116 DR 1&2		SAF No. B99-072		
Ice Chest No. SML 555	Field Logbook No. EFL 1133-7		Method of Shipment FED EX		
Shipped To TMA/RECRA 6-23-99	Offsite Property No. A990176		Bill of Lading/Air Bill No. 4235 7952 7238		
			COA R16DR1N6W0		

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None 6-15-99	None							
	Type of Container	aG	~~GT~~ P	aG							
	No. of Container(s)	1	1	1							
Special Handling and/or Storage	Volume	1L	20g	250mL							
SAMPLE ANALYSIS		See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.							

Sample No.	Matrix *	Sample Date	Sample Time										
BOVNJ7	Soil	6-23-99	0706			X					BOVNL7		
BOVNJ8	Soil	6-23-99	0810			X					BOVNL8		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Doug Bowers Doug Bowers 6-23-99/1145	Date/Time	Received By RCF/C 6-23-99/1145	Date/Time
Relinquished By RCF/B 7-1-99/0900	Date/Time	Received By Doug Bowers Doug Bowers 7-1-99/0900	Date/Time
Relinquished By Doug Bowers Doug Bowers 7-1-99/0900	Date/Time	Received By Fed Ex	Date/Time
Relinquished By FedEx 7/2/99 0930	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

(2) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION	Received By Bruce L Miller	Title Sample Custodian	Date/Time 7/2/99 0930
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

RECRA
ENVIRONMENTAL
INC.

Chemical and Environmental Measurement Information

AUG 1999
RECEIVED
Data
Log In

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-072
RFW# : 9907L361
SDG/SAF# : H0458/B99-072

W.O.# : 10985-001-001-9999-00
Date Received: 07-02-99

METALS CASE NARRATIVE

1. This narrative covers the analyses of 18 soil samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. Most samples for Lead and half of the samples for Arsenic and Chromium were reported with two fold dilutions. The sample matrix caused high CCV recoveries. On the third attempt to run the samples, the dilutions were performed and the CCV recoveries were then acceptable.

3. All analyses were performed within the required holding times.

4. The cooler temperature has been recorded on the Chain of Custody.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).

6. All Initial and Continuing Calibration Blanks (ICB/CCBs) were within control limits (less than the PQL).

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL 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 sample (LCS) were within the laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. The matrix spike (MS) recoveries for 1 analyte was outside the 75-125% control limits. Refer to the Inorganics Accuracy 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 23 pages.

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11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at meaningful concentration levels, due to high concentrations of the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B0VNH1	Chromium	500	103.8

12. The duplicate analysis for 1 analyte was outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

13. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a region of less-certain quantification.

Maureen L. Doughty

for J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

7/21/99
Date

mld/m07-361

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 9907L361

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	__6010B		__200.7				__99
Antimony	__6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	✓6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	__6010B		__200.7				__99
Beryllium	__6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	__6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	__6010B		__200.7				__99
Chromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	__6010B		__200.7				__99
Copper	__6010B	__7211 [5]	__200.7	__220.2			__99
Iron	__6010B		__200.7				__99
Lead	✓6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	__6010B		__200.7				__99
Manganese	__6010B		__200.7				__99
Mercury	__7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	__6010B		__200.7				__99
Potassium	__6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	__6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	__6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	__6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	__6010B	__7841 [5]	__200.7	__279.2	__200.9		__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	__6010B		__200.7				__99
Zinc	__6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other:_____ Method:_____

L-WI-033/M-03/98

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 07/15/99

CLIENT: TNU-HANFORD B99-072 RECRA LOT #: 9907L361

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0VNH1	Arsenic, Total	2.6	MG/KG	0.21	1.0
		Chromium, Total	102	MG/KG	0.05	1.0
		Mercury, Total	0.08	MG/KG	0.02	1.0
		Lead, Total	5.6	MG/KG	0.26	1.0
-002	B0VNH2	Arsenic, Total	1.6	MG/KG	0.18	1.0
		Chromium, Total	23.3	MG/KG	0.05	1.0
		Mercury, Total	0.02	MG/KG	0.02	1.0
		Lead, Total	1.9	MG/KG	0.46	2.0
-003	B0VNH3	Arsenic, Total	1.3	MG/KG	0.23	1.0
		Chromium, Total	14.4	MG/KG	0.06	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	2.1	MG/KG	0.57	2.0
-004	B0VNH4	Arsenic, Total	1.6	MG/KG	0.21	1.0
		Chromium, Total	16.6	MG/KG	0.06	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	1.7	MG/KG	0.54	2.0
-005	B0VNH5	Arsenic, Total	1.6	MG/KG	0.20	1.0
		Chromium, Total	11.6	MG/KG	0.05	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	2.1	MG/KG	0.49	2.0
-006	B0VNH6	Arsenic, Total	1.6	MG/KG	0.19	1.0
		Chromium, Total	12.5	MG/KG	0.05	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	2.2	MG/KG	0.48	2.0
-007	B0VNH7	Arsenic, Total	1.9	MG/KG	0.21	1.0
		Chromium, Total	10.6	MG/KG	0.05	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Lead, Total	2.0	MG/KG	0.52	2.0

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INORGANICS DATA SUMMARY REPORT 07/15/99

CLIENT: TNU-HANFORD B99-072

RECRA LOT #: 9907L361

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-008	B0VNH8	Arsenic, Total	1.5	MG/KG	0.19	1.0
		Chromium, Total	5.8	MG/KG	0.05	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	2.0	MG/KG	0.48	2.0
-009	B0VNH9	Arsenic, Total	0.22 u	MG/KG	0.22	1.0
		Chromium, Total	0.15	MG/KG	0.06	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	0.75	MG/KG	0.27	1.0
-010	B0VNJ0	Arsenic, Total	2.3	MG/KG	0.44	2.0
		Chromium, Total	13.5	MG/KG	0.11	2.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	3.0	MG/KG	0.55	2.0
-011	B0VNJ1	Arsenic, Total	1.0	MG/KG	0.45	2.0
		Chromium, Total	6.8	MG/KG	0.12	2.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	2.8	MG/KG	0.56	2.0
-012	B0VNJ2	Arsenic, Total	1.4	MG/KG	0.45	2.0
		Chromium, Total	11.5	MG/KG	0.12	2.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	2.9	MG/KG	0.57	2.0
-013	B0VNJ3	Arsenic, Total	1.5	MG/KG	0.42	2.0
		Chromium, Total	10.7	MG/KG	0.11	2.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	2.2	MG/KG	0.53	2.0
-014	B0VNJ4	Arsenic, Total	1.2	MG/KG	0.40	2.0
		Chromium, Total	9.6	MG/KG	0.10	2.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	1.9	MG/KG	0.51	2.0

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INORGANICS DATA SUMMARY REPORT 07/15/99

CLIENT: TNU-HANFORD B99-072 RECRA LOT #: 9907L361

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-015	B0VNJ5	Arsenic, Total	1.4	MG/KG	0.38	2.0
		Chromium, Total	6.9	MG/KG	0.1	2.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	1.9	MG/KG	0.48	2.0
-016	B0VNJ6	Arsenic, Total	1.1	MG/KG	0.44	2.0
		Chromium, Total	6.9	MG/KG	0.12	2.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	2.6	MG/KG	0.56	2.0
-017	B0VNJ7	Arsenic, Total	0.62	MG/KG	0.50	2.0
		Chromium, Total	4.7	MG/KG	0.13	2.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Lead, Total	1.5	MG/KG	0.63	2.0
-018	B0VNJ8	Arsenic, Total	0.74	MG/KG	0.43	2.0
		Chromium, Total	7.3	MG/KG	0.11	2.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	1.8	MG/KG	0.54	2.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 07/15/99

CLIENT: TNU-HANFORD B99-072 RECRA LOT #: 9907L361

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L0454-MB1	Arsenic, Total	0.23 u	MG/KG	0.23	1.0
		Chromium, Total	0.06 u	MG/KG	0.06	1.0
		Lead, Total	0.29 u	MG/KG	0.29	1.0
BLANK1	99C0199-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

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INORGANICS ACCURACY REPORT 07/15/99

CLIENT: TNU-HANFORD B99-072

RECRA LOT #: 9907L361

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0VNH1	Arsenic, Total	146	2.6	156	91.9	1.0
		Chromium, Total	102	102	15.6	-1.0*	1.0
		Mercury, Total	0.26	0.08	0.17	101.2	1.0
		Lead, Total	39.0	5.6	38.9	85.9	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 07/15/99

CLIENT: TNU-HANFORD B99-072 RECRA LOT #: 9907L361

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0VNH1	Arsenic, Total	2.6	4.1	44.8	1.0
		Chromium, Total	102	106	3.6	1.0
		Mercury, Total	0.08	0.08	6.1	1.0
		Lead, Total	5.6	5.4	3.6	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 07/15/99

CLIENT: TNU-HANFORD B99-072 RECRA LOT #: 9907L361

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L0454-LC1	Arsenic, LCS	942	1000	MG/KG	94.2
		Chromium, LCS	47.6	50.0	MG/KG	95.2
		Lead, LCS	234	250	MG/KG	93.8
LCS1	99C0199-LC1	Mercury, LCS	0.98	1.0	MG/KG	97.8

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-072

DATE RECEIVED: 07/02/99 RFW LOT # :9907L361

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0VNH1						
ARSENIC, TOTAL	001	S	99L0454	06/18/99	07/06/99	07/07/99
ARSENIC, TOTAL	001 REP	S	99L0454	06/18/99	07/06/99	07/07/99
ARSENIC, TOTAL	001 MS	S	99L0454	06/18/99	07/06/99	07/07/99
CHROMIUM, TOTAL	001	S	99L0454	06/18/99	07/06/99	07/07/99
CHROMIUM, TOTAL	001 REP	S	99L0454	06/18/99	07/06/99	07/07/99
CHROMIUM, TOTAL	001 MS	S	99L0454	06/18/99	07/06/99	07/07/99
MERCURY, TOTAL	001	S	99C0199	06/18/99	07/12/99	07/13/99
MERCURY, TOTAL	001 REP	S	99C0199	06/18/99	07/12/99	07/13/99
MERCURY, TOTAL	001 MS	S	99C0199	06/18/99	07/12/99	07/13/99
LEAD, TOTAL	001	S	99L0454	06/18/99	07/06/99	07/07/99
LEAD, TOTAL	001 REP	S	99L0454	06/18/99	07/06/99	07/09/99
LEAD, TOTAL	001 MS	S	99L0454	06/18/99	07/06/99	07/09/99
B0VNH2						
ARSENIC, TOTAL	002	S	99L0454	06/18/99	07/06/99	07/07/99
CHROMIUM, TOTAL	002	S	99L0454	06/18/99	07/06/99	07/07/99
MERCURY, TOTAL	002	S	99C0199	06/18/99	07/12/99	07/13/99
LEAD, TOTAL	002	S	99L0454	06/18/99	07/06/99	07/09/99
B0VNH3						
ARSENIC, TOTAL	003	S	99L0454	06/18/99	07/06/99	07/07/99
CHROMIUM, TOTAL	003	S	99L0454	06/18/99	07/06/99	07/07/99
MERCURY, TOTAL	003	S	99C0199	06/18/99	07/12/99	07/13/99
LEAD, TOTAL	003	S	99L0454	06/18/99	07/06/99	07/09/99
B0VNH4						
ARSENIC, TOTAL	004	S	99L0454	06/18/99	07/06/99	07/07/99
CHROMIUM, TOTAL	004	S	99L0454	06/18/99	07/06/99	07/07/99
MERCURY, TOTAL	004	S	99C0199	06/18/99	07/12/99	07/13/99
LEAD, TOTAL	004	S	99L0454	06/18/99	07/06/99	07/09/99
B0VNH5						
ARSENIC, TOTAL	005	S	99L0454	06/18/99	07/06/99	07/07/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-072

DATE RECEIVED: 07/02/99 RFW LOT # :9907L361

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	005	S	99L0454	06/18/99	07/06/99	07/07/99
MERCURY, TOTAL	005	S	99C0199	06/18/99	07/12/99	07/13/99
LEAD, TOTAL	005	S	99L0454	06/18/99	07/06/99	07/09/99
B0VNH6						
ARSENIC, TOTAL	006	S	99L0454	06/18/99	07/06/99	07/07/99
CHROMIUM, TOTAL	006	S	99L0454	06/18/99	07/06/99	07/07/99
MERCURY, TOTAL	006	S	99C0199	06/18/99	07/12/99	07/13/99
LEAD, TOTAL	006	S	99L0454	06/18/99	07/06/99	07/09/99
B0VNH7						
ARSENIC, TOTAL	007	S	99L0454	06/18/99	07/06/99	07/07/99
CHROMIUM, TOTAL	007	S	99L0454	06/18/99	07/06/99	07/07/99
MERCURY, TOTAL	007	S	99C0199	06/18/99	07/12/99	07/13/99
LEAD, TOTAL	007	S	99L0454	06/18/99	07/06/99	07/09/99
B0VNH8						
ARSENIC, TOTAL	008	S	99L0454	06/21/99	07/06/99	07/07/99
CHROMIUM, TOTAL	008	S	99L0454	06/21/99	07/06/99	07/07/99
MERCURY, TOTAL	008	S	99C0199	06/21/99	07/12/99	07/13/99
LEAD, TOTAL	008	S	99L0454	06/21/99	07/06/99	07/09/99
B0VNH9						
ARSENIC, TOTAL	009	S	99L0454	06/21/99	07/06/99	07/09/99
CHROMIUM, TOTAL	009	S	99L0454	06/21/99	07/06/99	07/09/99
MERCURY, TOTAL	009	S	99C0199	06/21/99	07/12/99	07/13/99
LEAD, TOTAL	009	S	99L0454	06/21/99	07/06/99	07/09/99
B0VNJ0						
ARSENIC, TOTAL	010	S	99L0454	06/21/99	07/06/99	07/09/99
CHROMIUM, TOTAL	010	S	99L0454	06/21/99	07/06/99	07/09/99
MERCURY, TOTAL	010	S	99C0199	06/21/99	07/12/99	07/13/99
LEAD, TOTAL	010	S	99L0454	06/21/99	07/06/99	07/09/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-072

DATE RECEIVED: 07/02/99 RFW LOT # :9907L361

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0VNJ1						
ARSENIC, TOTAL	011	S	99L0454	06/21/99	07/06/99	07/09/99
CHROMIUM, TOTAL	011	S	99L0454	06/21/99	07/06/99	07/09/99
MERCURY, TOTAL	011	S	99C0199	06/21/99	07/12/99	07/13/99
LEAD, TOTAL	011	S	99L0454	06/21/99	07/06/99	07/09/99
B0VNJ2						
ARSENIC, TOTAL	012	S	99L0454	06/21/99	07/06/99	07/09/99
CHROMIUM, TOTAL	012	S	99L0454	06/21/99	07/06/99	07/09/99
MERCURY, TOTAL	012	S	99C0199	06/21/99	07/12/99	07/13/99
LEAD, TOTAL	012	S	99L0454	06/21/99	07/06/99	07/09/99
B0VNJ3						
ARSENIC, TOTAL	013	S	99L0454	06/21/99	07/06/99	07/09/99
CHROMIUM, TOTAL	013	S	99L0454	06/21/99	07/06/99	07/09/99
MERCURY, TOTAL	013	S	99C0199	06/21/99	07/12/99	07/13/99
LEAD, TOTAL	013	S	99L0454	06/21/99	07/06/99	07/09/99
B0VNJ4						
ARSENIC, TOTAL	014	S	99L0454	06/21/99	07/06/99	07/09/99
CHROMIUM, TOTAL	014	S	99L0454	06/21/99	07/06/99	07/09/99
MERCURY, TOTAL	014	S	99C0199	06/21/99	07/12/99	07/13/99
LEAD, TOTAL	014	S	99L0454	06/21/99	07/06/99	07/09/99
B0VNJ5						
ARSENIC, TOTAL	015	S	99L0454	06/22/99	07/06/99	07/09/99
CHROMIUM, TOTAL	015	S	99L0454	06/22/99	07/06/99	07/09/99
MERCURY, TOTAL	015	S	99C0199	06/22/99	07/12/99	07/13/99
LEAD, TOTAL	015	S	99L0454	06/22/99	07/06/99	07/09/99
B0VNJ6						
ARSENIC, TOTAL	016	S	99L0454	06/22/99	07/06/99	07/09/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-072

DATE RECEIVED: 07/02/99 RFW LOT # :9907L361

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	016	S	99L0454	06/22/99	07/06/99	07/09/99
MERCURY, TOTAL	016	S	99C0199	06/22/99	07/12/99	07/13/99
LEAD, TOTAL	016	S	99L0454	06/22/99	07/06/99	07/09/99
B0VNJ7						
ARSENIC, TOTAL	017	S	99L0454	06/23/99	07/06/99	07/09/99
CHROMIUM, TOTAL	017	S	99L0454	06/23/99	07/06/99	07/09/99
MERCURY, TOTAL	017	S	99C0199	06/23/99	07/12/99	07/13/99
LEAD, TOTAL	017	S	99L0454	06/23/99	07/06/99	07/09/99
B0VNJ8						
ARSENIC, TOTAL	018	S	99L0454	06/23/99	07/06/99	07/09/99
CHROMIUM, TOTAL	018	S	99L0454	06/23/99	07/06/99	07/09/99
MERCURY, TOTAL	018	S	99C0199	06/23/99	07/12/99	07/13/99
LEAD, TOTAL	018	S	99L0454	06/23/99	07/06/99	07/09/99

LAB QC:

ARSENIC LABORATORY	LC1 BS	S	99L0454	N/A	07/06/99	07/07/99
ARSENIC, TOTAL	MB1	S	99L0454	N/A	07/06/99	07/07/99
CHROMIUM LABORATORY	LC1 BS	S	99L0454	N/A	07/06/99	07/07/99
CHROMIUM, TOTAL	MB1	S	99L0454	N/A	07/06/99	07/07/99
MERCURY LABORATORY	LC1 BS	S	99C0199	N/A	07/12/99	07/13/99
MERCURY, TOTAL	MB1	S	99C0199	N/A	07/12/99	07/13/99
LEAD LABORATORY	LC1 BS	S	99L0454	N/A	07/06/99	07/07/99
LEAD, TOTAL	MB1	S	99L0454	N/A	07/06/99	07/07/99

RECRA LabNet Use Only

9907L361

ALL

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client: TNU - HANFORD - B99-072
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: SPEC Del: STD TAT: 15 DAY
Date Rec'd: 7/2/99 Date Due: 7/17/99
Account #: TNUHANFORD

Refrigerator #																	
#/Type Container	Liquid									6		5					
	Solid									1A6							
Volume	Liquid																
	Solid									250							
Preservatives										1							
ANALYSES REQUESTED →			ORGANIC							INORG							
			VOA	BNA	Pest/PCB	Herb				Metal	CN						

MATRIX CODES: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leachate; WI - Wipe; X - Other; F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	RECRA LabNet Use Only							Met ①		ICP ②				
001	BØVNH1			S	6/8/99	0845								✓		✓				
2	2					0850								✓		✓				
3	3					0900								✓		✓				
4	4					0900								✓		✓				
5	5					1055								✓		✓				
6	6					1140								✓		✓				
7	7					1218								✓		✓				
8	8				6/21/99	0935								✓		✓				
9	9					0950								✓		✓				
010	BØVNJØ					1018								✓		✓				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

Saf # - B99-072

COMPOSITE WASTE

DATE/REVISIONS:

1. Met ① = As, Cr, Pb, Hg
2. Run Matrix QC
3.
4.
5.
6. * 423579527238 @ 4.5°c

RECRA LabNet Use Only

Samples were:
1) Shipped X or Hand Delivered ___
Airbill # *
2) Ambient or Chilled
3) Received in Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Lables and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
Fedex	BMullen	7/2/99	0930

Relinquished by	Received by	Date	Time
	ORIGINAL REWRITTEN		

RECRA LabNet Use Only

99071361

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client: TPO-HANFORD-B99-072
Est. Final Proj. Sampling Date:
Project #:
Project Contact/Phone #:
RECRA Project Manager:
QC: Del: TAT:

Date Rec'd: Date Due:
Account #:

Refrigerator #									5							
#/Type Container	Liquid															
	Solid								1pt							
Volume	Liquid															
	Solid								30							
Preservatives																
ANALYSES REQUESTED		ORGANIC							INORG							
		VOA	BNA	Pest/PCB	Herb				Metal	CN						
RECRA LabNet Use Only									met 1		KRG					

MATRIX CODES: S - Soil; SE - Sediment; SO - Solid; SL - Sludge; W - Water; O - Oil; A - Air; DS - Drum Solids; DL - Drum Liquids; L - EP/TCLP Leachate; WI - Wipe; X - Other; F - Fish

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected													
011	BOVNJ1			S	6/21/99	1018							✓		✓				
12	2					1041							✓		✓				
13	3					1301							✓		✓				
14	4					351							✓		✓				
15	5				6/22/99	1033							✓		✓				
16	6					1610							✓		✓				
17	7				6/23/99	0706							✓		✓				
18	8					0810							✓		✓				

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:

DATE/REVISIONS:
1. Met 1 = As, Cr, Pb, Hg
2.
3.
4.
5.
6.

RECRA LabNet Use Only

Samples were:
1) Shipped ___ or Hand Delivered ___
Airbill # ___
2) Ambient or Chilled
3) Received In Good Condition Y or N
4) Labels Indicate Properly Preserved Y or N
5) Received Within Holding Times Y or N

COC Tape was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N

Discrepancies Between Samples Lables and COC Record? Y or N
NOTES:

Relinquished by	Received by	Date	Time
FedEx	[signature]	7/2/99	0930

Relinquished by	Received by	Date	Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-072-01	Page 1 of 1

Collector Bowers, DL/Neilson, RJ	Company Contact Frank Corpuz	Telephone No. 373-1661	Project Coordinator TRENT, SJ
Price Code 8L	Data Turnaround 21 Days		
Project Designation Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location 116 DR 1&2		SAF No. B99-072
Ice Chest No. SML 555	Field Logbook No. EFL 1133-7		Method of Shipment FED EX
Shipped To TMA/RECRA B 7-06-99	Offsite Property No. A990176		Bill of Lading/Air Bill No. 4235 7952 7238
			COA R16DR1N6W0

B 7-06-99

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None B 7-06-99	None							
	Type of Container	aG	~~G~~ P	aG							
	No. of Container(s)	1	1	1							
Special Handling and/or Storage	Volume	1L	20g	250mL							
SAMPLE ANALYSIS		See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.							

Sample No.	Matrix *	Sample Date	Sample Time										
BOVNH1	Soil	6-18-99	0845	X	X	X							BOVNK1
BOVNH2	Soil	6-18-99	0850	X	X	X							BOVNK2
BOVNH3	Soil	6-18-99	0900	X	X	X							BOVNK3
BOVNH4	Soil	6-18-99	0900	X	X	X							BOVNK4
BOVNH5	Soil	6-18-99	1055	X	X	X							BOVNK5

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R.J. Neilson	6-18-99 1620	Ref #1B	
Ref 1B	7-1-99 / 0900	Doug Bowers	7-1-99 / 0900
Doug Bowers	7-1-99 / 0900	Fed Ex	
Fed Ex	7/2/99 0930		

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr; Nickel-63
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION	Received By	Title	Date/Time
	Bruce C Miller Jr	Sample Custodian	7/2/99 0930
FINAL SAMPLE	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-072-01	Page 1 of

Collector Bowers, DL/Neilson, RJ	Company Contact Frank Corpuz	Telephone No. 373-1661	Project Coordinator TRENT, SJ
Project Designation Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location 116 DR 1&2		SAF No. B99-072
Ice Chest No. SML555	Field Logbook No. EFL 1133-7		Method of Shipment FED EX
Shipped To ~~TMA~~/RECRA B706-28-95	Offsite Property No. A990176		Bill of Lading/Air Bill No. 4235 7952 7238
	B706-95-29		COA R16DRINBWO

Price Code 8L

Data Turnaround 21 Days

POSSIBLE SAMPLE HAZARDS/REMARKS												
	Preservation	None	None B706-15-89	None								
	Type of Container	aG	~~GT~~ P	aG								
	No. of Container(s)	1	1	1								
Special Handling and/or Storage	Volume	1L	20g	250mL								
SAMPLE ANALYSIS		See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.								
Sample No.	Matrix * / Sample Date / Sample Time											
BOVNH6	Soil / 6-18-99 / 1140	X	X	X								BOVNK6
BOVNH7	Soil / 6-18-99 / 1218	X	X	X								BOVNK7

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: R. Nielson / R. Nielson 6-18-99	Date/Time 1621	Received By: REF #1B	Date/Time
Relinquished By: REF 1B	Date/Time 7-1-99/0900	Received By: Doug Bowers / Doug Bowers	Date/Time 7-1-99/0900
Relinquished By: Doug Bowers / Doug Bowers	Date/Time 7-1-99/0900	Received By: Fed Ex	Date/Time
Relinquished By: FedEx	Date/Time 7/2/99	Received By	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89.90 -- Total Sr; Nickel-63

(2) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *

Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION	Received By: Bruce Miller	Title: Sample Custodian	Date/Time: 7/2/99 093
FINAL SAMPLE	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-072-01	Page 1 of

Collector Bowers, DL/Neilson, RJ	Company Contact Frank Corpuz	Telephone No. 373-1661	Project Coordinator TRENT, SJ
Project Designation Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location 116 DR 1&2		SAF No. B99-072
Ice Chest No. 3ML555	Field Logbook No. EFL 1133-7		Method of Shipment FED EX
Shipped To TMA/RECRA ~~B 7 06-24-99~~	Offsite Property No. A990176		Bill of Lading/Air Bill No. 4235 7952 7238
			COA R16DR1N6WO

Price Code 8L

Data Turnaround 21 Days

~~B 7 06-24-99~~

POSSIBLE SAMPLE HAZARDS/REMARKS												
	Preservation	None	None B 7 06-15-99	None								
	Type of Container	sG	~~GT~~ P	sG								
	No. of Container(s)	1	1	1								
Special Handling and/or Storage	Volume	1L	20g	250mL								
SAMPLE ANALYSIS		See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.								
Sample No.	Matrix *	Sample Date	Sample Time									
BOVNH8	Soil	6-21-99	0935	X	X	X						BOVNK
BOVNH9	Soil	6-21-99	0950	X	X	X						
BOVNJ0	Soil	6-21-99	1018	X	X	X						BOVNL
BOVNJ1	Soil	6-21-99	1018	X	X	X						BOVNL
BOVNJ2	Soil	6-21-99	1041	X	X	X						BOVNL

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By R Nelson/R Nelson 6/21/99 1705	Date/Time	Received By Ref #1B	Date/Time
Relinquished By Ref 1B 7-1-99/0900	Date/Time	Received By Doug Bowers Doug Bowers 7-1-99/0900	Date/Time
Relinquished By Doug Bowers Doug Bowers 7-1-99/0900	Date/Time	Received By Fed Ex	Date/Time
Relinquished By Fed Ex	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

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

(2) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION	Received By	Title	Date/Time
	Bruce C Miller Jr	Sample Custodian	7/2/99 0930
FINAL SAMPLE	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-072-01	Page 1 of

Collector Bowers, DL/Neilson, RJ	Company Contact Frank Corpuz	Telephone No. 373-1661	Project Coordinator TRENT, SJ
Project Designation Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location 116 DR 1&2		SAF No. B99-072
Ice Chest No. SML 555	Field Logbook No. EFL 1133-7		Method of Shipment FED EX
Shipped To TMA/RECRA DJB 6-28-99	Offsite Property No. A990176		Bill of Lading/Air Bill No. 4235 7952 7238
			COA R16DRIN6WO

Price Code 8L

Data Turnaround 21 Days

DJB 6-28-99

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None DJB 6-15-99	None								
Type of Container	aG	~~G~~ P	aG								
No. of Container(s)	1	1	1								
Volume	1L	10g	250mL								
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.								

Sample No.	Matrix *	Sample Date	Sample Time											
BOVNJ3	Soil	6-21-99	1301	X	X	X							BOVNL3	
BOVNJ4	Soil	6-21-99	1351	X	X	X							BOVNL4	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Neilson	6-21-99 1705	Ref # 1B	
Ref 1B	7-1-99 / 0900	Doug Bowers	7-1-99/0900
Doug Bowers	7-1-99 / 0900	Fed Ex	
Fed Ex	7/2/99 0930		

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr; Nickel-63
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION	Received By	Title	Date/Time
	Bruce Miller	Sample Custodian	7/2/99 0930
FINAL SAMPLE	Disposal Method	Disposed By	Date/Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-072-01	Page 1 of 1

Collector Bowers, DL/Neilson, RJ	Company Contact Frank Corpuz	Telephone No. 373-1661	Project Coordinator TRENT, SJ
Project Designation Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location 116 DR 1&2		SAF No. B99-072
Ice Chest No. SML 555	Field Logbook No. EFL 1133-7		Method of Shipment FED EX
Shipped To ~~TMA/RECRA~~ RECRA DJB 7-1-99	Offsite Property No. A990176		Bill of Lading/Air Bill No. 4235 7952 7238
			COA R16DR1 N6W0

Price Code 8L

Data Turnaround 21 Days

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	None RJB 6-15-99	None								
Type of Container	aG	~~GT~~ P	aG								
No. of Container(s)	1	1	1								
Volume	1L	20g	250mL								
SAMPLE ANALYSIS	See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.								

Sample No.	Matrix *	Sample Date	Sample Time										
BOVNJ5	Soil	6-22-99	1033			X						BOVNL5	
BOVNJ6	Soil	6-22-99	1610			X						BOVNL6	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Neilson RJ Neilson	6-22-99 1735	Ref # 1B	
Ref 1B	7-1-99/0900	Doug Bowers	7-1-99/0900
Fed Ex	7/2/99 0930		

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr; Nickel-63
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION — Received By: Bruce Murf — Title: Sample Custodian — Date/Time: 7/2/99 0930

FINAL SAMPLE — Disposal Method — Disposed By — Date/Time

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-072-01	Page 1 of

Collector Bowers, DL/Neilson, RJ	Company Contact Frank Corpuz	Telephone No. 373-1661	Project Coordinator TRENT, SJ	Price Code 8L	Data Turnaround 21 Days
Project Designation Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location 116 DR 1&2		SAF No. B99-072		
Ice Chest No. SML 555	Field Logbook No. EFL 1133-7		Method of Shipment FED EX		
Shipped To ~~TMA~~/RECRA 6-23-99	Offsite Property No. A990176		Bill of Lading/Air Bill No. 4235 7952 7238		
			COA R16DR1N6W0		

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None 6-15-99	None							
	Type of Container	aG	~~GT~~ P	aG							
	No. of Container(s)	1	1	1							
Special Handling and/or Storage	Volume	1L	20g	250mL							
SAMPLE ANALYSIS		See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.							

Sample No.	Matrix *	Sample Date	Sample Time										
B0VNJ7	Soil	6-23-99	0706			X					B0VNL7		
B0VNJ8	Soil	6-23-99	0810			X					B0VNL8		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Doug Bowers Doug Bowers 6-23-99/1145	Date/Time	Received By RCF/C 6-23-99/1145	Date/Time
Relinquished By RCF/B 7-1-99/0900	Date/Time	Received By Doug Bowers Doug Bowers 7-1-99/0900	Date/Time
Relinquished By Doug Bowers Doug Bowers 7-1-99/0900	Date/Time	Received By Fed Ex	Date/Time
Relinquished By FedEx 7/2/99 0930	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr; Nickel-63
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

LABORATORY SECTION	Received By	Title	Date/Time
	Bruce C Miller	Sample Custodian	7/2/99 0932
FINAL SAMPLE	Disposal Method	Disposed By	Date/Time

H0458-TMA/REC

Thermo Nutech
W.O. No. N9-07-025-7158

Bechtel Hanford Inc.
SDG H0458

Case Narrative

1.0 GENERAL

Bechtel Hanford Inc. Sample Delivery Group H0458 is composed of eighteen solid (soil) samples designated under SAF No. B99-072 with a Project Designation of: Borehole Drilling at 116-DR-1 & 116-DR-2-Soil.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the TNU Sample Receipt Checklist. The results were transmitted to BHI via facsimile on August 2, 1999.

2.0 ANALYSIS NOTES

2.1 Gamma Scan Analyses

No problems were encountered during the course of the analyses.

2.2 Total Strontium Analyses

No problems were encountered during the course of the analyses. The analyzed date differs for the samples as varying numbers of points were taken for each sample in order to ensure a proper activity curve.

2.3 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses though a recount was taken on sample BOVNH3.

2.4 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses though a recount was taken on sample BOVNH5 and the duplicate.

2.5 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.6 Americium-241 Analyses

No problems were encountered during the course of the analyses though a recount was taken on sample BOVNH4.

AUG 1999
RECEIVED
Data
Log In

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

SAMPLE SUMMARY

SDG 7158
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B0VNH1	116 DR 1&2	SOLID		N907025-01	B99-072	B99-072-01	06/18/99 08:45
B0VNH2	116 DR 1&2	SOLID		N907025-02	B99-072	B99-072-01	06/18/99 08:50
B0VNH3	116 DR 1&2	SOLID		N907025-03	B99-072	B99-072-01	06/18/99 09:00
B0VNH4	116 DR 1&2	SOLID		N907025-04	B99-072	B99-072-01	06/18/99 09:00
B0VNH5	116 DR 1&2	SOLID		N907025-05	B99-072	B99-072-01	06/18/99 10:55
B0VNH6	116 DR 1&2	SOLID		N907025-06	B99-072	B99-072-01	06/18/99 11:40
B0VNH7	116 DR 1&2	SOLID		N907025-07	B99-072	B99-072-01	06/18/99 12:18
B0VNH8	116 DR 1&2	SOLID		N907025-08	B99-072	B99-072-01	06/21/99 09:35
B0VNH9	116 DR 1&2	SOLID		N907025-09	B99-072	B99-072-01	06/21/99 09:50
B0VNJ0	116 DR 1&2	SOLID		N907025-10	B99-072	B99-072-01	06/21/99 10:18
B0VNJ1	116 DR 1&2	SOLID		N907025-11	B99-072	B99-072-01	06/21/99 10:18
B0VNJ2	116 DR 1&2	SOLID		N907025-12	B99-072	B99-072-01	06/21/99 10:41
B0VNJ3	116 DR 1&2	SOLID		N907025-13	B99-072	B99-072-01	06/21/99 13:01
B0VNJ4	116 DR 1&2	SOLID		N907025-14	B99-072	B99-072-01	06/21/99 13:51
B0VNJ5	116 DR 1&2	SOLID		N907025-15	B99-072	B99-072-01	06/22/99 10:33
B0VNJ6	116 DR 1&2	SOLID		N907025-16	B99-072	B99-072-01	06/22/99 16:10
B0VNJ7	116 DR 1&2	SOLID		N907025-17	B99-072	B99-072-01	06/23/99 07:06
B0VNJ8	116 DR 1&2	SOLID		N907025-18	B99-072	B99-072-01	06/23/99 08:10
Method Blank		SOLID		N907025-20	B99-072		
Lab Control Sample		SOLID		N907025-19	B99-072		
Duplicate (N907025-01)	116 DR 1&2	SOLID		N907025-21	B99-072		06/18/99 08:45

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

QC SUMMARY

SDG 7158
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7158	B99-072-01	B0VNH1	SOLID	97.9			07/02/99	14	N907025-01	7158-001
		B0VNH2	SOLID	96.2			07/02/99	14	N907025-02	7158-002
		B0VNH3	SOLID	95.8			07/02/99	14	N907025-03	7158-003
		B0VNH4	SOLID	95.9			07/02/99	14	N907025-04	7158-004
		B0VNH5	SOLID	95.8			07/02/99	14	N907025-05	7158-005
		B0VNH6	SOLID	95.6			07/02/99	14	N907025-06	7158-006
		B0VNH7	SOLID	96.1			07/02/99	14	N907025-07	7158-007
		B0VNH8	SOLID	95.8			07/02/99	11	N907025-08	7158-008
		B0VNH9	SOLID	100.0			07/02/99	11	N907025-09	7158-009
		B0VNJ0	SOLID	93.0			07/02/99	11	N907025-10	7158-010
		B0VNJ1	SOLID	96.0			07/02/99	11	N907025-11	7158-011
		B0VNJ2	SOLID	94.4			07/02/99	11	N907025-12	7158-012
		B0VNJ3	SOLID	97.5			07/02/99	11	N907025-13	7158-013
		B0VNJ4	SOLID	96.7			07/02/99	11	N907025-14	7158-014
		B0VNJ5	SOLID	96.5			07/02/99	10	N907025-15	7158-015
		B0VNJ6	SOLID	96.1			07/02/99	10	N907025-16	7158-016
		B0VNJ7	SOLID	89.3			07/02/99	9	N907025-17	7158-017
		B0VNJ8	SOLID	92.5			07/02/99	9	N907025-18	7158-018
		Method Blank	SOLID						N907025-20	7158-020
		Lab Control Sample	SOLID						N907025-19	7158-019
		Duplicate (N907025-01)	SOLID	97.9			07/02/99	14	N907025-21	7158-021

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

SDG 7158
Contact L.A. Johnson

PREP BATCH SUMMARY

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	SOLID	Americium 241 in Soil	6893-006	5.0	18			1	1	1/1		
PU	SOLID	Plutonium, Isotopic in Solids	6893-006	5.0	18			1	1	1/1		
U	SOLID	Uranium, Isotopic in Soil	6893-006	5.0	18			1	1	1/1		
Beta Counting												
SR	SOLID	Total Strontium in Soil	6893-006	10.0	18			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6893-006	15.0	18			1	1	1/1		
Liquid Scintillation Counting												
NI_L	SOLID	Nickel 63 in Soil	6893-006	10.0	18			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 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

WORK SUMMARY

SDG 7158
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0VNH1			N907025-01	7158-001	AM		07/22/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/18/99	7158-001	GAM		07/20/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-001	NI_L		07/18/99	08/02/99	NJV	Nickel 63 in Soil
				7158-001	PU		07/21/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-001	SR		07/23/99	08/02/99	NJV	Total Strontium in Soil
				7158-001	U		07/15/99	08/02/99	NJV	Uranium, Isotopic in Soil
B0VNH2			N907025-02	7158-002	AM		07/22/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/18/99	7158-002	GAM		07/20/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-002	NI_L		07/18/99	08/02/99	NJV	Nickel 63 in Soil
				7158-002	PU		07/21/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-002	SR		07/23/99	08/02/99	NJV	Total Strontium in Soil
				7158-002	U		07/15/99	08/02/99	NJV	Uranium, Isotopic in Soil
B0VNH3			N907025-03	7158-003	AM		07/23/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/18/99	7158-003	GAM		07/20/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-003	NI_L		07/18/99	08/02/99	NJV	Nickel 63 in Soil
				7158-003	PU		07/21/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-003	SR		07/23/99	08/02/99	NJV	Total Strontium in Soil
				7158-003	U		07/16/99	08/02/99	NJV	Uranium, Isotopic in Soil
B0VNH4			N907025-04	7158-004	AM		07/26/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/18/99	7158-004	GAM		07/20/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-004	NI_L		07/18/99	08/02/99	NJV	Nickel 63 in Soil
				7158-004	PU		07/21/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-004	SR		07/23/99	08/02/99	NJV	Total Strontium in Soil
				7158-004	U		07/15/99	08/02/99	NJV	Uranium, Isotopic in Soil
B0VNH5			N907025-05	7158-005	AM		07/23/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/18/99	7158-005	GAM		07/21/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-005	NI_L		07/18/99	08/02/99	NJV	Nickel 63 in Soil
				7158-005	PU		07/22/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-005	SR		07/23/99	08/02/99	NJV	Total Strontium in Soil
				7158-005	U		07/15/99	08/02/99	NJV	Uranium, Isotopic in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

SDG 7158
Contact L.A. Johnson

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0VNH6			N907025-06	7158-006	AM		07/23/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/18/99	7158-006	GAM		07/21/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-006	NI_L		07/18/99	08/02/99	NJV	Nickel 63 in Soil
				7158-006	PU		07/21/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-006	SR		07/23/99	08/02/99	NJV	Total Strontium in Soil
				7158-006	U		07/15/99	08/02/99	NJV	Uranium, Isotopic in Soil
B0VNH7			N907025-07	7158-007	AM		07/23/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/18/99	7158-007	GAM		07/21/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-007	NI_L		07/18/99	08/02/99	NJV	Nickel 63 in Soil
				7158-007	PU		07/21/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-007	SR		07/23/99	08/02/99	NJV	Total Strontium in Soil
				7158-007	U		07/15/99	08/02/99	NJV	Uranium, Isotopic in Soil
B0VNH8			N907025-08	7158-008	AM		07/23/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/21/99	7158-008	GAM		07/21/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-008	NI_L		07/19/99	08/02/99	NJV	Nickel 63 in Soil
				7158-008	PU		07/21/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-008	SR		07/24/99	08/02/99	NJV	Total Strontium in Soil
				7158-008	U		07/15/99	08/02/99	NJV	Uranium, Isotopic in Soil
B0VNH9			N907025-09	7158-009	AM		07/23/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/21/99	7158-009	GAM		07/22/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-009	NI_L		07/19/99	08/02/99	NJV	Nickel 63 in Soil
				7158-009	PU		07/21/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-009	SR		07/20/99	08/02/99	NJV	Total Strontium in Soil
				7158-009	U		07/15/99	08/02/99	NJV	Uranium, Isotopic in Soil
B0VNJ0			N907025-10	7158-010	AM		07/23/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/21/99	7158-010	GAM		07/21/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-010	NI_L		07/19/99	08/02/99	NJV	Nickel 63 in Soil
				7158-010	PU		07/21/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-010	SR		07/22/99	08/02/99	NJV	Total Strontium in Soil
				7158-010	U		07/15/99	08/02/99	NJV	Uranium, Isotopic in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

SDG 7158
Contact L.A. Johnson

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0VNJ1			N907025-11	7158-011	AM		07/23/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/21/99	7158-011	GAM		07/21/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-011	NI_L		07/19/99	08/02/99	NJV	Nickel 63 in Soil
				7158-011	PU		07/21/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-011	SR		07/27/99	08/02/99	NJV	Total Strontium in Soil
				7158-011	U		07/16/99	08/02/99	NJV	Uranium, Isotopic in Soil
B0VNJ2			N907025-12	7158-012	AM		07/23/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/21/99	7158-012	GAM		07/21/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-012	NI_L		07/19/99	08/02/99	NJV	Nickel 63 in Soil
				7158-012	PU		07/21/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-012	SR		07/26/99	08/02/99	NJV	Total Strontium in Soil
				7158-012	U		07/16/99	08/02/99	NJV	Uranium, Isotopic in Soil
B0VNJ3			N907025-13	7158-013	AM		07/26/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/21/99	7158-013	GAM		07/21/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-013	NI_L		07/19/99	08/02/99	NJV	Nickel 63 in Soil
				7158-013	PU		07/22/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-013	SR		07/23/99	08/02/99	NJV	Total Strontium in Soil
				7158-013	U		07/16/99	08/02/99	NJV	Uranium, Isotopic in Soil
B0VNJ4			N907025-14	7158-014	AM		07/26/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/21/99	7158-014	GAM		07/22/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-014	NI_L		07/19/99	08/02/99	NJV	Nickel 63 in Soil
				7158-014	PU		07/22/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-014	SR		07/23/99	08/02/99	NJV	Total Strontium in Soil
				7158-014	U		07/16/99	08/02/99	NJV	Uranium, Isotopic in Soil
B0VNJ5			N907025-15	7158-015	AM		07/26/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/22/99	7158-015	GAM		07/22/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-015	NI_L		07/19/99	08/02/99	NJV	Nickel 63 in Soil
				7158-015	PU		07/23/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-015	SR		07/23/99	08/02/99	NJV	Total Strontium in Soil
				7158-015	U		07/16/99	08/02/99	NJV	Uranium, Isotopic in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

SDG 7158
Contact L.A. Johnson

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0VNJ6			N907025-16	7158-016	AM		07/26/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/22/99	7158-016	GAM		07/22/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-016	NI_L		07/19/99	08/02/99	NJV	Nickel 63 in Soil
				7158-016	PU		07/22/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-016	SR		07/24/99	08/02/99	NJV	Total Strontium in Soil
				7158-016	U		07/16/99	08/02/99	NJV	Uranium, Isotopic in Soil
B0VNJ7			N907025-17	7158-017	AM		07/26/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/23/99	7158-017	GAM		07/23/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-017	NI_L		07/19/99	08/02/99	NJV	Nickel 63 in Soil
				7158-017	PU		07/22/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-017	SR		07/26/99	08/02/99	NJV	Total Strontium in Soil
				7158-017	U		07/16/99	08/02/99	NJV	Uranium, Isotopic in Soil
B0VNJ8			N907025-18	7158-018	AM		07/26/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/23/99	7158-018	GAM		07/23/99	08/02/99	NJV	Gamma Scan
B99-072-01	B99-072		07/02/99	7158-018	NI_L		07/19/99	08/02/99	NJV	Nickel 63 in Soil
				7158-018	PU		07/23/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-018	SR		07/27/99	08/02/99	NJV	Total Strontium in Soil
				7158-018	U		07/16/99	08/02/99	NJV	Uranium, Isotopic in Soil
Method Blank			N907025-20	7158-020	AM		07/26/99	08/02/99	NJV	Americium 241 in Soil
		SOLID		7158-020	GAM		07/23/99	08/02/99	NJV	Gamma Scan
	B99-072			7158-020	NI_L		07/19/99	08/02/99	NJV	Nickel 63 in Soil
				7158-020	PU		07/23/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-020	SR		07/21/99	08/02/99	NJV	Total Strontium in Soil
				7158-020	U		07/16/99	08/02/99	NJV	Uranium, Isotopic in Soil
Lab Control Sample			N907025-19	7158-019	AM		07/22/99	08/02/99	NJV	Americium 241 in Soil
		SOLID		7158-019	GAM		07/23/99	08/02/99	NJV	Gamma Scan
	B99-072			7158-019	NI_L		07/19/99	08/02/99	NJV	Nickel 63 in Soil
				7158-019	PU		07/21/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-019	SR		07/23/99	08/02/99	NJV	Total Strontium in Soil
				7158-019	U		07/15/99	08/02/99	NJV	Uranium, Isotopic in Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

SDG 7158
Contact L.A. Johnson

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Duplicate (N907025-01)			N907025-21	7158-021	AM		07/26/99	08/02/99	NJV	Americium 241 in Soil
116 DR 1&2		SOLID	06/18/99	7158-021	GAM		07/23/99	08/02/99	NJV	Gamma Scan
	B99-072		07/02/99	7158-021	NI_L		07/19/99	08/02/99	NJV	Nickel 63 in Soil
				7158-021	PU		07/26/99	08/02/99	NJV	Plutonium, Isotopic in Solids
				7158-021	SR		07/24/99	08/02/99	NJV	Total Strontium in Soil
				7158-021	U		07/16/99	08/02/99	NJV	Uranium, Isotopic in Soil

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
AM	B99-072	Americium 241 in Soil	AM/CMPLATE	18			1	1	1	21
GAM	B99-072	Gamma Scan	GAMMAHI	18			1	1	1	21
NI_L	B99-072	Nickel 63 in Soil	NI63LSC	18			1	1	1	21
PU	B99-072	Plutonium, Isotopic in Solids	PUPLATE	18			1	1	1	21
SR	B99-072	Total Strontium in Soil		18			1	1	1	21
U	B99-072	Uranium, Isotopic in Soil	UPLATE	18			1	1	1	21
TOTALS				108			6	6	6	126

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 08/02/99

N907025-20

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

METHOD BLANK

Method Blank

SDG 7158 Client/Case no Hanford SDG-H0458
Contact L.A. Johnson Case no TRB-SBB-207925

Lab sample id N907025-20 Client sample id Method Blank
Dept sample id 7158-020 Material/Matrix SOLID
SAF No B99-072

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.026	0.052	0.083	1.0	U	U
Uranium 235	15117-96-1	-0.011	0.021	0.080	1.0	U	U
Uranium 238	U-238	0.009	0.017	0.066	1.0	U	U
Plutonium 238	13981-16-3	-0.014	0.027	0.076	1.0	U	PU
Plutonium 239/240	PU-239/240	0.021	0.027	0.052	1.0	U	PU
Nickel 63	13981-37-8	-5.28	5.6	9.8	30	U	NI_L
Americium 241	14596-10-2	-0.003	0.018	0.039	1.0	U	AM
Total Strontium	SR-RAD	0.006	0.12	0.20	1.0	U	SR
Potassium 40	13966-00-2	U		0.10		U	GAM
Cobalt 60	10198-40-0	U		0.010	0.050	U	GAM
Cesium 137	10045-97-3	U		0.009	0.10	U	GAM
Europium 152	14683-23-9	U		0.020	0.10	U	GAM
Europium 154	15585-10-1	U		0.040	0.10	U	GAM
Europium 155	14391-16-3	U		0.010	0.10	U	GAM
Radium 226	13982-63-3	U		0.020	0.10	U	GAM
Radium 228	15262-20-1	U		0.050	0.20	U	GAM
Thorium 228	14274-82-9	U		0.010		U	GAM
Thorium 232	TH-232	U		0.050		U	GAM
Americium 241	14596-10-2	U		0.007		U	GAM
Uranium 238	U-238	U		1.0		U	GAM
Uranium 235	15117-96-1	U		0.030		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

QC-BLANK 31251

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 08/02/99

N907025-19

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

LAB CONTROL SAMPLE

Lab Control Sample

SDG 7158
Contact L.A. Johnson

Client/Case no Hanford SDG-H0458
Case no TRB-SBB-207925

Lab sample id N907025-19
Dept sample id 7158-019

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B99-072

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Uranium 233/234	5.12	0.53	0.25	1.0		U	5.20	0.21	98	82-118	80-120
Uranium 235	4.24	0.47	0.058	1.0		U	4.23	0.17	100	81-119	80-120
Uranium 238	5.15	0.54	0.24	1.0		U	5.64	0.23	91	83-117	80-120
Plutonium 238	9.66	0.81	0.044	1.0		PU	10.0	0.40	97	85-115	80-120
Plutonium 239/240	12.6	1.0	0.044	1.0		PU	13.2	0.53	95	85-115	80-120
Nickel 63	683	20	12	30		NI_L	671	27	102	83-117	
Americium 241	19.5	1.3	0.038	1.0		AM	21.0	0.84	93	87-113	80-120
Total Strontium	11.0	0.52	0.20	1.0		SR	10.2	0.41	108	81-119	
Potassium 40	U		0.050		U	GAM					
Cobalt 60	0.250	0.014	0.007	0.050		GAM	0.254	0.010	98	76-124	80-120
Cesium 137	0.240	0.012	0.008	0.10		GAM	0.243	0.010	99	76-124	80-120
Europium 152	U		0.020	0.10	U	GAM					
Europium 154	U		0.020	0.10	U	GAM					
Europium 155	U		0.010	0.10	U	GAM					
Radium 226	U		0.010	0.10	U	GAM					
Radium 228	U		0.030	0.20	U	GAM					
Thorium 228	U		0.009		U	GAM					
Thorium 232	U		0.030		U	GAM					
Americium 241	U		0.010		U	GAM					
Uranium 238	U		0.90		U	GAM					
Uranium 235	U		0.020		U	GAM					

Borehole Drilling at 116-DR-1,2-Soil

QC-LCS 31250

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 08/02/99

N907025-21

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DUPLICATE

B0VNH1

SDG	7158			Client/Case no	Hanford SDG-H0458
Contact	L.A. Johnson			Case no	TRB-SBB-207925
	DUPLICATE		ORIGINAL		
Lab sample id	N907025-21	Lab sample id	N907025-01	Client sample id	B0VNH1
Dept sample id	7158-021	Dept sample id	7158-001	Location/Matrix	116 DR 1&2 SOLID
		Received	07/02/99	Collected	06/18/99 08:45
% solids	97.9	% solids	97.9	Custody/SAF No	B99-072-01 B99-072

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 TOT	PROT LIMIT
Uranium 233/234	0.464	0.13	0.067	1.0	J	U	0.439	0.12	0.070	J	6	60	
Uranium 235	0.042	0.043	0.081	1.0	U	U	0.054	0.046	0.059	U	-		
Uranium 238	0.403	0.13	0.067	1.0	J	U	0.407	0.11	0.061	J	1	64	
Plutonium 238	-0.012	0.024	0.054	1.0	U	PU	0.010	0.020	0.049	U	-		
Plutonium 239/240	0.150	0.050	0.039	1.0	J	PU	0.137	0.062	0.056	J	9	84	
Nickel 63	131	3.8	2.2	30		NI_L	129	5.9	4.8		2	23	
Americium 241	0.016	0.025	0.039	1.0	U	AM	0.010	0.060	0.12	U	-		
Total Strontium	6.00	0.46	0.40	1.0		SR	5.69	0.38	0.27		5	26	
Potassium 40	12.0	0.53	0.30			GAM	11.8	0.40	0.22		2	33	
Cobalt 60	2.00	0.072	0.050	0.050		GAM	1.88	0.055	0.039		6	33	
Cesium 137	92.0	0.30	0.10	0.10		GAM	91.3	0.25	0.093		1	32	
Europium 152	29.0	0.29	0.30	0.10		GAM	26.5	0.32	0.33		9	32	
Europium 154	2.60	0.20	0.20	0.10		GAM	2.46	0.15	0.14		6	35	
Europium 155	U		0.30	0.10	U	GAM	U		0.22	U	-		
Radium 226	0.360	0.14	0.20	0.10		GAM	0.392	0.10	0.13		9	76	
Radium 228	0.610	0.24	0.30	0.20		GAM	0.487	0.15	0.21		22	84	
Thorium 228	0.510	0.094	0.10			GAM	0.457	0.080	0.12		11	50	
Thorium 232	0.610	0.24	0.30			GAM	0.487	0.15	0.21		22	84	
Americium 241	U		0.30		U	GAM	U		0.22	U	-		
Uranium 238	U		8.0		U	GAM	U		6.9	U	-		
Uranium 235	U		0.40		U	GAM	U		0.33	U	-		

Borehole Drilling at 116-DR-1,2-Soil

QC-DUP#1 31252

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	08/02/99

N907025-01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNH1

SDG	7158	Client/Case no	Hanford SDG-H0458
Contact	L.A. Johnson	Case no	TRB-SBB-207925
Lab sample id	N907025-01	Client sample id	B0VNH1
Dept sample id	7158-001	Location/Matrix	116 DR 1&2 SOLID
Received	07/02/99	Collected	06/18/99 08:45
% solids	97.9	Custody/SAF No	B99-072-01 B99-072

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.439	0.12	0.070	1.0	J	U
Uranium 235	15117-96-1	0.054	0.046	0.059	1.0	U	U
Uranium 238	U-238	0.407	0.11	0.061	1.0	J	U
Plutonium 238	13981-16-3	0.010	0.020	0.049	1.0	U	PU
Plutonium 239/240	PU-239/240	0.137	0.062	0.056	1.0	J	PU
Nickel 63	13981-37-8	129	5.9	4.8	30		NI_L
Americium 241	14596-10-2	0.010	0.060	0.12	1.0	U	AM
Total Strontium	SR-RAD	5.69	0.38	0.27	1.0		SR
Potassium 40	13966-00-2	11.8	0.40	0.22			GAM
Cobalt 60	10198-40-0	1.88	0.055	0.039	0.050		GAM
Cesium 137	10045-97-3	91.3	0.25	0.093	0.10		GAM
Europium 152	14683-23-9	26.5	0.32	0.33	0.10		GAM
Europium 154	15585-10-1	2.46	0.15	0.14	0.10		GAM
Europium 155	14391-16-3	U		0.22	0.10	U	GAM
Radium 226	13982-63-3	0.392	0.10	0.13	0.10		GAM
Radium 228	15262-20-1	0.487	0.15	0.21	0.20		GAM
Thorium 228	14274-82-9	0.457	0.080	0.12			GAM
Thorium 232	TH-232	0.487	0.15	0.21			GAM
Americium 241	14596-10-2	U		0.22		U	GAM
Uranium 238	U-238	U		6.9		U	GAM
Uranium 235	15117-96-1	U		0.33		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/02/99

N907025-02

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNH2

SDG	7158	Client/Case no	Hanford	SDG-H0458	
Contact	L.A. Johnson	Case no	TRB-SBB-207925		
Lab sample id	N907025-02	Client sample id	B0VNH2		
Dept sample id	7158-002	Location/Matrix	116 DR 1&2	SOLID	
Received	07/02/99	Collected	06/18/99 08:50		
% solids	96.2	Custody/SAF No	B99-072-01	B99-072	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.358	0.097	0.051	1.0	J	U
Uranium 235	15117-96-1	0.032	0.032	0.061	1.0	U	U
Uranium 238	U-238	0.325	0.096	0.051	1.0	J	U
Plutonium 238	13981-16-3	0	0.021	0.058	1.0	U	PU
Plutonium 239/240	PU-239/240	0.005	0.032	0.065	1.0	U	PU
Nickel 63	13981-37-8	10.9	2.4	3.4	30	J	NI_L
Americium 241	14596-10-2	0.011	0.033	0.061	1.0	U	AM
Total Strontium	SR-RAD	1.20	0.16	0.15	1.0		SR
Potassium 40	13966-00-2	10.3	0.28	0.11			GAM
Cobalt 60	10198-40-0	0.074	0.015	0.014	0.050		GAM
Cesium 137	10045-97-3	9.86	0.066	0.025	0.10		GAM
Europium 152	14683-23-9	1.51	0.052	0.062	0.10		GAM
Europium 154	15585-10-1	0.160	0.054	0.056	0.10		GAM
Europium 155	14391-16-3	U		0.057	0.10	U	GAM
Radium 226	13982-63-3	0.341	0.035	0.039	0.10		GAM
Radium 228	15262-20-1	0.518	0.062	0.063	0.20		GAM
Thorium 228	14274-82-9	0.484	0.025	0.033			GAM
Thorium 232	TH-232	0.518	0.062	0.063			GAM
Americium 241	14596-10-2	U		0.062		U	GAM
Uranium 238	U-238	U		1.8		U	GAM
Uranium 235	15117-96-1	U		0.090		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
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Version	3.06
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N907025-03

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNH3

SDG	7158	Client/Case no	Hanford	SDG-H0458	
Contact	L.A. Johnson	Case no	TRB-SBB-207925		
Lab sample id	N907025-03	Client sample id	B0VNH3		
Dept sample id	7158-003	Location/Matrix	116 DR 1&2	SOLID	
Received	07/02/99	Collected	06/18/99 09:00		
% solids	95.8	Custody/SAF No	B99-072-01	B99-072	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.351	0.069	0.037	1.0	J	U
Uranium 235	15117-96-1	0.044	0.022	0.028	1.0	J	U
Uranium 238	U-238	0.345	0.069	0.023	1.0	J	U
Plutonium 238	13981-16-3	0	0.043	0.10	1.0	U	PU
Plutonium 239/240	PU-239/240	0.011	0.043	0.083	1.0	U	PU
Nickel 63	13981-37-8	0.667	1.2	2.0	30	U	NI_L
Americium 241	14596-10-2	0.005	0.016	0.025	1.0	U	AM
Total Strontium	SR-RAD	0.600	0.13	0.15	1.0	J	SR
Potassium 40	13966-00-2	11.1	0.27	0.10			GAM
Cobalt 60	10198-40-0	U		0.012	0.050	U	GAM
Cesium 137	10045-97-3	0.492	0.018	0.014	0.10		GAM
Europium 152	14683-23-9	0.243	0.024	0.029	0.10		GAM
Europium 154	15585-10-1	U		0.042	0.10	U	GAM
Europium 155	14391-16-3	U		0.031	0.10	U	GAM
Radium 226	13982-63-3	0.362	0.024	0.023	0.10		GAM
Radium 228	15262-20-1	0.514	0.051	0.048	0.20		GAM
Thorium 228	14274-82-9	0.465	0.015	0.015			GAM
Thorium 232	TH-232	0.514	0.051	0.048			GAM
Americium 241	14596-10-2	U		0.037		U	GAM
Uranium 238	U-238	U		1.3		U	GAM
Uranium 235	15117-96-1	U		0.049		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/02/99

N907025-04

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNH4

SDG	7158	Client/Case no	Hanford SDG-H0458
Contact	L.A. Johnson	Case no	TRB-SBB-207925
Lab sample id	N907025-04	Client sample id	B0VNH4
Dept sample id	7158-004	Location/Matrix	116 DR 1&2 SOLID
Received	07/02/99	Collected	06/18/99 09:00
% solids	95.9	Custody/SAF No	B99-072-01 B99-072

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.308	0.11	0.058	1.0	J	U
Uranium 235	15117-96-1	0.018	0.018	0.070	1.0	U	U
Uranium 238	U-238	0.218	0.077	0.058	1.0	J	U
Plutonium 238	13981-16-3	0.008	0.016	0.031	1.0	U	PU
Plutonium 239/240	PU-239/240	0.016	0.024	0.039	1.0	U	PU
Nickel 63	13981-37-8	0.623	1.3	2.1	30	U	NI_L
Americium 241	14596-10-2	0.015	0.022	0.036	1.0	U	AM
Total Strontium	SR-RAD	0.596	0.13	0.16	1.0	J	SR
Potassium 40	13966-00-2	10.3	0.43	0.22			GAM
Cobalt 60	10198-40-0	U		0.021	0.050	U	GAM
Cesium 137	10045-97-3	0.364	0.020	0.017	0.10		GAM
Europium 152	14683-23-9	0.254	0.039	0.049	0.10		GAM
Europium 154	15585-10-1	U		0.069	0.10	U	GAM
Europium 155	14391-16-3	U		0.058	0.10	U	GAM
Radium 226	13982-63-3	0.350	0.041	0.042	0.10		GAM
Radium 228	15262-20-1	0.566	0.089	0.087	0.20		GAM
Thorium 228	14274-82-9	0.468	0.024	0.024			GAM
Thorium 232	TH-232	0.566	0.089	0.087			GAM
Americium 241	14596-10-2	U		0.073		U	GAM
Uranium 238	U-238	U		2.4		U	GAM
Uranium 235	15117-96-1	U		0.075		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
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Report date	08/02/99

N907025-05

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNH5

SDG	7158	Client/Case no	Hanford SDG-H0458
Contact	L.A. Johnson	Case no	TRB-SBB-207925
Lab sample id	N907025-05	Client sample id	B0VNH5
Dept sample id	7158-005	Location/Matrix	116 DR 1&2 SOLID
Received	07/02/99	Collected	06/18/99 10:55
% solids	95.8	Custody/SAF No	B99-072-01 B99-072

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.473	0.14	0.089	1.0	J	U
Uranium 235	15117-96-1	0.034	0.045	0.086	1.0	U	U
Uranium 238	U-238	0.334	0.12	0.071	1.0	J	U
Plutonium 238	13981-16-3	-0.007	0.052	0.10	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.007	0.026	0.072	1.0	U	PU
Nickel 63	13981-37-8	0.047	2.5	4.3	30	U	NI_L
Americium 241	14596-10-2	0.012	0.014	0.018	1.0	U	AM
Total Strontium	SR-RAD	0.624	0.14	0.17	1.0	J	SR
Potassium 40	13966-00-2	11.1	0.47	0.19			GAM
Cobalt 60	10198-40-0	U		0.022	0.050	U	GAM
Cesium 137	10045-97-3	0.161	0.024	0.024	0.10		GAM
Europium 152	14683-23-9	0.190	0.034	0.045	0.10		GAM
Europium 154	15585-10-1	U		0.082	0.10	U	GAM
Europium 155	14391-16-3	U		0.043	0.10	U	GAM
Radium 226	13982-63-3	0.434	0.043	0.040	0.10		GAM
Radium 228	15262-20-1	0.537	0.12	0.11	0.20		GAM
Thorium 228	14274-82-9	0.503	0.024	0.023			GAM
Thorium 232	TH-232	0.537	0.12	0.11			GAM
Americium 241	14596-10-2	U		0.026		U	GAM
Uranium 238	U-238	U		2.9		U	GAM
Uranium 235	15117-96-1	U		0.072		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
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N907025-06

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNH6

SDG	7158	Client/Case no	Hanford SDG-H0458
Contact	L.A. Johnson	Case no	TRB-SBB-207925
Lab sample id	N907025-06	Client sample id	B0VNH6
Dept sample id	7158-006	Location/Matrix	116 DR 1&2 SOLID
Received	07/02/99	Collected	06/18/99 11:40
% solids	95.6	Custody/SAF No	B99-072-01 B99-072

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.411	0.15	0.092	1.0	J	U
Uranium 235	15117-96-1	0.058	0.059	0.11	1.0	U	U
Uranium 238	U-238	0.302	0.12	0.092	1.0	J	U
Plutonium 238	13981-16-3	-0.004	0.016	0.038	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.004	0.016	0.038	1.0	U	PU
Nickel 63	13981-37-8	-1.24	2.4	4.2	30	U	NI_L
Americium 241	14596-10-2	0	0.016	0.029	1.0	U	AM
Total Strontium	SR-RAD	0.723	0.12	0.14	1.0	J	SR
Potassium 40	13966-00-2	11.9	0.47	0.22			GAM
Cobalt 60	10198-40-0	U		0.024	0.050	U	GAM
Cesium 137	10045-97-3	U		0.021	0.10	U	GAM
Europium 152	14683-23-9	0.097	0.036	0.049	0.10	J	GAM
Europium 154	15585-10-1	U		0.085	0.10	U	GAM
Europium 155	14391-16-3	U		0.077	0.10	U	GAM
Radium 226	13982-63-3	0.411	0.041	0.038	0.10		GAM
Radium 228	15262-20-1	0.728	0.12	0.10	0.20		GAM
Thorium 228	14274-82-9	0.475	0.025	0.024			GAM
Thorium 232	TH-232	0.728	0.12	0.10			GAM
Americium 241	14596-10-2	U		0.027		U	GAM
Uranium 238	U-238	U		2.7		U	GAM
Uranium 235	15117-96-1	U		0.071		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
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N907025-07

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNH7

SDG	7158	Client/Case no	Hanford	SDG-H0458	
Contact	L.A. Johnson	Case no	TRB-SBB-207925		
Lab sample id	N907025-07	Client sample id	B0VNH7		
Dept sample id	7158-007	Location/Matrix	116 DR 1&2	SOLID	
Received	07/02/99	Collected	06/18/99 12:18		
% solids	96.1	Custody/SAF No	B99-072-01	B99-072	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.386	0.13	0.097	1.0	J	U
Uranium 235	15117-96-1	0.074	0.064	0.081	1.0	U	U
Uranium 238	U-238	0.237	0.090	0.067	1.0	J	U
Plutonium 238	13981-16-3	-0.005	0.028	0.063	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.028	0.068	1.0	U	PU
Nickel 63	13981-37-8	-0.579	1.6	2.8	30	U	NI_L
Americium 241	14596-10-2	0.003	0.024	0.045	1.0	U	AM
Total Strontium	SR-RAD	0.534	0.14	0.17	1.0	J	SR
Potassium 40	13966-00-2	11.9	0.46	0.24			GAM
Cobalt 60	10198-40-0	U		0.021	0.050	U	GAM
Cesium 137	10045-97-3	U		0.020	0.10	U	GAM
Europium 152	14683-23-9	0.107	0.040	0.053	0.10		GAM
Europium 154	15585-10-1	U		0.073	0.10	U	GAM
Europium 155	14391-16-3	U		0.057	0.10	U	GAM
Radium 226	13982-63-3	0.411	0.037	0.036	0.10		GAM
Radium 228	15262-20-1	0.610	0.10	0.10	0.20		GAM
Thorium 228	14274-82-9	0.556	0.025	0.025			GAM
Thorium 232	TH-232	0.610	0.10	0.10			GAM
Americium 241	14596-10-2	U		0.077		U	GAM
Uranium 238	U-238	U		2.6		U	GAM
Uranium 235	15117-96-1	U		0.075		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
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N907025-08

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNH8

SDG	7158	Client/Case no	Hanford	SDG-H0458	
Contact	L.A. Johnson	Case no	TRB-SBB-207925		
Lab sample id	N907025-08	Client sample id	B0VNH8		
Dept sample id	7158-008	Location/Matrix	116 DR 1&2	SOLID	
Received	07/02/99	Collected	06/21/99 09:35		
% solids	95.8	Custody/SAF No	B99-072-01	B99-072	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.334	0.11	0.065	1.0	J	U
Uranium 235	15117-96-1	0.021	0.021	0.079	1.0	U	U
Uranium 238	U-238	0.351	0.11	0.065	1.0	J	U
Plutonium 238	13981-16-3	0.005	0.027	0.056	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.005	0.027	0.056	1.0	U	PU
Nickel 63	13981-37-8	-0.545	1.1	2.0	30	U	NI_L
Americium 241	14596-10-2	0.006	0.025	0.047	1.0	U	AM
Total Strontium	SR-RAD	0.881	0.14	0.14	1.0	J	SR
Potassium 40	13966-00-2	9.62	0.25	0.11			GAM
Cobalt 60	10198-40-0	U		0.011	0.050	U	GAM
Cesium 137	10045-97-3	U		0.009	0.10	U	GAM
Europium 152	14683-23-9	U		0.028	0.10	U	GAM
Europium 154	15585-10-1	U		0.037	0.10	U	GAM
Europium 155	14391-16-3	U		0.031	0.10	U	GAM
Radium 226	13982-63-3	0.350	0.023	0.021	0.10		GAM
Radium 228	15262-20-1	0.497	0.052	0.051	0.20		GAM
Thorium 228	14274-82-9	0.480	0.014	0.013			GAM
Thorium 232	TH-232	0.497	0.052	0.051			GAM
Americium 241	14596-10-2	U		0.034		U	GAM
Uranium 238	U-238	U		1.3		U	GAM
Uranium 235	15117-96-1	U		0.084		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
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N907025-09

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNH9

SDG	7158	Client/Case no	Hanford	SDG-H0458	
Contact	L.A. Johnson	Case no	TRB-SBB-207925		
Lab sample id	N907025-09	Client sample id	B0VNH9		
Dept sample id	7158-009	Location/Matrix	116 DR 1&2	SOLID	
Received	07/02/99	Collected	06/21/99 09:50		
% solids	100.0	Custody/SAF No	B99-072-01	B99-072	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.162	0.091	0.086	1.0	J	U
Uranium 235	15117-96-1	0.011	0.022	0.083	1.0	U	U
Uranium 238	U-238	0.243	0.092	0.069	1.0	J	U
Plutonium 238	13981-16-3	0.008	0.015	0.037	1.0	U	PU
Plutonium 239/240	PU-239/240	0.004	0.015	0.029	1.0	U	PU
Nickel 63	13981-37-8	-0.728	1.1	2.0	30	U	NI_L
Americium 241	14596-10-2	0.015	0.018	0.028	1.0	U	AM
Total Strontium	SR-RAD	-0.030	0.15	0.20	1.0	U	SR
Potassium 40	13966-00-2	5.53	0.36	0.18			GAM
Cobalt 60	10198-40-0	U		0.019	0.050	U	GAM
Cesium 137	10045-97-3	U		0.014	0.10	U	GAM
Europium 152	14683-23-9	U		0.033	0.10	U	GAM
Europium 154	15585-10-1	U		0.057	0.10	U	GAM
Europium 155	14391-16-3	U		0.029	0.10	U	GAM
Radium 226	13982-63-3	0.165	0.032	0.030	0.10		GAM
Radium 228	15262-20-1	0.203	0.067	0.071	0.20		GAM
Thorium 228	14274-82-9	0.223	0.025	0.025			GAM
Thorium 232	TH-232	0.203	0.067	0.071			GAM
Americium 241	14596-10-2	U		0.018		U	GAM
Uranium 238	U-238	U		2.2		U	GAM
Uranium 235	15117-96-1	U		0.048		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNJ0

SDG	7158	Client/Case no	Hanford	SDG-H0458	
Contact	L.A. Johnson	Case no	TRB-SBB-207925		
Lab sample id	N907025-10	Client sample id	B0VNJ0		
Dept sample id	7158-010	Location/Matrix	116 DR 1&2	SOLID	
Received	07/02/99	Collected	06/21/99 10:18		
% solids	93.0	Custody/SAF No	B99-072-01	B99-072	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.328	0.12	0.090	1.0	J	U
Uranium 235	15117-96-1	0.057	0.046	0.087	1.0	U	U
Uranium 238	U-238	0.441	0.14	0.072	1.0	J	U
Plutonium 238	13981-16-3	0.006	0.033	0.061	1.0	U	PU
Plutonium 239/240	PU-239/240	0.011	0.022	0.053	1.0	U	PU
Nickel 63	13981-37-8	-0.843	1.2	2.1	30	U	NI_L
Americium 241	14596-10-2	0.006	0.022	0.034	1.0	U	AM
Total Strontium	SR-RAD	0.258	0.28	0.26	1.0	U	SR
Potassium 40	13966-00-2	15.0	0.58	0.28			GAM
Cobalt 60	10198-40-0	U		0.027	0.050	U	GAM
Cesium 137	10045-97-3	U		0.024	0.10	U	GAM
Europium 152	14683-23-9	U		0.069	0.10	U	GAM
Europium 154	15585-10-1	U		0.090	0.10	U	GAM
Europium 155	14391-16-3	U		0.073	0.10	U	GAM
Radium 226	13982-63-3	0.552	0.052	0.052	0.10		GAM
Radium 228	15262-20-1	0.840	0.098	0.098	0.20		GAM
Thorium 228	14274-82-9	0.756	0.033	0.032			GAM
Thorium 232	TH-232	0.840	0.098	0.098			GAM
Americium 241	14596-10-2	U		0.10		U	GAM
Uranium 238	U-238	U		3.1		U	GAM
Uranium 235	15117-96-1	U		0.097		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
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N907025-11

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNJ1

SDG	7158	Client/Case no	Hanford SDG-H0458
Contact	L.A. Johnson	Case no	TRB-SBB-207925
Lab sample id	N907025-11	Client sample id	B0VNJ1
Dept sample id	7158-011	Location/Matrix	116 DR 1&2 SOLID
Received	07/02/99	Collected	06/21/99 10:18
% solids	96.0	Custody/SAF No	B99-072-01 B99-072

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.340	0.12	0.072	1.0	J	U
Uranium 235	15117-96-1	0	0.023	0.087	1.0	U	U
Uranium 238	U-238	0.302	0.12	0.072	1.0	J	U
Plutonium 238	13981-16-3	-0.006	0.037	0.077	1.0	U	PU
Plutonium 239/240	PU-239/240	0.044	0.038	0.060	1.0	U	PU
Nickel 63	13981-37-8	-1.04	1.2	2.1	30	U	NI_L
Americium 241	14596-10-2	0.014	0.024	0.035	1.0	U	AM
Total Strontium	SR-RAD	0.759	0.12	0.13	1.0	J	SR
Potassium 40	13966-00-2	10.7	0.28	0.11			GAM
Cobalt 60	10198-40-0	U		0.011	0.050	U	GAM
Cesium 137	10045-97-3	U		0.010	0.10	U	GAM
Europium 152	14683-23-9	U		0.030	0.10	U	GAM
Europium 154	15585-10-1	U		0.042	0.10	U	GAM
Europium 155	14391-16-3	U		0.031	0.10	U	GAM
Radium 226	13982-63-3	0.352	0.023	0.022	0.10		GAM
Radium 228	15262-20-1	0.563	0.061	0.051	0.20		GAM
Thorium 228	14274-82-9	0.471	0.016	0.015			GAM
Thorium 232	TH-232	0.563	0.061	0.051			GAM
Americium 241	14596-10-2	U		0.037		U	GAM
Uranium 238	U-238	U		1.3		U	GAM
Uranium 235	15117-96-1	U		0.068		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/02/99

N907025-12

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNJ2

SDG	7158	Client/Case no	Hanford SDG-H0458
Contact	L.A. Johnson	Case no	TRB-SBB-207925
Lab sample id	N907025-12	Client sample id	B0VNJ2
Dept sample id	7158-012	Location/Matrix	116 DR 1&2 SOLID
Received	07/02/99	Collected	06/21/99 10:41
% solids	94.4	Custody/SAF No	B99-072-01 B99-072

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.572	0.15	0.067	1.0	J	U
Uranium 235	15117-96-1	0.064	0.043	0.082	1.0	U	U
Uranium 238	U-238	0.502	0.15	0.067	1.0	J	U
Plutonium 238	13981-16-3	-0.012	0.036	0.080	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.036	0.086	1.0	U	PU
Nickel 63	13981-37-8	-0.641	1.2	2.2	30	U	NI_L
Americium 241	14596-10-2	-0.007	0.020	0.040	1.0	U	AM
Total Strontium	SR-RAD	0.486	0.10	0.13	1.0	J	SR
Potassium 40	13966-00-2	12.8	0.48	0.25			GAM
Cobalt 60	10198-40-0	U		0.023	0.050	U	GAM
Cesium 137	10045-97-3	U		0.019	0.10	U	GAM
Europium 152	14683-23-9	U		0.054	0.10	U	GAM
Europium 154	15585-10-1	U		0.073	0.10	U	GAM
Europium 155	14391-16-3	U		0.059	0.10	U	GAM
Radium 226	13982-63-3	0.465	0.037	0.035	0.10		GAM
Radium 228	15262-20-1	0.660	0.089	0.090	0.20		GAM
Thorium 228	14274-82-9	0.577	0.026	0.025			GAM
Thorium 232	TH-232	0.660	0.089	0.090			GAM
Americium 241	14596-10-2	U		0.078		U	GAM
Uranium 238	U-238	U		2.6		U	GAM
Uranium 235	15117-96-1	U		0.078		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/02/99

N907025-13

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNJ3

SDG	7158	Client/Case no	Hanford	SDG-H0458	
Contact	L.A. Johnson	Case no	TRB-SBB-207925		
Lab sample id	N907025-13	Client sample id	B0VNJ3		
Dept sample id	7158-013	Location/Matrix	116 DR 1&2	SOLID	
Received	07/02/99	Collected	06/21/99 13:01		
% solids	97.5	Custody/SAF No	B99-072-01	B99-072	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.477	0.13	0.066	1.0	J	U
Uranium 235	15117-96-1	0.021	0.021	0.080	1.0	U	U
Uranium 238	U-238	0.330	0.11	0.066	1.0	J	U
Plutonium 238	13981-16-3	0.013	0.027	0.064	1.0	U	PU
Plutonium 239/240	PU-239/240	0.020	0.027	0.051	1.0	U	PU
Nickel 63	13981-37-8	-0.694	1.6	2.7	30	U	NI_L
Americium 241	14596-10-2	0.017	0.027	0.041	1.0	U	AM
Total Strontium	SR-RAD	0.570	0.14	0.16	1.0	J	SR
Potassium 40	13966-00-2	11.8	0.25	0.098			GAM
Cobalt 60	10198-40-0	U		0.010	0.050	U	GAM
Cesium 137	10045-97-3	U		0.009	0.10	U	GAM
Europium 152	14683-23-9	U		0.024	0.10	U	GAM
Europium 154	15585-10-1	U		0.035	0.10	U	GAM
Europium 155	14391-16-3	U		0.038	0.10	U	GAM
Radium 226	13982-63-3	0.372	0.019	0.018	0.10		GAM
Radium 228	15262-20-1	0.505	0.043	0.041	0.20		GAM
Thorium 228	14274-82-9	0.483	0.013	0.013			GAM
Thorium 232	TH-232	0.505	0.043	0.041			GAM
Americium 241	14596-10-2	U		0.032		U	GAM
Uranium 238	U-238	U		1.2		U	GAM
Uranium 235	15117-96-1	U		0.042		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/02/99

N907025-14

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNJ4

SDG	7158	Client/Case no	Hanford	SDG-H0458	
Contact	L.A. Johnson	Case no	TRB-SBB-207925		
Lab sample id	N907025-14	Client sample id	B0VNJ4		
Dept sample id	7158-014	Location/Matrix	116 DR 1&2	SOLID	
Received	07/02/99	Collected	06/21/99 13:51		
% solids	96.7	Custody/SAF No	B99-072-01	B99-072	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.346	0.12	0.076	1.0	J	U
Uranium 235	15117-96-1	0	0.024	0.092	1.0	U	U
Uranium 238	U-238	0.277	0.10	0.076	1.0	J	U
Plutonium 238	13981-16-3	-0.018	0.025	0.076	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.012	0.025	0.076	1.0	U	PU
Nickel 63	13981-37-8	0.322	1.4	2.4	30	U	NI_L
Americium 241	14596-10-2	0.833	0.12	0.042	1.0	J	AM
Total Strontium	SR-RAD	0.813	0.15	0.17	1.0	J	SR
Potassium 40	13966-00-2	9.85	0.44	0.23			GAM
Cobalt 60	10198-40-0	U		0.022	0.050	U	GAM
Cesium 137	10045-97-3	U		0.019	0.10	U	GAM
Europium 152	14683-23-9	U		0.042	0.10	U	GAM
Europium 154	15585-10-1	U		0.075	0.10	U	GAM
Europium 155	14391-16-3	U		0.063	0.10	U	GAM
Radium 226	13982-63-3	0.402	0.037	0.034	0.10		GAM
Radium 228	15262-20-1	0.542	0.10	0.10	0.20		GAM
Thorium 228	14274-82-9	0.644	0.035	0.032			GAM
Thorium 232	TH-232	0.542	0.10	0.10			GAM
Americium 241	14596-10-2	U		0.025		U	GAM
Uranium 238	U-238	U		2.6		U	GAM
Uranium 235	15117-96-1	U		0.068		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/02/99

N907025-15

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNJ5

SDG	7158	Client/Case no	Hanford SDG-H0458
Contact	L.A. Johnson	Case no	TRB-SBB-207925
Lab sample id	N907025-15	Client sample id	B0VNJ5
Dept sample id	7158-015	Location/Matrix	116 DR 1&2 SOLID
Received	07/02/99	Collected	06/22/99 10:33
% solids	96.5	Custody/SAF No	B99-072-01 B99-072

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.336	0.12	0.076	1.0	J	U
Uranium 235	15117-96-1	0.024	0.024	0.092	1.0	U	U
Uranium 238	U-238	0.504	0.15	0.076	1.0	J	U
Plutonium 238	13981-16-3	0.067	0.14	0.23	1.0	U	PU
Plutonium 239/240	PU-239/240	0.013	0.081	0.17	1.0	U	PU
Nickel 63	13981-37-8	-0.048	1.3	2.2	30	U	NI_L
Americium 241	14596-10-2	0	0.013	0.025	1.0	U	AM
Total Strontium	SR-RAD	1.24	0.17	0.16	1.0		SR
Potassium 40	13966-00-2	9.54	0.42	0.22			GAM
Cobalt 60	10198-40-0	U		0.019	0.050	U	GAM
Cesium 137	10045-97-3	U		0.016	0.10	U	GAM
Europium 152	14683-23-9	U		0.047	0.10	U	GAM
Europium 154	15585-10-1	U		0.062	0.10	U	GAM
Europium 155	14391-16-3	U		0.060	0.10	U	GAM
Radium 226	13982-63-3	0.340	0.036	0.036	0.10		GAM
Radium 228	15262-20-1	0.481	0.084	0.086	0.20		GAM
Thorium 228	14274-82-9	0.449	0.023	0.022			GAM
Thorium 232	TH-232	0.481	0.084	0.086			GAM
Americium 241	14596-10-2	U		0.071		U	GAM
Uranium 238	U-238	U		2.7		U	GAM
Uranium 235	15117-96-1	U		0.073		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/02/99

N907025-16

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNJ6

SDG	7158	Client/Case no	Hanford SDG-H0458
Contact	L.A. Johnson	Case no	TRB-SBB-207925
Lab sample id	N907025-16	Client sample id	B0VNJ6
Dept sample id	7158-016	Location/Matrix	116 DR 1&2 SOLID
Received	07/02/99	Collected	06/22/99 16:10
% solids	96.1	Custody/SAF No	B99-072-01 B99-072

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.525	0.16	0.073	1.0	J	U
Uranium 235	15117-96-1	0.012	0.023	0.088	1.0	U	U
Uranium 238	U-238	0.315	0.12	0.073	1.0	J	U
Plutonium 238	13981-16-3	0	0.037	0.076	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.006	0.025	0.059	1.0	U	PU
Nickel 63	13981-37-8	-0.614	1.3	2.3	30	U	NI_L
Americium 241	14596-10-2	-0.011	0.014	0.039	1.0	U	AM
Total Strontium	SR-RAD	0.825	0.11	0.11	1.0	J	SR
Potassium 40	13966-00-2	9.20	0.26	0.11			GAM
Cobalt 60	10198-40-0	U		0.018	0.050	U	GAM
Cesium 137	10045-97-3	U		0.010	0.10	U	GAM
Europium 152	14683-23-9	U		0.028	0.10	U	GAM
Europium 154	15585-10-1	U		0.038	0.10	U	GAM
Europium 155	14391-16-3	U		0.042	0.10	U	GAM
Radium 226	13982-63-3	0.434	0.024	0.021	0.10		GAM
Radium 228	15262-20-1	0.611	0.059	0.052	0.20		GAM
Thorium 228	14274-82-9	0.551	0.016	0.015			GAM
Thorium 232	TH-232	0.611	0.059	0.052			GAM
Americium 241	14596-10-2	U		0.036		U	GAM
Uranium 238	U-238	U		1.3		U	GAM
Uranium 235	15117-96-1	U		0.048		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/02/99

N907025-17

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNJ7

SDG	7158	Client/Case no	Hanford SDG-H0458
Contact	L.A. Johnson	Case no	TRB-SBB-207925
Lab sample id	N907025-17	Client sample id	B0VNJ7
Dept sample id	7158-017	Location/Matrix	116 DR 1&2 SOLID
Received	07/02/99	Collected	06/23/99 07:06
% solids	89.3	Custody/SAF No	B99-072-01 B99-072

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.495	0.13	0.087	1.0	J	U
Uranium 235	15117-96-1	0.057	0.038	0.073	1.0	U	U
Uranium 238	U-238	0.534	0.13	0.060	1.0	J	U
Plutonium 238	13981-16-3	-0.023	0.069	0.15	1.0	U	PU
Plutonium 239/240	PU-239/240	-0.023	0.069	0.16	1.0	U	PU
Nickel 63	13981-37-8	-0.707	1.2	2.1	30	U	NI_L
Americium 241	14596-10-2	-0.003	0.019	0.039	1.0	U	AM
Total Strontium	SR-RAD	0.329	0.092	0.11	1.0	J	SR
Potassium 40	13966-00-2	8.95	0.45	0.22			GAM
Cobalt 60	10198-40-0	U		0.023	0.050	U	GAM
Cesium 137	10045-97-3	U		0.020	0.10	U	GAM
Europium 152	14683-23-9	U		0.042	0.10	U	GAM
Europium 154	15585-10-1	U		0.071	0.10	U	GAM
Europium 155	14391-16-3	U		0.050	0.10	U	GAM
Radium 226	13982-63-3	0.378	0.044	0.041	0.10		GAM
Radium 228	15262-20-1	0.548	0.099	0.097	0.20		GAM
Thorium 228	14274-82-9	0.512	0.025	0.024			GAM
Thorium 232	TH-232	0.548	0.099	0.097			GAM
Americium 241	14596-10-2	U		0.025		U	GAM
Uranium 238	U-238	U		2.6		U	GAM
Uranium 235	15117-96-1	U		0.068		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/02/99

N907025-18

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

DATA SHEET

B0VNJ8

SDG	7158	Client/Case no	Hanford	SDG-H0458	
Contact	L.A. Johnson	Case no	TRB-SBB-207925		
Lab sample id	N907025-18	Client sample id	B0VNJ8		
Dept sample id	7158-018	Location/Matrix	116 DR 1&2	SOLID	
Received	07/02/99	Collected	06/23/99 08:10		
% solids	92.5	Custody/SAF No	B99-072-01	B99-072	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.291	0.12	0.086	1.0	J	U
Uranium 235	15117-96-1	0.041	0.054	0.10	1.0	U	U
Uranium 238	U-238	0.291	0.12	0.086	1.0	J	U
Plutonium 238	13981-16-3	-0.014	0.018	0.056	1.0	U	PU
Plutonium 239/240	PU-239/240	0.005	0.036	0.070	1.0	U	PU
Nickel 63	13981-37-8	-0.590	1.1	2.0	30	U	NI_L
Americium 241	14596-10-2	0.008	0.017	0.022	1.0	U	AM
Total Strontium	SR-RAD	0.258	0.074	0.088	1.0	J	SR
Potassium 40	13966-00-2	11.6	0.49	0.23			GAM
Cobalt 60	10198-40-0	U		0.023	0.050	U	GAM
Cesium 137	10045-97-3	0.038	0.017	0.021	0.10	J	GAM
Europium 152	14683-23-9	U		0.054	0.10	U	GAM
Europium 154	15585-10-1	U		0.079	0.10	U	GAM
Europium 155	14391-16-3	U		0.061	0.10	U	GAM
Radium 226	13982-63-3	0.387	0.045	0.046	0.10		GAM
Radium 228	15262-20-1	0.576	0.092	0.096	0.20		GAM
Thorium 228	14274-82-9	0.564	0.027	0.027			GAM
Thorium 232	TH-232	0.576	0.092	0.096			GAM
Americium 241	14596-10-2	U		0.082		U	GAM
Uranium 238	U-238	U		2.5		U	GAM
Uranium 235	15117-96-1	U		0.082		U	GAM

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

Test	AM
Matrix	SOLID
SDG	7158
Contact	L.A. Johnson

METHOD SUMMARY

AMERICIUM 241 IN SOIL

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRB-SBB-207925
Case no	SDG-H0458

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241
Preparation batch 6893-006					
B0VNH1	N907025-01			7158-001	U
B0VNH2	N907025-02			7158-002	U
B0VNH3	N907025-03			7158-003	U
B0VNH4	N907025-04			7158-004	U
B0VNH5	N907025-05			7158-005	U
B0VNH6	N907025-06			7158-006	U
B0VNH7	N907025-07			7158-007	U
B0VNH8	N907025-08			7158-008	U
B0VNH9	N907025-09			7158-009	U
B0VNJ0	N907025-10			7158-010	U
B0VNJ1	N907025-11			7158-011	U
B0VNJ2	N907025-12			7158-012	U
B0VNJ3	N907025-13			7158-013	U
B0VNJ4	N907025-14			7158-014	0.833 J
B0VNJ5	N907025-15			7158-015	U
B0VNJ6	N907025-16			7158-016	U
B0VNJ7	N907025-17			7158-017	U
B0VNJ8	N907025-18			7158-018	U
BLK (QC ID=31251)	N907025-20			7158-020	U
LCS (QC ID=31250)	N907025-19			7158-019	ok
Duplicate (N907025-01)	N907025-21			7158-021	- U

Nominal values and limits from method RDLs (pCi/g) 1.0

Borehole Drilling at 116-DR-1,2-Soil

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

Test AM Matrix SOLID
SDG 7158
Contact L.A. Johnson

METHOD SUMMARY

AMERICIUM 241 IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6893-006	2σ prep error 5.0 %			Reference Lab Notebook 6893 pg.006												
B0VNH1	N907025-01			0.12	0.500			36		663			34	07/22/99	07/22	SS-009
B0VNH2	N907025-02			0.061	0.500			65		660			34	07/22/99	07/22	SS-013
B0VNH3	N907025-03			0.025	0.500			89		1083			35	07/22/99	07/23	SS-001
B0VNH4	N907025-04			0.036	0.500			66		933			38	07/22/99	07/26	SS-005
B0VNH5	N907025-05			0.018	0.500			89		1083			35	07/22/99	07/23	SS-006
B0VNH6	N907025-06			0.029	0.500			83		1083			35	07/22/99	07/23	SS-008
B0VNH7	N907025-07			0.045	0.500			75		1084			35	07/22/99	07/23	SS-009
B0VNH8	N907025-08			0.047	0.500			68		1084			32	07/22/99	07/23	SS-010
B0VNH9	N907025-09			0.028	0.500			74		1084			32	07/22/99	07/23	SS-012
B0VNJ0	N907025-10			0.034	0.500			80		1082			32	07/22/99	07/23	SS-013
B0VNJ1	N907025-11			0.035	0.500			90		1082			32	07/22/99	07/23	SS-014
B0VNJ2	N907025-12			0.040	0.500			93		1082			32	07/22/99	07/23	SS-015
B0VNJ3	N907025-13			0.041	0.500			81		932			35	07/22/99	07/26	SS-015
B0VNJ4	N907025-14			0.042	0.500			82		932			35	07/22/99	07/26	SS-016
B0VNJ5	N907025-15			0.025	0.500			76		930			34	07/22/99	07/26	SS-055
B0VNJ6	N907025-16			0.039	0.500			71		930			34	07/22/99	07/26	SS-056
B0VNJ7	N907025-17			0.039	0.500			80		930			33	07/22/99	07/26	SS-058
B0VNJ8	N907025-18			0.022	0.500			90		930			33	07/22/99	07/26	SS-059
BLK (QC ID=31251)	N907025-20			0.039	0.500			83		930				07/22/99	07/26	SS-060
LCS (QC ID=31250)	N907025-19			0.038	0.500			91		642				07/22/99	07/22	SS-056
Duplicate (N907025-01) (QC ID=31252)	N907025-21			0.039	0.500			77		930			38	07/22/99	07/26	SS-061
Nominal values and limits from method				1.0	0.500			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 FOR 21 SAMPLES
MDA 0.040 ± 0.041
YIELD 78 ± 26

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

Test PU Matrix SOLID
SDG 7158
Contact L.A. Johnson

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238	Plutonium 239/240
Preparation batch 6893-006						
B0VNH1	N907025-01			7158-001	U	0.137 J
B0VNH2	N907025-02			7158-002	U	U
B0VNH3	N907025-03			7158-003	U	U
B0VNH4	N907025-04			7158-004	U	U
B0VNH5	N907025-05			7158-005	U	U
B0VNH6	N907025-06			7158-006	U	U
B0VNH7	N907025-07			7158-007	U	U
B0VNH8	N907025-08			7158-008	U	U
B0VNH9	N907025-09			7158-009	U	U
B0VNJ0	N907025-10			7158-010	U	U
B0VNJ1	N907025-11			7158-011	U	U
B0VNJ2	N907025-12			7158-012	U	U
B0VNJ3	N907025-13			7158-013	U	U
B0VNJ4	N907025-14			7158-014	U	U
B0VNJ5	N907025-15			7158-015	U	U
B0VNJ6	N907025-16			7158-016	U	U
B0VNJ7	N907025-17			7158-017	U	U
B0VNJ8	N907025-18			7158-018	U	U
BLK (QC ID=31251)	N907025-20			7158-020	U	U
LCS (QC ID=31250)	N907025-19			7158-019	ok	ok
Duplicate (N907025-01)	N907025-21			7158-021	- U	ok J
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0

Borehole Drilling at 116-DR-1,2-Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

Test PU Matrix SOLID
SDG 7158
Contact L.A. Johnson

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
ALPHA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6893-006	2σ prep error 5.0 %			Reference Lab Notebook 6893 pg.006												
B0VNH1	N907025-01			0.056	0.500			70		705			33	07/21/99	07/21	SS-001
B0VNH2	N907025-02			0.065	0.500			65		705			33	07/21/99	07/21	SS-002
B0VNH3	N907025-03			0.10	0.500			30		704			33	07/21/99	07/21	SS-005
B0VNH4	N907025-04			0.039	0.500			80		704			33	07/21/99	07/21	SS-006
B0VNH5	N907025-05			0.10	0.500			73		490			34	07/21/99	07/22	SS-033
B0VNH6	N907025-06			0.038	0.500			85		704			33	07/21/99	07/21	SS-008
B0VNH7	N907025-07			0.068	0.500			73		703			33	07/21/99	07/21	SS-009
B0VNH8	N907025-08			0.056	0.500			72		703			30	07/21/99	07/21	SS-010
B0VNH9	N907025-09			0.037	0.500			88		703			30	07/21/99	07/21	SS-012
B0VNJ0	N907025-10			0.061	0.500			61		701			30	07/21/99	07/21	SS-013
B0VNJ1	N907025-11			0.077	0.500			54		701			30	07/21/99	07/21	SS-014
B0VNJ2	N907025-12			0.086	0.500			59		701			30	07/21/99	07/21	SS-015
B0VNJ3	N907025-13			0.064	0.500			53		667			31	07/21/99	07/22	SS-008
B0VNJ4	N907025-14			0.076	0.500			56		663			31	07/21/99	07/22	SS-010
B0VNJ5	N907025-15			0.23	0.500			20		852			31	07/21/99	07/23	SS-032
B0VNJ6	N907025-16			0.076	0.500			57		660			30	07/21/99	07/22	SS-014
B0VNJ7	N907025-17			0.16	0.500			33		660			29	07/21/99	07/22	SS-015
B0VNJ8	N907025-18			0.070	0.500			49		1083			30	07/21/99	07/23	SS-002
BLK (QC ID=31251)	N907025-20			0.076	0.500			31		1083				07/21/99	07/23	SS-005
LCS (QC ID=31250)	N907025-19			0.044	0.500			74		678				07/21/99	07/21	SS-056
Duplicate (N907025-01) (QC ID=31252)	N907025-21			0.054	0.500			63		934			38	07/21/99	07/26	SS-002
Nominal values and limits from method				1.0	0.500			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 FOR 21 SAMPLES
MDA 0.078 ± 0.089
YIELD 59 ± 37

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

Test U Matrix SOLID
SDG 7158
Contact L.A. Johnson

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1+3	2σ	2+3	2σ
Preparation batch 6893-006											
B0VNH1	N907025-01			7158-001	0.439 J	U	0.407 J	108	41	13	12
B0VNH2	N907025-02			7158-002	0.358 J	U	0.325 J	110	44	10	10
B0VNH3	N907025-03			7158-003	0.351 J	0.044 J	0.345 J	102	29	13	7
B0VNH4	N907025-04			7158-004	0.308 J	U	0.218 J	141	71	8	9
B0VNH5	N907025-05			7158-005	0.473 J	U	0.334 J	142	66	10	14
B0VNH6	N907025-06			7158-006	0.411 J	U	0.302 J	136	73	19	21
B0VNH7	N907025-07			7158-007	0.386 J	U	0.237 J	163	83	31	29
B0VNH8	N907025-08			7158-008	0.334 J	U	0.351 J	95	43	6	6
B0VNH9	N907025-09			7158-009	0.162 J	U	0.243 J	67	45	5	9
B0VNJ0	N907025-10			7158-010	0.328 J	U	0.441 J	74	36	13	11
B0VNJ1	N907025-11			7158-011	0.340 J	U	0.302 J	113	60	0	8
B0VNJ2	N907025-12			7158-012	0.572 J	U	0.502 J	114	45	13	9
B0VNJ3	N907025-13			7158-013	0.477 J	U	0.330 J	145	62	6	7
B0VNJ4	N907025-14			7158-014	0.346 J	U	0.277 J	125	63	0	9
B0VNJ5	N907025-15			7158-015	0.336 J	U	0.504 J	67	31	5	5
B0VNJ6	N907025-16			7158-016	0.525 J	U	0.315 J	167	81	4	7
B0VNJ7	N907025-17			7158-017	0.495 J	U	0.534 J	93	33	11	8
B0VNJ8	N907025-18			7158-018	0.291 J	U	0.291 J	100	58	14	19
BLK (QC ID=31251)	N907025-20			7158-020	U	U	U				
LCS (QC ID=31250)	N907025-19			7158-019	ok	ok	ok				
Duplicate (N907025-01)	N907025-21			7158-021	ok J	- U	ok J	115	49	10	11
Nominal values and limits from method				RDLs (pCi/g)	1.0	1.0	1.0	100		4	
Borehole Drilling at 116-DR-1,2-Soil								Averages 114		10	

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

Test U Matrix SOLID
SDG 7158
Contact L.A. Johnson

METHOD SUMMARY

URANIUM, ISOTOPIC IN SOIL
ALPHA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6893-006	2σ prep error 5.0 %			Reference Lab Notebook 6893 pg.006												
B0VNH1	N907025-01			0.070	1.00			85		222			27	07/15/99	07/15	SS-036
B0VNH2	N907025-02			0.061	1.00			83		222			27	07/15/99	07/15	SS-038
B0VNH3	N907025-03			0.037	1.00			60		688			28	07/15/99	07/16	SS-040
B0VNH4	N907025-04			0.070	1.00			105		158			27	07/15/99	07/15	SS-040
B0VNH5	N907025-05			0.089	1.00			79		158			27	07/15/99	07/15	SS-044
B0VNH6	N907025-06			0.11	1.00			61		158			27	07/15/99	07/15	SS-045
B0VNH7	N907025-07			0.097	1.00			87		151			27	07/15/99	07/15	SS-047
B0VNH8	N907025-08			0.079	1.00			90		151			24	07/15/99	07/15	SS-048
B0VNH9	N907025-09			0.086	1.00			85		151			24	07/15/99	07/15	SS-049
B0VNJ0	N907025-10			0.090	1.00			83		151			24	07/15/99	07/15	SS-050
B0VNJ1	N907025-11			0.087	1.00			83		150			25	07/16/99	07/16	SS-033
B0VNJ2	N907025-12			0.082	1.00			88		150			25	07/16/99	07/16	SS-034
B0VNJ3	N907025-13			0.080	1.00			91		150			25	07/16/99	07/16	SS-035
B0VNJ4	N907025-14			0.092	1.00			81		150			25	07/16/99	07/16	SS-036
B0VNJ5	N907025-15			0.092	1.00			82		150			24	07/16/99	07/16	SS-038
B0VNJ6	N907025-16			0.088	1.00			87		150			24	07/16/99	07/16	SS-040
B0VNJ7	N907025-17			0.087	1.00			98		150			23	07/16/99	07/16	SS-044
B0VNJ8	N907025-18			0.10	1.00			69		150			23	07/16/99	07/16	SS-045
BLK (QC ID=31251)	N907025-20			0.083	1.00			89		150				07/16/99	07/16	SS-047
LCS (QC ID=31250)	N907025-19			0.25	1.00			90		209				07/15/99	07/15	SS-033
Duplicate (N907025-01) (QC ID=31252)	N907025-21			0.081	1.00			88		150			28	07/16/99	07/16	SS-048
Nominal values and limits from method				1.0	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 FOR 21 SAMPLES
MDA 0.091 ± 0.079
YIELD 84 ± 21

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

Test SR Matrix SOLID
SDG 7158
Contact L.A. Johnson

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 6893-006					
B0VNH1	N907025-01			7158-001	5.69
B0VNH2	N907025-02			7158-002	1.20
B0VNH3	N907025-03			7158-003	0.600 J
B0VNH4	N907025-04			7158-004	0.596 J
B0VNH5	N907025-05			7158-005	0.624 J
B0VNH6	N907025-06			7158-006	0.723 J
B0VNH7	N907025-07			7158-007	0.534 J
B0VNH8	N907025-08			7158-008	0.881 J
B0VNH9	N907025-09			7158-009	U
B0VNJ0	N907025-10			7158-010	U
B0VNJ1	N907025-11			7158-011	0.759 J
B0VNJ2	N907025-12			7158-012	0.486 J
B0VNJ3	N907025-13			7158-013	0.570 J
B0VNJ4	N907025-14			7158-014	0.813 J
B0VNJ5	N907025-15			7158-015	1.24
B0VNJ6	N907025-16			7158-016	0.825 J
B0VNJ7	N907025-17			7158-017	0.329 J
B0VNJ8	N907025-18			7158-018	0.258 J
BLK (QC ID=31251)	N907025-20			7158-020	U
LCS (QC ID=31250)	N907025-19			7158-019	ok
Duplicate (N907025-01)	N907025-21			7158-021	ok

Nominal values and limits from method RDLs (pCi/g) 1.0
Borehole Drilling at 116-DR-1,2-Soil

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

Test SR Matrix SOLID
SDG 7158
Contact L.A. Johnson

METHOD SUMMARY

TOTAL STRONTIUM IN SOIL

BETA COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6893-006	2σ prep error 10.0 %	Reference Lab Notebook 6893 pg.006														
B0VNH1	N907025-01			0.27	1.00			92		200			35	07/19/99	07/23	GRB-203
B0VNH2	N907025-02			0.15	1.00			89		200			35	07/19/99	07/23	GRB-207
B0VNH3	N907025-03			0.15	1.00			92		200			35	07/19/99	07/23	GRB-220
B0VNH4	N907025-04			0.16	1.00			90		200			35	07/19/99	07/23	GRB-232
B0VNH5	N907025-05			0.17	1.00			79		200			35	07/19/99	07/23	GRB-217
B0VNH6	N907025-06			0.14	1.00			95		200			35	07/19/99	07/23	GRB-218
B0VNH7	N907025-07			0.17	1.00			86		200			35	07/19/99	07/23	GRB-220
B0VNH8	N907025-08			0.14	1.00			93		200			33	07/19/99	07/24	GRB-202
B0VNH9	N907025-09			0.20	1.00			80		400			29	07/19/99	07/20	GRB-208
B0VNJ0	N907025-10			0.26	1.00			88		200			31	07/19/99	07/22	GRB-202
B0VNJ1	N907025-11			0.13	1.00			93		200			36	07/20/99	07/27	GRB-201
B0VNJ2	N907025-12			0.13	1.00			92		200			35	07/20/99	07/26	GRB-218
B0VNJ3	N907025-13			0.16	1.00			90		400			32	07/20/99	07/23	GRB-203
B0VNJ4	N907025-14			0.17	1.00			95		200			32	07/20/99	07/23	GRB-219
B0VNJ5	N907025-15			0.16	1.00			87		200			31	07/20/99	07/23	GRB-220
B0VNJ6	N907025-16			0.11	1.00			91		400			32	07/20/99	07/24	GRB-229
B0VNJ7	N907025-17			0.11	1.00			88		400			33	07/20/99	07/26	GRB-230
B0VNJ8	N907025-18			0.088	1.00			92		376			34	07/20/99	07/27	GRB-217
BLK (QC ID=31251)	N907025-20			0.20	1.00			82		400				07/20/99	07/21	GRB-205
LCS (QC ID=31250)	N907025-19			0.20	1.00			79		200				07/19/99	07/23	GRB-217
Duplicate (N907025-01) (QC ID=31252)	N907025-21			0.40	1.00			84		400			36	07/20/99	07/24	BETA
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 FOR 21 SAMPLES
MDA 0.17 ± 0.14
YIELD 88 ± 10

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

Test GAM Matrix SOLID
SDG 7158
Contact L.A. Johnson

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60	Cesium 137
Preparation batch 6893-006						
B0VNH1	N907025-01			7158-001	1.88	91.3
B0VNH2	N907025-02			7158-002	0.074	9.86
B0VNH3	N907025-03			7158-003	U	0.492
B0VNH4	N907025-04			7158-004	U	0.364
B0VNH5	N907025-05			7158-005	U	0.161
B0VNH6	N907025-06			7158-006	U	U
B0VNH7	N907025-07			7158-007	U	U
B0VNH8	N907025-08			7158-008	U	U
B0VNH9	N907025-09			7158-009	U	U
B0VNJ0	N907025-10			7158-010	U	U
B0VNJ1	N907025-11			7158-011	U	U
B0VNJ2	N907025-12			7158-012	U	U
B0VNJ3	N907025-13			7158-013	U	U
B0VNJ4	N907025-14			7158-014	U	U
B0VNJ5	N907025-15			7158-015	U	U
B0VNJ6	N907025-16			7158-016	U	U
B0VNJ7	N907025-17			7158-017	U	U
B0VNJ8	N907025-18			7158-018	U	0.038 J
BLK (QC ID=31251)	N907025-20			7158-020	U	U
LCS (QC ID=31250)	N907025-19			7158-019	ok	ok
Duplicate (N907025-01)	N907025-21			7158-021	ok	ok
Nominal values and limits from method				RDLs (pCi/g)	0.050	0.10
Borehole Drilling at 116-DR-1,2-Soil						

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

Test GAM Matrix SOLID
SDG 7158
Contact L.A. Johnson

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6893-006	2σ prep error 15.0 %	Reference Lab Notebook 6893 pg.006														
B0VNH1	N907025-01			0.25	876					238			32	07/09/99	07/20	02,04,00
B0VNH2	N907025-02			0.055	799					401			32	07/09/99	07/20	02,04,00
B0VNH3	N907025-03			0.035	774					490			32	07/09/99	07/20	02,04,00
B0VNH4	N907025-04			0.055	795					483			32	07/09/99	07/20	02,03,00
B0VNH5	N907025-05			0.073	775					453			33	07/09/99	07/21	02,01,00
B0VNH6	N907025-06			0.067	757					470			33	07/09/99	07/21	02,01,00
B0VNH7	N907025-07			0.060	776					471			33	07/09/99	07/21	02,03,00
B0VNH8	N907025-08			0.029	826					471			30	07/09/99	07/21	02,04,00
B0VNH9	N907025-09			0.048	822					405			31	07/09/99	07/22	02,01,00
B0VNJ0	N907025-10			0.070	688					404			30	07/09/99	07/21	02,03,00
B0VNJ1	N907025-11			0.031	827					404			30	07/09/99	07/21	02,04,00
B0VNJ2	N907025-12			0.057	719					515			30	07/09/99	07/21	02,03,00
B0VNJ3	N907025-13			0.028	924					515			30	07/09/99	07/21	02,04,00
B0VNJ4	N907025-14			0.060	862					431			31	07/09/99	07/22	02,01,00
B0VNJ5	N907025-15			0.048	839					431			30	07/09/99	07/22	02,03,00
B0VNJ6	N907025-16			0.032	813					431			30	07/09/99	07/22	02,04,00
B0VNJ7	N907025-17			0.061	768					443			30	07/09/99	07/23	02,01,00
B0VNJ8	N907025-18			0.056	761					408			30	07/09/99	07/23	02,03,00
BLK (QC ID=31251)	N907025-20			0.020	799					404				07/09/99	07/23	01,01,00
LCS (QC ID=31250)	N907025-19			0.020	799					408				07/09/99	07/23	01,04,00
Duplicate (N907025-01) (QC ID=31252)	N907025-21			0.30	876					401			35	07/09/99	07/23	02,03,00
Nominal values and limits from method				0.050	799					100			180			

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

AVERAGES ± 2 SD FOR 21 SAMPLES
MDA 0.069 ± 0.14
YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 08/02/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

Test NI L Matrix SOLID
SDG 7158
Contact L.A. Johnson

METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63
Preparation batch 6893-006					
B0VNH1	N907025-01			7158-001	129
B0VNH2	N907025-02			7158-002	10.9 J
B0VNH3	N907025-03			7158-003	U
B0VNH4	N907025-04			7158-004	U
B0VNH5	N907025-05			7158-005	U
B0VNH6	N907025-06			7158-006	U
B0VNH7	N907025-07			7158-007	U
B0VNH8	N907025-08			7158-008	U
B0VNH9	N907025-09			7158-009	U
B0VNJ0	N907025-10			7158-010	U
B0VNJ1	N907025-11			7158-011	U
B0VNJ2	N907025-12			7158-012	U
B0VNJ3	N907025-13			7158-013	U
B0VNJ4	N907025-14			7158-014	U
B0VNJ5	N907025-15			7158-015	U
B0VNJ6	N907025-16			7158-016	U
B0VNJ7	N907025-17			7158-017	U
B0VNJ8	N907025-18			7158-018	U
BLK (QC ID=31251)	N907025-20			7158-020	U
LCS (QC ID=31250)	N907025-19			7158-019	ok
Duplicate (N907025-01)	N907025-21			7158-021	ok

Nominal values and limits from method RDLs (pCi/g) 30
Borehole Drilling at 116-DR-1,2-Soil

Lab id TMANC
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Form DVD-CMS
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H0458

Test NI L Matrix SOLID
SDG 7158
Contact L.A. Johnson

METHOD SUMMARY

NICKEL 63 IN SOIL

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6893-006	2σ prep error 10.0 %			Reference Lab Notebook 6893 pg.006												
B0VNH1	N907025-01			4.8	0.500			38		100			30	07/17/99	07/18	LSC-005
B0VNH2	N907025-02			3.4	0.500			54		100			30	07/17/99	07/18	LSC-005
B0VNH3	N907025-03			2.0	0.500			91		100			30	07/17/99	07/18	LSC-005
B0VNH4	N907025-04			2.1	0.500			87		100			30	07/17/99	07/18	LSC-005
B0VNH5	N907025-05			4.3	0.500			43		100			30	07/17/99	07/18	LSC-005
B0VNH6	N907025-06			4.2	0.500			44		100			30	07/17/99	07/18	LSC-005
B0VNH7	N907025-07			2.8	0.500			64		100			30	07/17/99	07/18	LSC-005
B0VNH8	N907025-08			2.0	0.500			90		100			28	07/17/99	07/19	LSC-005
B0VNH9	N907025-09			2.0	0.500			92		100			28	07/17/99	07/19	LSC-005
B0VNJ0	N907025-10			2.1	0.500			85		100			28	07/17/99	07/19	LSC-005
B0VNJ1	N907025-11			2.1	0.500			84		100			28	07/17/99	07/19	LSC-005
B0VNJ2	N907025-12			2.2	0.500			86		100			28	07/17/99	07/19	LSC-005
B0VNJ3	N907025-13			2.7	0.500			65		100			28	07/17/99	07/19	LSC-005
B0VNJ4	N907025-14			2.4	0.500			76		100			28	07/17/99	07/19	LSC-005
B0VNJ5	N907025-15			2.2	0.500			80		100			27	07/17/99	07/19	LSC-005
B0VNJ6	N907025-16			2.3	0.500			78		100			27	07/17/99	07/19	LSC-005
B0VNJ7	N907025-17			2.1	0.500			85		100			26	07/17/99	07/19	LSC-005
B0VNJ8	N907025-18			2.0	0.500			89		100			26	07/17/99	07/19	LSC-005
BLK (QC ID=31251)	N907025-20			9.8	0.100			91		100				07/17/99	07/19	LSC-005
LCS (QC ID=31250)	N907025-19			12	0.100			78		100				07/17/99	07/19	LSC-005
Duplicate (N907025-01) (QC ID=31252)	N907025-21			2.2	0.500			82		100			31	07/17/99	07/19	LSC-005
Nominal values and limits from method				30	0.100					10			180			

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

AVERAGES ± 2 SD FOR 21 SAMPLES				
	MDA	3.4	±	5.3
	YIELD	75	±	34

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Form DVD-CMS
Version 3.06
Report date 08/02/99

SDG 7158
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

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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SDG 7158
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

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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SDG 7158
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REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

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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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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GUIDE, cont.

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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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REPORT GUIDE

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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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REPORT GUIDE

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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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GUIDE, cont.

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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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GUIDE, cont.

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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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REPORT GUIDE

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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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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.

* Prepareation 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.

SDG 7158
Contact L.A. Johnson

GUIDE, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/02/99

SDG 7158
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0458

METHOD SUMMARY

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.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 08/02/99

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-072-01	Page 1 of 1

Collector Bowers, DL/Neilson, RJ	Company Contact Frank Corpuz	Telephone No. 373-1661	Project Coordinator TRENT, SJ
Project Designation Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location 116 DR 1&2		SAF No. B99-072
Ice Chest No. ERC 96-043	Field Logbook No. EFL 1133-7		Method of Shipment FED EX
Shipped To TMA/~~RECRA~~ BD 6-28-99	Offsite Property No. 4990175		Bill of Lading/Air Bill No. 4235 7952 7227
		BD 6-28-99	COA R16DR1N6WO

Price Code 8L

Data Turnaround 21 Days

POSSIBLE SAMPLE HAZARDS/REMARKS												
	Preservation	None	None BD 6-15-99	None								
	Type of Container	aG	~~GP~~ P	aG								
	No. of Container(s)	1	1									
Special Handling and/or Storage	Volume	1L	20g	250mL								
SAMPLE ANALYSIS		See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.								

	Sample No.	Matrix *	Sample Date	Sample Time										
✓	BOVNH1	Soil	6-18-99	0845	X	X	X							BOVNK1
✓	BOVNH2	Soil	6-18-99	0850	X	X	X							BOVNK2
✓	BOVNH3	Soil	6-18-99	0900	X	X	X							BOVNK3
✓	BOVNH4	Soil	6-18-99	0900	X	X	X							BOVNK4
✓	BOVNH5	Soil	6-18-99	1055	X	X	X							BOVNK5

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Robert Nelson / R.Nelson 620	6-18-99	Ref #1B	
Ref 1B	7-1-99 / 0900	Doug Bowers / Doug Bowers	7-1-99 / 0900
Doug Bowers / Doug Bowers	7-1-99 / 0900	Fed Ex	7-1-99
Fed Ex	9:30 7-2-99	TNU M. Goldenberg	9:30 7-2-99

SPECIAL INSTRUCTIONS

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

(2) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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	B99-072-01	Page 1 of 1

Collector Bowers, DL/Neilson, RJ	Company Contact Frank Corpuz	Telephone No. 373-1661	Project Coordinator TRENT, SJ
Price Code 8L	Data Turnaround 21 Days		
Project Designation Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location 116 DR 1&2		SAF No. B99-072
Ice Chest No. ERC 96-043	Field Logbook No. EFL 1133-7		Method of Shipment FED EX
Shipped To TMA/~~RECRA~~ 6-28-99	Offsite Property No. A990175		Bill of Lading/Air Bill No. 4235 7952 7227
			COA R16DR1N6WO 6-28-99

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None 6-15-99	None							
	Type of Container	aG	~~GP~~ P	aG							
	No. of Container(s)	1	1	1							
Special Handling and/or Storage	Volume	1L	20g	250mL							
SAMPLE ANALYSIS		See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.							
Sample No.	Matrix *	Sample Date	Sample Time								
BOVNH6	Soil	6-18-99	1140	X	X	X					BOVNK6
BOVNH7	Soil	6-18-99	1218	X	X	X					BOVNK7

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Nielson / R. Nielson	6-18-99 1620	Ref #1B	
Ref 1B	7-1-99/0900	Doug Bowers / Doug Bowers	7-1-99/0900
Doug Bowers / Doug Bowers	7-1-99/0900	Fed Ex	7-1-99
Fed Ex	9:30 7-2-99	TNU M. Goldenberg	9:30 7-2-99

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr; Nickel-63
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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	B99-072-01	Page 1 of 1

Collector: Bowers, DL/Neilson, RJ	Company Contact: Frank Corpuz	Telephone No.: 373-1661	Project Coordinator: TRENT, SJ
Price Code: 8L	Data Turnaround: 21 Days		
Project Designation: Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location: 116 DR 1&2		SAF No.: B99-072
Ice Chest No.: EBL 96-043	Field Logbook No.: EFL 1133-7		Method of Shipment: FED EX
Shipped To: TMA/RECRA ~~RJB 6-28-99~~	Offsite Property No.: A990175		Bill of Lading/Air Bill No.: 4235 7952 7227
		RJB 6-28-99	COA: R16DR1N6WO

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None RJB 6-15-99	None							
	Type of Container	aG	~~G/P~~ P	aG							
	No. of Container(s)	1	1								
Special Handling and/or Storage	Volume	1L	20g	250mL							
SAMPLE ANALYSIS		See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.							

Sample No.	Matrix *	Sample Date	Sample Time										
✓ BOVNH8	Soil	6-21-99	0935	X	X	X							BOVNK8
✓ BOVNH9	Soil	6-21-99	0950	X	X	X							
✓ BOVNJ0	Soil	6-21-99	1018	X	X	X							BOVNL0
✓ BOVNJ1	Soil	6-21-99	1018	X	X	X							BOVNL1
✓ BOVNJ2	Soil	6-21-99	1041	X	X	X							BOVNL2

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By: Dale Nielson / R. Nielson	Date/Time: 6/21/99 1705	Received By: Ref #1B	Date/Time:
Relinquished By: Ref 10	Date/Time: 7-1-99/0800	Received By: Doug Bowers / Doug Bowers	Date/Time: 7-1-99/0900
Relinquished By: Doug Bowers / Doug Bowers	Date/Time: 7-1-99/0900	Received By: Fed Ex	Date/Time: 7-1-99
Relinquished By: FedEx	Date/Time: 9:30 7-02-99	Received By: TNU M. Goldenberg	Date/Time: 9:30 7/02/99

SPECIAL INSTRUCTIONS

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

(2) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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	B99-072-01	Page 1 of 1

Collector Bowers, DL/Neilson, RJ	Company Contact Frank Corpuz	Telephone No. 373-1661	Project Coordinator TRENT, SJ
Price Code 8L	Data Turnaround 21 Days		
Project Designation Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location 116 DR 1&2	SAF No. B99-072	
Ice Chest No. EBL 96-043	Field Logbook No. EFL 1133-7	Method of Shipment FED EX	
Shipped To TMA/RECRA DB 6-28-99	Offsite Property No. A990175	Bill of Lading/Air Bill No. 4235 7952 7227	
		COA R16DR1N6WO DB 6-28-99	

POSSIBLE SAMPLE HAZARDS/REMARKS												
	Preservation	None	None DB 6-15-99	None								
	Type of Container	aG	~~GP~~ P	aG								
	No. of Container(s)	1	1	1								
Special Handling and/or Storage	Volume	1L	20g	250mL								
SAMPLE ANALYSIS		See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.								
Sample No.	Matrix *	Sample Date	Sample Time									
✓ B0VNJ3	Soil	6-21-99	1301	X*	X*	X					B0VNL3	
✓ B0VNJ4	Soil	6-21-99	1351	X*	X*	X					B0VNL4	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By	Date/Time	Received By	Date/Time
[signature] R Nelson	6-21-99 1305	Ref # 1B	
Relinquished By	Date/Time	Received By	Date/Time
Ref 1B	7-1-99/0900	Doug Bowers	7-1-99/0900
Relinquished By Doug Bowers	Date/Time	Received By	Date/Time
Doug Bowers	7-1-99/0900	FedEx	7-1-99
Relinquished By	Date/Time	Received By	Date/Time
FedEx 9:30	7-2-99	TNU M. Goldenberg 9:30	7-2-99

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr; Nickel-63
(2) ICP Metals - 6010A (Supertrace) (Arsenic, Chromium, Lead); Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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	B99-072-01	Page 1 of 1

Collector: Bowers, DL/Neilson, RJ	Company Contact: Frank Corpuz	Telephone No.: 373-1661	Project Coordinator: TRENT, SJ
Price Code: 8L	Data Turnaround: 21 Days		
Project Designation: Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location: 116 DR 1&2	SAF No.: B99-072	
Ice Chest No.: ERL 96-043	Field Logbook No.: EFL 1133-7	Method of Shipment: FED EX	
Shipped To: ~~TMA/RECRA~~ THERMO RETEC 7-1-99	Offsite Property No.: A990175	Bill of Lading/Air Bill No.: 4235 7952 7227	
		COA: R16DR1N6W0	

POSSIBLE SAMPLE HAZARDS/REMARKS											
	Preservation	None	None RJB 6-15-99	None							
	Type of Container	aG	~~GP~~ P	aG							
	No. of Container(s)	1	1	1							
Special Handling and/or Storage	Volume	1L	20g	250mL							
SAMPLE ANALYSIS		See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.							

Sample No.	Matrix *	Sample Date	Sample Time										
✓ B0VNJ5	Soil	6-22-99	1033	X	X							B0VNL5	
✓ B0VNJ6	Soil	6-22-99	1610	X	X							B0VNL6	

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Neilson R. Nielson 6/22/99	1735	RCF #1B	
Relinquished By: RCF 1B	7-1-99/0900	Received By: Doug Bowers Doug Bowers	7-1-99/0900
Relinquished By: Doug Bowers Doug Bowers	7-1-99/0900	Received By: Fed Ex	7-1-99
Relinquished By: Fed Ex	9:30 7-2-99	Received By: TNU M. Goldenberg	9:30 7-2-99

SPECIAL INSTRUCTIONS

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

(2) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *: Soil, Water, Vapor, Other Solid, Other Liquid

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	B99-072-01	Page 1 of 1

Collector Bowers, DL/Neilson, RJ	Company Contact Frank Corpuz	Telephone No. 373-1661	Project Coordinator TRENT, SJ
Project Designation Borehole Drilling at 116-DR-1 & 116-DR-2 - Soil	Sampling Location 116 DR 1&2		SAF No. B99-072
Ice Chest No. ERC 96-043	Field Logbook No. EFL 1133-7		Method of Shipment FED EX
Shipped To TMA/~~RECRA~~ 6-27-99	Offsite Property No. A990175		Bill of Lading/Air Bill No. 4235 7952 7227
			COA R16DR1N6W0

Price Code 8L

Data Turnaround 21 Days

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	None 6-15-99	None							
	Type of Container	aG	~~GP~~ P	aG							
	No. of Container(s)	1	1	1							
Special Handling and/or Storage	Volume	1L	20g	250mL							
SAMPLE ANALYSIS		See item (1) in Special Instructions.	Activity Scan	See item (2) in Special Instructions.							

Sample No.	Matrix *	Sample Date	Sample Time									
✓ B0VNJ7	Soil	6-23-99	0706	X*	X*						B0VNL7	
✓ B0VNJ8	Soil	6-23-99	0810	X*	X*						B0VNL8	

CHAIN OF POSSESSION	Sign/Print Names	
Relinquished By Doug Bowers Doug Bowers 6-23-99/1145	Received By R of IC 6-23-99/1145	Date/Time
Relinquished By R of IC 7-1-99/0900	Received By Doug Bowers Doug Bowers 7-1-99/0900	Date/Time
Relinquished By Doug Bowers Doug Bowers 7-1-99/0900	Received By Fed Ex 7-1-99	Date/Time
Relinquished By Fed Ex 9:30 7-2-99	Received By TNV M. Goldenberg 9:30 7-2-99	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr; Nickel-63
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Chromium, Lead}; Mercury - 7471 - (CV); Chromium Hex - 7196

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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: Bechtel Hanford Inc Date/Time received 7-2-99 9:30

CoC No. B 99-072-01

Container I.D. No. ERL96-043 Requested TAT (Days) 21 P.O. Received Yes [ ] No [✓]

INSPECTION

1. Custody seals on shipping container intact? Yes [✓] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [✓] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [✓] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [✓] No [ ] N/A [ ]
5. Cooler Temperature: _____ Packing material is: Wet [ ] Dry [✓]
6. Number of samples in shipping container: 18
7. Number of containers per sample: 2 (Or see CoC _____)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Rad labels [✓] Appropriate sample labels [✓]
10. Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]
11. Describe any anomalies: _____

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by M. Goldenberg Date: 7-2-99 Time: 9:30

LOGIN

TNU W.O. No. _____ Group No. _____ Client W.O. No. _____

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name _____ Date/time _____