RECRA LabNet

a division of Recra Environmental, Inc.

Virtual Laboratories Everywhere

H0368-TMA/RECRA

0051546

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD C99-024
RFW# : 9903L587
SDG# : H0368
SAF# : C99-024

W.O. # : 10985-001-001-9999-00
Date Received: 03-30-99

INORGANIC CASE NARRATIVE

1. This narrative covers the analyses of 4 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 which were received past hold.

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

5. The method blanks were within method criteria.

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

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

8. The replicate analyses were within the 20% Relative Percent Difference (RPD) control limit.

Pat Ez

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

AUG 1999
RECEIVED
EDMC

4-26-99
Date

njp\i03-587

01

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:_____

02

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.

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INORGANICS DATA SUMMARY REPORT 04/23/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9903L587

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0TYN8	Alkalinity	1.0 u	MG/L	1.0	1.0
		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
		Nitrate Nitrite	0.02 u	MG-N/L	0.02	1.0
		Total Dissolved Solids	16	MG/L	5.0	1.0
		Total Organic Halides	24.0 u	UG/L	24.0	2.0
-002	B0TWB0	Alkalinity	143	MG/L	2.0	1.0
		Chloride by IC	19.5	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	19	MG/L	1.2	5.0
		Sulfate by IC	26.8	MG/L	1.2	5.0
		Nitrate Nitrite	4.5	MG-N/L	0.10	5.0
		Total Dissolved Solids	280	MG/L	5.0	1.0
		Total Organic Halides	24.0 u	UG/L	24.0	2.0
-003	B0TWB4	Alkalinity	123	MG/L	2.0	1.0
		Chloride by IC	23.3	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	110	MG/L	5.0	20
		Sulfate by IC	37.3	MG/L	1.2	5.0
		Nitrate Nitrite	24.6	MG-N/L	1.0	50.0
		Total Dissolved Solids	390	MG/L	5.0	1.0
		Total Organic Halides	34.5	UG/L	24.0	2.0
-004	B0TYN4	Alkalinity	1.0 u	MG/L	1.0	1.0
		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
		Nitrate Nitrite	0.02 u	MG-N/L	0.02	1.0
		Total Dissolved Solids	10	MG/L	5.0	1.0
		Total Organic Halides	24.0 u	UG/L	24.0	2.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/23/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9903L587

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	99LAK009-MB1	Alkalinity	0.50 u	MG/L	0.50	2.0
BLANK10	99LIC039-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
		~~Phosphate by IC~~	~~0.25 u~~	~~MG/L~~	~~0.25~~	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	99LN3A22-MB1	Nitrate Nitrite	0.02 u	MG-N/L	0.02	1.0
BLANK10	99LSS028-MB1	Total Dissolved Solids	5.0 u	MG/L	5.0	1.0
BLANK10	99LX039B-MB1	Total Organic Halides	12.0 u	UG/L	12.0	1.0
BLANK10	99LX039A-MB1	Total Organic Halides	12.0 u	UG/L	12.0	1.0

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INORGANICS ACCURACY REPORT 04/23/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9903L587

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B0TWB0	Alkalinity	240	143	100	97.3	1.0
		Chloride by IC	68.2	19.5	50.0	97.3	10.0
		Fluoride by IC	10.8	0.28	10.0	105.2	1.0
		Nitrite by IC	4.6	0.25u	5.0	91.0	1.0
		Nitrate by IC	68	19	50	98.0	10
		Sulfate by IC	75.4	26.8	50.0	97.1	10.0
		Nitrate Nitrite	9.9	4.5	5.0	108.2	10.0
		Nitrate Nitrite MSD	9.9	4.5	5.0	108.0	10.0
		Total Organic Halides	103	1.6	100	101.5	2.0
		Total Organic Halides	100	1.6	100	98.7	2.0
BLANK10	99LAK009-MB1	Alkalinity	99.9	0.50u	100	99.9	2.0
		Alkalinity MSD	100	0.50u	100	100.0	2.0
BLANK10	99LIC039-MB1	Chloride by IC	4.9	0.25u	5.0	98.5	1.0
		Fluoride by IC	10.4	0.50u	10.0	104.1	1.0
		Nitrite by IC	4.9	0.25u	5.0	98.1	1.0
		Nitrate by IC	4.8	0.25u	5.0	96.6	1.0
		~~Phosphate by IC~~	~~4.9~~	~~0.25u~~	~~5.0~~	~~98.0~~	1.0
		Sulfate by IC	4.8	0.25u	5.0	96.0	1.0
BLANK10	99LN3A22-MB1	Nitrate Nitrite	0.50	0.02u	0.50	101.0	1.0
		Nitrate Nitrite MSD	0.50	0.02u	0.50	101.0	1.0
BLANK10	99LSS028-MB1	Total Dissolved Solids	100	5.0 u	100	101.0	1.0
		Total Dissolved Solids	100	5.0 u	100	100	1.0
LCS10	99LX039B-LC1	Total Organic Halides	49.7	12.0 u	50.0	99.4	1.0
LCS20	99LX039B-LC2	Total Organic Halides	51.1	12.0 u	50.0	102.1	1.0
LCS10	99LX039A-LC1	Total Organic Halides	49.7	12.0 u	50.0	99.4	1.0
LCS20	99LX039A-LC2	Total Organic Halides	51.1	12.0 u	50.0	102.1	1.0

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INORGANICS DUPLICATE SPIKE REPORT 04/23/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9903L587

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-002	B0TWB0	Nitrate Nitrite	108.2	108.0	0.19
		Total Organic Halides	101.5	98.7	2.8
BLANK10	99LAK009-MB1	Alkalinity	99.9	100.0	0.098
BLANK10	99LN3A22-MB1	Nitrate Nitrite	101.0	101.0	0.00
BLANK10	99LSS028-MB1	Total Dissolved Solids	101.0	100	1.0
LCS20	99LX039B-LC2	Total Organic Halides	99.4	102.1	2.7
LCS20	99LX039A-LC2	Total Organic Halides	99.4	102.1	2.7

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INORGANICS PRECISION REPORT 04/23/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9903L587

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	B0TWB0	Alkalinity	143	144	0.41	1.0
		Chloride by IC	19.5	20.1	3.0	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	19	19	1.7	5.0
		Sulfate by IC	26.8	26.7	0.70	5.0
		Nitrate Nitrite	4.5	4.5	0.00	5.0
		Total Dissolved Solids	280	280	1.4	1.0
		Total Organic Halides	24.0 u	24.0 u	NC	2.0

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INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD C99-024

DATE RECEIVED: 03/30/99 RFW LOT # :9903L587

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TYN8						
ALKALINITY	001	W	99LAK009	03/25/99	04/01/99	04/01/99
CHLORIDE BY IC	001	W	99LIC039	03/25/99	04/02/99	04/02/99
FLUORIDE BY IC	001	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRITE BY IC	001	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRATE BY IC	001	W	99LIC039	03/25/99	04/02/99	04/02/99
SULFATE BY IC	001	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRATE NITRITE	001	W	99LN3A22	03/25/99	04/02/99	04/02/99
TOTAL DISSOLVED SOLI	001	W	99LSS028	03/25/99	03/31/99	04/01/99
TOTAL ORGANIC HALIDE	001	W	99LX039B	03/25/99	04/20/99	04/20/99
B0TWB0						
ALKALINITY	002	W	99LAK009	03/25/99	04/01/99	04/01/99
ALKALINITY	002 REP	W	99LAK009	03/25/99	04/01/99	04/01/99
ALKALINITY	002 MS	W	99LAK009	03/25/99	04/01/99	04/01/99
CHLORIDE BY IC	002	W	99LIC039	03/25/99	04/02/99	04/02/99
CHLORIDE BY IC	002 REP	W	99LIC039	03/25/99	04/02/99	04/02/99
CHLORIDE BY IC	002 MS	W	99LIC039	03/25/99	04/02/99	04/02/99
FLUORIDE BY IC	002	W	99LIC039	03/25/99	04/02/99	04/02/99
FLUORIDE BY IC	002 REP	W	99LIC039	03/25/99	04/02/99	04/02/99
FLUORIDE BY IC	002 MS	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRITE BY IC	002	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRITE BY IC	002 REP	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRITE BY IC	002 MS	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRATE BY IC	002	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRATE BY IC	002 REP	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRATE BY IC	002 MS	W	99LIC039	03/25/99	04/02/99	04/02/99
SULFATE BY IC	002	W	99LIC039	03/25/99	04/02/99	04/02/99
SULFATE BY IC	002 REP	W	99LIC039	03/25/99	04/02/99	04/02/99
SULFATE BY IC	002 MS	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRATE NITRITE	002	W	99LN3A22	03/25/99	04/02/99	04/02/99
NITRATE NITRITE	002 REP	W	99LN3A22	03/25/99	04/02/99	04/02/99
NITRATE NITRITE	002 MS	W	99LN3A22	03/25/99	04/02/99	04/02/99
NITRATE NITRITE	002 MSD	W	99LN3A22	03/25/99	04/02/99	04/02/99
TOTAL DISSOLVED SOLI	002	W	99LSS028	03/25/99	03/31/99	04/01/99

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

DATE RECEIVED: 03/30/99 RFW LOT # :9903L587

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
TOTAL DISSOLVED SOLI	002 REP	W	99LSS028	03/25/99	03/31/99	04/01/99
TOTAL ORGANIC HALIDE	002	W	99LX039A	03/25/99	04/20/99	04/20/99
TOTAL ORGANIC HALIDE	002 REP	W	99LX039A	03/25/99	04/20/99	04/20/99
TOTAL ORGANIC HALIDE	002 MS	W	99LX039A	03/25/99	04/20/99	04/20/99
TOTAL ORGANIC HALIDE	002 MSD	W	99LX039A	03/25/99	04/20/99	04/20/99
B0TWB4						
ALKALINITY	003	W	99LAK009	03/25/99	04/01/99	04/01/99
CHLORIDE BY IC	003	W	99LIC039	03/25/99	04/02/99	04/02/99
FLUORIDE BY IC	003	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRITE BY IC	003	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRATE BY IC	003	W	99LIC039	03/25/99	04/02/99	04/02/99
SULFATE BY IC	003	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRATE NITRITE	003	W	99LN3A22	03/25/99	04/02/99	04/02/99
TOTAL DISSOLVED SOLI	003	W	99LSS028	03/25/99	03/31/99	04/01/99
TOTAL ORGANIC HALIDE	003	W	99LX039B	03/25/99	04/20/99	04/20/99
B0TYN4						
ALKALINITY	004	W	99LAK009	03/25/99	04/01/99	04/01/99
CHLORIDE BY IC	004	W	99LIC039	03/25/99	04/02/99	04/02/99
FLUORIDE BY IC	004	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRITE BY IC	004	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRATE BY IC	004	W	99LIC039	03/25/99	04/02/99	04/02/99
SULFATE BY IC	004	W	99LIC039	03/25/99	04/02/99	04/02/99
NITRATE NITRITE	004	W	99LN3A22	03/25/99	04/02/99	04/02/99
TOTAL DISSOLVED SOLI	004	W	99LSS028	03/25/99	03/31/99	04/01/99
TOTAL ORGANIC HALIDE	004	W	99LX039B	03/25/99	04/20/99	04/20/99
LAB QC:						
ALKALINITY	MB1	W	99LAK009	N/A	04/01/99	04/01/99
ALKALINITY	MB1 BS	W	99LAK009	N/A	04/01/99	04/01/99
ALKALINITY	MB1 BSD	W	99LAK009	N/A	04/01/99	04/01/99
CHLORIDE BY IC	MB1	W	99LIC039	N/A	04/02/99	04/02/99
CHLORIDE BY IC	MB1 BS	W	99LIC039	N/A	04/02/99	04/02/99
FLUORIDE BY IC	MB1	W	99LIC039	N/A	04/02/99	04/02/99

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

DATE RECEIVED: 03/30/99 RFW LOT # :9903L587

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
FLUORIDE BY IC	MB1 BS	W	99LIC039	N/A	04/02/99	04/02/99
NITRITE BY IC	MB1	W	99LIC039	N/A	04/02/99	04/02/99
NITRITE BY IC	MB1 BS	W	99LIC039	N/A	04/02/99	04/02/99
NITRATE BY IC	MB1	W	99LIC039	N/A	04/02/99	04/02/99
NITRATE BY IC	MB1 BS	W	99LIC039	N/A	04/02/99	04/02/99
SULFATE BY IC	MB1	W	99LIC039	N/A	04/02/99	04/02/99
SULFATE BY IC	MB1 BS	W	99LIC039	N/A	04/02/99	04/02/99
NITRATE NITRITE	MB1	W	99LN3A22	N/A	04/02/99	04/02/99
NITRATE NITRITE	MB1 BS	W	99LN3A22	N/A	04/02/99	04/02/99
NITRATE NITRITE	MB1 BSD	W	99LN3A22	N/A	04/02/99	04/02/99
TOTAL DISSOLVED SOLI	MB1	W	99LSS028	N/A	03/31/99	04/01/99
TOTAL DISSOLVED SOLI	MB1 BS	W	99LSS028	N/A	03/31/99	04/01/99
TOTAL DISSOLVED SOLI	MB1 BSD	W	99LSS028	N/A	03/31/99	04/01/99
TOTAL ORGANIC HALIDE	LC1 BS	W	99LX039B	N/A	04/20/99	04/20/99
TOTAL ORGANIC HALIDE	LC2 BSD	W	99LX039B	N/A	04/20/99	04/20/99
TOTAL ORGANIC HALIDE	MB1	W	99LX039B	N/A	04/20/99	04/20/99
TOTAL ORGANIC HALIDE	LC1 BS	W	99LX039A	N/A	04/20/99	04/20/99
TOTAL ORGANIC HALIDE	LC2 BSD	W	99LX039A	N/A	04/20/99	04/20/99
TOTAL ORGANIC HALIDE	MB1	W	99LX039A	N/A	04/20/99	04/20/99

RECRA LabNet Use Only
9903L587

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

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: 3/30/99 Date Due: 4/29/99
Account #:

		VOA	BNA	Pest/PCB	Herb	Metal	CN					
Refrigerator #		1				3		3				
#/Type Container	Liquid	3g				1p		1p	1p	1pg	1p	1p
	Solid											
Volume	Liquid	40				1L		500	500	500	500	500
	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

RECRA LabNet Use Only

Lab ID	Client ID/Description	MS	MSD	Matrix	Date Collected	Time Collected	0624H	①	②	ITDS	ITCX	IN3N2	IALKL
001	BØTYN8			W	3/25/99	1030	✓	✓	✓	✓	✓	✓	✓
2	WBØ	X	X	↓	↓	0946	✓	✓	✓	✓	✓	✓	✓
3	WB4			↓	↓	1153	✓	✓	✓	✓	✓	✓	✓
4	YN4			↓	↓	0730	✓	✓	✓	✓	✓	✓	✓
5	YN3			↓	↓	0730		✓					
6	WB3			↓	↓	1153		✓					
7	W99			↓	↓	0946	✓ (crossed out, 3/30/99)	✓					
8	YN7			↓	↓	1030		✓					
9	XP7			↓	↓	0730	✓						
010	XP8			↓	↓	1030	✓						

Special Instructions:
Saf # C99-024
Sdg # H0368

COMPOSITE WASTE

DATE/REVISIONS:
1. ① = Ba, Cr, Pb, Sn, V, Zn, As, Se,
2. ② = ICCL, ICFL, ICNO2, ICNO3, ICSO4
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
Decker	Fowler	3/30/99	0930

ORIGINAL REWRITTEN

Relinquished by	Received by	Date	Time

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
*808247160141 ICNO2, ICNO3 add

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 3.6 C

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0368 ENV

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

Page 1 of 2

Collector: R.T SICKLE	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-1426	Ice Chest No.: SML 417 Temp.: 4°C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-3975
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: N/A

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
B0TW99 (F)	007	W	3/25/99	0946	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
B0TWB0	002	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB0		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
B0TWB0		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TWB0		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB0		W			1x20-mL P	Activity Scan	None
B0TWB0		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB0		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB0		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB0		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB0		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB0		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

	Print	Sign	Date/Time
Relinquished By	R.T SICKLE		MAR 25 1999 1300
Received By	K.L Jones		3-25-99 MAR 25 1999 1300
Relinquished By			3-25-99 1400
Received By	Fed Ex		3-26-99
Relinquished By	Fed Ex		3-26-99 11:00
Received By	TR Cole		3-26-99 11:00
Relinquished By	Fedex		
Received By	Fedex		3/30/99 0930

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

H6368

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

Page 2 of 2

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB0	002	W	3/25/99	0946	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
	R.T SICKLE		MAR 2 5 1999 1300		K.I. Jong		3/25/99 1300 MAR 2 5 1999
Relinquished By			Date/Time	Received By			Date/Time
	J-25-99		1400		Fed Ex		3-25-99
Relinquished By			Date/Time	Received By			Date/Time
Fed Ex			3-26-99 11:00				
Relinquished By			Date/Time	Received By			Date/Time
							3/30/99 0930

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

H0368

C.O.C. # C99-024-

Page 1 of 2

Collector R.T SICKLE	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 395	Temp. 4°C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7952 3964	
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. N/A	

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
B0TWB3 (F)	006	W	3/25/99	1153	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
B0TWB4	003	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB4		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
B0TWB4		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TWB4		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB4		W			1x20-mL P	Activity Scan	None
B0TWB4		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB4		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB4		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB4		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB4		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB4		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By	Date/Time	Received By	Date/Time
Print R.T SICKLE Sign [signature]	MAR 25 1999 1300	Print K.J. Jones Sign Don Jones	3/25/99 1300 MAR 25 1999
Don Jones	3/25/99 1400	Fed Ex	3-25-99
Fed Ex	3-26-99 11:00	[signature] JR Corse	3-26-99 11:00
[signature]		[signature]	3/30/99 0930

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 | Date/Time

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

170368

C.O.C. # C99-024-3

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB4	003	W	3/25/99	1153	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
	R.T SICKLE		MAR 2 5 1999		K.J. Young		3/23/99 1300 MAR 2 5 1999
	Don Young		3/23/99 1400		Fed Ex		3-25-99
	Fed Ex		3-26-99 11:00		JR Corso		3-26-99 11:00
	Decker				Decker		3/30/99 0830

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

H0368

C.O.C. # C99-024-5

Page 1 of 1

Collector: R.T SICKLE	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-91NL-N26	Ice Chest No.: SMI 417 Temp. 4°C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-3975
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
B0TXP7	004	W	3-25-99	0730	3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TXP7	↓	W	↓	↓	1x20-mL P	Activity Scan	None

Relinquished By	Date/Time	Received By	Date/Time
R.T SICKLE [signature]	3-25-99 1300	K.J. Young [signature]	3-25-99 1300
[signature]	3-25-99 1400	Fed Ex	3-25-99
Fed Ex	3-26-99 11:00	[signature] JR Corso	3-26-99 11:00
Fedex		[signature]	3/30/99 0930

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

C.O.C. # C99-024-6

H0368

Page 1 of 100

Collector: SICKLE R.T.	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 395 — Temp.: 4 °C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-3964
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
B0TXP8	010	W	3/25/99	1030	3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TXP8	↓	W	↓	↓	1x20-mL P	Activity Scan	None

Relinquished By	Date/Time	Received By	Date/Time
Print: R.T SICKLE Sign: [signature]	MAR 25 1999 1300	K.J. Young Print / Sign: [signature] 3/25/99 1300	MAR 25 1999
[signature]	3-25-99 1400	Fed Ex	3-25-99
Fed Ex	3-26-99 11:00	[signature] JR Coover	3-26-99 11:22
Decker		[signature]	3/30/99 0930

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

H0368

C.O.C. # C99-024-9

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 417 Temp. 4 °C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235-7952-3975
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes [X] 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
B0TYN3 (F)	005	W	3-25-99	0730	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
B0TYN4	004	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TYN4		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
B0TYN4		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TYN4		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TYN4		W			1x20-mL P	Activity Scan	None
B0TYN4		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TYN4		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TYN4		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TYN4		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TYN4		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TYN4		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By D.E. HOLLINGSWORTH Sign D. Hollingsworth Date/Time MAR 25 1999 1300	Received By Print KJ Lang Sign Date/Time 1350 MAR 25 1999	Matrix *	
Relinquished By Date/Time 3/25/99 1400	Received By Fed Ex Date/Time 3-25-99	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
Relinquished By Fed Ex Date/Time 3-26-99 11:00	Received By JR Cerso JR Cerso Date/Time 3-26-99 11:00		
Relinquished By Date/Time	Received By Date/Time 3/30/99		

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

H0368

COC # C99-024-9

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
B0TYN4	0124	W	7-25-99	0730	1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C

Relinquished By	Date/Time	Received By	Date/Time
D.E. HOLLINGSWORTH (Print) / [signature] (Sign)	MAR 2 5 1999 1300	K.J. Young (Print) / [signature] (Sign) 1300	MAR 2 5 1999
[signature] 3-25-99	1400	Fed Ex	3-25-99
Fed Ex 3-26-99	11:00	[signature] JR Corso 3-26-99	11:20
[signature]		[signature]	3/30/99 08/30

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. # C99-024-11

Page 1 of 2

Collector: RT SICKLE	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.	Ice Chest No.: SML 395 Temp.: 4°C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-7964
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
B0TYN7 (F)	008	W	3/25/99	1030	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
B0TYN8	001	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TYN8		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
B0TYN8		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TYN8		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TYN8		W			1x20-mL P	Activity Scan	None
B0TYN8		W			2x1000 mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TYN8		W			5x1000-mL G/P	Iodine-129; Carbon 14	None
B0TYN8		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TYN8		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TYN8		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TYN8		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
	R.T SICKLE	MAR 2 5 1999 1300		K.J. Lang	3/25/99 MAR 2 5 1999 1300
				Ted Ex	3-25-99
				JR Corso	3-26-99 01:00
					3/30/99 0930

Matrix *

S = Soil		DS = Drum Solid	
SE = Sediment		DL = Drum Liqui	
SO = Solid		T = Tissue	
SL = Sludge		WI = Wire	
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. # C99-024-11

22

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
B0TYN8	001	W	3/25/99	1030	1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C

Relinquished By	Date/Time	Received By	Date/Time
Print: R.T SICKLE Sign: [signature]	MAR 2 5 1999 1300	Print: K.J. [signature] Sign: [signature] 3/25/99	MAR 2 5 1999 1300
[signature] 3/25/99	1400	Fed Ex	3-25-99
Fed Ex 3-26-99	11:00	[signature] JR Corso	3-26-99 11:00
[signature]		[signature]	3/30/99 0930

Matrix *

S = Soil	SE = Sediment	SO = Solid	SL = Sludge
W = Water	O = Oil	A = Air	DS = Drum Solid
DL = Drum Liquid	T = Tissue	WI = Wire	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

ORIGINAL

SDR # B99-028
Revision #: 0
Date Initiated: 4/6/99

SAMPLE DISPOSITION RECORD

SAF: C99-024
OU: NA
Project ID: ERDFMAR99
Task ID: NA
Sampling Event: ERDFMAR99

Laboratory: TMA/RECRA

Task Manager: J. V. Borghese

Sampling Information:
Number of Samples: 16
ID Numbers: B0TWB0, B0TWB3, B0TWB4, B0TXP7, B0TXP8, B0TYN3, B0TYN4, B0TYN7, B0TYN8, B0TW99, B0TWB2, B0TWB5, B0TWB6, B0TYN6, B0TWB1, B0TYN5
Matrix: Water
Collection Date: 03/25/99 – 03/31/99

Issue Background:

Class: ☐ Project Data Use ☒ General Laboratory Direction ☐ Validation Direction ☐ Sample Management Direction

Type: Other General Laboratory Direction
Description: Change of analytical method for Arsenic and Selenium

Disposition:

Description: These samples were originally to be analyzed for Arsenic and Selenium using methods 7060 and 7740, respectively. The RECRA laboratory inquired whether method 6010A ICP-Trace could be substituted for methods 7060 and 7740. After consultation with the client and review of project data needs, it was determined that method 6010A ICP-Trace can be substituted for methods 7060 and 7740.

Justification: Project does not require a specific method for Arsenic and Selenium. The 6010A ICP-Trace method can meet the CRDLs for Arsenic and Selenium.

Approval Signatures:

S. J. Trent — 4/12/99
Project Coordinator (Print/Sign Name) — Date

J. V. Borghese — 4/30/99
Task Manager (Print/Sign Name) — Date

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

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD C99-024
RFW# : 9903L587
SDG/SAF# : H0368/C99-024

W.O.# : 10985-001-001-9999-00
Date Received: 03-30-99

METALS CASE NARRATIVE

1. This narrative covers the analyses of 8 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.

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

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

Date

mld/m03-587

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 9903L587

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 #: 9903L587

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0TYN8	Arsenic, Total	3.3	u	UG/L	3.3	1.0
		Barium, Total	0.48		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	2.7	u	UG/L	2.7	1.0
		Vanadium, Total	0.60	u	UG/L	0.60	1.0
		Zinc, Total	0.80	u	UG/L	0.80	1.0
-002	B0TWB0	Arsenic, Total	3.3	u	UG/L	3.3	1.0
		Barium, Total	42.1		UG/L	0.10	1.0
		Chromium, Total	16.0		UG/L	0.60	1.0
		Lead, Total	1.8	u	UG/L	1.8	1.0
		Selenium, Total	3.8		UG/L	3.6	1.0
		Tin, Total	2.7	u	UG/L	2.7	1.0
		Vanadium, Total	29.5		UG/L	0.60	1.0
		Zinc, Total	2.9		UG/L	0.80	1.0
-003	B0TWB4	Arsenic, Total	3.3	u	UG/L	3.3	1.0
		Barium, Total	78.3		UG/L	0.10	1.0
		Chromium, Total	19.8		UG/L	0.60	1.0
		Lead, Total	1.8	u	UG/L	1.8	1.0
		Selenium, Total	8.3		UG/L	3.6	1.0
		Tin, Total	2.7	u	UG/L	2.7	1.0
		Vanadium, Total	27.4		UG/L	0.60	1.0
		Zinc, Total	1.2		UG/L	0.80	1.0
-004	B0TYN4	Arsenic, Total	3.3	u	UG/L	3.3	1.0
		Barium, Total	0.33		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	2.7	u	UG/L	2.7	1.0
		Vanadium, Total	0.60	u	UG/L	0.60	1.0
		Zinc, Total	4.3		UG/L	0.80	1.0

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INORGANICS DATA SUMMARY REPORT 04/16/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9903L587

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B0TYN3	Arsenic, Total	3.3	u	UG/L	3.3	1.0
		Barium, Total	0.34		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	2.7	u	UG/L	2.7	1.0
		Vanadium, Total	0.60	u	UG/L	0.60	1.0
		Zinc, Total	0.80	u	UG/L	0.80	1.0
-006	B0TWB3	Arsenic, Total	3.3	u	UG/L	3.3	1.0
		Barium, Total	72.8		UG/L	0.10	1.0
		Chromium, Total	5.1		UG/L	0.60	1.0
		Lead, Total	1.8	u	UG/L	1.8	1.0
		Selenium, Total	7.6		UG/L	3.6	1.0
		Tin, Total	2.7	u	UG/L	2.7	1.0
		Vanadium, Total	25.2		UG/L	0.60	1.0
		Zinc, Total	0.80	u	UG/L	0.80	1.0
-007	B0TW99	Arsenic, Total	3.3	u	UG/L	3.3	1.0
		Barium, Total	40.5		UG/L	0.10	1.0
		Chromium, Total	13.9		UG/L	0.60	1.0
		Lead, Total	1.8	u	UG/L	1.8	1.0
		Selenium, Total	5.2		UG/L	3.6	1.0
		Tin, Total	2.7	u	UG/L	2.7	1.0
		Vanadium, Total	28.3		UG/L	0.60	1.0
		Zinc, Total	2.6		UG/L	0.80	1.0
-008	B0TYN7	Arsenic, Total	3.3	u	UG/L	3.3	1.0
		Barium, Total	0.18		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	2.7	u	UG/L	2.7	1.0
		Vanadium, Total	0.60	u	UG/L	0.60	1.0
		Zinc, Total	1.1		UG/L	0.80	1.0

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INORGANICS METHOD BLANK DATA SUMMARY PAGE 04/16/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9903L587

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

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INORGANICS ACCURACY REPORT 04/16/99

CLIENT: TNU-HANFORD C99-024

RECRA LOT #: 9903L587

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B0TWB0	Arsenic, Total	1910	3.3 u	2000	95.7	1.0
		Barium, Total	1930	42.1	2000	94.3	1.0
		Chromium, Total	203	16.0	200	93.6	1.0
		Lead, Total	474	1.8 u	500	94.8	1.0
		Selenium, Total	1900	3.8	2000	94.8	1.0
		Tin, Total	961	2.7 u	1000	96.1	1.0
		Vanadium, Total	505	29.5	500	95.1	1.0
		Zinc, Total	462	2.9	500	91.8	1.0

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INORGANICS PRECISION REPORT 04/16/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9903L587

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	B0TWB0	Arsenic, Total	3.3 u	3.3 u	NC	1.0
		Barium, Total	42.1	42.7	1.4	1.0
		Chromium, Total	16.0	14.7	8.5	1.0
		Lead, Total	1.8 u	1.8 u	NC	1.0
		Selenium, Total	3.8	4.2	10	1.0
		Tin, Total	2.7 u	2.7 u	NC	1.0
		Vanadium, Total	29.5	29.2	1.0	1.0
		Zinc, Total	2.9	3.8	26.9	1.0

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INORGANICS LABORATORY CONTROL STANDARDS REPORT 04/16/99

CLIENT: TNU-HANFORD C99-024 RECRA LOT #: 9903L587

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: 03/30/99 RFW LOT # :9903L587

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TYN8						
ARSENIC, TOTAL	001	W	99L0210	03/25/99	04/05/99	04/06/99
BARIUM, TOTAL	001	W	99L0210	03/25/99	04/05/99	04/06/99
CHROMIUM, TOTAL	001	W	99L0210	03/25/99	04/05/99	04/06/99
LEAD, TOTAL	001	W	99L0210	03/25/99	04/05/99	04/06/99
SELENIUM, TOTAL	001	W	99L0210	03/25/99	04/05/99	04/06/99
TIN, TOTAL	001	W	99L0210	03/25/99	04/05/99	04/06/99
VANADIUM, TOTAL	001	W	99L0210	03/25/99	04/05/99	04/06/99
ZINC, TOTAL	001	W	99L0210	03/25/99	04/05/99	04/06/99
B0TWB0						
ARSENIC, TOTAL	002	W	99L0210	03/25/99	04/05/99	04/06/99
ARSENIC, TOTAL	002 REP	W	99L0210	03/25/99	04/05/99	04/06/99
ARSENIC, TOTAL	002 MS	W	99L0210	03/25/99	04/05/99	04/06/99
BARIUM, TOTAL	002	W	99L0210	03/25/99	04/05/99	04/06/99
BARIUM, TOTAL	002 REP	W	99L0210	03/25/99	04/05/99	04/06/99
BARIUM, TOTAL	002 MS	W	99L0210	03/25/99	04/05/99	04/06/99
CHROMIUM, TOTAL	002	W	99L0210	03/25/99	04/05/99	04/06/99
CHROMIUM, TOTAL	002 REP	W	99L0210	03/25/99	04/05/99	04/06/99
CHROMIUM, TOTAL	002 MS	W	99L0210	03/25/99	04/05/99	04/06/99
LEAD, TOTAL	002	W	99L0210	03/25/99	04/05/99	04/06/99
LEAD, TOTAL	002 REP	W	99L0210	03/25/99	04/05/99	04/06/99
LEAD, TOTAL	002 MS	W	99L0210	03/25/99	04/05/99	04/06/99
SELENIUM, TOTAL	002	W	99L0210	03/25/99	04/05/99	04/06/99
SELENIUM, TOTAL	002 REP	W	99L0210	03/25/99	04/05/99	04/06/99
SELENIUM, TOTAL	002 MS	W	99L0210	03/25/99	04/05/99	04/06/99
TIN, TOTAL	002	W	99L0210	03/25/99	04/05/99	04/06/99
TIN, TOTAL	002 REP	W	99L0210	03/25/99	04/05/99	04/06/99
TIN, TOTAL	002 MS	W	99L0210	03/25/99	04/05/99	04/06/99
VANADIUM, TOTAL	002	W	99L0210	03/25/99	04/05/99	04/06/99
VANADIUM, TOTAL	002 REP	W	99L0210	03/25/99	04/05/99	04/06/99
VANADIUM, TOTAL	002 MS	W	99L0210	03/25/99	04/05/99	04/06/99
ZINC, TOTAL	002	W	99L0210	03/25/99	04/05/99	04/06/99
ZINC, TOTAL	002 REP	W	99L0210	03/25/99	04/05/99	04/06/99
ZINC, TOTAL	002 MS	W	99L0210	03/25/99	04/05/99	04/06/99

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

DATE RECEIVED: 03/30/99 RFW LOT # :9903L587

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TWB4						
ARSENIC, TOTAL	003	W	99L0210	03/25/99	04/05/99	04/06/99
BARIUM, TOTAL	003	W	99L0210	03/25/99	04/05/99	04/06/99
CHROMIUM, TOTAL	003	W	99L0210	03/25/99	04/05/99	04/06/99
LEAD, TOTAL	003	W	99L0210	03/25/99	04/05/99	04/06/99
SELENIUM, TOTAL	003	W	99L0210	03/25/99	04/05/99	04/06/99
TIN, TOTAL	003	W	99L0210	03/25/99	04/05/99	04/06/99
VANADIUM, TOTAL	003	W	99L0210	03/25/99	04/05/99	04/06/99
ZINC, TOTAL	003	W	99L0210	03/25/99	04/05/99	04/06/99
B0TYN4						
ARSENIC, TOTAL	004	W	99L0210	03/25/99	04/05/99	04/06/99
BARIUM, TOTAL	004	W	99L0210	03/25/99	04/05/99	04/06/99
CHROMIUM, TOTAL	004	W	99L0210	03/25/99	04/05/99	04/06/99
LEAD, TOTAL	004	W	99L0210	03/25/99	04/05/99	04/06/99
SELENIUM, TOTAL	004	W	99L0210	03/25/99	04/05/99	04/06/99
TIN, TOTAL	004	W	99L0210	03/25/99	04/05/99	04/06/99
VANADIUM, TOTAL	004	W	99L0210	03/25/99	04/05/99	04/06/99
ZINC, TOTAL	004	W	99L0210	03/25/99	04/05/99	04/06/99
B0TYN3						
ARSENIC, TOTAL	005	W	99L0210	03/25/99	04/05/99	04/06/99
BARIUM, TOTAL	005	W	99L0210	03/25/99	04/05/99	04/06/99
CHROMIUM, TOTAL	005	W	99L0210	03/25/99	04/05/99	04/06/99
LEAD, TOTAL	005	W	99L0210	03/25/99	04/05/99	04/06/99
SELENIUM, TOTAL	005	W	99L0210	03/25/99	04/05/99	04/06/99
TIN, TOTAL	005	W	99L0210	03/25/99	04/05/99	04/06/99
VANADIUM, TOTAL	005	W	99L0210	03/25/99	04/05/99	04/06/99
ZINC, TOTAL	005	W	99L0210	03/25/99	04/05/99	04/06/99
B0TWB3						
ARSENIC, TOTAL	006	W	99L0210	03/25/99	04/05/99	04/06/99
BARIUM, TOTAL	006	W	99L0210	03/25/99	04/05/99	04/06/99

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

DATE RECEIVED: 03/30/99 RFW LOT # :9903L587

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	006	W	99L0210	03/25/99	04/05/99	04/06/99
LEAD, TOTAL	006	W	99L0210	03/25/99	04/05/99	04/06/99
SELENIUM, TOTAL	006	W	99L0210	03/25/99	04/05/99	04/06/99
TIN, TOTAL	006	W	99L0210	03/25/99	04/05/99	04/06/99
VANADIUM, TOTAL	006	W	99L0210	03/25/99	04/05/99	04/06/99
ZINC, TOTAL	006	W	99L0210	03/25/99	04/05/99	04/06/99
B0TW99						
ARSENIC, TOTAL	007	W	99L0210	03/25/99	04/05/99	04/06/99
BARIUM, TOTAL	007	W	99L0210	03/25/99	04/05/99	04/06/99
CHROMIUM, TOTAL	007	W	99L0210	03/25/99	04/05/99	04/06/99
LEAD, TOTAL	007	W	99L0210	03/25/99	04/05/99	04/06/99
SELENIUM, TOTAL	007	W	99L0210	03/25/99	04/05/99	04/06/99
TIN, TOTAL	007	W	99L0210	03/25/99	04/05/99	04/06/99
VANADIUM, TOTAL	007	W	99L0210	03/25/99	04/05/99	04/06/99
ZINC, TOTAL	007	W	99L0210	03/25/99	04/05/99	04/06/99
B0TYN7						
ARSENIC, TOTAL	008	W	99L0210	03/25/99	04/05/99	04/06/99
BARIUM, TOTAL	008	W	99L0210	03/25/99	04/05/99	04/06/99
CHROMIUM, TOTAL	008	W	99L0210	03/25/99	04/05/99	04/06/99
LEAD, TOTAL	008	W	99L0210	03/25/99	04/05/99	04/06/99
SELENIUM, TOTAL	008	W	99L0210	03/25/99	04/05/99	04/06/99
TIN, TOTAL	008	W	99L0210	03/25/99	04/05/99	04/06/99
VANADIUM, TOTAL	008	W	99L0210	03/25/99	04/05/99	04/06/99
ZINC, TOTAL	008	W	99L0210	03/25/99	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

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

DATE RECEIVED: 03/30/99 RFW LOT # :9903L587

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
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: 99032587

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: INEL-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: 3/30/99 Date Due: 4/29/99
Account #:

Refrigerator #		1	3	3				
#/Type Container	Liquid	3g	1p	1p	1p	1pg	1p	1p
	Solid							
Volume	Liquid	40	1L	500	500	500	500	500
	Solid							
Preservatives		HCl	HNO3	–	–	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	MS	MSD	Matrix	Date Collected	Time Collected	VOA (OU24H)	Metal (①)	②	ITDS	ITOX	ICN3N2	IALKL
001	B0TYN8			W	3/25/99	1030	✓	✓	✓	✓	✓	✓	✓
2	WB0	X	X			0946	✓	✓	✓	✓	✓	✓	✓
3	WB4					1153	✓	✓	✓	✓	✓	✓	✓
4	YN4					0730	✓	✓	✓	✓	✓	✓	✓
5	YN3					0730		✓					
6	WB3					1153		✓					
7	W99					0946	~~✓~~ 3/30/99	✓					
8	YN7					1030		✓					
9	XP7					0730	✓						
010	XP8					1030	✓						

Special Instructions:
saf # C99-024
sdg # H0368

COMPOSITE WASTE

DATE/REVISIONS:
1. ① = Ba, Cr, Pb, Sn, V, Zn, As, Se,
2. ② = ICCL, ICFL, ICNO2, ICNO3, ICSO4
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
Declerp	Tooler	3/30/99	0930

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 3.6 C

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
*808247160141 ICNO2, ICNO3 cal

015

PNNL 581

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0368 ENV

C.O.C. # C99-024

Page 1 of 2

Collector: R.T SICKLE	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 417	Temp.: 4°C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-3975	
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: N/A	

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
B0TW99 (F)	007	W	3/25/99	0946	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
B0TWB0	002	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB0		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
B0TWB0		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TWB0		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB0		W			1x20-mL P	Activity Scan	None
B0TWB0		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB0		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB0		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB0		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB0		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB0		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

	Print	Sign	Date/Time		Print	Sign	Date/Time
Relinquished By	R.T SICKLE		MAR 2 5 1999 1300	Received By	K. Evans		3-25-99 1300 MAR 2 5 1999
Relinquished By			3-25-99 1400	Received By	Fed Ex		3-26-99
Relinquished By	Fed Ex		3-26-99 11:00	Received By			3-26-99 11:00
Relinquished By	Fedex			Received By	Fedex		3/30/99 0930

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

H6368

C.O.C. # C99-024-

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
B0TWB0	002	W	3/25/99	0946	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
	R.T SICKLE	MAR 2 5 1999 1300		K.I. Jong 3/25/99 1300	MAR 2 5 1999
Relinquished By		Date/Time	Received By		Date/Time
	J-25-99	1400	Fed Ex		3-25-99
Relinquished By		Date/Time	Received By		Date/Time
Fed Ex		3-26-99 11:00	AP Corso JR Corso		3-26-99 11:00
Relinquished By		Date/Time	Received By		Date/Time
Declared			Fedex		3/30/99 0930

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

H0368

C.O.C. # C99-024

Page 1 of 2

Collector R.T SICKLE	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 395 Temp. 4°C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235 7952 3964
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. N/A

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
B0TWB3 (F)	006	W	3/25/99	1153	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
B0TWB4	003	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB4		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
B0TWB4		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TWB4		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB4		W			1x20-mL P	Activity Scan	None
B0TWB4		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB4		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB4		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB4		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB4		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB4		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By	Date/Time	Received By	Date/Time
Print R.T SICKLE Sign [signature]	MAR 25 1999 1300	Print K.J. Young Sign Don Young	3/25/99 1300 MAR 25 1999
Don Young	3/25/99 1400	Fed Ex	3-25-99
Fed Ex	3-26-99 11:00	[signature] JR Cover	3-26-99 11:00
Decley		Yoder	3/30/99 0930

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

170368

C.O.C. # C99-024

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
B0TWB4	003	W	3/25/99	1153	1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C

Relinquished By: R.T SICKLE (Print) (Sign) Date/Time: MAR 25 1999 1300

Received By: K.J. Young (Print) (Sign) 3/23/99 1300 Date/Time: MAR 25 1999

Relinquished By: Don Young Date/Time: 3/23/99 1400

Received By: Fed Ex Date/Time: 3-25-99

Relinquished By: Fed Ex Date/Time: 3-26-99 11:00

Received By: JR Corso JR Corso Date/Time: 3-26-99 1100

Relinquished By: Decker Date/Time:

Received By: Decker Date/Time: 3/30/99 0930

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

019

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0368

C.O.C. # C99-024

Page 1 of 1

Collector: R.T SICKLE	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-9INF-H-26	Ice Chest No.: SML 417 Temp.: 4°C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-3975
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
B0TXP7	0701	W	3-25-99	0730	3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TXP7	↓	W	↓	↓	1x20-mL P	Activity Scan	None

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
R.T SICKLE [signature]	3-25-99 1300	K.J. [signature]	3-25-99 1300
[signature]	3-25-99 1400	Fed Ex	3-25-99
Fed Ex	3-26-99 11:00	[signature] JR Corso	3-26-99 11:00
[signature]		[signature]	3/30/99 0930

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

020

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. # C99-02-

H0368

Page 1 of 1

Collector SICKLE R.T.	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-SIML-H26	Ice Chest No. SML 395 Temp. 4 °C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No. 4235-7952-3964
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
✓ B0TXP8	010	W	3/25/99	1030	3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
✓ B0TXP8	↓	W	↓	↓	1x20-mL P	Activity Scan	None

Relinquished By	Date/Time	Received By	Date/Time
Print R.T SICKLE Sign [signature]	MAR 2 5 1999 1300	Print K.J. Young Sign [signature] 3/25/99 1300	MAR 2 5 1999
[signature] 3-25-99	1400	Fed Ex	3-25-99
Fed Ex 3-26-99	11:00	[signature] JR Coover	3-26-99 11:00
Decker		[signature]	3/30/99 0930

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

H0368

C.O.C. # C99-02..

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 417 Temp. 4 °C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT VEHICLE	Bill of Lading/Air Bill No. 4225-7952-3975
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No.

POSSIBLE SAMPLE HAZARDS/REMARKS
** **

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes [X] 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
B0TYN3 (F)	005	W	3-25-99	0730	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
B0TYN4	004	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TYN4		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
B0TYN4		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TYN4		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TYN4		W			1x20-mL P	Activity Scan	None
B0TYN4		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TYN4		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TYN4		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TYN4		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TYN4		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TYN4	"	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. Hollingsworth	MAR 25 1999 1300	KJ Jansen Jansen 3/25/99 1300	MAR 25 1999 RTS
Relinquished By: Jansen	3/25/99 1400	Received By: Fed Ex	3-25-99
Relinquished By: Fed Ex	3-26-99 11:00	Received By: JR Corso JR Corso	3-26-99 11:00
Relinquished By: Jeclep		Received By: Fowler	3/30/99

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

220

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0368

COC # C99-024-5

Page 2 of 2

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TYN4	0174	W	3-25-99	0730	1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C

Relinquished By	Date/Time	Received By	Date/Time
Print: D.E. HOLLINGSWORTH Sign: [signature]	MAR 25 1999 1300	K.J. Young Print / Sign: [signature]	1300 MAR 25 1999
[signature]	3-25-99 1400	Fed Ex	3-26-99
Fed Ex	3-26-99 11:00	[signature] JR Corso	3-26-99 11:20
123 Declear		[signature]	3/30/99 08/30

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. # C99-024-1

Collector: RT SICKLE	Contact/Requestor: 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.	Ice Chest No.: SML 395 Temp.: 4°C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-3964
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
B0TYN7 (F)	003	W	3/25/99	1030	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
B0TYN8	001	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TYN8		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
B0TYN8		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TYN8		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TYN8		W			1x20-mL P	Activity Scan	None
B0TYN8		W			2x1000 mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TYN8		W			5x1000-mL G/P	Iodine-129; Carbon 14	None
B0TYN8		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TYN8		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TYN8		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TYN8		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
R.T SICKLE	MAR 2 5 1999 1300	K.J.	3/25/99 1300 MAR 2 5 1999
	3/25/99 1900	Fed Ex	3-25-99
Fed Ex	3-26-99 11:00	JR Corso	3-26-99 11:00
		Fedex	3/30/99 0930

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

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

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
B0TYN8	001	W	3/25/99	1030	1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C

Relinquished By: R.T SICKLE (Print) (Sign) Date/Time: MAR 25 1999 1300

Received By: K.S. (Print) (Sign) 3/25/99 Date/Time: MAR 25 [illegible]9

Relinquished By: (Sign) Date/Time: 3/25/99 1400

Received By: Fed Ex Date/Time: 3-25-99

Relinquished By: Fed Ex Date/Time: 3-26-99 11:00

Received By: JR Cover JR Cover 3-26-99 11:00

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 = Wire	
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: 3/30/99 0430

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

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD C99-024
RFW# : 9903L587
SDG/SAF #: H0368/C99-024

W.O. #: 10985-001-001-9999-00
Date Received: 03-30-99

GC/MS VOLATILE

Six (6) water samples were collected on 03-25-99.

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 04-02-99.

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. A non-target compound was detected in sample B0TYN4.

4. All surrogate recoveries were within EPA QC limits.

5. All matrix spike recoveries were within EPA QC limits.

6. All blank spike recoveries were within EPA QC limits.

7. The method blank contained the common laboratory contaminants Methylene Chloride and Acetone at levels less than the CRQL.

for J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

04-23-99
Date

som\group\data\ voa\tnu03587.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: 04/05/99 17:16

RFW Batch Number: **9903L587** Client: **TNU-HANFORD C99-024** Work Order: 10985001001 Page: 1a

04

	Cust ID:	B0TYN8	B0TWB0	B0TWB0	B0TWB0	B0TWB4	B0TYN4
Sample Information	RFW#:	001	002	002 MS	002 MSD	003	004
	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	96 %	98 %	95 %	97 %	99 %	99 %
	Bromofluorobenzene	94 %	97 %	94 %	96 %	96 %	98 %
	1,2-Dichloroethane-d4	94 %	98 %	96 %	95 %	97 %	99 %
		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		2 JB	1 JB	2 JB	2 JB	1 JB	2 JB
Acetone		10 U	2 JB	10 U	1 JB	1 JB	10 U
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	5 U	106 %	102 %	5 U	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		5 U	1 J	1 J	1 J	2 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		5 U	1 J	1 J	0.8 J	7	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	116 %	113 %	5 U	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	115 %	110 %	5 U	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	115 %	115 %	5 U	5 U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **9903L587** Client: **TNU-HANFORD C99-024** Work Order: 10985001001 Page: 1b

	Cust ID:	B0TYN8	B0TWB0	B0TWB0	B0TWB0	B0TWB4	B0TYN4
	RFW#:	001	002	002 MS	002 MSD	003	004
Chlorobenzene		5 U	5 U	113 %	113 %	5 U	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.

05

	Cust ID:	B0TXP7	B0TXP8	VBLKYI	VBLKYI BS
Sample Information	RFW#:	009	010	99LVN110-MB1	99LVN110-MB1
	Matrix:	WATER	WATER	WATER	WATER
	D.F.:	1.00	1.00	1.00	1.00
	Units:	UG/L	UG/L	UG/L	UG/L
Surrogate Recovery	Toluene-d8	98 %	100 %	98 %	99 %
	Bromofluorobenzene	97 %	99 %	100 %	99 %
	1,2-Dichloroethane-d4	99 %	101 %	94 %	94 %
Chloromethane		10 U	10 U	10 U	10 U
Bromomethane		10 U	10 U	10 U	10 U
Vinyl Chloride		10 U	10 U	10 U	10 U
Chloroethane		10 U	10 U	10 U	10 U
Methylene Chloride		2 JB	2 JB	3 J	4 JB
Acetone		2 JB	2 JB	7 J	15 B
Carbon Disulfide		5 U	5 U	5 U	5 U
1,1-Dichloroethene		5 U	5 U	5 U	107 %
1,1-Dichloroethane		5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U
Chloroform		5 U	5 U	5 U	5 U
1,2-Dichloroethane		5 U	5 U	5 U	5 U
2-Butanone		10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U
Carbon Tetrachloride		5 U	5 U	5 U	5 U
Bromodichloromethane		5 U	5 U	5 U	5 U
1,2-Dichloropropane		5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U
Trichloroethene		5 U	5 U	5 U	119 %
Dibromochloromethane		5 U	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U
Benzene		5 U	5 U	5 U	113 %
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U
Bromoform		5 U	5 U	5 U	5 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U
2-Hexanone		10 U	10 U	10 U	10 U
Tetrachloroethene		5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U
Toluene		5 U	5 U	5 U	115 %

*= Outside of EPA CLP QC limits.

Cust ID:	B0TXP7	B0TXP8	VBLKYI	VBLKYI BS
RFW#:	009	010	99LVN110-MB1	99LVN110-MB1
Chlorobenzene	5 U	5 U	5 U	115 %
Ethylbenzene	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0TYN8

Lab Name: Recra.LabNet Contract: 10985001001

Lab Code: Recra Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 9903L587-001

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: n040209

Level: (low/med) LOW Date Received: 03/30/99

% Moisture: not dec. _____ Date Analyzed: 04/02/99

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0TWB0

Lab Name: Recra.LabNet Contract: 10985001001

Lab Code: Recra Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 9903L587-002

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: n040210

Level: (low/med) LOW Date Received: 03/30/99

% Moisture: not dec. _____ Date Analyzed: 04/02/99

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0TWB4

Lab Name: Recra.LabNet Contract: 10985001001

Lab Code: Recra Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 9903L587-003

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: n040213

Level: (low/med) LOW Date Received: 03/30/99

% Moisture: not dec. _____ Date Analyzed: 04/02/99

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0TYN4

Lab Name: Recra.LabNet Contract: 10985001001

Lab Code: Recra Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 9903L587-004

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: n040214

Level: (low/med) LOW Date Received: 03/30/99

% Moisture: not dec. _____ Date Analyzed: 04/02/99

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 1 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.		SILOXANE	9.037	20	J

FORM 1 VOA-TIC 1/87 Rev.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0TXP7

Lab Name: Recra.LabNet Contract: 10985001001

Lab Code: Recra Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 9903L587-009

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: n040215

Level: (low/med) LOW Date Received: 03/30/99

% Moisture: not dec. _____ Date Analyzed: 04/02/99

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

	CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.					

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

B0TXP8

Lab Name: Recra.LabNet Contract: 10985001001

Lab Code: Recra Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 9903L587-010

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: n040216

Level: (low/med) LOW Date Received: 03/30/99

% Moisture: not dec. _____ Date Analyzed: 04/02/99

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0 CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

VBLKYI

Lab Name: Recra.LabNet Contract: 10985001001

Lab Code: Recra Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 99LVN110-MB1

Sample wt/vol: 5.00 (g/mL) ML Lab File ID: n040207

Level: (low/med) LOW Date Received: 04/02/99

% Moisture: not dec. _____ Date Analyzed: 04/02/99

Column: (pack/cap) CAP Dilution Factor: 1.00

Number TICs found: 0 CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.				

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

DATE RECEIVED: 03/30/99 RFW LOT # :9903L587

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0TYN8	001	W	99LVN110	03/25/99	N/A	04/02/99
B0TWB0	002	W	99LVN110	03/25/99	N/A	04/02/99
B0TWB0	002 MS	W	99LVN110	03/25/99	N/A	04/02/99
B0TWB0	002 MSD	W	99LVN110	03/25/99	N/A	04/02/99
B0TWB4	003	W	99LVN110	03/25/99	N/A	04/02/99
B0TYN4	004	W	99LVN110	03/25/99	N/A	04/02/99
B0TXP7	009	W	99LVN110	03/25/99	N/A	04/02/99
B0TXP8	010	W	99LVN110	03/25/99	N/A	04/02/99
LAB QC:						
VBLKYI	MB1	W	99LVN110	N/A	N/A	04/02/99
VBLKYI	MB1 BS	W	99LVN110	N/A	N/A	04/02/99

RECRA LabNet Use Only
99036587

Custody Transfer Record/Lab Work Request

Page 1 of 1

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: 3/30/99 Date Due: 4/29/99
Account #:

	VOA (OU24H)	BNA	Pest/PCB	Herb	Metal (①)	CN	②	ITDS	ITCX	IN3N2	IALKL
Refrigerator #	1				3		3				
#/Type Container – Liquid	3g				1p		1p	1p	1pg	1p	1p
#/Type Container – Solid											
Volume – Liquid	40				1L		500	500	500	500	500
Volume – Solid											
Preservatives	HCl				HNO3		-	-	H2SO4		-

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	VOA (OU24H)	Metal (①)	②	ITDS	ITCX	IN3N2	IALKL
001	BØTYN8			W	3/25/99	1030	✓	✓	✓	✓	✓	✓	✓
2	WBØ	X	X			0946	✓	✓	✓	✓	✓	✓	✓
3	WB4					1153	✓	✓	✓	✓	✓	✓	✓
4	YN4					0730	✓	✓	✓	✓	✓	✓	✓
5	YN3					0730		✓					
6	WB3					1153		✓					
7	W99					0946	~~✓~~ 3/30/99	✓					
8	YN7					1030		✓					
9	XP7					0730	✓						
010	XP8					1030	✓						

Special Instructions:
saf # C99-024
adg # H0368

COMPOSITE WASTE

DATE/REVISIONS:
① = Be, Cr, Pb, Sn, V, Zn, As, Se,
② = ICCL, ICFL, ICNO2, ICNO3, ICSO4
3.
4.
5.
6.

Relinquished by	Received by	Date	Time
Decker	Fowler	3/30/99	0930

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
*808247160141 ICNO2, ICNO3 out

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. 3.6 C

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0368 ENV

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

Page 1 of 2

Collector: R.T SICKLE	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-1426	Ice Chest No.: SML 417 Temp.: 4°C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-3975
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: N/A

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
B0TW99 (F)	007	W	3/25/99	0946	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
B0TWB0	002	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB0		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
B0TWB0		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TWB0		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB0		W			1x20-mL P	Activity Scan	None
B0TWB0		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB0		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB0		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB0		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB0		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB0		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
R.T SICKLE	MAR 25 1999 1300	K.J. Evans	3-25-99 1300 MAR 25 1999
Relinquished By	Date/Time	Received By	Date/Time
	3-25-99 1400	Fed Ex	3-26-99
Relinquished By	Date/Time	Received By	Date/Time
Fed Ex	3-26-99 11:00		3-26-99 11:00
Relinquished By	Date/Time	Received By	Date/Time
Fedex			3/30/99 0930

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

H6368

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

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
B0TWB0	002	W	3/25/99	0946	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
R.T SICKLE [signature]	MAR 25 1999 1300	[signature] K.L. Fenz 3/25/99	1300 ~~MAR 25 1999~~
[signature] 3-25-99	1400	Fed Ex	3-25-99
Fed Ex 3-26-99	11:00	[signature] JR Corso	3-26-99 11:00
Decker		Decker	3/30/99 0930

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

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0368

C.O.C. # C99-024-3

Collector: R.T SICKLE	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-426	Ice Chest No.: SML 395 Temp.: 4°C	
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT VEHICLE	Bill of Lading/Air Bill No.: 4235 7952 3964	
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: N/A	

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
B0TWB3 (F)	006	W	3/25/99	1153	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
B0TWB4	003	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB4		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
B0TWB4		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TWB4		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB4		W			1x20-mL P	Activity Scan	None
B0TWB4		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB4		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB4		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB4		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB4		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB4		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
Relinquished By	R T SICKLE		MAR 25 1999 1300	Received By	K.J. Lang	Don Lang	3/25/99 MAR 25 1999
Relinquished By	Don Lang		3/25/99 1400	Received By	Fed Ex		3-25-99
Relinquished By	Fed Ex		3-26-99 11:00	Received By	JR Cover		3-26-99 11:00
Relinquished By	Jeder			Received By	Joder		3/30/99 0930

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

170368

C.O.C. # C99-024-3

Page 2 of 2

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

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B0TWB4	003	W	3/25/99	1153	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
	R.T SICKLE	MAR 25 1999 1300		K.J. Yang	3/25/99 MAR 25 1999 1300
	Ken Yang	3/25/99 1400		Fed Ex	3-25-99
	Fed Ex	3-26-99 11:00		JR Corso	3-26-99 11:00
	Jecker			Jecker	3/30/99 0830

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

H0368

C.O.C. # C99-024-5

Page 1 of 1

Collector: R.T SICKLE	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-9INF-H26	Ice Chest No.: 5M1417 Temp.: 4 °C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-3975
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
B0TXP7	0069	W	3-25-99	0730	3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TXP7	↓	W	↓	↓	1x20-mL P	Activity Scan	None

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
R.T SICKLE			3-25-99 1300	K.J. Young			3-25-99 1300
Relinquished By			Date/Time	Received By			Date/Time
		3-25-99	1400	Fed Ex			3-25-99
Relinquished By			Date/Time	Received By			Date/Time
Fed Ex		3-26-99	11:00	JR Corso		JR Corso	3-26-99 11:20
Relinquished By			Date/Time	Received By			Date/Time
		Fedex		Fedex		3/30/99	0930

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

H0368

C.O.C. # C99-024-6

Page 1 of 1 22

Collector: SICKLE R.T.	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-SNL-H26	Ice Chest No.: SNL 395	Temp.: 4 °C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235-7952-3964	
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
B0TXP8	010	W	3/25/99	1030	3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TXP8	↓	W	↓	↓	1x20-mL P	Activity Scan	None

Relinquished By	Print / Sign	Date/Time	Received By	Print / Sign	Date/Time
	R.T SICKLE	MAR 2 5 1999 1300	K.J. Young	3/25/99 1300	MAR 2 5 1999
Relinquished By: D. Young	3-25-99	1400	Received By: Fed Ex		3-25-99
Relinquished By: Fed Ex	3-26-99	11:00	Received By: J.R. Cooper JR Cooper		3-26-99 11:22
Relinquished By: Dec'd			Received By: Fedex		3/30/99 0930

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

H0368

C.O.C. # C99-024-9

Page 1 of 2 3

Collector: D.E. HOLLINGSWORTH

SAF No.: C99-024

Project Title: ERDF GW MONITORING MARCH 1999

Shipped To (Lab): TMA/RECRA

Protocol: CERCLA

POSSIBLE SAMPLE HAZARDS/REMARKS

Contact/Requester: JH KESSNER

Sampling Origin: HANFORD SITE

Logbook No.: WM-SML-H26

Method of Shipment: GOVT. VEHICLE

Data Turnaround: 45 Days

Telephone No.: (509) 375-4688 MSIN FAX

Purchase Order/Charge Code

Ice Chest No.: SML 417 Temp.: 4°C

Bill of Lading/Air Bill No.: 4235-7952-3975

Offsite Property No.

SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes [X] 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
B0TYN3 (F)	005	W	3-25-99	0730	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
B0TYN4	004	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TYN4		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
B0TYN4		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TYN4		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TYN4		W			1x20-mL P	Activity Scan	None
B0TYN4		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TYN4		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TYN4		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TYN4		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TYN4		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TYN4		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By	Date/Time	Received By	Date/Time
D.E. HOLLINGSWORTH (Sign) D. Hollingsworth	MAR 25 1999 1300	KJ Lansdorfer (Print) 3/25/99 1300 (Sign)	MAR 25 1999
(signature) 3/25/99	1400	Fed Ex	3-25-99
Fed Ex 3-26-99	11:00	JR Corso JR Corso	3-26-99 11:00
Jeclee			

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: (signature) Date/Time: 3/30/99

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

H0368

C99-024-9

24

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
B0TYN4	0024	W	7-25-94	0730	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	D.E. Hollingsworth		MAR 2 5 1999 1700	K.J. Young	K.J. Young		1300 MAR 2 5 1999
Relinquished By			Date/Time	Received By			Date/Time
K.J. Young			3-25-99 1400	Fed Ex			3-26-99
Relinquished By			Date/Time	Received By			Date/Time
Fed Ex			3-26-99 11:00	JR Corse			3-26-99 11:20
Relinquished By			Date/Time	Received By			Date/Time
Fed ex				D Fowler			3/30/99 0930

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. # C99-024-11

Page 1 of 2

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Collector R T SICKLE	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.	Ice Chest No. SML 395 Temp. 4°C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235-7952-3964
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
B0TYN7 (F)	008	W	3/25/99	1030	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
B0TYN8	001	W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TYN8		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
B0TYN8		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TYN8		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TYN8		W			1x20-mL P	Activity Scan	None
B0TYN8		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TYN8		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TYN8		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TYN8		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TYN8		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TYN8		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By (Print / Sign)	Date/Time	Received By (Print / Sign)	Date/Time
R.T SICKLE [signature]	MAR 25 1999 1300	K.J. [signature] 3/25/99	1300 MAR 25 1999
[signature] 3/25/99	1400	Fed Ex	3-25-99
Fed Ex 3-26-99	11:00	[signature] JR [signature]	3-26-99 11:00
[signature]		[signature]	3/30/99 0930

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

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

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
B0TYN8	001	W	3/25/99	1030	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
	R.T SICKLE	MAR 2 5 1999 1300	K.S. Jang	3/25/99	MAR 2 5 [illegible]
Relinquished By		Date/Time	Received By		Date/Time
	3/25/99	1400	Fed Ex		3-25-99
Relinquished By		Date/Time	Received By		Date/Time
Fed Ex	3-26-99	11:00	DR Covey JR Covey	3-26-99	11:00
Relinquished By		Date/Time	Received By		Date/Time
				3/30/99	0930

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 H0368 is comprised of four 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. Results for Gross Alpha and Beta, Total Uranium, and Total Radium were transmitted to Bechtel Hanford via fax on May 10, 1999. Data for Iodine-129, Technetium-99 and Carbon-14 were sent via fax on June 1, 1999.

2.0 ANALYSIS NOTES

2.1 Technetium-99 Analyses

The technetium analysis exhibited positive results that could not be confirmed as technetium 99, therefor the less than values are reported as the MDA.

2.2 Iodine-129 Analyses

The aliquot for the analysis was reduced due to the sample matrix, resulting in increased MDA's. No problems were encountered during the processing of the samples.

2.3 Gross Alpha and Beta Analyses

No problems were encountered during the processing of the samples.

2.4 Total Uranium Analyses

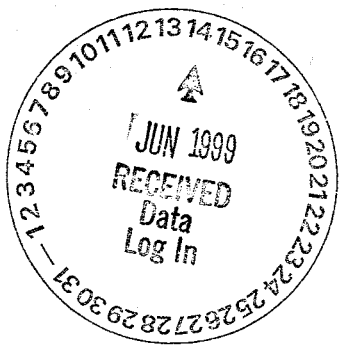
No problems were encountered during the processing of the samples.

2.5 Total Radium Analyses

No problems were encountered during the processing of the samples.

2.6 Carbon-14 Analyses

The laboratory control sample had a low recovery of 65%. The samples, blank and duplicate results did not show any abnormalities. No other problems were encountered during the processing of the samples.



TMA/RICHMOND

SAMPLE DELIVERY GROUP H0368

SAMPLE SUMMARY

SDG 7105
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B0TWB0	HANFORD SITE	LIQUID		N903149-01	C99-024	C99-024-1	03/25/99 09:46
B0TWB4	HANFORD SITE	LIQUID		N903149-02	C99-024	C99-024-3	03/25/99 11:53
B0TYN4	HANFORD SITE	LIQUID		N903149-03	C99-024	C99-024-9	03/25/99 07:30
B0TYN8	HANFORD SITE	LIQUID		N903149-04	C99-024	C99-024-11	03/25/99 10:30
Method Blank		LIQUID		N903149-06	C99-024		
Lab Control Sample		LIQUID		N903149-05	C99-024		
Duplicate (N903149-01)	HANFORD SITE	LIQUID		N903149-07	C99-024		03/25/99 09:46

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 06/08/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0368

QC SUMMARY

SDG 7105
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% MOIST	SAMPLE AMOUNT	BASIS AMOUNT	DAYS RECEIVED	DAYS COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7105	C99-024-1	B0TWB0	LIQUID				03/26/99	1	N903149-01	7105-001
	C99-024-11	B0TYN8	LIQUID				03/26/99	1	N903149-04	7105-004
	C99-024-3	B0TWB4	LIQUID				03/26/99	1	N903149-02	7105-002
	C99-024-9	B0TYN4	LIQUID				03/26/99	1	N903149-03	7105-003
		Method Blank	LIQUID						N903149-06	7105-006
		Lab Control Sample	LIQUID						N903149-05	7105-005
		Duplicate (N903149-01)	LIQUID				03/26/99	1	N903149-07	7105-007

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 06/08/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0368

PREP BATCH SUMMARY

SDG 7105
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

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	6880-020	10.0	4			1	1	1/1		
Gas Proportional Counting												
RAT	LIQUID	Radium 226/228 in Water	6880-020	5.0	4			1	1	1/1		
Gas Proportional Counting												
80A	LIQUID	Gross Alpha in Water	6880-020	20.0	4			1	1	1/1		
80B	LIQUID	Gross Beta in Water	6880-020	15.0	4			1	1	1/1		
Gamma Spectroscopy												
I	LIQUID	Iodine 129 in Water	6880-020	5.0	4			1	1	1/1		
Kinetic Phosphorimetry												
U_T	LIQUID	Uranium, Total in Water	6880-020	9.0	4			1	1	1/1		
Liquid Scintillation Counting												
C	LIQUID	Carbon 14 in Water	6880-020	10.0	4			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 06/08/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0368

WORK SUMMARY

SDG 7105
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0TWB0			N903149-01	7105-001	80A/80		04/16/99	05/10/99	TAH	Gross Alpha in Water
HANFORD SITE		LIQUID	03/25/99	7105-001	80B/80		04/16/99	05/10/99	TAH	Gross Beta in Water
C99-024-1	C99-024		03/26/99	7105-001	C		05/10/99	05/20/99	TAH	Carbon 14 in Water
				7105-001	I		05/06/99	05/20/99	TAH	Iodine 129 in Water
				7105-001	RAT		05/03/99	05/10/99	TAH	Radium 226/228 in Water
				7105-001	TC		04/28/99	05/20/99	TAH	Technetium 99 in Water
				7105-001	U_T		04/22/99	05/10/99	TAH	Uranium, Total in Water
B0TWB4			N903149-02	7105-002	80A/80		04/16/99	05/10/99	TAH	Gross Alpha in Water
HANFORD SITE		LIQUID	03/25/99	7105-002	80B/80		04/16/99	05/10/99	TAH	Gross Beta in Water
C99-024-3	C99-024		03/26/99	7105-002	C		05/10/99	05/20/99	TAH	Carbon 14 in Water
				7105-002	I		05/11/99	05/20/99	TAH	Iodine 129 in Water
				7105-002	RAT		05/03/99	05/10/99	TAH	Radium 226/228 in Water
				7105-002	TC		04/28/99	05/20/99	TAH	Technetium 99 in Water
				7105-002	U_T		04/22/99	05/10/99	TAH	Uranium, Total in Water
B0TYN4			N903149-03	7105-003	80A/80		04/16/99	05/10/99	TAH	Gross Alpha in Water
HANFORD SITE		LIQUID	03/25/99	7105-003	80B/80		04/16/99	05/10/99	TAH	Gross Beta in Water
C99-024-9	C99-024		03/26/99	7105-003	C		05/10/99	05/20/99	TAH	Carbon 14 in Water
				7105-003	I		05/06/99	05/20/99	TAH	Iodine 129 in Water
				7105-003	RAT		05/03/99	05/10/99	TAH	Radium 226/228 in Water
				7105-003	TC		05/06/99	05/20/99	TAH	Technetium 99 in Water
				7105-003	U_T		04/22/99	05/10/99	TAH	Uranium, Total in Water
B0TYN8			N903149-04	7105-004	80A/80		04/16/99	05/10/99	TAH	Gross Alpha in Water
HANFORD SITE		LIQUID	03/25/99	7105-004	80B/80		04/16/99	05/10/99	TAH	Gross Beta in Water
C99-024-11	C99-024		03/26/99	7105-004	C		05/10/99	05/20/99	TAH	Carbon 14 in Water
				7105-004	I		05/06/99	05/20/99	TAH	Iodine 129 in Water
				7105-004	RAT		05/03/99	05/10/99	TAH	Radium 226/228 in Water
				7105-004	TC		04/28/99	05/20/99	TAH	Technetium 99 in Water
				7105-004	U_T		04/22/99	05/10/99	TAH	Uranium, Total in Water
Method Blank			N903149-06	7105-006	80A/80		04/16/99	05/10/99	TAH	Gross Alpha in Water
		LIQUID		7105-006	80B/80		04/16/99	05/10/99	TAH	Gross Beta in Water
	C99-024			7105-006	C		05/10/99	06/03/99	TAH	Carbon 14 in Water
				7105-006	I		05/07/99	05/20/99	TAH	Iodine 129 in Water
				7105-006	RAT		05/03/99	05/10/99	TAH	Radium 226/228 in Water
				7105-006	TC		04/28/99	05/20/99	TAH	Technetium 99 in Water
				7105-006	U_T		04/22/99	05/10/99	TAH	Uranium, Total in Water

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 06/08/99

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUFFIX	ANALYZED	REVIEWED	BY	METHOD
Lab Control Sample			N903149-05	7105-005	80A/80		04/16/99	05/10/99	TAH	Gross Alpha in Water
		LIQUID		7105-005	80B/80		04/16/99	05/10/99	TAH	Gross Beta in Water
	C99-024			7105-005	C		05/10/99	06/03/99	TAH	Carbon 14 in Water
				7105-005	I		05/17/99	05/20/99	TAH	Iodine 129 in Water
				7105-005	RAT		05/06/99	05/10/99	TAH	Radium 226/228 in Water
				7105-005	TC		05/06/99	05/20/99	TAH	Technetium 99 in Water
				7105-005	U_T		04/22/99	05/10/99	TAH	Uranium, Total in Water
Duplicate (N903149-01)			N903149-07	7105-007	80A/80		04/16/99	05/10/99	TAH	Gross Alpha in Water
HANFORD SITE		LIQUID	03/25/99	7105-007	80B/80		04/16/99	05/10/99	TAH	Gross Beta in Water
	C99-024		03/26/99	7105-007	C		05/10/99	06/03/99	TAH	Carbon 14 in Water
				7105-007	I		05/08/99	05/20/99	TAH	Iodine 129 in Water
				7105-007	RAT		05/03/99	05/10/99	TAH	Radium 226/228 in Water
				7105-007	TC		04/27/99	05/20/99	TAH	Technetium 99 in Water
				7105-007	U_T		04/22/99	05/10/99	TAH	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	4			1	1	1	7
80B/80	C99-024	Gross Beta in Water	EPA900.0	4			1	1	1	7
C	C99-024	Carbon 14 in Water	C14CHEMLSC	4			1	1	1	7
I	C99-024	Iodine 129 in Water	I129LEPS	4			1	1	1	7
RAT	C99-024	Radium 226/228 in Water		4			1	1	1	7
TC	C99-024	Technetium 99 in Water	TC99TRLSC	4			1	1	1	7
U_T	C99-024	Uranium, Total in Water	UKPA	4			1	1	1	7
TOTALS				28			7	7	7	49

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0368

N903149-06

Method Blank

METHOD BLANK

SDG 7105 Client/Case no Hanford SDG-H0368

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

Lab sample id N903149-06 Client sample id Method Blank

Dept sample id 7105-006 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	-0.18	0.70	2	3	U	80A
Gross Beta	12587-47-2	-0.48	1.1	2	4	U	80B
Carbon 14	14762-75-5	-0.19	0.88	2	100	U	C
Technetium 99	14133-76-7	2.7	0.25	0.4	5	J	TC
Total Uranium (ug/L)	7440-61-1	0	0.017	0.04	0.1	U	U_T
Total Radium	7440-14-4	-0.085	0.066	0.4	0.5	U	RAT
Iodine 129	15046-84-1	0.73	0.73	2		U	I

ERDE GW MONITORING MARCH 1999

QC-BLANK 30433

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 06/08/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0368

N903149-05

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7105
Contact L.A. Johnson

Client/Case no Hanford SDG-H0368
Case no TRB-SBB-207925

Lab sample id N903149-05
Dept sample id 7105-005

Client sample id Lab Control Sample
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	64	5.1	1	3		80A	67.0	2.7	96	69-131	80-120
Gross Beta	77	3.7	2	4		80B	76.3	3.1	101	75-125	80-120
Carbon 14	170	3.2	1	100		C	256	10	66	88-112	80-120
Technetium 99	330	9.7	6	5	B	TC	327	13	101	83-117	80-120
Total Uranium (ug/L)	85	11	0.4	0.1		U_T	82.5	3.3	103	75-125	80-120
Total Radium	32	1.8	0.2	0.5		RAT	39.3	1.6	81	89-111	80-120
Iodine 129	110	2.0	3			I	102	4.1	108	88-112	

ERDE GW MONITORING MARCH 1999

QC-LCS 30432

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 06/08/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0368

N903149-07

B0TWB0

DUPLICATE

SDG 7105
Contact L.A. Johnson

DUPLICATE
Lab sample id N903149-07
Dept sample id 7105-007

ORIGINAL
Lab sample id N903149-01
Dept sample id 7105-001
Received 03/26/99

Client/Case no Hanford SDG-H0368
Case no TRB-SBB-207925
Client sample id B0TWB0
Location/Matrix HANFORD SITE LIQUID
Collected 03/25/99 09:46
Custody/SAF No C99-024-1 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	2.0	1.2	1	3	J	80A	2.7	1.4	1	J	30	125
Gross Beta	26	2.5	3	4		80B	25	2.5	3		4	38
Carbon 14	15	18	30	100	U	C	25	18	30	U	-	
Technetium 99	0	0	90	5	U	TC	0	0	80	U	-	
Total Uranium (ug/L)	2.6	0.31	0.04	0.1		U_T	2.6	0.32	0.04		0	32
Total Radium	0.017	0.048	0.2	0.5	U	RAT	0.001	0.093	0.2	U	-	
Iodine 129	6.5	2.8	6			I	6.1	2.4	5		6	88

ERDE GW MONITORING MARCH 1999

QC-DUP#1 30434

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 06/08/99

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0368

N903149-01 B0TWB0

DATA SHEET

SDG 7105	Client/Case no Hanford	SDG-H0368	
Contact L.A. Johnson	Case no TRB-SBB-207925		
Lab sample id N903149-01	Client sample id B0TWB0		
Dept sample id 7105-001	Location/Matrix HANFORD SITE	LIQUID	
Received 03/26/99	Collected 03/25/99 09:46		
	Custody/SAF No C99-024-1	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	2.7	1.4	1	3	J	80A
Gross Beta	12587-47-2	25	2.5	3	4		80B
Carbon 14	14762-75-5	25	18	30	100	U	C
Technetium 99	14133-76-7	0	0	80	5	U	TC
Total Uranium (ug/L)	7440-61-1	2.6	0.32	0.04	0.1		U_T
Total Radium	7440-14-4	0.001	0.093	0.2	0.5	U	RAT
Iodine 129	15046-84-1	6.1	2.4	5			I

ERDE GW MONITORING MARCH 1999

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 06/08/99

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0368

N903149-02 B0TWB4

DATA SHEET

SDG	7105	Client/Case no	Hanford SDG-H0368
Contact	L.A. Johnson	Case no	TRB-SBB-207925
Lab sample id	N903149-02	Client sample id	B0TWB4
Dept sample id	7105-002	Location/Matrix	HANFORD SITE LIQUID
Received	03/26/99	Collected	03/25/99 11:53
		Custody/SAF No	C99-024-3 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	1.3	1.4	2	3	U	80A
Gross Beta	12587-47-2	56	3.2	2	4		80B
Carbon 14	14762-75-5	-6.1	17	30	100	U	C
Technetium 99	14133-76-7	0	0	100	5	U	TC
Total Uranium (ug/L)	7440-61-1	3.4	0.41	0.04	0.1		U_T
Total Radium	7440-14-4	0.087	0.061	0.2	0.5	U	RAT
Iodine 129	15046-84-1	3.8	3.0	7		U	I

ERDE GW MONITORING MARCH 1999

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/08/99

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0368

N903149-03 B0TYN4

DATA SHEET

SDG 7105		Client/Case no Hanford	SDG-H0368
Contact L.A. Johnson		Case no TRB-SBB-207925	
Lab sample id N903149-03		Client sample id B0TYN4	
Dept sample id 7105-003		Location/Matrix HANFORD SITE	LIQUID
Received 03/26/99		Collected 03/25/99 07:30	
		Custody/SAF No C99-024-9	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	-0.079	0.32	0.8	3	U	80A
Gross Beta	12587-47-2	-0.37	1.4	2	4	U	80B
Carbon 14	14762-75-5	-3.2	17	30	100	U	C
Technetium 99	14133-76-7	0	0	70	5	U	TC
Total Uranium (ug/L)	7440-61-1	0.038	0.018	0.04	0.1	U	U_T
Total Radium	7440-14-4	0.031	0.043	0.2	0.5	U	RAT
Iodine 129	15046-84-1	1.2	2.0	5		U	I

ERDE GW MONITORING MARCH 1999

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/08/99

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0368

N903149-04 B0TYN8

DATA SHEET

SDG 7105	Client/Case no Hanford	SDG-H0368	
Contact L.A. Johnson	Case no TRB-SBB-207925		
Lab sample id N903149-04	Client sample id B0TYN8		
Dept sample id 7105-004	Location/Matrix HANFORD SITE	LIQUID	
Received 03/26/99	Collected 03/25/99 10:30		
	Custody/SAF No C99-024-11	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	0.24	0.50	0.9	3	U	80A
Gross Beta	12587-47-2	-0.42	1.1	2	4	U	80B
Carbon 14	14762-75-5	1.2	17	30	100	U	C
Technetium 99	14133-76-7	0	0	60	5	U	TC
Total Uranium (ug/L)	7440-61-1	0.031	0.018	0.04	0.1	U	U_T
Total Radium	7440-14-4	0.032	0.051	0.2	0.5	U	RAT
Iodine 129	15046-84-1	0.19	1.9	4		U	I

ERDE GW MONITORING MARCH 1999

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/08/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0368

METHOD SUMMARY

TECHNETIUM 99 IN WATER

BETA COUNTING

Test TC Matrix LIQUID
SDG 7105
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 6880-020						
B0TWB0	N903149-01			7105-001	U	
B0TWB4	N903149-02			7105-002	U	
B0TYN4	N903149-03			7105-003	U	
B0TYN8	N903149-04			7105-004	U	
BLK (QC ID=30433)	N903149-06			7105-006	2.7	J
LCS (QC ID=30432)	N903149-05			7105-005	ok	
Duplicate (N903149-01)	N903149-07			7105-007	-	U
Nominal values and limits from method				RDLs (pCi/L)	5	
ERDE 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 6880-020	2σ prep error 10.0 %	Reference Lab Notebook 6880 pg.20														
B0TWB0	N903149-01			80	0.0500			45		150			34	04/22/99	04/28	GRB-207
B0TWB4	N903149-02			100	0.0500			34		150			34	04/22/99	04/28	GRB-208
B0TYN4	N903149-03			70	0.0500			42		101			42	04/22/99	05/06	GRB-217
B0TYN8	N903149-04			60	0.0500			47		200			34	04/22/99	04/28	GRB-229
BLK (QC ID=30433)	N903149-06			0.4	1.00			64		200				04/22/99	04/28	GRB-230
LCS (QC ID=30432)	N903149-05			6	0.200			26		137				04/22/99	05/06	GRB-206
Duplicate (N903149-01) (QC ID=30434)	N903149-07			90	0.0500			39		200			33	04/22/99	04/27	GRB-230
Nominal values and limits from method				5	1.00			20-105		50			180			

PROCEDURES	REFERENCE	TC99TRLSC
	EP-020	Sample Leach For Technetium-99, rev 0
	EP-540	Technetium-99 Purification, rev 0

AVERAGES ± 2 SD FOR 7 SAMPLES
MDA 60 ± 80
YIELD 42 ± 24

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/08/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0368

METHOD SUMMARY

RADIUM 226/228 IN WATER

GAS PROPORTIONAL COUNTING

Test RAT Matrix LIQUID
SDG 7105
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Radium
Preparation batch 6880-020					
B0TWB0	N903149-01			7105-001	U
B0TWB4	N903149-02			7105-002	U
B0TYN4	N903149-03			7105-003	U
B0TYN8	N903149-04			7105-004	U
BLK (QC ID=30433)	N903149-06			7105-006	U
LCS (QC ID=30432)	N903149-05			7105-005	LOW
Duplicate (N903149-01)	N903149-07			7105-007	- U

Nominal values and limits from method RDLs (pCi/L) 0.5
ERDE 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 6880-020	2σ prep error 5.0 %			Reference Lab Notebook 6880 pg.20												
B0TWB0	N903149-01			0.2	0.500			88	100				39	04/28/99	05/03	GAW-110
B0TWB4	N903149-02			0.2	0.500			90	100				39	04/28/99	05/03	GAW-111
B0TYN4	N903149-03			0.2	0.500			91	100				39	04/28/99	05/03	GAW-112
B0TYN8	N903149-04			0.2	0.500			89	100				39	04/28/99	05/03	GAW-113
BLK (QC ID=30433)	N903149-06			0.4	0.300			87	100					04/28/99	05/03	GAW-115
LCS (QC ID=30432)	N903149-05			0.2	0.300			96	100					04/28/99	05/06	GAW-110
Duplicate (N903149-01) (QC ID=30434)	N903149-07			0.2	0.500			88	100				39	04/28/99	05/03	GAW-116
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 7 SAMPLES
MDA 0.2 ± 0.2
YIELD 90 ± 6

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/08/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0368

METHOD SUMMARY

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Test 80A Matrix LIQUID
SDG 7105
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 6880-020						
B0TWB0	N903149-01	80		7105-001	2.7	J
B0TWB4	N903149-02	80		7105-002	U	
B0TYN4	N903149-03	80		7105-003	U	
B0TYN8	N903149-04	80		7105-004	U	
BLK (QC ID=30433)	N903149-06	80		7105-006	U	
LCS (QC ID=30432)	N903149-05	80		7105-005	ok	
Duplicate (N903149-01)	N903149-07	80		7105-007	ok	J
Nominal values and limits from method				RDLs (pCi/L)	3	
ERDE 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 6880-020	2σ prep error 20.0 %			Reference Lab Notebook 6880 pg.20												
B0TWB0	N903149-01	80		1	0.300			68	100				22	04/12/99	04/16	GRB-110
B0TWB4	N903149-02	80		2	0.300			87	100				22	04/12/99	04/16	GRB-111
B0TYN4	N903149-03	80		0.8	0.300			4	100				22	04/12/99	04/16	GRB-112
B0TYN8	N903149-04	80		0.9	0.300			3	100				22	04/12/99	04/16	GRB-113
BLK (QC ID=30433)	N903149-06	80		2	0.300			45	100					04/12/99	04/16	GRB-115
LCS (QC ID=30432)	N903149-05	80		1	0.300			43	100					04/12/99	04/16	GRB-114
Duplicate (N903149-01) (QC ID=30434)	N903149-07	80		1	0.300			68	100				22	04/12/99	04/16	GRB-116
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 7 SAMPLES
MDA 1 ± 1
RESIDUE 45 ± 65

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/08/99

Test 80B Matrix LIQUID
SDG 7105
Contact L.A. Johnson

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0368

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 6880-020					
B0TWB0	N903149-01	80		7105-001	25
B0TWB4	N903149-02	80		7105-002	56
B0TYN4	N903149-03	80		7105-003	U
B0TYN8	N903149-04	80		7105-004	U
BLK (QC ID=30433)	N903149-06	80		7105-006	U
LCS (QC ID=30432)	N903149-05	80		7105-005	ok
Duplicate (N903149-01)	N903149-07	80		7105-007	ok
Nominal values and limits from method				RDLs (pCi/L)	4

ERDE 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 6880-020	2σ prep error 15.0 %			Reference Lab Notebook 6880 pg.20												
B0TWB0	N903149-01	80		3	0.300			68		100			22	04/12/99	04/16	GRB-110
B0TWB4	N903149-02	80		2	0.300			87		100			22	04/12/99	04/16	GRB-111
B0TYN4	N903149-03	80		2	0.300			4		100			22	04/12/99	04/16	GRB-112
B0TYN8	N903149-04	80		2	0.300			3		100			22	04/12/99	04/16	GRB-113
BLK (QC ID=30433)	N903149-06	80		2	0.300			45		100				04/12/99	04/16	GRB-115
LCS (QC ID=30432)	N903149-05	80		2	0.300			43		100				04/12/99	04/16	GRB-114
Duplicate (N903149-01) (QC ID=30434)	N903149-07	80		3	0.300			68		100			22	04/12/99	04/16	GRB-116
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 7 SAMPLES
MDA 2 ± 1
RESIDUE 45 ± 65

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/08/99

Test I Matrix LIQUID
SDG 7105
Contact L.A. Johnson

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0368

METHOD SUMMARY

IODINE 129 IN WATER

GAMMA SPECTROSCOPY

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Iodine 129
Preparation batch 6880-020					
B0TWB0	N903149-01			7105-001	6.1
B0TWB4	N903149-02			7105-002	U
B0TYN4	N903149-03			7105-003	U
B0TYN8	N903149-04			7105-004	U
BLK (QC ID=30433)	N903149-06			7105-006	U
LCS (QC ID=30432)	N903149-05			7105-005	ok
Duplicate (N903149-01)	N903149-07			7105-007	ok

Nominal values and limits from method RDLs (pCi/L)
ERDE 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 6880-020	2σ prep error 5.0 %				Reference Lab Notebook 6880 pg.20											
B0TWB0	N903149-01			5	0.250			79		605			42	05/06/99	05/06	XSPEC-014
B0TWB4	N903149-02			7	0.250			79		401			47	05/06/99	05/11	XSPEC-014
B0TYN4	N903149-03			5	0.250			82		439			42	05/06/99	05/06	XSPEC-014
B0TYN8	N903149-04			4	0.250			86		496			42	05/06/99	05/06	XSPEC-014
BLK (QC ID=30433)	N903149-06			2	0.500			84		820				05/06/99	05/07	XSPEC-014
LCS (QC ID=30432)	N903149-05			3	0.500			83		841				05/06/99	05/17	XSPEC-014
Duplicate (N903149-01) (QC ID=30434)	N903149-07			6	0.250			80		400			44	05/06/99	05/08	XSPEC-014
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 FOR 7 SAMPLES
MDA 5 ± 3
YIELD 82 ± 5

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/08/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0368

METHOD SUMMARY

URANIUM, TOTAL IN WATER

KINETIC PHOSPHORIMETRY

Test U T Matrix LIQUID
SDG 7105
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Uranium
Preparation batch 6880-020					
B0TWB0	N903149-01			7105-001	2.6
B0TWB4	N903149-02			7105-002	3.4
B0TYN4	N903149-03			7105-003	U
B0TYN8	N903149-04			7105-004	U
BLK (QC ID=30433)	N903149-06			7105-006	U
LCS (QC ID=30432)	N903149-05			7105-005	ok
Duplicate (N903149-01)	N903149-07			7105-007	ok
Nominal values and limits from method				RDLs (ug/L)	0.1
ERDE 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 6880-020	2σ prep error 9.0 %	Reference Lab Notebook 6880 pg.20														
B0TWB0	N903149-01			0.04	0.0200								28	04/22/99	04/22	KPA-001
B0TWB4	N903149-02			0.04	0.0200								28	04/22/99	04/22	KPA-001
B0TYN4	N903149-03			0.04	0.0200								28	04/22/99	04/22	KPA-001
B0TYN8	N903149-04			0.04	0.0200								28	04/22/99	04/22	KPA-001
BLK (QC ID=30433)	N903149-06			0.04	0.0200									04/22/99	04/22	KPA-001
LCS (QC ID=30432)	N903149-05			0.4	0.0200									04/22/99	04/22	KPA-001
Duplicate (N903149-01) (QC ID=30434)	N903149-07			0.04	0.0200								28	04/22/99	04/22	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 7 SAMPLES
MDA 0.09 ± 0.3
YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/08/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0368

METHOD SUMMARY

CARBON 14 IN WATER

LIQUID SCINTILLATION COUNTING

Test C Matrix LIQUID
SDG 7105
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14
Preparation batch 6880-020					
B0TWB0	N903149-01			7105-001	U
B0TWB4	N903149-02			7105-002	U
B0TYN4	N903149-03			7105-003	U
B0TYN8	N903149-04			7105-004	U
BLK (QC ID=30433)	N903149-06			7105-006	U
LCS (QC ID=30432)	N903149-05			7105-005	LOW
Duplicate (N903149-01)	N903149-07			7105-007	- U

Nominal values and limits from method RDLs (pCi/L) 100
ERDE 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 6880-020	2σ prep error 10.0 %				Reference Lab Notebook 6880 pg.20											
B0TWB0	N903149-01			30	0.0500			100		50			46	05/08/99	05/10	LSC-005
B0TWB4	N903149-02			30	0.0500			100		50			46	05/08/99	05/10	LSC-005
B0TYN4	N903149-03			30	0.0500			100		50			46	05/08/99	05/10	LSC-005
B0TYN8	N903149-04			30	0.0500			100		50			46	05/08/99	05/10	LSC-005
BLK (QC ID=30433)	N903149-06			2	1.00			100		50				05/08/99	05/10	LSC-005
LCS (QC ID=30432)	N903149-05			1	1.00			100		50				05/08/99	05/10	LSC-005
Duplicate (N903149-01) (QC ID=30434)	N903149-07			30	0.0500			100		50			46	05/08/99	05/10	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 FOR 7 SAMPLES
MDA 20 ± 30
YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 06/08/99

SDG 7105
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

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 06/08/99

SDG 7105
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

* The preparation batches are shown in the same order as the Method Summary Reports are printed.

* Only analyses of planchets relevant to the SDG are included.

* Each preparation batch should have at least one Method Blank and LCS in it to validate client sample results.

* The QUALIFIERS shown are all qualifiers other than U, J, B, L and H that occur on any analysis in the preparation batch. The Method Summary Report has these qualifiers on a per sample basis.

  These qualifiers should be reviewed as follows:

  X Some data has been manually entered or modified. Transcription errors are possible.

  P One or more results are 'preliminary'. The data is not ready for final reporting.

  2 There were two or more results for one analyte on one planchet imported at one time. The results in DVD may not be the same as on the raw data sheets.

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

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SDG 7105
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

WORK SUMMARY

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

The following notes apply to this report:

* TEST is a code for the method used to measure associated analytes. Results and related information for each analyte are on the Data Sheet Report. In special cases, a test code used in the summary data section is not the same as in associated raw data. In this case, both codes are shown on the Work Summary.

* SUFFIX is the lab's code to distinguish multiple analyses (recounts, reworks, reanalyses) of a fraction of the sample. The suffix indicates which result is being reported. An empty suffix normally identifies the first attempt to analyze the sample.

* The LAB SAMPLE ID, TEST and SUFFIX uniquely identify all supporting data for a result. The Method Summary Report for each TEST has method performance data, such as yield, for each lab sample id and suffix and procedures used in the method.

* PLANCHET is an alternate lab identifier for work done for one test. It, combined with the TEST and SUFFIX, may be the best link to raw data.

* For QC samples, only analyses that directly QC some regular sample are shown. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

* The SAS (Special Analytical Services) Number is a client or lab assigned code that reflects special processing for samples, such as rapid turn around. Counts of tests done are lists by SAS number since it is likely to affect prices.

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SDG 7105
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

DATA SHEET

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

The following notes apply to this report:

* TEST is a code for the method used to measure an analyte. If the TEST is empty, no data is available; the analyte was not analyzed for.

* The LAB SAMPLE ID and TEST uniquely identify work within the Summary Data Section of a Data Package. The Work Summary and Method Summary Reports further identify raw data that underlies this work.

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

* ERRORs can be labeled TOTAL or COUNT. TOTAL implies a preparation (non-counting method) error has been added, as square root of sum of squares, to the counting error denoted by COUNT. The preparation errors, which may vary by preparation batch, are shown on the Method Summary Report.

* A RESULT can be 'N.R.' (Not Reported). This means the lab did this work but chooses not to report it now, possibly because it was reported at another time.

* When reporting a Method Blank, a RESULT can be 'N.A.' (Not Applicable). This means there is no reported client sample work in the same preparation batch as the Blank's result. This is likely to occur when the Method Blank is associated with reanalyses of selected work for a few samples in the SDG.

The following qualifiers are defined by the DVD system:

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

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DATA SHEET

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

J The RESULT is less than the RDL (Required Detection Limit) and no U qualifier is assigned.

B A Method Blank associated with this sample had a result without a U flag and, after correcting for possibly different aliquots, that result is greater than or equal to the MDA for this sample.

Normally, B is not assigned if U is. When method blank subtraction is shown on this report, B flags are assigned based on the unsubtracted values while U's are assigned based on the subtracted ones. Both flags can be assigned in this case.

For each sample result, all Method Blank results in the same preparation batch are compared. The Method Summary Report documents this and other QC relationships.

L Some Lab Control Sample that QC's this sample had a low recovery. The lab can disable assignment of this qualifier.

H Similar to 'L' except the recovery was high.

P The RESULT is 'preliminary'.

X Some data necessary to compute the RESULT, ERROR or MDA was manually entered or modified.

2 There were two or more results available for this analyte. The reported result may not be the same as in the raw data.

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

The following values are underlined to indicate possible problems:

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

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Protocol Hanford
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GUIDE, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

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 06/08/99

SDG 7105
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

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
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SDG 7105
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

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 06/08/99

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.

SDG 7105
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

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 06/08/99

SDG 7105
Contact L.A. Johnson

GUIDE, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

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
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Version 3.06
Report date 06/08/99

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.

SDG 7105
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0368

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
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Version 3.06
Report date 06/08/99

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

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.

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

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

Page 1 of 2

Collector R.T SICKLE	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-1426	Ice Chest No. SML 417 Temp. 4°C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4735-7952-3975
Protocol CERCLA	Data Turnaround 45 Days	Offsite Property No. N/A

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
B0TW99 (F)		W	3/25/99	0946	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
B0TWB0		W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB0		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
B0TWB0		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TWB0		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB0		W			1x20-mL P	Activity Scan	None
B0TWB0		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB0		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB0		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB0		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB0		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB0		W	↓	↓	1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	R.T SICKLE		MAR 2 5 1999 1300	K.J. Jones			3-25-99 1300 MAR 2 5 1999
			Date/Time				Date/Time
			3-25-99 1400	Fed Ex			3-26-99
			Date/Time				Date/Time
Fed Ex			3-26-99 11:00				3-26-99 11:00
			Date/Time				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. # C99-024-3

Page 1 of 2

Collector: R.T SICKLE	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-SMC-H26	Ice Chest No.: SMC 395 Temp.: 4°C
Shipped To (Lab): TMA/RECRA	Method of Shipment: GOVT. VEHICLE	Bill of Lading/Air Bill No.: 4235 7952 3964
Protocol: CERCLA	Data Turnaround: 45 Days	Offsite Property No.: N/A

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
B0TWB3 (F)		W	3/25/99	1153	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
B0TWB4		W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TWB4		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
B0TWB4		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TWB4		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TWB4		W			1x20-mL P	Activity Scan	None
B0TWB4		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TWB4		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TWB4		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TWB4		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TWB4		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TWB4		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	R.T SICKLE		MAR 25 1999 1300	K.J. Evans	Don Kay		3/25/99 MAR 25 1999
Don Kay			3/25/99 1400	Fed Ex			3-25-99
Fed Ex			3-26-99 11:00	J R Corso			3-26-99 11:00

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. # C99-024-9

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 417 Temp. 4 °C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235-7952-3975
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
B0TYN3 (F)		W	3-25-99	0730	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
B0TYN4		W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TYN4		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
B0TYN4		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
B0TYN4		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TYN4		W			1x20-mL P	Activity Scan	None
B0TYN4		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TYN4		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TYN4		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TYN4		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TYN4		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TYN4		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By D.E. HOLLINGSWORTH Sign D. Hollingsworth	Date/Time MAR 25 1999 1300	Received By Print K J Evans Sign K J Evans 3/25/99 1300	Date/Time MAR 25 1999
Relinquished By Don Evans	Date/Time 3/25/99 1400	Received By Fed Ex	Date/Time 3-25-99
Relinquished By Fed Ex	Date/Time 3-26-99 11:00	Received By JR Corso JR Corso	Date/Time 3-26-99 11:00
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. # C99-024-11

Page 1 of 2

Collector RT SICKLE	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.	Ice Chest No. SML 395 Temp. 4°C
Shipped To (Lab) TMA/RECRA	Method of Shipment GOVT. VEHICLE	Bill of Lading/Air Bill No. 4235-7952-3964
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
B0TYN7 (F)		W	3/25/99	1030	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
B0TYN8		W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
B0TYN8		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
B0TYN8		W			1x500-mL P	IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Sulfate}	Cool 4C
B0TYN8		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
B0TYN8		W			1x20-mL P	Activity Scan	None
B0TYN8		W			2x1000-mL G/P	Gross Beta; Gross Alpha; Total Radium	HNO3 to pH <2
B0TYN8		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
B0TYN8		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
B0TYN8		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
B0TYN8		W			1x500-mL G/P	TDS - 160.1	Cool 4C
B0TYN8		W			1x500-mL aGs*	TOX - 9020	H2SO4 to pH <2 Cool 4C

Relinquished By	Print	Sign	Date/Time	Received By	Print	Sign	Date/Time
	R.T SICKLE		MAR 2 5 1999 1300	K.J. Yang			3/25/99 MAR 2 5 1999 1300
Relinquished By			Date/Time	Received By			Date/Time
Ken Yang			3/25/99 1400	Fed Ex			3-25-99
Relinquished By			Date/Time	Received By			Date/Time
Fed Ex			3-26-99 11:00	DR Corso JR Corso			3-26-99 01:00
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

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT)
Waste Managment		W99 - 0 - 0166

PART I - TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
Hanford Operations	Environmental Ops	Sampling & Mobile Labs

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

Routing 423579523964 Fed Ex 423579523975 ☑ Prepaid ☐ Collect

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

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
2	Coolers	Double bagged & packed on wet ice: Cooler #'s 395, 417 Weight 97 lbs, 99 lbs C.O.C # C99,024-3,11,6,9,5,1 Sample #s BOTN3, N4, XP7, W99, WB0, WB4 YN7, YN8, XP8	

☐ 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 require Analysis not Available on 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 Building / 300

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
3-25-99	08900	N/A

Originated By	Date	Authorized By	Date
K.J. Young	3-25-99	Don Young	
Property Representative Signature	**Date**	**Property Management Approval**	**Date**
			3/25/99

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature	Date
	3/25/99

DISTRIBUTION (AFTER FINAL SIGNATURES)

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

*U.S. GPO: 1994-592-170/00029

54-3000-479 (01/94)

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford (PNNL) Date/Time received 3-26-99 11:00

CoC No. C99-024-3, 6 & 11

Container I.D. No. SML-295 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: ________

13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date ________
14. Received by [signature] Date: 3-26-99 Time: 11:00

LOGIN

TNU W.O. No. ________ Group No. ________ Client W.O. No. ________

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name ________ Date/time ________

Form SCP-01.2, 11-06-98

"50 years of quality nuclear services"

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford (PNNL) Date/Time received 3-26-99 11:00

CoC No. C99-024-1,5+9

Container I.D. No. SML-417 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: _____			
13.	Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____			
14.	Received by JR Carson Date: 3-26-99 Time: 11:00			

LOGIN

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

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name _____ Date/time _____