H0372-TMA/RECRA

RECRA LabNet

a division of Recra Environmental, Inc.

Virtual Laboratories Everywhere

0051506

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD C99-024
RFW# : 9904L615
SDG# : H0372
SAF# : C99-024

W.O. # : 10985-001-001-9999-00
Date Received: 04-3-99

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 6 water samples.

2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.

3. Sample holding times as required by the method and/or contract were met with the exception of Nitrate and Nitrite.

4. The cooler temperature was recorded on the chain-of-custody.

5. The method blanks were within method criteria.

6. The Laboratory Control Samples (LCS) were within the laboratory control limits. The duplicate LCS were within the 20% Relative Percent Difference (RPD) control limit.

7. The matrix spike recoveries were within the 75-125% control limits. The matrix spike duplicates were within the 20% RPD control limit.

8. The replicate analyses were within the 20% RPD control limit.

AUG 1999 RECEIVED

Pat E

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

4-30-99
Date

njp\i04-615

001

WET CHEMISTRY METHODS GLOSSARY FOR ANALYSIS OF WATER SAMPLES

	EPA 600	SW846	OTHER
Acidity	__305.1		
✓Alkalinity __Bicarbonate __Carbonate	✓310.1		
BOD	__405.1		__5210B (b)
Ion Chromatography:			
__Bromide ✓Chloride ✓Fluoride	✓300.0	__9056	
✓Nitrite ✓Nitrate __Phosphate	✓300.0	__9056	
✓Sulfate __Formate __Acetate __Oxalate	✓300.0	__9056	
Chloride	__325.2	__9251	
Chlorine Residual	__330.5 (mod)		
Cyanide Amenable to Chlorination	__335.2	__9010A	
Cyanide (Total)	__335.2	__9010A __9012	__ILM04.0 (e)
Cyanide, Weak Acid Dissociable			__412 (a) __4500CN-I (b)
COD	__410.4 (mod)		__5220 C (b)
Color	__110.2		
Corrosivity (by Coupon)		__1110 (mod)	
Chromium VI		__7196A	__3500Cr-D (b)
Fluoride	__340.2		
Hardness, Calcium	__215.2		
Hardness, Total	__130.2		
Iodide			__ASTM D19P202 (1)
Surfactant	__425.1		
✓Nitrate-Nitrite __Nitrate __Nitrite	✓353.2		
Ammonia	__350.3		
Total __Kjeldahl Nitrogen __Organic Nitrogen	__351.4		
Total __Organic __Inorganic Carbon	__415.1	__9060	
Oil and Grease	__413.1	__9070	
__pH __pH, Paper	__150.1	__9040A __9041A	
Petroleum Hydrocarbons, Total Recoverable	__418.1		
Phenol	__420.1 __420.2	__9065 __9066	
__Ortho Phosphate __Total Phosphate	__365.2		__4500-P B __C
Salinity			__210A (a) __2520B (b)
Settleable Solids	__160.5		
Sulfide	__376.2 __376.1	__9030A	
Reactive __Cyanide __Sulfide		__Sec 7.3	
Silica	__370.1		
Sulfite	__377.1		
Sulfate	__375.4	__9038	
Specific Conductance	__120.1	__9050	
Specific Gravity			__213E (a)
__TCLP __TCLV		__1311	
Synthetic Precipitation Leach		__1312	
Total ✓Dissolved __Suspended __Solids	160✓.1 __.2 __.3		
Total Organic Halides	__450.1	✓9020B	
Turbidity	__180.1		
Volatile Solids __Total __Dissolved __Suspended	__160.4		

Other:_____ Method:_____

002

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

a. Standard Methods for the Examination of Water and Waste, 16 ed., (1989).

b. Standard Methods for the Examination of Water and Waste, 17 ed., (1983)

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

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

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

f. Code of Federal Regulations.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 04/30/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9904L615

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0TYN6	Alkalinity	124	MG/L	4.0	1.0
		Chloride by IC	24.9	MG/L	1.2	5.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	89	MG/L	6.2	25
		Sulfate by IC	32.4	MG/L	1.2	5.0
		Total Dissolved Solids	380	MG/L	5.0	1.0
		Total Organic Halides	12.0 u	UG/L	12.0	1.0
-002	B0TWB6	Alkalinity	129	MG/L	4.0	1.0
		Chloride by IC	21.7	MG/L	1.2	5.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	140	MG/L	6.2	25
		Sulfate by IC	30.8	MG/L	1.2	5.0
		Total Dissolved Solids	440	MG/L	5.0	1.0
		Total Organic Halides	14.3	UG/L	12.0	1.0
-003	B0TWB2	Alkalinity	124	MG/L	4.0	1.0
		Chloride by IC	24.4	MG/L	1.2	5.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	89	MG/L	6.2	25
		Sulfate by IC	32.0	MG/L	1.2	5.0
		Total Dissolved Solids	400	MG/L	5.0	1.0
		Total Organic Halides	24.0 u	UG/L	24.0	2.0
-009	B0TWB2	Nitrate Nitrite	20.8	MG-N/L	0.50	25.0
-010	B0TWB6	Nitrate Nitrite	31.8	MG-N/L	1.0	50.0
-011	B0TYN6	Nitrate Nitrite	20.6	MG-N/L	0.50	25.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/30/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9904L615

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LAK010-MB1	Alkalinity	0.50 u	MG/L	0.50	25.0
BLANK10	99LIC040-MB1	Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	99LSS032-MB1	Total Dissolved Solids	5.0 u	MG/L	5.0	1.0
BLANK10	99LX040C-MB1	Total Organic Halides	12.0 u	UG/L	12.0	1.0
BLANK10	99LX040B-MB1	Total Organic Halides	12.0 u	UG/L	12.0	1.0
BLANK10	99LN3B23-MB1	Nitrate Nitrite	0.02 u	MG-N/L	0.02	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 04/30/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9904L615

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-003	B0TWB2	Alkalinity	322	124	200	98.6	1.0
		Chloride by IC	73.8	24.4	50.0	98.9	10.0
		Fluoride by IC	10.9	0.35	10.0	105.0	1.0
		Nitrite by IC	4.4	0.25u	5.0	88.8	1.0
		Nitrate by IC	210	89	120	99.6	25
		Sulfate by IC	83.7	32.0	50.0	103.5	10.0
		Total Organic Halides	118	16.8	100	100.8	2.0
		Total Organic Halides	117	16.8	100	100.1	2.0
-009	B0TWB2	Nitrate Nitrite	46.4	20.8	25.0	102.6	50.0
		Nitrate Nitrite MSD	47.0	20.8	25.0	105.0	50.0
BLANK10	99LAK010-MB1	Alkalinity	99.7	0.50u	100	99.7	25.0
		Alkalinity MSD	99.0	0.50u	100	99.0	25.0
BLANK10	99LIC040-MB1	Chloride by IC	4.9	0.25u	5.0	97.4	1.0
		Fluoride by IC	10.5	0.50u	10.0	105.1	1.0
		Nitrite by IC	5.0	0.25u	5.0	99.4	1.0
		Nitrate by IC	4.8	0.25u	5.0	96.0	1.0
		Sulfate by IC	4.8	0.25u	5.0	95.5	1.0
BLANK10	99LSS032-MB1	Total Dissolved Solids	100	5.0 u	100	105.0	1.0
		Total Dissolved Solids	100	5.0 u	100	103.0	1.0
LCS10	99LX040C-LC1	Total Organic Halides	50.8	12.0 u	50.0	101.6	1.0
LCS20	99LX040C-LC2	Total Organic Halides	50.9	12.0 u	50.0	101.9	1.0
LCS10	99LX040B-LC1	Total Organic Halides	50.8	12.0 u	50.0	101.6	1.0
LCS20	99LX040B-LC2	Total Organic Halides	50.9	12.0 u	50.0	101.9	1.0
BLANK10	99LN3B23-MB1	Nitrate Nitrite	0.50	0.02u	0.50	99.2	1.0
		Nitrate Nitrite MSD	0.49	0.02u	0.50	97.6	1.0

Recra LabNet - Lionville

INORGANICS DUPLICATE SPIKE REPORT 04/30/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9904L615

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-003	B0TWB2	Total Organic Halides	100.8	100.1	0.68
-009	B0TWB2	Nitrate Nitrite	102.6	105.0	2.3
BLANK10	99LAK010-MB1	Alkalinity	99.7	99.0	0.69
BLANK10	99LSS032-MB1	Total Dissolved Solids	105.0	103.0	1.9
LCS20	99LX040C-LC2	Total Organic Halides	101.6	101.9	0.28
LCS20	99LX040B-LC2	Total Organic Halides	101.6	101.9	0.28
BLANK10	99LN3B23-MB1	Nitrate Nitrite	99.2	97.6	1.6

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 04/30/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9904L615

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-003REP	B0TWB2	Alkalinity	124	124	0.63	1.0
		Chloride by IC	24.4	24.7	1.3	5.0
		Fluoride by IC	0.50u	0.50u	NC	1.0
		Nitrite by IC	0.25u	0.25u	NC	1.0
		Nitrate by IC	89	88	0.52	25
		Sulfate by IC	32.0	32.1	0.22	5.0
		Total Dissolved Solids	400	380	3.6	1.0
		Total Organic Halides	24.0 u	24.0 u	NC	2.0
-009REP	B0TWB2	Nitrate Nitrite	20.8	20.7	0.60	25.0

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C99-024

DATE RECEIVED: 04/03/99 RFW LOT # :9904L615

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TYN6						
ALKALINITY	001	W	99LAK010	03/31/99	04/06/99	04/06/99
CHLORIDE BY IC	001	W	99LIC040	03/31/99	04/06/99	04/06/99
FLUORIDE BY IC	001	W	99LIC040	03/31/99	04/06/99	04/06/99
NITRITE BY IC	001	W	99LIC040	03/31/99	04/06/99	04/06/99
NITRATE BY IC	001	W	99LIC040	03/31/99	04/06/99	04/06/99
SULFATE BY IC	001	W	99LIC040	03/31/99	04/06/99	04/06/99
TOTAL DISSOLVED SOLI	001	W	99LSS032	03/31/99	04/06/99	04/07/99
TOTAL ORGANIC HALIDE	001	W	99LX040C	03/31/99	04/23/99	04/23/99
B0TWB6						
ALKALINITY	002	W	99LAK010	03/31/99	04/06/99	04/06/99
CHLORIDE BY IC	002	W	99LIC040	03/31/99	04/06/99	04/06/99
FLUORIDE BY IC	002	W	99LIC040	03/31/99	04/06/99	04/06/99
NITRITE BY IC	002	W	99LIC040	03/31/99	04/06/99	04/06/99
NITRATE BY IC	002	W	99LIC040	03/31/99	04/06/99	04/06/99
SULFATE BY IC	002	W	99LIC040	03/31/99	04/06/99	04/06/99
TOTAL DISSOLVED SOLI	002	W	99LSS032	03/31/99	04/06/99	04/07/99
TOTAL ORGANIC HALIDE	002	W	99LX040C	03/31/99	04/23/99	04/23/99
B0TWB2						
ALKALINITY	003	W	99LAK010	03/31/99	04/06/99	04/06/99
ALKALINITY	003 REP	W	99LAK010	03/31/99	04/06/99	04/06/99
ALKALINITY	003 MS	W	99LAK010	03/31/99	04/06/99	04/06/99
CHLORIDE BY IC	003	W	99LIC040	03/31/99	04/06/99	04/06/99
CHLORIDE BY IC	003 REP	W	99LIC040	03/31/99	04/06/99	04/06/99
CHLORIDE BY IC	003 MS	W	99LIC040	03/31/99	04/06/99	04/06/99
FLUORIDE BY IC	003	W	99LIC040	03/31/99	04/06/99	04/06/99
FLUORIDE BY IC	003 REP	W	99LIC040	03/31/99	04/06/99	04/06/99
FLUORIDE BY IC	003 MS	W	99LIC040	03/31/99	04/06/99	04/06/99
NITRITE BY IC	003	W	99LIC040	03/31/99	04/06/99	04/06/99
NITRITE BY IC	003 REP	W	99LIC040	03/31/99	04/06/99	04/06/99
NITRITE BY IC	003 MS	W	99LIC040	03/31/99	04/06/99	04/06/99
NITRATE BY IC	003	W	99LIC040	03/31/99	04/06/99	04/06/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C99-024

DATE RECEIVED: 04/03/99 RFW LOT # :9904L615

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE BY IC	003 REP	W	99LIC040	03/31/99	04/06/99	04/06/99
NITRATE BY IC	003 MS	W	99LIC040	03/31/99	04/06/99	04/06/99
SULFATE BY IC	003	W	99LIC040	03/31/99	04/06/99	04/06/99
SULFATE BY IC	003 REP	W	99LIC040	03/31/99	04/06/99	04/06/99
SULFATE BY IC	003 MS	W	99LIC040	03/31/99	04/06/99	04/06/99
TOTAL DISSOLVED SOLI	003	W	99LSS032	03/31/99	04/06/99	04/07/99
TOTAL DISSOLVED SOLI	003 REP	W	99LSS032	03/31/99	04/06/99	04/07/99
TOTAL ORGANIC HALIDE	003	W	99LX040B	03/31/99	04/23/99	04/23/99
TOTAL ORGANIC HALIDE	003 REP	W	99LX040B	03/31/99	04/23/99	04/23/99
TOTAL ORGANIC HALIDE	003 MS	W	99LX040B	03/31/99	04/23/99	04/23/99
TOTAL ORGANIC HALIDE	003 MSD	W	99LX040C	03/31/99	04/23/99	04/23/99
NITRATE NITRITE	009	W	99LN3B23	03/31/99	04/13/99	04/13/99
NITRATE NITRITE	009 REP	W	99LN3B23	03/31/99	04/13/99	04/13/99
NITRATE NITRITE	009 MS	W	99LN3B23	03/31/99	04/13/99	04/13/99
NITRATE NITRITE	009 MSD	W	99LN3B23	03/31/99	04/13/99	04/13/99
B0TWB6						
NITRATE NITRITE	010	W	99LN3B23	03/31/99	04/13/99	04/13/99
B0TYN6						
NITRATE NITRITE	011	W	99LN3B23	03/31/99	04/13/99	04/13/99

LAB QC:

ALKALINITY	MB1	W	99LAK010	N/A	04/06/99	04/06/99
ALKALINITY	MB1 BS	W	99LAK010	N/A	04/06/99	04/06/99
ALKALINITY	MB1 BSD	W	99LAK010	N/A	04/06/99	04/06/99
CHLORIDE BY IC	MB1	W	99LIC040	N/A	04/06/99	04/06/99
CHLORIDE BY IC	MB1 BS	W	99LIC040	N/A	04/06/99	04/06/99
FLUORIDE BY IC	MB1	W	99LIC040	N/A	04/06/99	04/06/99
FLUORIDE BY IC	MB1 BS	W	99LIC040	N/A	04/06/99	04/06/99
NITRITE BY IC	MB1	W	99LIC040	N/A	04/06/99	04/06/99
NITRITE BY IC	MB1 BS	W	99LIC040	N/A	04/06/99	04/06/99
NITRATE BY IC	MB1	W	99LIC040	N/A	04/06/99	04/06/99
NITRATE BY IC	MB1 BS	W	99LIC040	N/A	04/06/99	04/06/99
SULFATE BY IC	MB1	W	99LIC040	N/A	04/06/99	04/06/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C99-024

DATE RECEIVED: 04/03/99 RFW LOT # :9904L615

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SULFATE BY IC	MB1 BS	W	99LIC040	N/A	04/06/99	04/06/99
TOTAL DISSOLVED SOLI	MB1	W	99LSS032	N/A	04/06/99	04/07/99
TOTAL DISSOLVED SOLI	MB1 BS	W	99LSS032	N/A	04/06/99	04/07/99
TOTAL DISSOLVED SOLI	MB1 BSD	W	99LSS032	N/A	04/06/99	04/07/99
TOTAL ORGANIC HALIDE	LC1 BS	W	99LX040C	N/A	04/23/99	04/23/99
TOTAL ORGANIC HALIDE	LC2 BSD	W	99LX040C	N/A	04/23/99	04/23/99
TOTAL ORGANIC HALIDE	MB1	W	99LX040C	N/A	04/23/99	04/23/99
TOTAL ORGANIC HALIDE	LC1 BS	W	99LX040B	N/A	04/23/99	04/23/99
TOTAL ORGANIC HALIDE	LC2 BSD	W	99LX040B	N/A	04/23/99	04/23/99
TOTAL ORGANIC HALIDE	MB1	W	99LX040B	N/A	04/23/99	04/23/99
NITRATE NITRITE	MB1	W	99LN3B23	N/A	04/13/99	04/13/99
NITRATE NITRITE	MB1 BS	W	99LN3B23	N/A	04/13/99	04/13/99
NITRATE NITRITE	MB1 BSD	W	99LN3B23	N/A	04/13/99	04/13/99

RECRA LabNet Use Only: 9904L615

Custody Transfer Record/Lab Work Request

Page 1 of 2

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: INL-Hanford C99-024
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: spec Del: std TAT: 30 day
Date Rec'd: 4/3/99 Date Due: 5/3/99
Account #:

	VOA (ORGANIC)	BNA (ORGANIC)	Pest/PCB (ORGANIC)	Herb (ORGANIC)				Metal (INORG)	CN (INORG)	IC	alk				
Refrigerator #	1							3		3	3	3	1	3	
#/Type Container – Liquid	3g							1p		1p	1p	1p	1g	1p	
#/Type Container – Solid															
Volume – Liquid	40							1L		500	500	500	500	500	
Volume – Solid															
Preservatives	HCl							HNO3		–	–		H2SO4		
RECRA LabNet Use Only	OW24H							Met①		ING①	IALKL	ITDS	ITOX	IN3N2	

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	MS	MSD	Matrix	Date Collected	Time Collected	OW24H	BNA	Pest/PCB	Herb				Met①	CN	ING①	IALKL	ITDS	ITOX	IN3N2	
001	BØTYN6			W	3/31/99	0820	✓							✓		✓	✓	✓	✓		
2	WB6					1128	✓	(2 VOAs)						✓		✓	✓	✓	✓		
3	WB8	X	X			1128	✓							✓		✓	✓	✓	✓		
4	YN5					1128								✓							
5	WB5					0820								✓							
6	WB1					1128								✓							
7	XP9					0930	✓														
8	XR0					0730	✓														
9	WB2	X	X			1128														✓	
010	WB6					0820														✓	

Special Instructions:
saf # C99-024
sdg # H0372

COMPOSITE WASTE

DATE/REVISIONS:
1. ING① = ICCL, ICFL, ICNO3, ICNO2, ICSO4
2. Met① = As, Ba, Cr, Pb, Sn, Se, V, Zn
3. 002 1 VOA broken upon receipt
4.
5.
6.

Relinquished by	Received by	Date	Time
Dealey	Fowler	4/3/99	1530

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

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
Cooler Temp. 3.1 C

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
* 808247160153 NO3+NO2 calc

012

RECRA LabNet Use Only

9904L615

Custody Transfer Record/Lab Work Request

Page 2 of 2

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

013

Client TNU-Hanford C99-024

Est. Final Proj. Sampling Date

Project #

Project Contact/Phone #

RECRA Project Manager

QC Del TAT

Date Rec'd Date Due

Account #

Refrigerator #																	3		
#/Type Container	Liquid																1P		
	Solid																		
Volume	Liquid																500		
	Solid																		
Preservatives																	H2SO4		
ANALYSES REQUESTED →		ORGANIC							INORG										
		VOA	BNA	Pest/PCB	Herb				Metal	CN									

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	RECRA LabNet Use Only	
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	011	BØTYN6			W	3/31/99	1128	1153V2	✓

Special Instructions:

DATE/REVISIONS:

1.

2.

3.

4.

5.

6.

Relinquished by	Received by	Date	Time
Dalee	Taber	4/3/99	1530

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES:

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

Cooler Temp ___ C

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

COC # C99-024-1

Page 1 of 2

014

Collector D.E. HOLLINGSWORTH	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C99-024	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF GW MONITORING, MARCH 1999	Logbook No. WMD-SML-H26	Ice Chest No. SML 427/431 Temp. 4 °C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235-7982-4170
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TYN5 (F)	004	W	3-31-99	1128	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TYN6	001	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TYN6		W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TYN6		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TYN6		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TYN6		W			1x20-mL P	Activity Scan	None
B0TYN6		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TYN6		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TYN6		W			1x1000-mL G/P	Technetium 99	HCl to pH <2
B0TYN6		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TYN6		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TYN6		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH / DE Hollingsworth	3-31-99 1300	K.J. Young / [signature]	3-31-99 1300
[signature]	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 10:30	[signature] J R Gonzo	4-1-99 10:30
[signature]		[signature]	4/3/99 1530

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liquid	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

HC372

C.O.C. # C99-024-1

Page 1 of 2

Collector D.E. HOLLINGSWORTH	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C99-024	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF GW MONITORING MARCH 1999	Logbook No. WIN-SML-H26	Ice Chest No. SML431 Temp. 4 °C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No. 4235-7952-4170
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB5 (F)	005	W	3-31-99	0820	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB6	002	W	↓	↓	3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB6	↓	W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB6		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TWB6		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB6		W			1x20-mL P	Activity Scan	None
B0TWB6		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB6		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB6		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB6		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB6		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB6		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH [signature]	3-31-99 1300	K.J. Young [signature]	3-31-99 1300
K.J. Young [signature]	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 1030	[signature] JR Enbso	4-1-99 10:35
Fedex		[signature]	4/3/99 1530

Matrix *

S = Soil	SE = Sediment	SO = Solid	SL = Sludge
W = Water	O = Oil	A = Air	DS = Drum Solid
DL = Drum Liquid	T = Tissue	WI = Wipe	L = Liquid
V = Vegetation	X = Other		

FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H6372 ENV

C.O.C. # C99-024-

Page 1 of 2

016

Collector: D.E. HOLLINGSWORTH	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C99-024	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: ERDF GW MONITORING MARCH 1999	Logbook No.: WHS-SIML-126	Ice Chest No.: SIML 427/431 Temp.: 4 °C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-4170
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB1 (F)	004	W	3-31-99	1128	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB2	003	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB2		W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB2		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TWB2		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB2		W			1x20-mL P	Activity Scan	None
B0TWB2		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB2		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB2		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB2		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB2		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB2		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH	3-31-99 1300	K.J. Young	3-31-99 1300
K.J. Young	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 10:30	[illegible]	4-1-99 10:30
[illegible]		[illegible]	4/3/99 0530

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-7

Page 1 of 1

Collector D.E. HOLLINGSWORTH	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 · MSIN · FAX
SAF No. C99-024	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF GW MONITORING, MARCH 1999	Logbook No. WM-SML-H26	Ice Chest No. SML 431 · Temp. 4 °C
Shipped To (Lab) TMA/RECRA	Method of Shipment, GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235-7952-4170
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS · Hold Time · Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TXP9	0097	W	3-31-99	0730	3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TXP9		W	↓	↓	1x20-mL P	Activity Scan	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH / [signature]	3-31-99 1300	K.J. Young / [signature]	3-31-99 1300
[signature]	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 10:30	[signature]	4-1-99 10:30
[signature]		[signature]	1530

Matrix *

S = Soil	SE = Sediment	SO = Solid	SL = Sludge
W = Water	O = Oil	A = Air	DS = Drum Solid
DL = Drum Liquid	T = Tissue	WI = Wipe	L = Liquid
V = Vegetation	X = Other		

FINAL SAMPLE DISPOSITION · Disposal Method (e.g., Return to customer, per lab procedure, used in process) · Disposed By · Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-8

Page 1 of 1

Collector D.E. HOLLINGSWORTH	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C99-024	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF GW MONITORING, MARCH 1999	Logbook No. WIN-SML-H26	Ice Chest No. SML 427/431 Temp. 4 °C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235-7952-4170
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
✓ B0TXR0	004	W	3-31-99	0730	3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
✓ B0TXR0		W	✓	✓	1x20-mL P	Activity Scan	None

Relinquished By	Date/Time	Received By	Date/Time
D.E. HOLLINGSWORTH (Print) [signature] (Sign)	3-31-99 1300	K.J. Young (Print) [signature] (Sign)	3-31-99 1300
[signature]	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 10:30	[signature]	4-1-99 10:32
[signature]		[signature]	4/3/99 1530

Matrix *

S = Soil
SE = Sediment
SO = Solid
SL = Sludge
W = Water
O = Oil
A = Air
DS = Drum Solid
DL = Drum Liqui
T = Tissue
WI = Wipe
L = Liquid
V = Vegetation
X = Other

FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

018

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-2

Page 2 of 2

SAF No. C99-024

Contact/Requestor JH KESSNER

Telephone No. (509) 375-4688 MSIN FAX

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB2	004	W	3-31-99	1178	1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C

Relinquished By Print D.E. HOLLINGSWORTH Sign [signature] Date/Time 3-31-99 1300

Received By Print K.J. Young Sign [signature] Date/Time 3-31-99 1300

Relinquished By [signature] Date/Time 3-31-99 1410

Received By Fed Ex Date/Time 3-31-99

Relinquished By Fed Ex Date/Time

Received By [signature] Date/Time 4/3/99 1530

Relinquished By Date/Time

Received By Date/Time

Matrix *

S = Soil	SE = Sediment	SO = Solid	SL = Sludge
W = Water	O = Oil	A = Air	DS = Drum Solid
DL = Drum Liqui	T = Tissue	WI = Wine	L = Liquid
V = Vegetation	X = Other		

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By

Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-4

Page 2 of 2

SAF No. C99-024 | Contact/Requestor JH KESSNER | Telephone No. (509) 375-4688 | MSIN | FAX

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB6	010	W	3-31-99	0820	1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH	3-31-99 1300	K.I. Young	3-31-99 1300
K.I. Young	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 10:31	[illegible]	
[illegible]		[illegible]	4/3/99 1530

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-10

SAF No. C99-024

Contact/Requestor JILL KESSNER

Telephone No. (509) 375-4688

MSIN

FAX

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TYN6	011	W	3-31-99	1128	1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH [signature]	3-31-99 1300	K.J. Young [signature]	3-31-99 1300
[signature]	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 10:30	[signature] JA Corso	4-1-99 10:30
[signature]		[signature] 4/3/99	4/3/99 1530

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liquid	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By

Date/Time

RECRA
LabNet
a division of Recra Environmental, Inc.
Virtual Laboratories Everywhere

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD C99-024
RFW# : 9904L615
SDG/SAF# : H0372/C99-024

W.O.# : 10985-001-001-9999-00
Date Received: 04-03-99

METALS CASE NARRATIVE

1. This narrative covers the analyses of 6 water samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary.

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

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

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

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

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL) or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

8. All ICP Interference Check Standards were within control limits.

9. All laboratory control samples (LCS) were within the laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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

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

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

Pat Ec
J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

4-16-99
Date

mld/m04-615

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 9904L615

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:_____

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.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 04/16/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9904L615

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0TYN6	Arsenic, Total	3.3	u	UG/L	3.3	1.0
		Barium, Total	65.4		UG/L	0.10	1.0
		Chromium, Total	6.2		UG/L	0.60	1.0
		Lead, Total	1.8	u	UG/L	1.8	1.0
		Selenium, Total	6.5		UG/L	3.6	1.0
		Tin, Total	2.7	u	UG/L	2.7	1.0
		Vanadium, Total	25.0		UG/L	0.60	1.0
		Zinc, Total	374		UG/L	0.80	1.0
-002	B0TWB6	Arsenic, Total	3.3	u	UG/L	3.3	1.0
		Barium, Total	73.4		UG/L	0.10	1.0
		Chromium, Total	4.1		UG/L	0.60	1.0
		Lead, Total	2.8		UG/L	1.8	1.0
		Selenium, Total	4.4		UG/L	3.6	1.0
		Tin, Total	2.7	u	UG/L	2.7	1.0
		Vanadium, Total	24.2		UG/L	0.60	1.0
		Zinc, Total	403		UG/L	0.80	1.0
-003	B0TWB2	Arsenic, Total	3.3	u	UG/L	3.3	1.0
		Barium, Total	63.2		UG/L	0.10	1.0
		Chromium, Total	5.6		UG/L	0.60	1.0
		Lead, Total	1.8	u	UG/L	1.8	1.0
		Selenium, Total	5.0		UG/L	3.6	1.0
		Tin, Total	2.7	u	UG/L	2.7	1.0
		Vanadium, Total	23.8		UG/L	0.60	1.0
		Zinc, Total	347		UG/L	0.80	1.0
-004	B0TYN5	Arsenic, Total	3.3	u	UG/L	3.3	1.0
		Barium, Total	59.0		UG/L	0.10	1.0
		Chromium, Total	2.3		UG/L	0.60	1.0
		Lead, Total	1.8	u	UG/L	1.8	1.0
		Selenium, Total	3.6	u	UG/L	3.6	1.0
		Tin, Total	2.7	u	UG/L	2.7	1.0
		Vanadium, Total	13.9		UG/L	0.60	1.0
		Zinc, Total	144		UG/L	0.80	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 04/16/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9904L615

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B0TWB5	Arsenic, Total	3.3	u	UG/L	3.3	1.0
		Barium, Total	73.2		UG/L	0.10	1.0
		Chromium, Total	3.1		UG/L	0.60	1.0
		Lead, Total	2.5		UG/L	1.8	1.0
		Selenium, Total	4.2		UG/L	3.6	1.0
		Tin, Total	2.7	u	UG/L	2.7	1.0
		Vanadium, Total	23.6		UG/L	0.60	1.0
		Zinc, Total	347		UG/L	0.80	1.0
-006	B0TWB1	Arsenic, Total	3.3	u	UG/L	3.3	1.0
		Barium, Total	58.4		UG/L	0.10	1.0
		Chromium, Total	2.2		UG/L	0.60	1.0
		Lead, Total	1.8	u	UG/L	1.8	1.0
		Selenium, Total	4.5		UG/L	3.6	1.0
		Tin, Total	2.7	u	UG/L	2.7	1.0
		Vanadium, Total	15.0		UG/L	0.60	1.0
		Zinc, Total	164		UG/L	0.80	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/16/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9904L615

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L0210-MB1	Arsenic, Total	3.3 u	UG/L	3.3	1.0
		Barium, Total	0.10 u	UG/L	0.10	1.0
		Chromium, Total	0.60 u	UG/L	0.60	1.0
		Lead, Total	1.8 u	UG/L	1.8	1.0
		Selenium, Total	3.6 u	UG/L	3.6	1.0
		Tin, Total	3.4	UG/L	2.7	1.0
		Vanadium, Total	0.60 u	UG/L	0.60	1.0
		Zinc, Total	1.2	UG/L	0.80	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 04/16/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9904L615

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-003	B0TWB2	Arsenic, Total	2030	3.3 u	2000	101.5	1.0
		Barium, Total	2050	63.2	2000	99.3	1.0
		Chromium, Total	204	5.6	200	99.2	1.0
		Lead, Total	498	1.8 u	500	99.6	1.0
		Selenium, Total	2010	5.0	2000	100.4	1.0
		Tin, Total	1000	2.7 u	1000	100.1	1.0
		Vanadium, Total	527	23.8	500	100.6	1.0
		Zinc, Total	828	347	500	96.2	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 04/16/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9904L615

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-003REP	B0TWB2	Arsenic, Total	3.3 u	3.3 u	NC	1.0
		Barium, Total	63.2	63.9	1.1	1.0
		Chromium, Total	5.6	5.6	0.00	1.0
		Lead, Total	1.8 u	1.8 u	NC	1.0
		Selenium, Total	5.0	8.0	46.2	1.0
		Tin, Total	2.7 u	2.7 u	NC	1.0
		Vanadium, Total	23.8	24.5	2.9	1.0
		Zinc, Total	347	350	0.66	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/16/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9904L615

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L0210-LC1	Arsenic, LCS	10100	10000	UG/L	101.0
		Barium, LCS	4960	5000	UG/L	99.3
		Chromium, LCS	502	500	UG/L	100.5
		Lead, LCS	2530	2500	UG/L	101.1
		Selenium, LCS	10100	10000	UG/L	100.5
		Tin, LCS	4970	5000	UG/L	99.3
		Vanadium, LCS	2540	2500	UG/L	101.5
		Zinc, LCS	996	1000	UG/L	99.6

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C99-024

DATE RECEIVED: 04/03/99 RFW LOT # :9904L615

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TYN6						
ARSENIC, TOTAL	001	W	99L0210	03/31/99	04/05/99	04/06/99
BARIUM, TOTAL	001	W	99L0210	03/31/99	04/05/99	04/06/99
CHROMIUM, TOTAL	001	W	99L0210	03/31/99	04/05/99	04/06/99
LEAD, TOTAL	001	W	99L0210	03/31/99	04/05/99	04/06/99
SELENIUM, TOTAL	001	W	99L0210	03/31/99	04/05/99	04/06/99
TIN, TOTAL	001	W	99L0210	03/31/99	04/05/99	04/06/99
VANADIUM, TOTAL	001	W	99L0210	03/31/99	04/05/99	04/06/99
ZINC, TOTAL	001	W	99L0210	03/31/99	04/05/99	04/06/99
B0TWB6						
ARSENIC, TOTAL	002	W	99L0210	03/31/99	04/05/99	04/06/99
BARIUM, TOTAL	002	W	99L0210	03/31/99	04/05/99	04/06/99
CHROMIUM, TOTAL	002	W	99L0210	03/31/99	04/05/99	04/06/99
LEAD, TOTAL	002	W	99L0210	03/31/99	04/05/99	04/06/99
SELENIUM, TOTAL	002	W	99L0210	03/31/99	04/05/99	04/06/99
TIN, TOTAL	002	W	99L0210	03/31/99	04/05/99	04/06/99
VANADIUM, TOTAL	002	W	99L0210	03/31/99	04/05/99	04/06/99
ZINC, TOTAL	002	W	99L0210	03/31/99	04/05/99	04/06/99
B0TWB2						
ARSENIC, TOTAL	003	W	99L0210	03/31/99	04/05/99	04/06/99
ARSENIC, TOTAL	003 REP	W	99L0210	03/31/99	04/05/99	04/06/99
ARSENIC, TOTAL	003 MS	W	99L0210	03/31/99	04/05/99	04/06/99
BARIUM, TOTAL	003	W	99L0210	03/31/99	04/05/99	04/06/99
BARIUM, TOTAL	003 REP	W	99L0210	03/31/99	04/05/99	04/06/99
BARIUM, TOTAL	003 MS	W	99L0210	03/31/99	04/05/99	04/06/99
CHROMIUM, TOTAL	003	W	99L0210	03/31/99	04/05/99	04/06/99
CHROMIUM, TOTAL	003 REP	W	99L0210	03/31/99	04/05/99	04/06/99
CHROMIUM, TOTAL	003 MS	W	99L0210	03/31/99	04/05/99	04/06/99
LEAD, TOTAL	003	W	99L0210	03/31/99	04/05/99	04/06/99
LEAD, TOTAL	003 REP	W	99L0210	03/31/99	04/05/99	04/06/99
LEAD, TOTAL	003 MS	W	99L0210	03/31/99	04/05/99	04/06/99
SELENIUM, TOTAL	003	W	99L0210	03/31/99	04/05/99	04/06/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C99-024

DATE RECEIVED: 04/03/99 RFW LOT # :9904L615

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SELENIUM, TOTAL	003 REP	W	99L0210	03/31/99	04/05/99	04/06/99
SELENIUM, TOTAL	003 MS	W	99L0210	03/31/99	04/05/99	04/06/99
TIN, TOTAL	003	W	99L0210	03/31/99	04/05/99	04/06/99
TIN, TOTAL	003 REP	W	99L0210	03/31/99	04/05/99	04/06/99
TIN, TOTAL	003 MS	W	99L0210	03/31/99	04/05/99	04/06/99
VANADIUM, TOTAL	003	W	99L0210	03/31/99	04/05/99	04/06/99
VANADIUM, TOTAL	003 REP	W	99L0210	03/31/99	04/05/99	04/06/99
VANADIUM, TOTAL	003 MS	W	99L0210	03/31/99	04/05/99	04/06/99
ZINC, TOTAL	003	W	99L0210	03/31/99	04/05/99	04/06/99
ZINC, TOTAL	003 REP	W	99L0210	03/31/99	04/05/99	04/06/99
ZINC, TOTAL	003 MS	W	99L0210	03/31/99	04/05/99	04/06/99
B0TYN5						
ARSENIC, TOTAL	004	W	99L0210	03/31/99	04/05/99	04/06/99
BARIUM, TOTAL	004	W	99L0210	03/31/99	04/05/99	04/06/99
CHROMIUM, TOTAL	004	W	99L0210	03/31/99	04/05/99	04/06/99
LEAD, TOTAL	004	W	99L0210	03/31/99	04/05/99	04/06/99
SELENIUM, TOTAL	004	W	99L0210	03/31/99	04/05/99	04/06/99
TIN, TOTAL	004	W	99L0210	03/31/99	04/05/99	04/06/99
VANADIUM, TOTAL	004	W	99L0210	03/31/99	04/05/99	04/06/99
ZINC, TOTAL	004	W	99L0210	03/31/99	04/05/99	04/06/99
B0TWB5						
ARSENIC, TOTAL	005	W	99L0210	03/31/99	04/05/99	04/06/99
BARIUM, TOTAL	005	W	99L0210	03/31/99	04/05/99	04/06/99
CHROMIUM, TOTAL	005	W	99L0210	03/31/99	04/05/99	04/06/99
LEAD, TOTAL	005	W	99L0210	03/31/99	04/05/99	04/06/99
SELENIUM, TOTAL	005	W	99L0210	03/31/99	04/05/99	04/06/99
TIN, TOTAL	005	W	99L0210	03/31/99	04/05/99	04/06/99
VANADIUM, TOTAL	005	W	99L0210	03/31/99	04/05/99	04/06/99
ZINC, TOTAL	005	W	99L0210	03/31/99	04/05/99	04/06/99
B0TWB1						
ARSENIC, TOTAL	006	W	99L0210	03/31/99	04/05/99	04/06/99
BARIUM, TOTAL	006	W	99L0210	03/31/99	04/05/99	04/06/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C99-024

DATE RECEIVED: 04/03/99 RFW LOT # :9904L615

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	006	W	99L0210	03/31/99	04/05/99	04/06/99
LEAD, TOTAL	006	W	99L0210	03/31/99	04/05/99	04/06/99
SELENIUM, TOTAL	006	W	99L0210	03/31/99	04/05/99	04/06/99
TIN, TOTAL	006	W	99L0210	03/31/99	04/05/99	04/06/99
VANADIUM, TOTAL	006	W	99L0210	03/31/99	04/05/99	04/06/99
ZINC, TOTAL	006	W	99L0210	03/31/99	04/05/99	04/06/99

LAB QC:

ARSENIC LABORATORY	LC1 BS	W	99L0210	N/A	04/05/99	04/06/99
ARSENIC, TOTAL	MB1	W	99L0210	N/A	04/05/99	04/06/99
BARIUM LABORATORY	LC1 BS	W	99L0210	N/A	04/05/99	04/06/99
BARIUM, TOTAL	MB1	W	99L0210	N/A	04/05/99	04/06/99
CHROMIUM LABORATORY	LC1 BS	W	99L0210	N/A	04/05/99	04/06/99
CHROMIUM, TOTAL	MB1	W	99L0210	N/A	04/05/99	04/06/99
LEAD LABORATORY	LC1 BS	W	99L0210	N/A	04/05/99	04/06/99
LEAD, TOTAL	MB1	W	99L0210	N/A	04/05/99	04/06/99
SELENIUM LABORATORY	LC1 BS	W	99L0210	N/A	04/05/99	04/06/99
SELENIUM, TOTAL	MB1	W	99L0210	N/A	04/05/99	04/06/99
TIN LABORATORY	LC1 BS	W	99L0210	N/A	04/05/99	04/06/99
TIN, TOTAL	MB1	W	99L0210	N/A	04/05/99	04/06/99
VANADIUM LABORATORY	LC1 BS	W	99L0210	N/A	04/05/99	04/06/99
VANADIUM, TOTAL	MB1	W	99L0210	N/A	04/05/99	04/06/99
ZINC LABORATORY	LC1 BS	W	99L0210	N/A	04/05/99	04/06/99
ZINC, TOTAL	MB1	W	99L0210	N/A	04/05/99	04/06/99

RECRA LabNet Use Only
9904L615

Custody Transfer Record/Lab Work Request

Page 1 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: INU-Hanford C99-024
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: spec Del: std TAT: 30 day
Date Rec'd: 4/3/99 Date Due: 5/3/99
Account #:

	VOA	BNA	Pest/PCB	Herb				Metal	CN	IC	aer				
Refrigerator #	1							3		3	3	3	1	3	
#/Type Container Liquid	3g							1p		1p	1p	1p	1g	1p	
#/Type Container Solid															
Volume Liquid	40							Ltr		500	500	500	500	500	
Volume Solid															
Preservatives	HCl							HNO3		–	–		H2SO4		
ANALYSES REQUESTED →	ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Metal	CN	IC	aer				
RECRA LabNet Use Only	0024H							Met①		ING①	IALKL	ITDS	ITOX	IN3N2	

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	MS	MSD	Matrix	Date Collected	Time Collected	0024H (VOA)		Met①	ING①	IALKL	ITDS	ITOX	IN3N2
001	BØTYN6			W	3/31/99	0820	✓		✓	✓	✓	✓	✓	
2	WB6					1128	✓	(2 VOAs)	✓	✓	✓	✓	✓	
3	WB8	X	X			1128	✓		✓	✓	✓	✓	✓	
4	YN5					1128			✓					
5	WB5					0820			✓					
6	WB1					1128			✓					
7	XP9					0930	✓							
8	XR0					0730	✓							
9	WB2	X	X			1128								✓
010	WB6					0820								✓

Special Instructions:
saf # C99-024
sdg# H0372

COMPOSITE WASTE

DATE/REVISIONS:
1. ING① = ICCL, ICFL, ICNO3, ICNO2, ICSO4
2. Met① = As, Ba, Cr, Pb, Sn, Se, V, Zn
3. 002 – 1 VOA broken upon receipt
4.
5.
6.

Relinquished by	Received by	Date	Time
[signature]	[signature]	4/3/99	1530

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
* 508247160153 NO3+NO2 ...

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
Cooler Temp 3.1 C

RECRA LabNet Use Only
9904L615

Custody Transfer Record/Lab Work Request

Page 2 of 2

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TNU-Hanford C99-024
Est. Final Proj. Sampling Date
Project #
Project Contact/Phone #
RECRA Project Manager
QC ____ Del ____ TAT ____
Date Rec'd ____ Date Due ____
Account #

		Analyte column (INJN7)
Refrigerator #		3
#/Type Container	Liquid	1P
	Solid	
Volume	Liquid	500
	Solid	
Preservatives		H2SO4

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: Metal, CN

RECRA LabNet Use Only

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	INJN7
011	BØTYN6			W	3/31/99	1128	✓

Special Instructions:

DATE/REVISIONS:
1.
2.
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
Dalee	Staler	4/3/99	1530

Relinquished by	Received by	Date	Time

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

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
Cooler Temp C

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-1

Page 1 of 2

Collector D.E. HOLLINGSWORTH	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C99-024	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF GW MONITORING MARCH 1999	Logbook No. WD7-SML-H26	Ice Chest No. SML 427/431 Temp. 4 °C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4233-7952-4170
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TYN5 (F)	004	W	3-31-99	1128	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TYN6	001	W	↓	↓	3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TYN6	↓	W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TYN6		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TYN6		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TYN6		W			1x20-mL P	Activity Scan	None
B0TYN6		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TYN6		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TYN6		W			1x1000-mL G/P	Technetium 99	HCl to pH <2
B0TYN6		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TYN6		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TYN6	↓	W	↓	↓	1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By	Date/Time	Received By	Date/Time
Print D.E. HOLLINGSWORTH Sign [signature]	3-31-99 1300	Print K.J. Young Sign [signature]	3-31-99 1300
[signature]	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 10:30	[signature] J R Corso	4-1-99 10:30
[signature]		[signature]	4/3/99 1530

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liquid	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

HC372

C.O.C. # C99-024-1

Page 1 of 2

Collector: D.E. HOLLINGSWORTH	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C99-024	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: ERDF GW MONITORING MARCH 1999	Logbook No.: WIN-SMC-H26	Ice Chest No.: SML431 Temp.: 4 °C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-4170
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB5 (F)	005	W	3-31-99	0820	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB6	002	W	↓	↓	3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB6	↓	W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB6		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TWB6		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB6		W			1x20-mL P	Activity Scan	None
B0TWB6		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB6		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB6		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB6		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB6		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB6		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH / [signature]	3-31-99 1300	K.J. Young / [signature]	3-31-99 1300
K.J. Young [signature]	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 1030	[signature] JR Enbrso	4-1-99 10:35
Fedex		[signature]	4/3/99 1530

Matrix *

S = Soil	SE = Sediment	SO = Solid	SL = Sludge
W = Water	O = Oil	A = Air	DS = Drum Solid
DL = Drum Liquid	T = Tissue	WI = Wipe	L = Liquid
V = Vegetation	X = Other		

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

HC372 ENV

C.O.C. # C99-024

Collector: D.E. HOLLINGSWORTH	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 — MSIN — FAX
SAF No.: C99-024	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: ERDF GW MONITORING MARCH 1999	Logbook No.: WIT-SIML-126	Ice Chest No.: SML 427/431 — Temp. 4 °C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-4170
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS — Hold Time — Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB1 (F)	004	W	3-31-99	1128	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB2	003	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB2		W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB2		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TWB2		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB2		W			1x20-mL P	Activity Scan	None
B0TWB2		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB2		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB2		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB2		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB2		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB2		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH / [signature]	3-31-99 1300	K.J. Young / [signature]	3-31-99 1300
[signature]	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 10:30	[signature]	4-1-99 10:30
Fed Ex		[signature]	4/3/99 0530

Matrix *
S = Soil; SE = Sediment; SO = Solid; SL = Sludge; W = Water; O = Oil; A = Air; DS = Drum Solid; DL = Drum Liquid; T = Tissue; WI = Wipe; L = Liquid; V = Vegetation; X = Other

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time

018

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-7

Page 1 of 1

Collector D.E. HOLLINGSWORTH	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C99-024	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF GW MONITORING, MARCH 1999	Logbook No. WM-SML-H26	Ice Chest No. SML 431 Temp. 4 °C
Shipped To (Lab) TMA/RECRA	Method of Shipment, GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235-7952-4170
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
✓ B0TXP9	0097	W	3-31-99	0730	3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
✓ B0TXP9		W	↓	↓	1x20-mL P	Activity Scan	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH [signature]	3-31-99 1300	K.J. Young [signature]	3-31-99 1300
[signature]	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 10:30	[signature] JR Cross	4-1-99 10:30
[signature]		[signature]	1530

Matrix *

S = Soil	SE = Sediment	SO = Solid	SL = Sludge
W = Water	O = Oil	A = Air	DS = Drum Solid
DL = Drum Liqui	T = Tissue	WI = Wine	L = Liquid
V = Vegetation	X = Other		

FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-8

Page 1 of 1

Collector D.E. HOLLINGSWORTH	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C99-024	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF GW MONITORING, MARCH 1999	Logbook No. WHS-SML-H26	Ice Chest No. SML 427/431 Temp. 4 °C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235-7952-4170
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
•• ••

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	•	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TXR0	004	W	3-31-99	0730	3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TXR0		W	✓	✓	1x20-mL P	Activity Scan	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	D.E. HOLLINGSWORTH	D.E. Hollingsworth	3-31-99 1300		K.J. Young	K.J. Young	3-31-99 1300
Relinquished By		K.J. Young	3-31-99 1410	Received By		Fed Ex	3-31-99
Relinquished By		Fed Ex	4-1-99 10:30	Received By		[illegible] JREG/150	4-1-99 10:32
Relinquished By		Joel Ug		Received By		[illegible]	4/3/99 1530

Matrix •

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

SAMPLER | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-2

Page 2 of 2

SAF No. C99-024 | Contact/Requestor JH KESSNER | Telephone No. (509) 375-4688 | MSIN | FAX

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB2	004	W	3-31-99	1178	1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C

Relinquished By: D.E. HOLLINGSWORTH (Print) / (Sign) — Date/Time: 3-31-99 1300

Received By: K.J. Young (Print) / (Sign) — Date/Time: 3-31-99 1300

Relinquished By: (Sign) — Date/Time: 3-31-99 1410

Received By: Fed Ex — Date/Time: 3-31-99

Relinquished By: Jeclue — Date/Time:

Received By: — Date/Time: 4/3/99 1530

Relinquished By: — Date/Time:

Received By: — Date/Time:

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

SAMPLE DISPOSAL — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time

021

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

10372

C.O.C. # C99-024-4

SAF No. C99-024 | Contact/Requestor JH KESSNER | Telephone No. (509) 375-4688 | MSIN | FAX

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB6	010	W	3-31-99	0820	1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
D.E. HOLLINGSWORTH			3-31-99 1300	K.I. Lang			3-31-99 1300
Relinquished By			Date/Time	Received By			Date/Time
			3-31-99 1410	Fed Ex			3-31-99
Relinquished By			Date/Time	Received By			Date/Time
Fed Ex			4-1-99 10:30				
Relinquished By			Date/Time	Received By			Date/Time
Fedex							4/3/99 1530

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

022

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-10

Page 2 of 2

SAF No. C99-024

Contact/Requestor JILL KESSNER

Telephone No. (509) 375-4688 MSIN FAX

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TYN6	011	W	3-31-99	1128	1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C

Relinquished By D.E. HOLLINGSWORTH Print Sign Date/Time 3-31-99 1300

Received By K.J. Young Print Sign Date/Time 3-31-99 1300

Relinquished By Print Sign Date/Time 3-31-99 1410

Received By Fed Ex Date/Time 3-31-99

Relinquished By Fed Ex Date/Time 4-1-99 10:30

Received By Date/Time

Relinquished By Date/Time

Received By Date/Time 4/3/99 1530

Disposition Date/Time

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liquid	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

53

RECRA LabNet
a division of Recra Environmental, Inc.
Virtual Laboratories Everywhere

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD C99-024
RFW# : 9904L615
SDG/SAF #: H0372/ C99-024

W.O. #: 10985-001-001-9999-00
Date Received: 04-03-99

GC/MS VOLATILE

Five (5) water samples were collected on 03-31-99.

The samples and their associated QC samples were analyzed according to criteria set forth in Recra OPs based on SW 846 Method 8260A for TCL Volatile target compounds on 04-08-99.

The following is a summary of the QC results accompanying these sample results and a description of any problems encountered during their analyses:

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
2. The required holding time for analysis was met.
3. Non-target compounds were not detected in the samples.
4. All surrogate recoveries were within EPA QC limits.
5. All matrix spike recoveries were within EPA QC limits.
6. All blank spike recoveries were within EPA QC limits.
7. The method blank contained the common laboratory contaminants Methylene Chloride, Acetone and the target compound Chloromethane at levels less than the CRQL.

per JA O Weston

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

04-22-99
Date

som\group\data\ voa\tnu04615.doc

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

GLOSSARY OF VOA DATA

DATA QUALIFIERS

U = Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.

J = Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.

B = This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.

E = Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.

D = Identifies all compounds identified in an analysis at a secondary dilution factor.

I = Interference.

NQ = Result qualitatively confirmed but not able to quantify.

N = Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.

X = This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).

Y = Additional qualifiers used as required are explained in the case narrative.

GLOSSARY OF VOA DATA

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.

BSD = Indicates blank spike duplicate.

MS = Indicates matrix spike.

MSD = Indicates matrix spike duplicate.

DL = Suffix added to sample number to indicate that results are from a diluted analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP, Z = Indicates Spiked Compound.

Recra LabNet - Lionville Laboratory

Volatiles by GC/MS, HSL List

Report Date: 04/19/99 11:30

RFW Batch Number: **9904L615** Client: **TNU-HANFORD C99-024** Work Order: 10985001001 Page: 1a

	Cust ID:	B0TYN6	B0TWB6	B0TWB2	B0TWB2	B0TWB2	B0TXP9
Sample Information	RFW#:	001	002	003	003 MS	003 MSD	007
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery	Toluene-d8	104 %	102 %	110 %	104 %	105 %	104 %
	Bromofluorobenzene	105 %	100 %	107 %	102 %	100 %	100 %
	1,2-Dichloroethane-d4	106 %	104 %	112 %	107 %	108 %	107 %
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U	10 U	10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride		1 JB	1 BJ	1 BJ	1 JB	1 JB	2 JB
Acetone		2 JB	2 BJ	10 U	10 U	10 U	2 JB
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	5 U	5 U	97 %	91 %	5 U
1,1-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U	5 U	5 U
Chloroform		1 J	1 J	1 J	1 J	1 J	5 U
1,2-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone		10 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride		4 J	3 J	4 J	3 J	3 J	5 U
Bromodichloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane		5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene		5 U	5 U	5 U	111 %	112 %	5 U
Dibromochloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Benzene		5 U	5 U	5 U	111 %	114 %	5 U
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Bromoform		5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Toluene		5 U	5 U	5 U	115 %	118 %	5 U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **9904L615** Client: **TNU-HANFORD C99-024** Work Order: 10985001001 Page: 1b

	Cust ID:	B0TYN6	B0TWB6	B0TWB2	B0TWB2	B0TWB2	B0TXP9
	RFW#:	001	002	003	003 MS	003 MSD	007
Chlorobenzene		5 U	5 U	5 U	114 %	116 %	5 U
Ethylbenzene		5 U	5 U	5 U	5 U	5 U	5 U
Styrene		5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)		5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

	Cust ID:	B0TXR0		VBLKZA		VBLKZA BS	
Sample Information	RFW#:	008		99LVN116-MB1		99LVN116-MB1	
	Matrix:	WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00	
	Units:	UG/L		UG/L		UG/L	
Surrogate Recovery	Toluene-d8	102	%	100	%	100	%
	Bromofluorobenzene	101	%	99	%	99	%
	1,2-Dichloroethane-d4	108	%	102	%	101	%
Chloromethane		10	U	1	J	10	U
Bromomethane		10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U
Methylene Chloride		1	BJ	2	J	2	JB
Acetone		1	BJ	7	J	7	JB
Carbon Disulfide		5	U	5	U	5	U
1,1-Dichloroethene		5	U	5	U	101	%
1,1-Dichloroethane		5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U
Chloroform		5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U
2-Butanone		10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U
Bromodichloromethane		5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U
Trichloroethene		5	U	5	U	111	%
Dibromochloromethane		5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U
Benzene		5	U	5	U	110	%
Trans-1,3-Dichloropropene		5	U	5	U	5	U
Bromoform		5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U
Toluene		5	U	5	U	112	%

*= Outside of EPA CLP QC limits.

	Cust ID:	**B0TXR0**	**VBLKZA**	**VBLKZA BS**
	RFW#:	**008**	**99LVN116-MB1**	**99LVN116-MB1**
Chlorobenzene		5 U	5 U	109 %
Ethylbenzene		5 U	5 U	5 U
Styrene		5 U	5 U	5 U
Xylene (total)		5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Recra LabNet - Lionville Laboratory
VOA ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C99-024

DATE RECEIVED: 04/03/99 RFW LOT # :9904L615

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TYN6	001	W	99LVN116	03/31/99	N/A	04/08/99
B0TWB6	002	W	99LVN116	03/31/99	N/A	04/08/99
B0TWB2	003	W	99LVN116	03/31/99	N/A	04/08/99
B0TWB2	003 MS	W	99LVN116	03/31/99	N/A	04/08/99
B0TWB2	003 MSD	W	99LVN116	03/31/99	N/A	04/08/99
B0TXP9	007	W	99LVN116	03/31/99	N/A	04/08/99
B0TXR0	008	W	99LVN116	03/31/99	N/A	04/08/99
LAB QC:						
VBLKZA	MB1	W	99LVN116	N/A	N/A	04/08/99
VBLKZA	MB1 BS	W	99LVN116	N/A	N/A	04/08/99

RECRA LabNet Use Only
9904L615

Custody Transfer Record/Lab Work Request

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client TNU-Hanford C99-024
Est. Final Proj. Sampling Date
Project # 10985-001-001-9999-00
Project Contact/Phone #
RECRA Project Manager OJ
QC spec Del std TAT 30 day
Date Rec'd 4/3/99 Date Due 5/3/99
Account #

	VOA	BNA	Pest/PCB	Herb	Metal	CN	IC	aer			
Refrigerator #	1				3		3	3	3	1	3
#/Type Container Liquid	3g				1p		1p	1p	1p	1g	1p
#/Type Container Solid											
Volume Liquid	40				Ltr		500	500	500	500	500
Volume Solid											
Preservatives	HCl				HNO3		-	-		H2SO4	

ANALYSES REQUESTED → ORGANIC: VOA, BNA, Pest/PCB, Herb; INORG: 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	MS	MSD	Matrix	Date Collected	Time Collected	0624H		Met①	ING①	IALKL	ITDS	ITOX	IN3N2
001	BØTYN6			W	3/31/99	0820	✓		✓	✓	✓	✓	✓	
2	WB6					1128	✓	(2 VOAs)	✓	✓	✓	✓	✓	
3	WB8	X	X			1128	✓		✓	✓	✓	✓	✓	
4	YN5					1128			✓					
5	WB5					0820			✓					
6	WB1					1128			✓					
7	XP9					0930	✓							
8	XR0					0730	✓							
9	WB2	X	X			1128								✓
010	WB6					0820								✓

Special Instructions:
saf # C99-024
sdg # H0372

COMPOSITE WASTE

DATE/REVISIONS:
1. ING① = ICCL, ICFL, ICNO3, ICNO2, ICSO4
2. Met① = As, Ba, Cr, Pb, Sn, Se, V, Zn
3. 002 1 VOA broken upon receipt
4.
5.
6.

RECRA LabNet Use Only
Samples were: 1) Shipped ✓ or Hand Delivered
Airbill # *
2) Ambient or Chilled (circled)
3) Received in Good Condition Y or N (circled)
4) Labels Indicate Properly Preserved (Y) or N
5) Received Within Holding Times (Y) or N (both circled)
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
Cooler Temp. 3.1 °C

Relinquished by	Received by	Date	Time
Dexter	Joslin	4/3/99	1530

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES: * 808247160153 NO3+NO2 ord

RECRA LabNet Use Only
9904L615

Custody Transfer Record/Lab Work Request

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: INEL-Hanford C99-024
Est. Final Proj. Sampling Date:
Project #:
Project Contact/Phone #:
RECRA Project Manager:
QC: Del: TAT:
Date Rec'd: Date Due:
Account #:

Refrigerator #																			3	
#/Type Container	Liquid																		1P	
	Solid																			
Volume	Liquid																		500	
	Solid																			
Preservatives																			H2SO4	
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													
																			1N3N2	
011	BØTYN6			W	3/31/99	1128													✓	

Special Instructions:

DATE/REVISIONS:
1.
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
Cooler Temp. C

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

Relinquished by	Received by	Date	Time
Dalee	Dalee	4/3/99	1530

Relinquished by	Received by	Date	Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-11

Page 1 of 2

Collector D.E. HOLLINGSWORTH	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C99-024	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF GW MONITORING, MARCH 1999	Logbook No. WM-SML-H26	Ice Chest No. SML 427/431 Temp. 4 °C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235-7952-4170
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TYN5 (F)	004	W	3-31-99	1128	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TYN6	001	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TYN6		W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TYN6		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TYN6		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TYN6		W			1x20-mL P	Activity Scan	None
B0TYN6		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TYN6		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TYN6		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TYN6		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TYN6		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TYN6		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH / D.E. Hollingsworth	3-31-99 1300	K.J. Young / Ben Young	3-31-99 1300
Ben Young	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 10:30	JR Corso / J.R. Corso	4-1-99 10:30
Fedex			

Matrix *
S = Soil; SE = Sediment; SO = Solid; SL = Sludge; W = Water; O = Oil; A = Air; DS = Drum Solid; DL = Drum Liquid; T = Tissue; WI = Wine; L = Liquid; V = Vegetation; X = Other

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By: [signature] — Date/Time: 4/3/99 1530

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

HC372

C.O.C. # C99-024-1

12

Collector D.E. HOLLINGSWORTH	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C99-024	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF GW MONITORING MARCH 1999	Logbook No. WIN-SMF-H26	Ice Chest No. SML 431 Temp. 4 °C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No. 4235-7952-4170
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB5 (F)	005	W	3-31-99	0820	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB6	002	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB6		W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB6		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TWB6		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB6		W			1x20-mL P	Activity Scan	None
B0TWB6		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB6		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB6		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB6		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB6		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB6		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH [signature]	3-31-99 1300	K.J. Young [signature]	3-31-99 1300
K.J. Young	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 1030	[signature]	4-1-99 10:30
Fedex		[signature]	4/3/99 1530

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liquid	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H6372 ENV

C.O.C. # C99-024-13

Page 1 of 2

Collector: D.E. HOLLINGSWORTH	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C99-024	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: ERDF GW MONITORING, MARCH 1999	Logbook No.: WHC-SMA-1426	Ice Chest No.: SML 427/431 Temp.: 4 °C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-4170
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB1 (F)	004	W	3-31-99	1126	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB2	003	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB2		W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB2		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TWB2		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB2		W			1x20-mL P	Activity Scan	None
B0TWB2		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB2		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB2		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB2		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB2		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB2		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH	3-31-99 1300	K.J. Young	3-31-99 1300
K.J. Young	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 10:30	[illegible]	4-1-99 10:30
[illegible]		[illegible]	4/3/99 0530

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION
Disposal Method (e.g., Return to customer, per lab procedure, used in process)
Disposed By
Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-7

Page 1 of 1

Collector D.E. HOLLINGSWORTH	Contact/Requester JH KESSNER	Telephone No. (509) 375-4688 MSIN FAX
SAF No. C99-024	Sampling Origin HANFORD SITE	Purchase Order/Charge Code
Project Title ERDF GW MONITORING, MARCH 1999	Logbook No. WM-SML-H36	Ice Chest No. SML 431 Temp. 4 °C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235-7952-4170
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TXP9	0197	W	3-31-99	0730	3x40-mL aGs	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TXP9		W	↓	↓	1x20-mL P	Activity Scan	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH / [signature]	3-31-99 1300	K.J. Young / [signature]	3-31-99 1300
[signature]	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 10:30	[signature]	4-1-99 10:30
[signature]		[signature]	1530

Matrix *
S = Soil; SE = Sediment; SO = Solid; SL = Sludge; W = Water; O = Oil; A = Air; DS = Drum Solid; DL = Drum Liquid; T = Tissue; WI = Wipe; L = Liquid; V = Vegetation; X = Other

FINAL SAMPLE DISPOSITION — Disposal Method (e.g., Return to customer, per lab procedure, used in process) — Disposed By — Date/Time

14

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-8

Page 1 of 1

Collector: D.E. HOLLINGSWORTH	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C99-024	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: ERDF GW MONITORING, MARCH 1999	Logbook No.: WHS-SML-H26	Ice Chest No.: SML 427/431 Temp.: 4 °C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-4170
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TXR0	004	W	3-31-99	0730	3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TXR0		W	↓	↓	1x20-mL P	Activity Scan	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	D.E. HOLLINGSWORTH		3-31-99 1200		K.J. Young		3-31-99 1300
Relinquished By			Date/Time	Received By			Date/Time
			3-31-99 1410		Fed Ex		3-31-99
Relinquished By			Date/Time	Received By			Date/Time
	Fed Ex		4-1-99 10:30				4-1-99 10:32
Relinquished By			Date/Time	Received By			Date/Time
	Dell up						4/3/99 1530

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-2

16

SAF No. C99-024 | Contact/Requestor JH KESSNER | Telephone No. (509) 375-4688 | MSIN | FAX

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB2	004	W	3-31-99	1178	1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
	D.E. HOLLINGSWORTH	3-31-99 1300		K.J. Young	3-31-99 1300
	Ken Young	3-31-99 1410		Fed Ex	3-31-99
	Declared			Fedex	4/3/99 1530

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-4

SAF No. C99-024 | Contact/Requestor JH KESSNER | Telephone No. (509) 375-4688 | MSIN | FAX

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
✓ B0TWB6	010	W	3-31-99	0820	1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH [signature]	3-31-99 1300	K.I. Young [signature]	3-31-99 1300
[signature]	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 10:30	[signature]	
Fedex		[signature]	4/3/99 1530

Matrix *

S = Soil, SE = Sediment, SO = Solid, SL = Sludge, W = Water, O = Oil, A = Air, DS = Drum Solid, DL = Drum Liquid, T = Tissue, WI = Wipe, L = Liquid, V = Vegetation, X = Other

FINAL SAMPLE DISPOSITION | Disposal Method (e.g., Return to customer, per lab procedure, used in process) | Disposed By | Date/Time

17

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0372

C.O.C. # C99-024-10

Page 2 of 2

SAF No. C99-024

Contact/Requestor JH KESSNER

Telephone No. (509) 375-4688 MSIN FAX

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TYN6	011	W	3-31-99	1128	1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C

Relinquished By Print: D.E. HOLLINGSWORTH Sign: D.E. Hollingsworth Date/Time: 3-31-99 1300

Received By Print: K.J. Young Sign: K.J. Young Date/Time: 3-31-99 1300

Relinquished By: K.J. Young Date/Time: 3-31-99 1410

Received By: Fed Ex Date/Time: 3-31-99

Relinquished By: Fed Ex Date/Time: 4-1-99 10:30

Received By: A.R. Conrad J.A. Conrad Date/Time: 4-1-99 10:30

Relinquished By: Fed Ex Date/Time:

Received By: [illegible] Date/Time: 4/3/99 1530

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION

Disposal Method (e.g., Return to customer, per lab procedure, used in process)

Disposed By Date/Time

Case Narrative

1.0 GENERAL

Bechtel Hanford Inc. Sample Delivery Group H0372 is comprised of three water samples designated under SAF No. C99-024 with a Project Designation of: ERDF GW MONITORING, MARCH 1999.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the TNU Sample Receipt Checklist. Preliminary data for all analyses were sent to Bechtel Hanford via fax on May 25, 1999.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Beta Analyses

No problems were encountered during the processing of the samples.

2.2 Total Radium Analyses

No problems were encountered during the processing of the samples.

2.3 Technetium-99 Analyses

The aliquot for the analysis was reduced for expeditious sample preparation. The resultant increased MDA's reflect the decreased aliquot. No other problems were encountered during the processing of the samples.

2.4 Iodine-129 Analyses

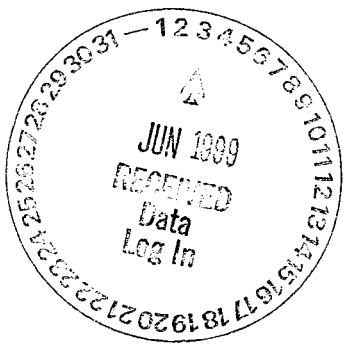
The aliquot for the analysis was reduced for expeditious sample preparation. The resultant increased MDA's reflect the decreased aliquot. No other problems were encountered during the processing of the samples.

2.5 Total Uranium Analyses

No problems were encountered during the processing of the samples.

2.6 Carbon-14 Analyses

No problems were encountered during the processing of the samples.



TMA/RICHMOND

SAMPLE DELIVERY GROUP H0372

SAMPLE SUMMARY

SDG 7108
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B0TWB2	HANFORD SITE	LIQUID		N904013-01	C99-024	C99-024-2	03/31/99 11:28
B0TWB6	HANFORD SITE	LIQUID		N904013-02	C99-024	C99-024-4	03/31/99 08:20
B0TYN6	HANFORD SITE	LIQUID		N904013-03	C99-024	C99-024-10	03/31/99 11:28
Method Blank		LIQUID		N904013-05	C99-024		
Lab Control Sample		LIQUID		N904013-04	C99-024		
Duplicate (N904013-01)	HANFORD SITE	LIQUID		N904013-06	C99-024		03/31/99 11:28

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 06/01/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0372

QC SUMMARY

SDG 7108
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% MOIST	SAMPLE AMOUNT	BASIS AMOUNT	DAYS RECEIVED	DAYS COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7108	C99-024-10	B0TYN6	LIQUID				04/01/99	1	N904013-03	7108-003
	C99-024-2	B0TWB2	LIQUID				04/01/99	1	N904013-01	7108-001
	C99-024-4	B0TWB6	LIQUID				04/01/99	1	N904013-02	7108-002
		Method Blank	LIQUID						N904013-05	7108-005
		Lab Control Sample	LIQUID						N904013-04	7108-004
		Duplicate (N904013-01)	LIQUID				04/01/99	1	N904013-06	7108-006

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 06/01/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0372

PREP BATCH SUMMARY

SDG 7108
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Beta Counting												
TC	LIQUID	Technetium 99 in Water	6880-029	10.0	3			1	1	1/1		
Gas Proportional Counting												
RAT	LIQUID	Radium 226/228 in Water	6880-029	5.0	3			1	1	1/1		
Gas Proportional Counting												
80A	LIQUID	Gross Alpha in Water	6880-029	20.0	3			1	1	1/1		
80B	LIQUID	Gross Beta in Water	6880-029	15.0	3			1	1	1/1		
Gamma Spectroscopy												
I	LIQUID	Iodine 129 in Water	6880-029	5.0	3			1	1	1/1		
Kinetic Phosphorimetry												
U_T	LIQUID	Uranium, Total in Water	6880-029	9.0	3			1	1	1/1		X
Liquid Scintillation Counting												
C	LIQUID	Carbon 14 in Water	6880-029	10.0	3			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 06/01/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0372

WORK SUMMARY

SDG 7108
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUFFIX	ANALYZED	REVIEWED BY	METHOD
B0TWB2			N904013-01	7108-001	80A/80		04/19/99		Gross Alpha in Water
HANFORD SITE		LIQUID	03/31/99	7108-001	80B/80		04/19/99		Gross Beta in Water
C99-024-2	C99-024		04/01/99	7108-001	C		05/14/99		Carbon 14 in Water
				7108-001	I		05/14/99		Iodine 129 in Water
				7108-001	RAT		05/05/99		Radium 226/228 in Water
				7108-001	TC		04/30/99		Technetium 99 in Water
				7108-001	U_T		04/21/99		Uranium, Total in Water
B0TWB6			N904013-02	7108-002	80A/80		04/19/99		Gross Alpha in Water
HANFORD SITE		LIQUID	03/31/99	7108-002	80B/80		04/19/99		Gross Beta in Water
C99-024-4	C99-024		04/01/99	7108-002	C		05/14/99		Carbon 14 in Water
				7108-002	I		05/13/99		Iodine 129 in Water
				7108-002	RAT		05/05/99		Radium 226/228 in Water
				7108-002	TC		05/03/99		Technetium 99 in Water
				7108-002	U_T		04/21/99		Uranium, Total in Water
B0TYN6			N904013-03	7108-003	80A/80		04/19/99		Gross Alpha in Water
HANFORD SITE		LIQUID	03/31/99	7108-003	80B/80		04/19/99		Gross Beta in Water
C99-024-10	C99-024		04/01/99	7108-003	C		05/14/99		Carbon 14 in Water
				7108-003	I		05/20/99		Iodine 129 in Water
				7108-003	RAT		05/03/99		Radium 226/228 in Water
				7108-003	TC		05/03/99		Technetium 99 in Water
				7108-003	U_T		04/21/99		Uranium, Total in Water
Method Blank			N904013-05	7108-005	80A/80		04/19/99		Gross Alpha in Water
		LIQUID		7108-005	80B/80		04/19/99		Gross Beta in Water
	C99-024			7108-005	C		05/14/99		Carbon 14 in Water
				7108-005	I		05/14/99		Iodine 129 in Water
				7108-005	RAT		05/05/99		Radium 226/228 in Water
				7108-005	TC		04/30/99		Technetium 99 in Water
				7108-005	U_T		04/21/99		Uranium, Total in Water
Lab Control Sample			N904013-04	7108-004	80A/80		04/19/99		Gross Alpha in Water
		LIQUID		7108-004	80B/80		04/19/99		Gross Beta in Water
	C99-024			7108-004	C		05/14/99		Carbon 14 in Water
				7108-004	I		05/13/99		Iodine 129 in Water
				7108-004	RAT		05/05/99		Radium 226/228 in Water
				7108-004	TC		04/30/99		Technetium 99 in Water
				7108-004	U_T		04/21/99		Uranium, Total in Water

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 06/01/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0372

SDG 7108
Contact L.A. Johnson

WORK SUMMARY, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED BY	METHOD
Duplicate (N904013-01)			N904013-06	7108-006	80A/80		04/19/99		Gross Alpha in Water
HANFORD SITE		LIQUID	03/31/99	7108-006	80B/80		04/19/99		Gross Beta in Water
	C99-024		04/01/99	7108-006	C		05/14/99		Carbon 14 in Water
				7108-006	I		05/14/99		Iodine 129 in Water
				7108-006	RAT		05/05/99		Radium 226/228 in Water
				7108-006	TC		05/03/99		Technetium 99 in Water
				7108-006	U_T		04/21/99		Uranium, Total in Water

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
80A/80	C99-024	Gross Alpha in Water	EPA900.0	3			1	1	1	6
80B/80	C99-024	Gross Beta in Water	EPA900.0	3			1	1	1	6
C	C99-024	Carbon 14 in Water	C14CHEMLSC	3			1	1	1	6
I	C99-024	Iodine 129 in Water	I129LEPS	3			1	1	1	6
RAT	C99-024	Radium 226/228 in Water		3			1	1	1	6
TC	C99-024	Technetium 99 in Water	TC99TRLSC	3			1	1	1	6
U_T	C99-024	Uranium, Total in Water	UKPA	3			1	1	1	6
TOTALS				21			7	7	7	42

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 06/01/99

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0372

N904013-05

Method Blank

METHOD BLANK

SDG 7108	Client/Case no Hanford	SDG-H0372	
Contact L.A. Johnson	Case no TRB-SBB-207925		
Lab sample id N904013-05	Client sample id Method Blank		
Dept sample id 7108-005	Material/Matrix	LIQUID	
	SAF No C99-024		

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.082	0.48	1	3	U	80A
Gross Beta	12587-47-2	0.62	1.2	2	4	U	80B
Carbon 14	14762-75-5	0.16	0.82	1	100	U	C
Technetium 99	14133-76-7	-0.12	2.0	4	5	U	TC
Total Uranium (ug/L)	7440-61-1	0	0.017	0.04	0.1	U	U_T
Total Radium	7440-14-4	0.034	0.075	0.3	0.5	U	RAT
Iodine 129	15046-84-1	-1.3	1.6	4		U	I

ERDF GW MONITORING, MARCH 1999

QC-BLANK 30475

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 06/01/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0372

N904013-04 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7108 Client/Case no Hanford SDG-H0372

Contact L.A. Johnson Case no TRB-SBB-207925

Lab sample id N904013-04 Client sample id Lab Control Sample

Dept sample id 7108-004 Material/Matrix LIQUID

SAF No C99-024

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	72	5.2	0.9	3		80A	64.0	2.6	112	64-136	80-120
Gross Beta	75	3.7	2	4		80B	76.3	3.1	98	76-124	80-120
Carbon 14	54	1.8	1	100	J	C	63.9	2.6	85	85-115	80-120
Technetium 99	250	9.6	4	5		TC	273	11	92	84-116	80-120
Total Uranium (ug/L)	74	9.3	0.4	0.1	X	U_T	74.2	3.0	100	76-124	80-120
Total Radium	37	1.5	0.2	0.5		RAT	39.3	1.6	94	89-111	80-120
Iodine 129	110	3.7	7			I	116	4.6	95	88-112	

ERDF GW MONITORING, MARCH 1999

QC-LCS 30474

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 06/01/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0372

N904013-06

B0TWB2

DUPLICATE

SDG 7108
Contact L.A. Johnson

DUPLICATE
Lab sample id N904013-06
Dept sample id 7108-006

ORIGINAL
Lab sample id N904013-01
Dept sample id 7108-001
Received 04/01/99

Client/Case no Hanford SDG-H0372
Case no TRB-SBB-207925
Client sample id B0TWB2
Location/Matrix HANFORD SITE LIQUID
Collected 03/31/99 11:28
Custody/SAF No C99-024-2 C99-024

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	1.2	1.5	2	3	U	80A	3.0	1.8	2		86	174
Gross Beta	67	3.5	2	4		80B	67	3.6	3		0	34
Carbon 14	22	16	30	100	U	C	9.9	16	30	U	-	
Technetium 99	75	11	20	5		TC	83	13	20		10	39
Total Uranium (ug/L)	2.8	0.34	0.04	0.1		U_T	2.8	0.34	0.04		0	32
Total Radium	0.004	0.054	0.2	0.5	U	RAT	0.088	0.095	0.2	U	-	
Iodine 129	-7.1	9.4	20		U	I	1.2	3.1	7	U	-	

ERDF GW MONITORING, MARCH 1999

QC-DUP#1 30476

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 06/01/99

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0372

N904013-01 B0TWB2

DATA SHEET

SDG	7108	Client/Case no	Hanford SDG-H0372
Contact	L.A. Johnson	Case no	TRB-SBB-207925
Lab sample id	N904013-01	Client sample id	B0TWB2
Dept sample id	7108-001	Location/Matrix	HANFORD SITE LIQUID
Received	04/01/99	Collected	03/31/99 11:28
		Custody/SAF No	C99-024-2 C99-024

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	3.0	1.8	2	3		80A
Gross Beta	12587-47-2	67	3.6	3	4		80B
Carbon 14	14762-75-5	9.9	16	30	100	U	C
Technetium 99	14133-76-7	83	13	20	5		TC
Total Uranium (ug/L)	7440-61-1	2.8	0.34	0.04	0.1		U_T
Total Radium	7440-14-4	0.088	0.095	0.2	0.5	U	RAT
Iodine 129	15046-84-1	1.2	3.1	7		U	I

ERDF GW MONITORING, MARCH 1999

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/01/99

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0372

N904013-02 B0TWB6

DATA SHEET

SDG	7108	Client/Case no	Hanford SDG-H0372
Contact	L.A. Johnson	Case no	TRB-SBB-207925
Lab sample id	N904013-02	Client sample id	B0TWB6
Dept sample id	7108-002	Location/Matrix	HANFORD SITE LIQUID
Received	04/01/99	Collected	03/31/99 08:20
		Custody/SAF No	C99-024-4 C99-024

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	1.5	1.4	2	3	U	80A
Gross Beta	12587-47-2	27	2.6	3	4		80B
Carbon 14	14762-75-5	-6.5	15	30	100	U	C
Technetium 99	14133-76-7	36	9.2	20	5		TC
Total Uranium (ug/L)	7440-61-1	2.7	0.33	0.04	0.1		U_T
Total Radium	7440-14-4	0.017	0.069	0.2	0.5	U	RAT
Iodine 129	15046-84-1	2.9	2.2	5		U	I

ERDF GW MONITORING, MARCH 1999

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/01/99

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0372

N904013-03 B0TYN6

DATA SHEET

SDG	7108	Client/Case no	Hanford SDG-H0372
Contact	L.A. Johnson	Case no	TRB-SBB-207925
Lab sample id	N904013-03	Client sample id	B0TYN6
Dept sample id	7108-003	Location/Matrix	HANFORD SITE LIQUID
Received	04/01/99	Collected	03/31/99 11:28
		Custody/SAF No	C99-024-10 C99-024

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.13	0.59	1	3	U	80A
Gross Beta	12587-47-2	17	2.0	2	4		80B
Carbon 14	14762-75-5	12	16	30	100	U	C
Technetium 99	14133-76-7	86	7.3	10	5		TC
Total Uranium (ug/L)	7440-61-1	3.0	0.36	0.04	0.1		U_T
Total Radium	7440-14-4	0	0.043	0.2	0.5	U	RAT
Iodine 129	15046-84-1	7.9	2.1	5			I

ERDF GW MONITORING, MARCH 1999

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/01/99

Test TC Matrix LIQUID
SDG 7108
Contact L.A. Johnson

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0372

METHOD SUMMARY

TECHNETIUM 99 IN WATER

BETA COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99
Preparation batch 6880-029					
B0TWB2	N904013-01			7108-001	83
B0TWB6	N904013-02			7108-002	36
B0TYN6	N904013-03			7108-003	86
BLK (QC ID=30475)	N904013-05			7108-005	U
LCS (QC ID=30474)	N904013-04			7108-004	ok
Duplicate (N904013-01)	N904013-06			7108-006	ok
Nominal values and limits from method				RDLs (pCi/L)	5
ERDF GW MONITORING, MARCH 1999					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6880-029	2σ prep error 10.0 %	Reference Lab Notebook 6880 pg.29														
B0TWB2	N904013-01			20	0.0500			44		101			30	04/27/99	04/30	GRB-217
B0TWB6	N904013-02			20	0.0500			29		200			33	04/27/99	05/03	GRB-218
B0TYN6	N904013-03			10	0.0500			48		200			33	04/27/99	05/03	GRB-219
BLK (QC ID=30475)	N904013-05			4	0.200			26		200				04/27/99	04/30	GRB-230
LCS (QC ID=30474)	N904013-04			4	0.200			42		101				04/27/99	04/30	GRB-220
Duplicate (N904013-01) (QC ID=30476)	N904013-06			20	0.0500			30		200			33	04/27/99	05/03	GRB-220
Nominal values and limits from method				5	1.00			20-105		50			180			

PROCEDURES
REFERENCE EP-020 Sample Leach For Technetium-99, rev 0
REFERENCE EP-540 Technetium-99 Purification, rev 0

REFERENCE TC99TRLSC

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 10 ± 20
YIELD 36 ± 18

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/01/99

Test RAT Matrix LIQUID
SDG 7108
Contact L.A. Johnson

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0372

METHOD SUMMARY

RADIUM 226/228 IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Radium	
Preparation batch 6880-029						
B0TWB2	N904013-01			7108-001	U	
B0TWB6	N904013-02			7108-002	U	
B0TYN6	N904013-03			7108-003	U	
BLK (QC ID=30475)	N904013-05			7108-005	U	
LCS (QC ID=30474)	N904013-04			7108-004	ok	
Duplicate (N904013-01)	N904013-06			7108-006	-	U
Nominal values and limits from method				RDLs (pCi/L)	0.5	
ERDF GW MONITORING, MARCH 1999						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6880-029	2σ prep error 5.0 %			Reference Lab Notebook 6880 pg.29												
B0TWB2	N904013-01			0.2	0.500			87	100				35	04/29/99	05/05	GAW-112
B0TWB6	N904013-02			0.2	0.500			93	100				35	04/29/99	05/05	GAW-113
B0TYN6	N904013-03			0.2	0.500			92	100				33	04/29/99	05/03	GAW-112
BLK (QC ID=30475)	N904013-05			0.3	0.300			91	100					04/29/99	05/05	GAW-113
LCS (QC ID=30474)	N904013-04			0.2	0.300			90	100					04/29/99	05/05	GAW-111
Duplicate (N904013-01) (QC ID=30476)	N904013-06			0.2	0.500			88	100				35	04/29/99	05/05	GAW-115
Nominal values and limits from method				0.5	0.300			20-105	100				180			

PROCEDURES EP-700 Total Radium in Water, rev 0

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 0.2 ± 0.08
YIELD 90 ± 5

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/01/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0372

METHOD SUMMARY

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Test 80A Matrix LIQUID
SDG 7108
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 6880-029						
B0TWB2	N904013-01	80		7108-001	3.0	
B0TWB6	N904013-02	80		7108-002	U	
B0TYN6	N904013-03	80		7108-003	U	
BLK (QC ID=30475)	N904013-05	80		7108-005	U	
LCS (QC ID=30474)	N904013-04	80		7108-004	ok	
Duplicate (N904013-01)	N904013-06	80		7108-006	ok	U
Nominal values and limits from method				RDLs (pCi/L)	3	

ERDF GW MONITORING, MARCH 1999

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6880-029	2σ prep error 20.0 %			Reference Lab Notebook 6880 pg.29												
B0TWB2	N904013-01	80		2	0.300			107	100				19	04/13/99	04/19	GRB-116
B0TWB6	N904013-02	80		2	0.300			107	100				19	04/13/99	04/19	GRB-110
B0TYN6	N904013-03	80		1	0.300			29	100				19	04/13/99	04/19	GRB-111
BLK (QC ID=30475)	N904013-05	80		1	0.300			32	100					04/13/99	04/19	GRB-113
LCS (QC ID=30474)	N904013-04	80		0.9	0.300			32	100					04/13/99	04/19	GRB-112
Duplicate (N904013-01) (QC ID=30476)	N904013-06	80		2	0.300			105	100				19	04/13/99	04/19	GRB-114
Nominal values and limits from method				3	0.300			5-150	100				180			

PROCEDURES REFERENCE EPA900.0
EP-120 Gross Alpha and Gross Beta in Environmental Water, rev 2

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 1 ± 1
RESIDUE 69 ± 83

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/01/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0372

METHOD SUMMARY

GROSS BETA IN WATER

GAS PROPORTIONAL COUNTING

Test 80B Matrix LIQUID
SDG 7108
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 6880-029					
B0TWB2	N904013-01	80		7108-001	67
B0TWB6	N904013-02	80		7108-002	27
B0TYN6	N904013-03	80		7108-003	17
BLK (QC ID=30475)	N904013-05	80		7108-005	U
LCS (QC ID=30474)	N904013-04	80		7108-004	ok
Duplicate (N904013-01)	N904013-06	80		7108-006	ok
Nominal values and limits from method				RDLs (pCi/L)	4
ERDF GW MONITORING, MARCH 1999					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6880-029	2σ prep error 15.0 %				Reference Lab Notebook 6880 pg.29											
B0TWB2	N904013-01	80		3	0.300			107	100				19	04/13/99	04/19	GRB-116
B0TWB6	N904013-02	80		3	0.300			107	100				19	04/13/99	04/19	GRB-110
B0TYN6	N904013-03	80		2	0.300			29	100				19	04/13/99	04/19	GRB-111
BLK (QC ID=30475)	N904013-05	80		2	0.300			32	100					04/13/99	04/19	GRB-113
LCS (QC ID=30474)	N904013-04	80		2	0.300			32	100					04/13/99	04/19	GRB-112
Duplicate (N904013-01) (QC ID=30476)	N904013-06	80		2	0.300			105	100				19	04/13/99	04/19	GRB-114
Nominal values and limits from method				4	0.300			5-150	100				180			

PROCEDURES REFERENCE EPA900.0
EP-120 Gross Alpha and Gross Beta in Environmental Water, rev 2

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 2 ± 1
RESIDUE 69 ± 83

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/01/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0372

METHOD SUMMARY

IODINE 129 IN WATER

GAMMA SPECTROSCOPY

Test I Matrix LIQUID
SDG 7108
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Iodine 129
Preparation batch 6880-029					
B0TWB2	N904013-01			7108-001	U
B0TWB6	N904013-02			7108-002	U
B0TYN6	N904013-03			7108-003	7.9
BLK (QC ID=30475)	N904013-05			7108-005	U
LCS (QC ID=30474)	N904013-04			7108-004	ok
Duplicate (N904013-01)	N904013-06			7108-006	- U

Nominal values and limits from method RDLs (pCi/L)
ERDF GW MONITORING, MARCH 1999

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6880-029	2σ prep error 5.0 %			Reference Lab Notebook 6880 pg.29												
B0TWB2	N904013-01			7	0.250			86		400			44	05/10/99	05/14	XSPEC-014
B0TWB6	N904013-02			5	0.250			82		424			43	05/10/99	05/13	XSPEC-014
B0TYN6	N904013-03			5	0.250			84		492			50	05/10/99	05/20	XSPEC-014
BLK (QC ID=30475)	N904013-05			4	0.500			84		255				05/10/99	05/14	XSPEC-014
LCS (QC ID=30474)	N904013-04			7	0.500			82		423				05/10/99	05/13	XSPEC-014
Duplicate (N904013-01) (QC ID=30476)	N904013-06			20	0.250			86		629			44	05/10/99	05/14	XSPEC-011
Nominal values and limits from method					0.500			20-105		200	100					

PROCEDURES REFERENCE I129LEPS
EP-024 Iodine-129, Sample Dissolution, rev 0
EP-560 Iodine-129 Purification, rev 0

AVERAGES ± 2 SD MDA 8 ± 10
FOR 6 SAMPLES YIELD 84 ± 4

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/01/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0372

METHOD SUMMARY

URANIUM, TOTAL IN WATER

KINETIC PHOSPHORIMETRY

Test U T Matrix LIQUID
SDG 7108
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium	
Preparation batch 6880-029						
B0TWB2	N904013-01			7108-001	2.8	
B0TWB6	N904013-02			7108-002	2.7	
B0TYN6	N904013-03			7108-003	3.0	
BLK (QC ID=30475)	N904013-05			7108-005	U	
LCS (QC ID=30474)	N904013-04			7108-004	ok	X
Duplicate (N904013-01)	N904013-06			7108-006	ok	
Nominal values and limits from method				RDLs (ug/L)	0.1	

ERDF GW MONITORING, MARCH 1999

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA ug/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6880-029	2σ prep error 9.0 %	Reference Lab Notebook 6880 pg.29														
B0TWB2	N904013-01			0.04	0.0200								21	04/21/99	04/21	KPA-001
B0TWB6	N904013-02			0.04	0.0200								21	04/21/99	04/21	KPA-001
B0TYN6	N904013-03			0.04	0.0200								21	04/21/99	04/21	KPA-001
BLK (QC ID=30475)	N904013-05			0.04	0.0200									04/21/99	04/21	KPA-001
LCS (QC ID=30474)	N904013-04			0.4	0.0200									04/21/99	04/21	KPA-001
Duplicate (N904013-01) (QC ID=30476)	N904013-06			0.04	0.0200								21	04/21/99	04/21	KPA-001
Nominal values and limits from method				0.1	0.0200								180			

PROCEDURES	REFERENCE	UKPA
	EP-040	Environmental Water Dissolution, rev 1
	EP-044	Preparation of Total Uranium by Kinetic Phosphorimetry, rev 1
	EP-928	Total Uranium by Kinetic Phosphorimetry, rev 0

AVERAGES ± 2 SD FOR 6 SAMPLES
MDA 0.1 ± 0.3
YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/01/99

Test C___ Matrix LIQUID
SDG 7108
Contact L.A. Johnson

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0372

METHOD SUMMARY

CARBON 14 IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14	
Preparation batch 6880-029						
B0TWB2	N904013-01			7108-001	U	
B0TWB6	N904013-02			7108-002	U	
B0TYN6	N904013-03			7108-003	U	
BLK (QC ID=30475)	N904013-05			7108-005	U	
LCS (QC ID=30474)	N904013-04			7108-004	ok	J
Duplicate (N904013-01)	N904013-06			7108-006	-	U

Nominal values and limits from method RDLs (pCi/L) 100
ERDF GW MONITORING, MARCH 1999

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6880-029	2σ prep error 10.0 %				Reference Lab Notebook 6880 pg.29											
B0TWB2	N904013-01			30	0.0500			100		50			44	05/14/99	05/14	LSC-005
B0TWB6	N904013-02			30	0.0500			100		50			44	05/14/99	05/14	LSC-005
B0TYN6	N904013-03			30	0.0500			100		50			44	05/14/99	05/14	LSC-005
BLK (QC ID=30475)	N904013-05			1	1.00			100		50				05/14/99	05/14	LSC-005
LCS (QC ID=30474)	N904013-04			1	1.00			100		50				05/14/99	05/14	LSC-005
Duplicate (N904013-01) (QC ID=30476)	N904013-06			30	0.0500			100		50			44	05/14/99	05/14	LSC-005
Nominal values and limits from method				100	1.00					150			180			

PROCEDURES REFERENCE C14CHEMLSC
EP-240 Carbon-14 in Aqueous Solutions, rev 0

AVERAGES ± 2 SD MDA 20 ± 30
FOR 6 SAMPLES YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/01/99

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0372

REPORT GUIDE

SDG 7108
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

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.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/01/99

SDG 7108
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

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.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/01/99

SDG 7108
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

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.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/01/99

SDG 7108
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

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).

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/01/99

SDG 7108
Contact L.A. Johnson

GUIDE, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

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.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/01/99

SDG 7108
Contact L.A. Johnson

GUIDE, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

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.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/01/99

SDG 7108
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

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.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/01/99

SDG 7108
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

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.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/01/99

SDG 7108
Contact L.A. Johnson

GUIDE, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

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.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/01/99

SDG 7108
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/01/99

SDG 7108
Contact L.A. Johnson

GUIDE, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

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.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/01/99

SDG 7108
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

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'

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 06/01/99

METHOD SUMMARY

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

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* 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.

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

SDG 7108
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0372

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 06/01/99

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C99-024-2

Collector D.E. HOLLINGSWORTH	**Contact/Requester** JH KESSNER	**Telephone No.** (509) 375-4688 **MSIN** **FAX**
SAF No. C99-024	**Sampling Origin** HANFORD SITE	**Purchase Order/Charge Code**
Project Title ERDF GW MONITORING, MARCH 1999	**Logbook No.** WHS-SIML-126	**Ice Chest No.** SIML 437/431 **Temp.** 4 °C
Shipped To (Lab) TMA/RECRA	**Method of Shipment** GOVT. VEHICLE	**Bill of Lading/Air Bill No.** 4235-7952-4170
Protocol CERCLA	**Data Turnaround** 45 Days	**Offsite Property No.**

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS **Hold Time** Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB1 (F)		W	3-31-99	1128	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB2		W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB2		W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB2		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TWB2		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB2		W			1x20-mL P	Activity Scan	None
B0TWB2		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB2		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB2		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB2		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB2		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB2		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH	3-31-99 1300	K.J. Young	3-31-99 1300
Relinquished By	Date/Time	Received By	Date/Time
	3-31-99 1410	Fed Ex	3-31-99
Relinquished By	Date/Time	Received By	Date/Time
Fed Ex	4-1-99 10:30		4-1-99 10:30
Relinquished By	Date/Time	Received By	Date/Time

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wine	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C99-024-4

Collector: D.E. HOLLINGSWORTH	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C99-024	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: ERDF GW MONITORING, MARCH 1999	Logbook No.: WIN-SML-H26	Ice Chest No.: SML 431 Temp.: 4 °C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-4170
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB5 (F)		W	3-31-99	0820	1x1000-mL G/P	ICP Metals - 6010A RCRA GW {Barium, Chromium, Lead, Tin, Vanadium, Zinc}; Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB6		W	↓	↓	3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB6		W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW {Barium, Chromium, Lead, Tin, Vanadium, Zinc}; Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TWB6		W			1x500-mL P	IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Sulfate}	Cool 4C
B0TWB6		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB6		W			1x20-mL P	Activity Scan	None
B0TWB6		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB6		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB6		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB6		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB6		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB6		W	↓	↓	1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH [signature]	3-31-99 1300	K.J. Young [signature]	3-31-99 1300
K.J. Young [signature]	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 1030	[signature] JR. Enurso	4-1-99 10:30

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liquid	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wipe	
W = Water		L = Liquid	
O = Oil		V = Vegetation	
A = Air		X = Other	

FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)	Disposed By	Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C99-024-10

Page 1 of 2

Collector: D.E. HOLLINGSWORTH	Contact/Requester: JH KESSNER	Telephone No.: (509) 375-4688 MSIN FAX
SAF No.: C99-024	Sampling Origin: HANFORD SITE	Purchase Order/Charge Code
Project Title: ERDF GW MONITORING, MARCH 1999	Logbook No.: WHC-SML-H26	Ice Chest No.: SML 427/431 Temp.: 4 °C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-4170
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes ☒ No ☐
FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487)

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TYN5 (F)		W	3-31-99	1128	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TYN6		W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TYN6		W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Arsenic - 7060 - (GFAA); Selenium - 7740 - (GFAA)	HNO3 to pH <2
B0TYN6		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TYN6		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TYN6		W			1x20-mL P	Activity Scan	None
B0TYN6		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TYN6		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TYN6		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TYN6		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TYN6		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TYN6		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
D.E. HOLLINGSWORTH	3-31-99 1300	K.J. Young	3-31-99 1300
K.J. Young	3-31-99 1410	Fed Ex	3-31-99
Fed Ex	4-1-99 10:30	J.R. Corso	4-1-99 10:30

Matrix *

S = Soil	DS = Drum Solid		
SE = Sediment	DL = Drum Liqui		
SO = Solid	T = Tissue		
SL = Sludge	WI = Wipe		
W = Water	L = Liquid		
O = Oil	V = Vegetation		
A = Air	X = Other		

FINAL SAMPLE DISPOSITION Disposal Method (e.g., Return to customer, per lab procedure, used in process) Disposed By Date/Time

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT)
Waste Management		W99-0-0173

PART I - TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
Hanford Technical Services	Environmental Operations	Sampling & Mobile Labs

The following items are to be shipped from ☑ Contractor ☐ Vendor

Routing Fed Ex 423579524170, 4180 ☑ Prepaid ☐ Collect

Shipped to TMA Company 2030 Wright Ave Address Richmond CA 94804 City State Zip Code Country	Off-site Custodian Att: Dolores Sanchez On-site Custodian Payroll No. N/A

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
2	Coolers	Samples double bagged and packed on wet ice. C.O.C #s C99-024-7, -4, -2, -10, -8 Sample #s BOTXP9, WB5, WB6, WB1 Cooler #s SML 427, SML 431 Weight 80 lbs, 87 lbs,	

☐ Classified ☑ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Necessity for the off-site use of this property

☐ Required for Project Work. List Project No. _____

☐ Business Trip

☐ Off-site Assignment

☐ Shipment to Subcontractor. List Subcontract No. _____

☑ Other (Please specify) Samples requires Analysis that are not Available on this Site.

CERTIFICATION OF THE RADIATION MONITORING RELEASE MUST BE SECURED THE SAME DAY THAT MATERIAL IS DELIVERED TO SHIPPING.

RM Clearance for Public Release	RM Survey No.	Date
N/A Don Young	N/A	N/A

Location of and Contact for Property (Name/Phone No./Bldg./Area)
K. J. Young / 372-0060 / 345 / 200

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
3-31-99	08000	N/A

Originated By	Date	Authorized By	Date
K.J. Young	3-31-99	Don Young	3-31-99
Property Representative Signature	Date	Property Management Approval	Date
		Kathy Caley	3/31/99

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature	Date
Jim Fons	3/31/99.

DISTRIBUTION (AFTER FINAL SIGNATURES)

White - Property Management Yellow - Shipping Green - Accounts Payable Pink - Originator Goldenrod - Property Management

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford (PNNL) Date/Time received 4-1-99 10:30

CoC No. C99-024-2, 4, 7, 8 & 10

Container I.D. No. _____ Requested TAT (Days) 45 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: _____			
7.	Number of containers per sample: _____ (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: All the samples and labels were intact

13. Was P.M. notified of any anomalies? Yes [✓] No [ ] Date 4-1-99

14. Received by JP Corso Date: 4-1-99 Time: 10:30

LOGIN

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

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name _____ Date/time _____