

H0550-TMA/RECR A

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A ThermoRetec Company  
2030 Wright Avenue  
P.O. Box 4040  
Richmond, CA 94804

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December 4, 1999

Ms. Joan Kessner  
3190 George Washington Way  
Richland, WA 99352  
MSIN: H9-03

Reference: P.O. #TRC-SBB-207925  
Thermo Nutech N9-09-208-7223, SDG H0550

Dear Ms. Kessner:

Enclosed is a reprinted data report for seven water samples designated under SAF No. C99-045 received at Thermo Nutech on September 29, 1999. The total radium method title was changed to Total Alpha Radium In Water. This reprint report replaces the previously delivered data report.

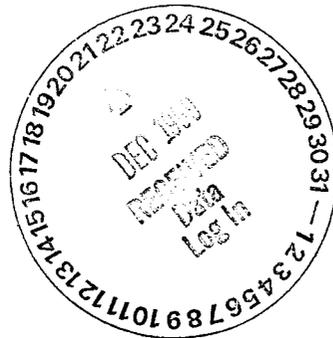
Please call if you have any questions concerning this report.

Sincerely,

N. Joseph Verville  
Senior Program Manager

/njv

Original received  
12/7/99  
D Hayes  
12/27/99



Thermo Nutech  
W.O. No. N9-09-208-7223

Bechtel Hanford Inc.  
SDG H0550

## Case Narrative

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### 1.0 GENERAL

Bechtel Hanford Inc. Sample Delivery Group H0550 is composed of seven liquid (water) samples designated under SAF No. C99-045 with a Project Designation of: ERDF GW MONITORING, SEPTEMBER 1999.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the TNU Sample Receipt Checklists. The finalized results were reported to BHI via fax on November 30, 1999.

### 2.0 ANALYSIS NOTES

#### 2.1 Gross Alpha and Beta Analyses

No problems were encountered during the course of the analyses.

#### 2.2 Total Radium Analyses

No problems were encountered during the course of the analyses.

#### 2.3 Iodine-129 Analyses

No problems were encountered during the course of the analyses. A recount was performed on sample TOV457.

#### 2.4 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

#### 2.5 Total Uranium Analyses

No problems were encountered during the course of the analyses.

#### 2.6 Technetium-99 Analyses

No problems were encountered during the course of the analyses.



TMA/RICHMOND

SAMPLE DELIVERY GROUP H0550

SAMPLE SUMMARY

SDG 7223  
Contact Kevin C. Johnson

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB		CHAIN OF	
				SAMPLE ID	SAF NO	CUSTODY	COLLECTED
T0V457	HANFORD SITE	WATER		N909208-01	C99-045	C99-045-7	09/28/99 11:26
T0V459	HANFORD SITE	WATER		N909208-02	C99-045	C99-045-5	09/28/99 11:45
T0V461	HANFORD SITE	WATER		N909208-03	C99-045	C99-045-6	09/28/99 10:30
T0V463	HANFORD SITE	WATER		N909208-04	C99-045	C99-045-1	09/28/99 09:39
T0V465	HANFORD SITE	WATER		N909208-05	C99-045	C99-045-2	09/28/99 09:39
T0V467	HANFORD SITE	WATER		N909208-06	C99-045	C99-045-3	09/28/99 13:23
T0V469	HANFORD SITE	WATER		N909208-07	C99-045	C99-045-4	09/28/99 08:15
Method Blank		WATER		N909208-09	C99-045		
Lab Control Sample		WATER		N909208-08	C99-045		
Duplicate (N909208-01)	HANFORD SITE	WATER		N909208-10	C99-045		09/28/99 11:26

SAMPLE SUMMARY

Page 1

SUMMARY DATA SECTION

Page 3

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-CS  
Version 3.06  
Report date 12/13/99

**TMA/RICHMOND**  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

**QC SUMMARY**

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	LAB COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7223	C99-045-1	T0V463	WATER				09/29/99	1	N909208-04	7223-004
	C99-045-2	T0V465	WATER				09/29/99	1	N909208-05	7223-005
	C99-045-3	T0V467	WATER				09/29/99	1	N909208-06	7223-006
	C99-045-4	T0V469	WATER				09/29/99	1	N909208-07	7223-007
	C99-045-5	T0V459	WATER				09/29/99	1	N909208-02	7223-002
	C99-045-6	T0V461	WATER				09/29/99	1	N909208-03	7223-003
	C99-045-7	T0V457	WATER				09/29/99	1	N909208-01	7223-001
		Method Blank	WATER						N909208-09	7223-009
		Lab Control Sample	WATER						N909208-08	7223-008
		Duplicate (N909208-01)	WATER				09/29/99	1	N909208-10	7223-010

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-QS  
Version 3.06  
Report date 12/13/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0550

SDG 7223  
 Contact Kevin C. Johnson

PREP BATCH SUMMARY

Client Hanford  
 Contract TRB-SBB-207925  
 Case no SDG H0550

TEST	MATRIX	METHOD	PREPARATION ERROR			PLANCHETS ANALYZED			QUALI- FIERS
			BATCH	2σ %	CLIENT MORE	RE BLANK	LCS DUP/ORIG	MS/ORIG	
Beta Counting									
TC	WATER	Technetium 99 in Water	6904-047	10.0	7	1	1	1/1	
Gas Proportional Counting									
RAT	WATER	Total Alpha Radium in Water	6904-047	5.0	7	1	1	1/1	
Gas Proportional Counting									
80A	WATER	Gross Alpha in Water	6904-047	20.0	7	1	1	1/1	
80B	WATER	Gross Beta in Water	6904-047	15.0	7	1	1	1/1	
Gamma Spectroscopy									
I	WATER	Iodine 129 in Water	6904-047	5.0	7	1	1	1/1	
Kinetic Phosphorimetry									
U_T	WATER	Uranium, Total in Water	6904-047	9.0	7	1	1	1/1	
Liquid Scintillation Counting									
C	WATER	Carbon 14 in Water	6904-047	10.0	7	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  
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 Version Ver 1.0  
 Form DVD-PBS  
 Version 3.06  
 Report date 12/13/99

**TMA/RICHMOND**

SAMPLE DELIVERY GROUP H0550

SDG 7223  
 Contact Kevin C. Johnson

Client Hanford  
 Contract TRB-SBB-207925  
 Case no SDG H0550

**WORK SUMMARY**

CLIENT SAMPLE ID	LAB SAMPLE ID									
LOCATION	MATRIX	COLLECTED	SUF-							
CUSTODY	SAF No	RECEIVED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
T0V457		N909208-01	7223-001	80A/80		10/26/99	11/30/99	NJV	Gross Alpha in Water	
HANFORD SITE	WATER	09/28/99	7223-001	80B/80		10/26/99	11/30/99	NJV	Gross Beta in Water	
C99-045-7	C99-045	09/29/99	7223-001	C		10/23/99	11/30/99	NJV	Carbon 14 in Water	
			7223-001	I		11/24/99	11/30/99	NJV	Iodine 129 in Water	
			7223-001	RAT		11/01/99	11/30/99	NJV	Total Alpha Radium in Water	
			7223-001	TC		11/22/99	11/30/99	NJV	Technetium 99 in Water	
			7223-001	U_T		10/26/99	11/30/99	NJV	Uranium, Total in Water	
T0V459		N909208-02	7223-002	80A/80		10/26/99	11/30/99	NJV	Gross Alpha in Water	
HANFORD SITE	WATER	09/28/99	7223-002	80B/80		10/26/99	11/30/99	NJV	Gross Beta in Water	
C99-045-5	C99-045	09/29/99	7223-002	C		10/24/99	11/30/99	NJV	Carbon 14 in Water	
			7223-002	I		11/19/99	11/30/99	NJV	Iodine 129 in Water	
			7223-002	RAT		11/01/99	11/30/99	NJV	Total Alpha Radium in Water	
			7223-002	TC		11/23/99	11/30/99	NJV	Technetium 99 in Water	
			7223-002	U_T		10/26/99	11/30/99	NJV	Uranium, Total in Water	
T0V461		N909208-03	7223-003	80A/80		10/26/99	11/30/99	NJV	Gross Alpha in Water	
HANFORD SITE	WATER	09/28/99	7223-003	80B/80		10/26/99	11/30/99	NJV	Gross Beta in Water	
C99-045-6	C99-045	09/29/99	7223-003	C		10/24/99	11/30/99	NJV	Carbon 14 in Water	
			7223-003	I		11/19/99	11/30/99	NJV	Iodine 129 in Water	
			7223-003	RAT		11/03/99	11/30/99	NJV	Total Alpha Radium in Water	
			7223-003	TC		11/23/99	11/30/99	NJV	Technetium 99 in Water	
			7223-003	U_T		10/26/99	11/30/99	NJV	Uranium, Total in Water	
T0V463		N909208-04	7223-004	80A/80		10/26/99	11/30/99	NJV	Gross Alpha in Water	
HANFORD SITE	WATER	09/28/99	7223-004	80B/80		10/26/99	11/30/99	NJV	Gross Beta in Water	
C99-045-1	C99-045	09/29/99	7223-004	C		10/24/99	11/30/99	NJV	Carbon 14 in Water	
			7223-004	I		11/20/99	11/30/99	NJV	Iodine 129 in Water	
			7223-004	RAT		11/03/99	11/30/99	NJV	Total Alpha Radium in Water	
			7223-004	TC		11/23/99	11/30/99	NJV	Technetium 99 in Water	
			7223-004	U_T		10/26/99	11/30/99	NJV	Uranium, Total in Water	
T0V465		N909208-05	7223-005	80A/80		10/26/99	11/30/99	NJV	Gross Alpha in Water	
HANFORD SITE	WATER	09/28/99	7223-005	80B/80		10/26/99	11/30/99	NJV	Gross Beta in Water	
C99-045-2	C99-045	09/29/99	7223-005	C		10/24/99	11/30/99	NJV	Carbon 14 in Water	
			7223-005	I		11/22/99	11/30/99	NJV	Iodine 129 in Water	
			7223-005	RAT		11/05/99	11/30/99	NJV	Total Alpha Radium in Water	
			7223-005	TC		11/19/99	11/30/99	NJV	Technetium 99 in Water	
			7223-005	U_T		10/26/99	11/30/99	NJV	Uranium, Total in Water	

WORK SUMMARY

Page 1

SUMMARY DATA SECTION

Page 6

Lab id TMANC  
 Protocol Hanford  
 Version Ver 1.0  
 Form DVD-CWS  
 Version 3.06  
 Report date 12/13/99

**TMA/RICHMOND**

SAMPLE DELIVERY GROUP H0550

**WORK SUMMARY, cont.**

SDG 7223  
 Contact Kevin C. Johnson

Client Hanford  
 Contract TRB-SBB-207925  
 Case no SDG H0550

CLIENT SAMPLE ID	LAB SAMPLE ID								
LOCATION	MATRIX	COLLECTED	SUF-						
CUSTODY	SAF No	RECEIVED	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD
T0V467		N909208-06	7223-006	80A/80		10/26/99	11/30/99	NJV	Gross Alpha in Water
HANFORD SITE	WATER	09/28/99	7223-006	80B/80		10/26/99	11/30/99	NJV	Gross Beta in Water
C99-045-3	C99-045	09/29/99	7223-006	C		10/24/99	11/30/99	NJV	Carbon 14 in Water
			7223-006	I		11/23/99	11/30/99	NJV	Iodine 129 in Water
			7223-006	RAT		11/04/99	11/30/99	NJV	Total Alpha Radium in Water
			7223-006	TC		11/23/99	11/30/99	NJV	Technetium 99 in Water
			7223-006	U_T		10/26/99	11/30/99	NJV	Uranium, Total in Water
T0V469		N909208-07	7223-007	80A/80		10/26/99	11/30/99	NJV	Gross Alpha in Water
HANFORD SITE	WATER	09/28/99	7223-007	80B/80		10/26/99	11/30/99	NJV	Gross Beta in Water
C99-045-4	C99-045	09/29/99	7223-007	C		10/24/99	11/30/99	NJV	Carbon 14 in Water
			7223-007	I		11/23/99	11/30/99	NJV	Iodine 129 in Water
			7223-007	RAT		11/05/99	11/30/99	NJV	Total Alpha Radium in Water
			7223-007	TC		11/23/99	11/30/99	NJV	Technetium 99 in Water
			7223-007	U_T		10/26/99	11/30/99	NJV	Uranium, Total in Water
Method Blank		N909208-09	7223-009	80A/80		10/26/99	11/30/99	NJV	Gross Alpha in Water
	WATER		7223-009	80B/80		10/26/99	11/30/99	NJV	Gross Beta in Water
	C99-045		7223-009	C		10/24/99	11/30/99	NJV	Carbon 14 in Water
			7223-009	I		11/22/99	11/30/99	NJV	Iodine 129 in Water
			7223-009	RAT		11/02/99	11/30/99	NJV	Total Alpha Radium in Water
			7223-009	TC		11/23/99	11/30/99	NJV	Technetium 99 in Water
			7223-009	U_T		10/26/99	11/30/99	NJV	Uranium, Total in Water
Lab Control Sample		N909208-08	7223-008	80A/80		10/26/99	11/30/99	NJV	Gross Alpha in Water
	WATER		7223-008	80B/80		10/26/99	11/30/99	NJV	Gross Beta in Water
	C99-045		7223-008	C		10/24/99	11/30/99	NJV	Carbon 14 in Water
			7223-008	I		11/24/99	11/30/99	NJV	Iodine 129 in Water
			7223-008	RAT		10/30/99	11/30/99	NJV	Total Alpha Radium in Water
			7223-008	TC		11/19/99	11/30/99	NJV	Technetium 99 in Water
			7223-008	U_T		10/26/99	11/30/99	NJV	Uranium, Total in Water
Duplicate (N909208-01)		N909208-10	7223-010	80A/80		10/26/99	11/30/99	NJV	Gross Alpha in Water
HANFORD SITE	WATER	09/28/99	7223-010	80B/80		10/26/99	11/30/99	NJV	Gross Beta in Water
	C99-045	09/29/99	7223-010	C		10/25/99	11/30/99	NJV	Carbon 14 in Water
			7223-010	I		11/26/99	11/30/99	NJV	Iodine 129 in Water
			7223-010	RAT		11/04/99	11/30/99	NJV	Total Alpha Radium in Water
			7223-010	TC		11/22/99	11/30/99	NJV	Technetium 99 in Water
			7223-010	U_T		10/26/99	11/30/99	NJV	Uranium, Total in Water

WORK SUMMARY

Page 2

SUMMARY DATA SECTION

Page 7

Lab id TMANC  
 Protocol Hanford  
 Version Ver 1.0  
 Form DVD-CWS  
 Version 3.06  
 Report date 12/13/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0550

WORK SUMMARY, cont.

SDG 7223  
 Contact Kevin C. Johnson

Client Hanford  
 Contract TRB-SBB-207925  
 Case no SDG H0550

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
80A/80	C99-045	Gross Alpha in Water	EPA900.0	7			1	1	1	10
80B/80	C99-045	Gross Beta in Water	EPA900.0	7			1	1	1	10
C	C99-045	Carbon 14 in Water	C14CHEMLSC	7			1	1	1	10
I	C99-045	Iodine 129 in Water	I129LEPS	7			1	1	1	10
RAT	C99-045	Total Alpha Radium in Water	ALPHA-RA	7			1	1	1	10
TC	C99-045	Technetium 99 in Water	TC99TRLSC	7			1	1	1	10
U_T	C99-045	Uranium, Total in Water	UKPA	7			1	1	1	10
TOTALS				49			7	7	7	70

WORK SUMMARY

Page 3

SUMMARY DATA SECTION

Page 8

Lab id TMANC  
 Protocol Hanford  
 Version Ver 1.0  
 Form DVD-CWS  
 Version 3.06  
 Report date 12/13/99



TMA/RICHMOND

SAMPLE DELIVERY GROUP H0550

N909208-08

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7223</u>	Client/Case no <u>Hanford</u> SDG <u>H0550</u>
Contact <u>Kevin C. Johnson</u>	Case no <u>TRB-SBB-207925</u>
Lab sample id <u>N909208-08</u>	Client sample id <u>Lab Control Sample</u>
Dept sample id <u>7223-008</u>	Material/Matrix <u>WATER</u>
	SAF No <u>C99-045</u>

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
Technetium 99	1060	35	12	15	TC	1130	45	94	84-116	80-120
Iodine 129	176	4.4	6.0		I	185	7.4	95	90-110	
Carbon 14	3970	42	21		C	4340	170	91	85-115	
Gross Beta	77.4	3.8	2.5	4.0	80B	75.3	3.0	103	75-125	
Total Radium	54.0	2.6	0.70		RAT	59.0	2.4	92	89-111	
Total Uranium (ug/L)	87.5	10	0.097	0.10	U_T	82.5	3.3	106	76-124	80-120

ERDF GW MONITORING SEPTEMBER 1999

QC-LCS 32129

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-LCS  
Version 3.06  
Report date 12/13/99

**TMA/RICHMOND**  
SAMPLE DELIVERY GROUP H0550

N909208-10

T0V457

**DUPLICATE**

SDG <u>7223</u> Contact <u>Kevin C. Johnson</u> DUPLICATE Lab sample id <u>N909208-10</u> Dept sample id <u>7223-010</u>	ORIGINAL Lab sample id <u>N909208-01</u> Dept sample id <u>7223-001</u> Received <u>09/29/99</u>	Client/Case no <u>Hanford</u> <u>SDG H0550</u> Case no <u>TRB-SBB-207925</u> Client sample id <u>T0V457</u> Location/Matrix <u>HANFORD SITE</u> <u>WATER</u> Collected <u>09/28/99 11:26</u> Custody/SAF No <u>C99-045-7</u> <u>C99-045</u>
--	---	--

ANALYTE	DUPLICATE		MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST	ORIGINAL		MDA pCi/L	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
	pCi/L	2σ ERR (COUNT)					pCi/L	2σ ERR (COUNT)					
Technetium 99	35.9	12	<u>22</u>	15		TC	44.6	9.0	<u>21</u>		22	60	
Iodine 129	1.26	1.8	4.0		U	I	1.87	2.2	5.0	U	-		
Carbon 14	-1.59	9.6	16		U	C	-5.94	10	17	U	-		
Gross Beta	25.9	2.5	2.5	4.0		80B	27.1	2.6	2.6		5	38	
Total Radium	0.006	0.18	0.48		U	RAT	-0.068	0.13	0.69	U	-		
Total Uranium (ug/L)	2.55	0.29	0.010	0.10		U_T	2.58	0.29	0.010		1	31	

ERDF GW MONITORING SEPTEMBER 1999

QC-DUP#1 32131

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>12/13/99</u>

**TMA / RICHMOND**  
**SAMPLE DELIVERY GROUP H0550**

N909208-01

T0V457

**DATA SHEET**

SDG <u>7223</u>	Client/Case no <u>Hanford</u>	SDG <u>H0550</u>
Contact <u>Kevin C. Johnson</u>	Contract <u>TRB-SBB-207925</u>	
Lab sample id <u>N909208-01</u>	Client sample id <u>T0V457</u>	
Dept sample id <u>7223-001</u>	Location/Matrix <u>HANFORD SITE</u>	<u>WATER</u>
Received <u>09/29/99</u>	Collected <u>09/28/99 11:26</u>	
	Custody/SAF No <u>C99-045-7</u>	<u>C99-045</u>

ANALYTE	CAS NO	RESULT pCi/L	2 $\sigma$ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Technetium 99	14133-76-7	44.6	9.0	<u>21</u>	15		TC
Iodine 129	15046-84-1	1.87	2.2	5.0		U	I
Carbon 14	14762-75-5	-5.94	10	17		U	C
Gross Beta	12587-47-2	27.1	2.6	2.6	4.0		80B
Total Radium	ALPHA-RA	-0.068	0.13	0.69		U	RAT
Total Uranium (ug/L)	7440-61-1	2.58	0.29	0.010	0.10		U_T

ERDF GW MONITORING SEPTEMBER 1999

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>12/13/99</u>

**TMA / RICHMOND**  
**SAMPLE DELIVERY GROUP H0550**

N909208-02

T0V459

**DATA SHEET**

SDG <u>7223</u>	Client/Case no <u>Hanford</u>	SDG <u>H0550</u>
Contact <u>Kevin C. Johnson</u>	Contract <u>TRB-SBB-207925</u>	
Lab sample id <u>N909208-02</u>	Client sample id <u>T0V459</u>	
Dept sample id <u>7223-002</u>	Location/Matrix <u>HANFORD SITE</u>	<u>WATER</u>
Received <u>09/29/99</u>	Collected <u>09/28/99 11:45</u>	
	Custody/SAF No <u>C99-045-5</u>	<u>C99-045</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Technetium 99	14133-76-7	90.1	8.9	15	15		TC
Iodine 129	15046-84-1	6.54	3.2	6.9		U	I
Carbon 14	14762-75-5	-9.54	9.8	16		U	C
Gross Beta	12587-47-2	50.2	3.0	2.2	4.0		80B
Total Radium	ALPHA-RA	0.195	0.17	0.58		U	RAT
Total Uranium (ug/L)	7440-61-1	3.41	0.38	0.010	0.10		U_T

ERDF GW MONITORING SEPTEMBER 1999

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>12/13/99</u>

**TMA / RICHMOND**  
**SAMPLE DELIVERY GROUP H0550**

N909208-03

T0V461

**DATA SHEET**

SDG <u>7223</u>	Client/Case no <u>Hanford</u>	SDG <u>H0550</u>
Contact <u>Kevin C. Johnson</u>	Contract <u>TRB-SBB-207925</u>	
Lab sample id <u>N909208-03</u>	Client sample id <u>T0V461</u>	
Dept sample id <u>7223-003</u>	Location/Matrix <u>HANFORD SITE</u>	<u>WATER</u>
Received <u>09/29/99</u>	Collected <u>09/28/99 10:30</u>	
	Custody/SAF No <u>C99-045-6</u>	<u>C99-045</u>

ANALYTE	CAS NO	RESULT pCi/L	2 $\sigma$ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Technetium 99	14133-76-7	0.740	4.7	10	15	U	TC
Iodine 129	15046-84-1	0.494	1.5	3.3		U	I
Carbon 14	14762-75-5	-6.49	9.9	17		U	C
Gross Beta	12587-47-2	-0.720	1.3	2.3	4.0	U	80B
Total Radium	ALPHA-RA	-0.007	0.11	0.42		U	RAT
Total Uranium (ug/L)	7440-61-1	0.166	0.021	0.010	0.10		U_T

ERDF GW MONITORING SEPTEMBER 1999

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>12/13/99</u>

**TMA / RICHMOND**  
**SAMPLE DELIVERY GROUP H0550**

N909208-04

T0V463

**DATA SHEET**

SDG <u>7223</u>	Client/Case no <u>Hanford</u>	SDG <u>H0550</u>
Contact <u>Kevin C. Johnson</u>	Contract <u>TRB-SBB-207925</u>	
Lab sample id <u>N909208-04</u>	Client sample id <u>T0V463</u>	
Dept sample id <u>7223-004</u>	Location/Matrix <u>HANFORD SITE</u>	<u>WATER</u>
Received <u>09/29/99</u>	Collected <u>09/28/99 09:39</u>	
	Custody/SAF No <u>C99-045-1</u>	<u>C99-045</u>

ANALYTE	CAS NO	RESULT pCi/L	2 $\sigma$ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Technetium 99	14133-76-7	40.4	6.1	9.3	15		TC
Iodine 129	15046-84-1	5.68	2.2	4.7			I
Carbon 14	14762-75-5	7.43	10	17		U	C
Gross Beta	12587-47-2	25.8	2.3	2.0	4.0		80B
Total Radium	ALPHA-RA	0.025	0.10	0.39		U	RAT
Total Uranium (ug/L)	7440-61-1	2.53	0.28	0.010	0.10		U_T

ERDF GW MONITORING SEPTEMBER 1999

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>12/13/99</u>

**TMA / RICHMOND**  
**SAMPLE DELIVERY GROUP H0550**

N909208-05

TOV465

**DATA SHEET**

SDG <u>7223</u>	Client/Case no <u>Hanford</u>	SDG <u>H0550</u>
Contact <u>Kevin C. Johnson</u>	Contract <u>TRB-SBB-207925</u>	
Lab sample id <u>N909208-05</u>	Client sample id <u>TOV465</u>	
Dept sample id <u>7223-005</u>	Location/Matrix <u>HANFORD SITE</u>	<u>WATER</u>
Received <u>09/29/99</u>	Collected <u>09/28/99 09:39</u>	
	Custody/SAF No <u>C99-045-2</u>	<u>C99-045</u>

ANALYTE	CAS NO	RESULT pCi/L	2 $\sigma$ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Technetium 99	14133-76-7	34.3	5.7	12	15		TC
Iodine 129	15046-84-1	6.96	2.6	5.6			I
Carbon 14	14762-75-5	14.1	10	17		U	C
Gross Beta	12587-47-2	25.1	2.4	2.3	4.0		80B
Total Radium	ALPHA-RA	0.088	0.12	0.38		U	RAT
Total Uranium (ug/L)	7440-61-1	2.65	0.30	0.010	0.10		U_T

ERDF GW MONITORING SEPTEMBER 1999

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>12/13/99</u>

**TMA / RICHMOND**  
**SAMPLE DELIVERY GROUP H0550**

N909208-06

T0V467

**DATA SHEET**

SDG <u>7223</u>	Client/Case no <u>Hanford</u>	SDG <u>H0550</u>
Contact <u>Kevin C. Johnson</u>	Contract <u>TRB-SBB-207925</u>	
Lab sample id <u>N909208-06</u>	Client sample id <u>T0V467</u>	
Dept sample id <u>7223-006</u>	Location/Matrix <u>HANFORD SITE</u>	<u>WATER</u>
Received <u>09/29/99</u>	Collected <u>09/28/99 13:23</u>	
	Custody/SAF No <u>C99-045-3</u>	<u>C99-045</u>

ANALYTE	CAS NO	RESULT pCi/L	2 $\sigma$ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Technetium 99	14133-76-7	85.2	6.9	10	15		TC
Iodine 129	15046-84-1	9.24	2.2	4.5			I
Carbon 14	14762-75-5	-2.74	9.9	17		U	C
Gross Beta	12587-47-2	57.2	3.2	2.0	4.0		80B
Total Radium	ALPHA-RA	0.083	0.12	0.39		U	RAT
Total Uranium (ug/L)	7440-61-1	2.63	0.29	0.010	0.10		U_T

ERDF GW MONITORING SEPTEMBER 1999

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>12/13/99</u>

**TMA / RICHMOND**  
**SAMPLE DELIVERY GROUP H0550**

N909208-07

TOV469

**DATA SHEET**

SDG <u>7223</u>	Client/Case no <u>Hanford</u>	SDG <u>H0550</u>
Contact <u>Kevin C. Johnson</u>	Contract <u>TRB-SBB-207925</u>	
Lab sample id <u>N909208-07</u>	Client sample id <u>TOV469</u>	
Dept sample id <u>7223-007</u>	Location/Matrix <u>HANFORD SITE</u>	<u>WATER</u>
Received <u>09/29/99</u>	Collected <u>09/28/99 08:15</u>	
	Custody/SAF No <u>C99-045-4</u>	<u>C99-045</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Technetium 99	14133-76-7	0.296	5.1	12	15	U	TC
Iodine 129	15046-84-1	-1.12	1.9	4.4		U	I
Carbon 14	14762-75-5	<u>-14.2</u>	9.8	17		U	C
Gross Beta	12587-47-2	-0.129	1.4	2.4	4.0	U	80B
Total Radium	ALPHA-RA	0.108	0.14	0.40		U	RAT
Total Uranium (ug/L)	7440-61-1	0.129	0.018	0.010	0.10		U_T

ERDF GW MONITORING SEPTEMBER 1999

Lab id <u>TMANC</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>12/13/99</u>

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0550

METHOD SUMMARY

TECHNETIUM 99 IN WATER  
BETA COUNTING

Test TC Matrix WATER  
SDG 7223  
Contact Kevin C. Johnson

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	Technetium 99 PLANCHET
Preparation batch 6904-047				
T0V457	N909208-01	7223-001		44.6
T0V459	N909208-02	7223-002		90.1
T0V461	N909208-03	7223-003		U
T0V463	N909208-04	7223-004		40.4
T0V465	N909208-05	7223-005		34.3
T0V467	N909208-06	7223-006		85.2
T0V469	N909208-07	7223-007		U
BLK (QC ID=32130)	N909208-09	7223-009		U
LCS (QC ID=32129)	N909208-08	7223-008		ok
Duplicate (N909208-01)	N909208-10	7223-010		ok

Nominal values and limits from method RDLs (pCi/L) 15  
ERDF GW MONITORING SEPTEMBER 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	ANAL- YZED	DETECTOR
Preparation batch 6904-047 2σ prep error 10.0 % Reference Lab Notebook 6904 pg. 047															
T0V457	N909208-01			<u>21</u>	0.0500			33	101			55	11/16/99	11/22	GRB-221
T0V459	N909208-02			15	0.0500			44	101			56	11/16/99	11/23	GRB-218
T0V461	N909208-03			10	0.0500			67	101			56	11/16/99	11/23	GRB-220
T0V463	N909208-04			9.3	0.0500			72	101			56	11/16/99	11/23	GRB-222
T0V465	N909208-05			12	0.0500			57	101			52	11/16/99	11/19	GRB-230
T0V467	N909208-06			10	0.0500			66	101			56	11/16/99	11/23	GRB-224
T0V469	N909208-07			12	0.0500			62	101			56	11/16/99	11/23	GRB-229
BLK (QC ID=32130)	N909208-09			7.7	0.0500			88	101				11/16/99	11/23	GRB-230
LCS (QC ID=32129)	N909208-08			12	0.0500			61	101				11/16/99	11/19	GRB-202
Duplicate (N909208-01)	N909208-10			<u>22</u>	0.0500			31	101			55	11/16/99	11/22	GRB-203
	(QC ID=32131)														

Nominal values and limits from method 15 0.0500 20-105 50 180

METHOD SUMMARIES

Page 1

SUMMARY DATA SECTION

Page 19

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-CMS  
Version 3.06  
Report date 12/13/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0550

METHOD SUMMARY, cont.

TECHNETIUM 99 IN WATER  
BETA COUNTING

Test TC Matrix WATER  
SDG 7223  
Contact Kevin C. Johnson

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

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

AVERAGES ± 2 SD	MDA	<u>13</u>	±	<u>9.7</u>
FOR 10 SAMPLES	YIELD	<u>58</u>	±	<u>35</u>

METHOD SUMMARIES

Page 2

SUMMARY DATA SECTION

Page 20

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-CMS  
Version 3.06  
Report date 12/13/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0550

METHOD SUMMARY

TOTAL ALPHA RADIUM IN WATER  
GAS PROPORTIONAL COUNTING

Test RAT Matrix WATER  
SDG 7223  
Contact Kevin C. Johnson

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Total Radium
Preparation batch 6904-047					
TOV457	N909208-01	7223-001			U
TOV459	N909208-02	7223-002			U
TOV461	N909208-03	7223-003			U
TOV463	N909208-04	7223-004			U
TOV465	N909208-05	7223-005			U
TOV467	N909208-06	7223-006			U
TOV469	N909208-07	7223-007			U
BLK (QC ID=32130)	N909208-09	7223-009			U
LCS (QC ID=32129)	N909208-08	7223-008			ok
Duplicate (N909208-01)	N909208-10	7223-010			- U

Nominal values and limits from method RDLs (pCi/L)  
ERDF GW MONITORING SEPTEMBER 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	ANAL- PREPARED	YZED	DETECTOR
Preparation batch 6904-047 2σ prep error 5.0 % Reference Lab Notebook 6904 pg. 047																
TOV457	N909208-01			0.69	0.200			71	100			34	10/29/99	11/01		GAW-113
TOV459	N909208-02			0.58	0.200			91	100			34	10/29/99	11/01		GAW-114
TOV461	N909208-03			0.42	0.200			87	100			36	10/29/99	11/03		GAW-111
TOV463	N909208-04			0.39	0.200			85	100			36	10/29/99	11/03		GAW-112
TOV465	N909208-05			0.38	0.200			84	100			38	10/29/99	11/05		GAW-111
TOV467	N909208-06			0.39	0.200			84	100			37	10/29/99	11/04		GAW-114
TOV469	N909208-07			0.40	0.200			85	100			38	10/29/99	11/05		GAW-112
BLK (QC ID=32130)	N909208-09			0.41	0.200			87	100				10/29/99	11/02		GAW-116
LCS (QC ID=32129)	N909208-08			0.70	0.200			87	100				10/29/99	10/30		GAW-116
Duplicate (N909208-01)	N909208-10			0.48	0.200			82	100			37	10/29/99	11/04		GAW-112

(QC ID=32131)

Nominal values and limits from method 0.200 20-105 100 180

METHOD SUMMARIES

Page 3

SUMMARY DATA SECTION

Page 21

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-CMS  
Version 3.06  
Report date 12/13/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0550

METHOD SUMMARY, cont.

TOTAL ALPHA RADIUM IN WATER  
GAS PROPORTIONAL COUNTING

Test RAT Matrix WATER  
SDG 7223  
Contact Kevin C. Johnson

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

PROCEDURES REFERENCE ALPHA-RA  
EP-700 Total Radium in Water, rev 0

AVERAGES  $\pm$  2 SD MDA 0.48  $\pm$  0.25  
FOR 10 SAMPLES YIELD 84  $\pm$  11

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-CMS  
Version 3.06  
Report date 12/13/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0550

METHOD SUMMARY

GROSS ALPHA IN WATER  
GAS PROPORTIONAL COUNTING

Test 80A Matrix WATER  
SDG 7223  
Contact Kevin C. Johnson

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

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	ANAL- PREPARED	YZED	DETECTOR	
Preparation batch 6904-047      2σ prep error 20.0 %      Reference Lab Notebook 6904 pg. 047																	
T0V457	N909208-01	80		2.0	0.300			114	100			28	10/22/99	10/26		GRB-110	
T0V459	N909208-02	80		1.4	0.300			101	100			28	10/22/99	10/26		GRB-111	
T0V461	N909208-03	80		0.68	0.300			5	100			28	10/22/99	10/26		GRB-112	
T0V463	N909208-04	80		1.5	0.300			76	100			28	10/22/99	10/26		GRB-113	
T0V465	N909208-05	80		1.5	0.300			73	100			28	10/22/99	10/26		GRB-114	
T0V467	N909208-06	80		1.9	0.300			80	100			28	10/22/99	10/26		GRB-115	
T0V469	N909208-07	80		0.71	0.300			<u>2</u>	100			28	10/22/99	10/26		GRB-116	
BLK (QC ID=32130)	N909208-09	80		0.90	0.300			38	100				10/22/99	10/26		GRB-111	
LCS (QC ID=32129)	N909208-08	80		1.1	0.300			36	100				10/22/99	10/26		GRB-110	
Duplicate (N909208-01)	N909208-10	80		1.6	0.300			119	100			28	10/22/99	10/26		GRB-112	
(QC ID=32131)																	
Nominal values and limits from method				3.0	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            MDA 1.3 ± 0.93  
FOR 10 SAMPLES            RESIDUE 64 ± 85

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-CMS  
Version 3.06  
Report date 12/13/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0550

METHOD SUMMARY

GROSS BETA IN WATER

GAS PROPORTIONAL COUNTING

Test 80B Matrix WATER

SDG 7223

Contact Kevin C. Johnson

Client Hanford

Contract TRB-SBB-207925

Case no SDG H0550

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Gross Beta
Preparation batch 6904-047					
TOV457	N909208-01	80		7223-001	27.1
TOV459	N909208-02	80		7223-002	50.2
TOV461	N909208-03	80		7223-003	U
TOV463	N909208-04	80		7223-004	25.8
TOV465	N909208-05	80		7223-005	25.1
TOV467	N909208-06	80		7223-006	57.2
TOV469	N909208-07	80		7223-007	U
BLK (QC ID=32130)	N909208-09	80		7223-009	U
LCS (QC ID=32129)	N909208-08	80		7223-008	ok
Duplicate (N909208-01)	N909208-10	80		7223-010	ok

Nominal values and limits from method RDLs (pCi/L) 4.0  
ERDF GW MONITORING SEPTEMBER 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	ANAL- YZED	DETECTOR	
Preparation batch 6904-047 2σ prep error 15.0 % Reference Lab Notebook 6904 pg. 047																
TOV457	N909208-01	80		2.6	0.300			114		100			28	10/22/99	GRB-110	
TOV459	N909208-02	80		2.2	0.300			101		100			28	10/22/99	GRB-111	
TOV461	N909208-03	80		2.3	0.300			5		100			28	10/22/99	GRB-112	
TOV463	N909208-04	80		2.0	0.300			76		100			28	10/22/99	GRB-113	
TOV465	N909208-05	80		2.3	0.300			73		100			28	10/22/99	GRB-114	
TOV467	N909208-06	80		2.0	0.300			80		100			28	10/22/99	GRB-115	
TOV469	N909208-07	80		2.4	0.300			2		100			28	10/22/99	GRB-116	
BLK (QC ID=32130)	N909208-09	80		2.1	0.300			38		100			10/22/99	10/26	GRB-111	
LCS (QC ID=32129)	N909208-08	80		2.5	0.300			36		100			10/22/99	10/26	GRB-110	
Duplicate (N909208-01)	N909208-10	80		2.5	0.300			119		100			28	10/22/99	10/26	GRB-112

Nominal values and limits from method 4.0 0.300 5-150 100 180

METHOD SUMMARIES

Page 6

SUMMARY DATA SECTION

Page 24

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 12/13/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0550

METHOD SUMMARY, cont.

GROSS BETA IN WATER

GAS PROPORTIONAL COUNTING

Test 80B Matrix WATER

SDG 7223

Contact Kevin C. Johnson

Client Hanford

Contract TRB-SBB-207925

Case no SDG H0550

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

AVERAGES $\pm$ 2 SD	MDA	<u>2.3</u>	$\pm$	<u>0.43</u>
FOR 10 SAMPLES	RESIDUE	<u>64</u>	$\pm$	<u>85</u>

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 12/13/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0550

METHOD SUMMARY

IODINE 129 IN WATER

GAMMA SPECTROSCOPY

Test I Matrix WATER  
SDG 7223  
Contact Kevin C. Johnson

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- PLANCHET	Iodine 129
------------------	---------------	--------------	---------------	------------

Preparation batch 6904-047

TOV457	N909208-01	7223-001	U
TOV459	N909208-02	7223-002	U
TOV461	N909208-03	7223-003	U
TOV463	N909208-04	7223-004	5.68
TOV465	N909208-05	7223-005	6.96
TOV467	N909208-06	7223-006	9.24
TOV469	N909208-07	7223-007	U
BLK (QC ID=32130)	N909208-09	7223-009	U
LCS (QC ID=32129)	N909208-08	7223-008	ok
Duplicate (N909208-01)	N909208-10	7223-010	- U

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

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST FIX	SUF- pCi/L	MDA	ALIQ L	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL- PREPARED	YZED	DETECTOR
------------------	---------------	--------------	------------	-----	--------	----------	------------	---------	-------	-----------	----------	-----------	-----------	----------------	------	----------

Preparation batch 6904-047 2σ prep error 5.0 % Reference Lab Notebook 6904 pg. 047

TOV457	N909208-01	5.0	0.250	78	507	57	11/18/99	11/24	XSPEC-014
TOV459	N909208-02	6.9	0.250	55	424	52	11/18/99	11/19	XSPEC-014
TOV461	N909208-03	3.3	0.250	67	833	52	11/18/99	11/19	XSPEC-014
TOV463	N909208-04	4.7	0.250	81	410	53	11/18/99	11/20	XSPEC-014
TOV465	N909208-05	5.6	0.250	71	443	55	11/19/99	11/22	XSPEC-014
TOV467	N909208-06	4.5	0.250	78	402	56	11/19/99	11/23	XSPEC-014
TOV469	N909208-07	4.4	0.250	90	514	56	11/19/99	11/23	XSPEC-014
BLK (QC ID=32130)	N909208-09	3.5	0.250	82	460	11/18/99	11/22	XSPEC-014	
LCS (QC ID=32129)	N909208-08	6.0	0.250	81	451	11/19/99	11/24	XSPEC-014	
Duplicate (N909208-01)	N909208-10	4.0	0.250	81	758	59	11/19/99	11/26	XSPEC-014
(QC ID=32131)									

Nominal values and limits from method 0.250 20-105 200 100

METHOD SUMMARIES

Page 8

SUMMARY DATA SECTION

Page 26

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-CMS  
Version 3.06  
Report date 12/13/99

**TMA/RICHMOND**

SAMPLE DELIVERY GROUP H0550

**METHOD SUMMARY, cont.**

IODINE 129 IN WATER  
GAMMA SPECTROSCOPY

Test I      Matrix WATER  
SDG 7223  
Contact Kevin C. Johnson

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

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

AVERAGES ± 2 SD	MDA	<u>4.8</u>	±	<u>2.2</u>
FOR 10 SAMPLES	YIELD	<u>76</u>	±	<u>20</u>

Lab id	<u>TMANC</u>
Protocol	<u>Hanford</u>
Version	<u>Ver 1.0</u>
Form	<u>DVD-CMS</u>
Version	<u>3.06</u>
Report date	<u>12/13/99</u>

**TMA/RICHMOND**

SAMPLE DELIVERY GROUP H0550

**METHOD SUMMARY**

URANIUM, TOTAL IN WATER  
KINETIC PHOSPHORIMETRY

Test U T Matrix WATER  
SDG 7223  
Contact Kevin C. Johnson

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

**RESULTS**

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Total Uranium
Preparation batch 6904-047					
T0V457	N909208-01			7223-001	2.58
T0V459	N909208-02			7223-002	3.41
T0V461	N909208-03			7223-003	0.166
T0V463	N909208-04			7223-004	2.53
T0V465	N909208-05			7223-005	2.65
T0V467	N909208-06			7223-006	2.63
T0V469	N909208-07			7223-007	0.129
BLK (QC ID=32130)	N909208-09			7223-009	U
LCS (QC ID=32129)	N909208-08			7223-008	ok
Duplicate (N909208-01)	N909208-10			7223-010	ok

Nominal values and limits from method RDLs (ug/L) 0.10  
ERDF GW MONITORING SEPTEMBER 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	ANAL- YZED	DETECTOR
Preparation batch 6904-047 2σ prep error 9.0 % Reference Lab Notebook 6904 pg. 047															
T0V457	N909208-01			0.010	0.0200								28	10/26/99	10/26 KPA-001
T0V459	N909208-02			0.010	0.0200								28	10/26/99	10/26 KPA-001
T0V461	N909208-03			0.010	0.0200								28	10/26/99	10/26 KPA-001
T0V463	N909208-04			0.010	0.0200								28	10/26/99	10/26 KPA-001
T0V465	N909208-05			0.010	0.0200								28	10/26/99	10/26 KPA-001
T0V467	N909208-06			0.010	0.0200								28	10/26/99	10/26 KPA-001
T0V469	N909208-07			0.010	0.0200								28	10/26/99	10/26 KPA-001
BLK (QC ID=32130)	N909208-09			0.010	0.0200									10/26/99	10/26 KPA-001
LCS (QC ID=32129)	N909208-08			0.097	0.0200									10/26/99	10/26 KPA-001
Duplicate (N909208-01)	N909208-10			0.010	0.0200								28	10/26/99	10/26 KPA-001
	(QC ID=32131)														

Nominal values and limits from method 0.10 0.0200 180

METHOD SUMMARIES

Page 10

SUMMARY DATA SECTION

Page 28

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-CMS  
Version 3.06  
Report date 12/13/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0550

METHOD SUMMARY, cont.

URANIUM, TOTAL IN WATER  
KINETIC PHOSPHORIMETRY

Test U T Matrix WATER

SDG 7223

Contact Kevin C. Johnson

Client Hanford

Contract TRB-SBB-207925

Case no SDG H0550

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 $\pm$ 2 SD	MDA <u>0.019</u> $\pm$ <u>0.055</u>
FOR 10 SAMPLES	YIELD _____ $\pm$ _____

METHOD SUMMARIES

Page 11

SUMMARY DATA SECTION

Page 29

Lab id TMANC

Protocol Hanford

Version Ver 1.0

Form DVD-CMS

Version 3.06

Report date 12/13/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0550

METHOD SUMMARY

CARBON 14 IN WATER

LIQUID SCINTILLATION COUNTING

Test C Matrix WATER  
SDG 7223  
Contact Kevin C. Johnson

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF- FIX	PLANCHET	Carbon 14
Preparation batch 6904-047					
T0V457	N909208-01	7223-001			U
T0V459	N909208-02	7223-002			U
T0V461	N909208-03	7223-003			U
T0V463	N909208-04	7223-004			U
T0V465	N909208-05	7223-005			U
T0V467	N909208-06	7223-006			U
T0V469	N909208-07	7223-007			U
BLK (QC ID=32130)	N909208-09	7223-009			U
LCS (QC ID=32129)	N909208-08	7223-008			ok
Duplicate (N909208-01)	N909208-10	7223-010			- U

Nominal values and limits from method RDLs (pCi/L)  
ERDF GW MONITORING SEPTEMBER 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	ANAL- YZED	DETECTOR
Preparation batch 6904-047 2σ prep error 10.0 % Reference Lab Notebook 6904 pg. 047															
T0V457	N909208-01			17	0.0500			100		200			25	10/21/99	10/23 LSC-004
T0V459	N909208-02			16	0.0500			100		200			26	10/21/99	10/24 LSC-004
T0V461	N909208-03			17	0.0500			100		200			26	10/21/99	10/24 LSC-004
T0V463	N909208-04			17	0.0500			100		200			26	10/21/99	10/24 LSC-004
T0V465	N909208-05			17	0.0500			100		200			26	10/21/99	10/24 LSC-004
T0V467	N909208-06			17	0.0500			100		200			26	10/21/99	10/24 LSC-004
T0V469	N909208-07			17	0.0500			100		200			26	10/21/99	10/24 LSC-004
BLK (QC ID=32130)	N909208-09			17	0.0500			100		200				10/21/99	10/24 LSC-004
LCS (QC ID=32129)	N909208-08			21	0.0500			100		133				10/21/99	10/24 LSC-004
Duplicate (N909208-01)	N909208-10			16	0.0500			100		200			27	10/21/99	10/25 LSC-004
	(QC ID=32131)														

Nominal values and limits from method 0.0500 150 180

METHOD SUMMARIES

Page 12

SUMMARY DATA SECTION

Page 30

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-CMS  
Version 3.06  
Report date 12/13/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0550

METHOD SUMMARY, cont.

CARBON 14 IN WATER

LIQUID SCINTILLATION COUNTING

Test C Matrix WATER  
SDG 7223  
Contact Kevin C. Johnson

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

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

AVERAGES  $\pm$  2 SD MDA 17  $\pm$  2.8  
FOR 10 SAMPLES YIELD 100  $\pm$  0

METHOD SUMMARIES

Page 13

SUMMARY DATA SECTION

Page 31

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-CMS  
Version 3.06  
Report date 12/13/99

TMA / RICHMOND  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

REPORT GUIDE

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

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.

TMA / RICHMOND  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

REPORT GUIDE

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG\_H0550

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 plachets 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 plachet 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.

TMA / RICHMOND  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

REPORT GUIDE

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

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.

REPORT GUIDES

Page 3

SUMMARY DATA SECTION

Page 34

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 12/13/99

TMA / RICHMOND  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

REPORT GUIDE

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

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).

TMA / RICHMOND  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

GUIDE, cont.

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

DATA SHEET

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

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

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

The following values are underlined to indicate possible problems:

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

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 12/13/99

TMA / RICHMOND  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

GUIDE, cont.

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

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.

REPORT GUIDES

Page 6

SUMMARY DATA SECTION

Page 37

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 12/13/99

TMA / RICHMOND  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

REPORT GUIDE

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

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.

REPORT GUIDES

Page 7

SUMMARY DATA SECTION

Page 38

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 12/13/99

TMA / RICHMOND  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

REPORT GUIDE

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

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.

TMA / RICHMOND  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

GUIDE, cont.

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

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.

REPORT GUIDES

Page 9

SUMMARY DATA SECTION

Page 40

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 12/13/99

TMA / RICHMOND  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

REPORT GUIDE

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

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

REPORT GUIDES

Page 10

SUMMARY DATA SECTION

Page 41

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 12/13/99

TMA / RICHMOND  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

GUIDE, cont.

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

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.

REPORT GUIDES

Page 11

SUMMARY DATA SECTION

Page 42

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 12/13/99

TMA / RICHMOND  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

REPORT GUIDE

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 12/13/99

REPORT GUIDES

Page 12

SUMMARY DATA SECTION

Page 43

TMA / RICHMOND  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

GUIDE, cont.

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

METHOD SUMMARY

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

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

MDAs are underlined if greater than the printed RDL.

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

REPORT GUIDES

Page 13

SUMMARY DATA SECTION

Page 44

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 12/13/99

TMA / RICHMOND  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

GUIDE, cont.

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG\_H0550

METHOD SUMMARY

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

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

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

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

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

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

Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 12/13/99

TMA / RICHMOND  
SAMPLE DELIVERY GROUP H0550

SDG 7223  
Contact Kevin C. Johnson

GUIDE, cont.

Client Hanford  
Contract TRB-SBB-207925  
Case no SDG H0550

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.

REPORT GUIDES

Page 15

SUMMARY DATA SECTION

Page 46

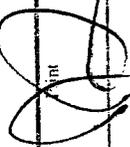
Lab id TMANC  
Protocol Hanford  
Version Ver 1.0  
Form DVD-RG  
Version 3.06  
Report date 12/13/99

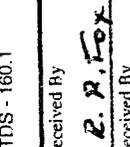
# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

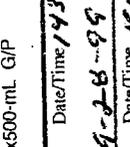
**Collector** **K.J. YOUNG** **Telephone No.** **MSIN** **FAX**  
**SAF No.** **C99-045** **(509) 375-4688**  
**Project Title** **ERDE GW MONITORING, SEPTEMBER 1999** **Purchase Order/Charge Code**  
**Shipped To (Lab)** **TMA/RECRA** **Logbook No.** **5mL 519** **Temp.** **cool 40**  
**Method of Shipment** **GOVT. VEHICLE** **Bill of Lading/Air Bill No.** **423579529973**  
**Data Turnaround** **45 Days** **Offsite Property No.** **689-0-0324**

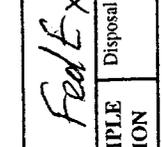
**SPECIAL INSTRUCTIONS** **Hold Time** **Total Activity Exemption:** Yes  No   
**TOTAL ACTIVITY EXEMPTION APPLIES**  
 FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487), SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
TOV456 (F)		W	9-28-99	1126	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Selenium - 7740 - (GFAA); Arsenic - 7060 - (GFAA)	HNO3 to pH <2
TOV457		W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
TOV457		W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Selenium - 7740 - (GFAA); Arsenic - 7060 - (GFAA)	HNO3 to pH <2
TOV457		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
TOV457		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
TOV457		W			1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C
TOV457		W			1x20-mL P	Activity Scan	None
TOV457		W			2x1000-mL G/P	Gross Alpha; Gross Beta; Total Radium	HNO3 to pH <2
TOV457		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
TOV457		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
TOV457		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
TOV457		W			1x500-mL G/P	TDS - 160.1	Cool 4C

**Relinquished By** **K.J. YOUNG** **Date/Time** **9-28-99 1430** **Sign** 

**Relinquished By** **R.P. Fox** **Date/Time** **9-28-99** **Sign** 

**Relinquished By** **FedEx** **Date/Time** **9-28-99** **Sign** 

**Relinquished By** **FedEx** **Date/Time** **9-29-99 10:00** **Sign** 

**FINAL SAMPLE DISPOSITION** **Disposal Method (e.g., Return to customer, used in process)** **Disposed By** **TNU M. Goldensberg** **Date/Time** **9-29-99 10:00**

**Matrix \***

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

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

PNNL

Collector **R.T SICKLE** Telephone No. (509) 375-4688 MSIN FAX

Project Title **ERDE GW MONITORING - SEPTEMBER 1999** Purchase Order/Charge Code

Shipped To (Lab) **TMA/RECRA** Logbook No. **W/A - 5ML - H29** Ice Chest No. **5ML-366** Temp. **4 °C**

Method of Shipment **GOVT. VEHICLE** Bill of Lading/Air Bill No. **423579529990**

Data Turnaround **45 Days** Offsite Property No. **W99-0-0323** Total Activity Exemption:  Yes  No

**SPECIAL INSTRUCTIONS** Hold Time

**TOTAL ACTIVITY EXEMPTION APPLIES** TO POSSIBLE SAMPLE HAZARDS/REMARKS

FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487) SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHL

Sample No.	Lab ID	* Date	Time	No/Type Container	Sample Analysis	Preservative
TOV458 (F)		W 9-28-99	1145	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Selenium - 7740 - (GFAA); Arsenic - 7060 - (GFAA)	HNO3 to pH <2
TOV459		W		3x40-mL aGs*	VDA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
TOV459		W		1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Selenium - 7740 - (GFAA); Arsenic - 7060 - (GFAA)	HNO3 to pH <2
TOV459		W		1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
TOV459		W		1x500-mL G/P	Alkalinity - 310.1	Cool 4C
TOV459		W		1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C
TOV459		W		1x20-mL P	Activity Scan	None
TOV459		W		2x1000-mL G/P	Gross Alpha; Gross Beta; Total Radium	HNO3 to pH <2
TOV459		W		5x1000-mL G/P	Iodine-129; Carbon-14	None
TOV459		W		1x1000-mL G/P	Technetium-99	HCl to pH <2
TOV459		W		1x125-mL G/P	Total Uranium	HNO3 to pH <2
TOV459		W		1x500-mL G/P	TDS - 160.1	Cool 4C

Relinquished By **R.T SICKLE** Print Date/Time **9-28-99 12:15** Sign Date/Time **9/28/99 12:15**

Relinquished By **DR. BREWINGTON** Print Date/Time **9-28-99** Sign Date/Time **9-28-99**

Relinquished By **FedEx** Print Date/Time **9-29-99 10:00** Sign Date/Time **9-29-99 10:00**

Relinquished By **FedEx** Print Date/Time **9-29-99 10:00** Sign Date/Time **9-29-99 10:00**

Received By **D.R. BREWINGTON** Print Date/Time **9-28-99** Sign Date/Time **9-28-99**

Received By **FedEx** Print Date/Time **9-28-99** Sign Date/Time **9-28-99**

Received By **TNU M. Colaburg** Print Date/Time **9-29-99** Sign Date/Time **9-29-99 10:00**

Received By **FedEx** Print Date/Time **9-29-99** Sign Date/Time **9-29-99 10:00**

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

Disposed By

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  
 LI = Liquid  
 V = Vaseline  
 X = Other

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

**PNNL**  
 Collector **R.T SICKLE**  
 SAF No. C99-045  
 Project Title **ERDE GW MONITORING, SEPTEMBER 1999**  
 Shipped To (Lab) **TMA/RECRA**  
 Protocol **CERCLA**

Contact/Requester **JH KESSNER**  
 Sampling Origin **HANFORD SITE**  
 Logbook No. **W.M. S.M.L. - 1429**  
 Method of Shipment **GOVT. VEHICLE**  
 Data Turnaround **45 Days**

Telephone No. **(509) 375-4688**  
 MSIN **5091382**  
 Purchase Order/Charge Code **Tenn. 400**  
 Ice Chest No. **5091382**  
 Bill of Lading/Air Bill No. **42-3579529930**  
 Offsite Property No. **W99-0-0323**  
 Total Activity Exemption: Yes  No

**SPECIAL INSTRUCTIONS Hold Time**  
 TOTAL ACTIVITY EXEMPTION APPLIES  
 FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487) SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHL.

Sample No.	Lab ID	* Date	Time	No/Type Container	Sample Analysis	Preservative
TOV460 (F)		9-25-99	1030	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Selenium - 7740 - (GFAA); Arsenic - 7060 - (GFAA)	HNO3 to pH <2
TOV461				3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
TOV461				1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Selenium - 7740 - (GFAA); Arsenic - 7060 - (GFAA)	HNO3 to pH <2
TOV461				1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
TOV461				1x500-mL G/P	Alkalinity - 310.1	Cool 4C
TOV461				1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C
TOV461				1x20-mL P	Activity Scan	None
TOV461				2x1000-mL G/P	Gross Alpha: Gross Beta, Total Radium	HNO3 to pH <2
TOV461				5x1000-mL G/P	Iodine-129; Carbon-14	None
TOV461				1x1000-mL G/P	Technetium-99	HCl to pH <2
TOV461				1x125-mL G/P	Total Uranium	HNO3 to pH <2
TOV461				1x500-mL G/P	TDS - 160.1	Cool 4C

**Relinquished By** R.T SICKLE *[Signature]* 9-25-99 12:15  
 Date/Time  
**Received By** D.R. BREWINGTON *[Signature]* 9-28-99 10:50  
 Date/Time  
**Relinquished By** D.R. Brewington *[Signature]* 9-28-99  
 Date/Time  
**Received By** FedEx *[Signature]* 9-28-99  
 Date/Time  
**Relinquished By** FedEx *[Signature]* 9-29-99 10:00  
 Date/Time  
**Received By** TMU M. Goldenberg *[Signature]* 9-29-99 10:00  
 Date/Time

**Matrix \***  
 DS = Drum Solid  
 DL = Drum Liquid  
 T = Tissue  
 W1 = Wine  
 L = Liquid  
 V = Vapour  
 X = Other  
 S = Soil  
 SE = Sediment  
 SO = Solid  
 SL = Sludge  
 W = Water  
 O = Oil  
 A = Air

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

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

**Collector** RT SICKLE (RFS)      **Contact/Requester** JH KESSNER  
**MSIN**      **Telephone No.** (509) 375-4688  
**SAF No.** C99-045      **Purchase Order/Charge Code**  
**Project Title** ERDE GW MONITORING - SEPTEMBER 1999      **Temp.** 4 °C  
**Shipped To (Lab)** TMA/RECRA      **Logbook No.** W99-5ML-1129      **Bill of Lading/Air Bill No.** 423579529951  
**Protocol** CERCLA      **Method of Shipment** GOVT. VEHICLE      **Offsite Property No.** W99-0-0323  
**45 Days**      **Data Turnaround**      **Total Activity Exemption:** Yes  No

**SPECIAL INSTRUCTIONS**      **Hold Time**  
**TOTAL ACTIVITY EXEMPTION APPLIES**  
 FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487) SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI.

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
TOV462 (F)		W	9-28-99	0939	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Selenium - 7740 - (GFAA); Arsenic - 7060 - (GFAA)	HNO3 to pH <2
TOV463		W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
TOV463		W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Selenium - 7740 - (GFAA); Arsenic - 7060 - (GFAA)	HNO3 to pH <2
TOV463		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
TOV463		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
TOV463		W			1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C
TOV463		W			1x20-mL P	Activity Scan	None
TOV463		W			2x1000-mL G/P	Gross Alpha; Gross Beta; Total Radium	HNO3 to pH <2
TOV463		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
TOV463		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
TOV463		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
TOV463		W			1x500-mL G/P	TDS - 160.1	Cool 4C

**Relinquished By** RT SICKLE (RFS)      **Print**      **Sign**      **Date/Time** 9-28-99 12:15  
**Received By** DR BREWINGTON      **Date/Time** 9-28-99 12:15  
**Relinquished By** [Signature]      **Print**      **Sign**      **Date/Time** 9-28-99  
**Received By** FedEx      **Date/Time** 9-28-99  
**Relinquished By** [Signature]      **Print**      **Sign**      **Date/Time** 9-29-99 10:00  
**Received By** FedEx      **Date/Time** 9-29-99 10:00  
**Relinquished By** [Signature]      **Print**      **Sign**      **Date/Time** 9-29-99 10:00  
**Received By** FedEx      **Date/Time** 9-29-99 10:00

**Matrix \***  
 S = Soil      DS = Drum Solid  
 SE = Sediment      DL = Drum Liquid  
 SO = Solid      T = Tissue  
 SL = Sludge      W1 = Wine  
 W = Water      L = Liquid  
 O = Oil      V = Vegetation  
 A = Air      X = Other

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

**PNL** Collector **RT SICKLE (RFS)** Telephone No. **(509) 375-4688** MSIN **FAX**

SAF No. **C99-045** Contract/Requester **JH KESSNER** Purchase Order/Charge Code

Project Title **ERDE GW MONITORING, SEPTEMBER 1999** Sampling Origin **HANFORD SITE**

Shipped To (Lab) **TMA/RECRA** Logbook No. **VVM-SML-629** Ice Chest No. **5A1461** Temp. **4 °C**

Protocol **CERCLA** Method of Shipment **GOVT. VEHICLE** Bill of Lading/Air Bill No. **423577529529**

**45** Days Data Turnaround Offsite Property No. **W99-0-0323**

**SPECIAL INSTRUCTIONS** Hold Time  No  Yes

**TOTAL ACTIVITY EXEMPTION APPLIES** Total Activity Exemption: **W99-0-0323**

FAX copies of TMA log-in to DI, Stewart (372-1704) & JH Kessner (372-9487) SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHI

Sample No.	Lab ID	* Date	Time	No/Type Container	Sample Analysis	Preservative
TOV464 (F)		9-25-99	0939	1x1000-mL G/P	ICP Metals - 6010A FCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Selenium - 7740 - (GFAA); Arsenic - 7060 - (GFAA)	HNO3 to pH <2
TOV465				3x40-mL aG*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
TOV465				1x1000-mL G/P	ICP Metals - 6010A FCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Selenium - 7740 - (GFAA); Arsenic - 7060 - (GFAA)	HNO3 to pH <2
TOV465				1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
TOV465				1x500-mL G/P	Alkalinity - 310.1	Cool 4C
TOV465				1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C
TOV465				1x20-mL P	Activity Scan	None
TOV465				2x1000-mL G/P	Gross Alpha; Gross Beta; Total Radium	HNO3 to pH <2
TOV465				5x1000-mL G/P	Iodine-129; Carbon-14	None
TOV465				1x1000-mL G/P	Technetium-99	HCl to pH <2
TOV465				1x125-mL G/P	Total Uranium	HNO3 to pH <2
TOV465				1x500-mL G/P	TDS - 160.1	Cool 4C

**Relinquished By** **RT SICKLE (RFS)** Date/Time **9-28-99 12:15** **Print** **D. R. BREWINGTON** **Sign** **D. R. BREWINGTON** Date/Time **9/28/99**

**Relinquished By** **AR. Brewington** Date/Time **9/28/99** **Received By** **FedEx** Date/Time **9-28-99**

**Relinquished By** **FedEx** Date/Time **9-29-99 10:00** **Received By** **TW M. Goldenberg** Date/Time **9-29-99 10:00**

**Relinquished By** \_\_\_\_\_ Date/Time \_\_\_\_\_ **Received By** \_\_\_\_\_ Date/Time \_\_\_\_\_

**Matrix \***

S	=	Soil	DS	=	Drum Solid
SE	=	Sediment	DL	=	Drum Liquid
SO	=	Solid	T	=	Tissue
SL	=	Sludge	W1	=	Wine
W	=	Water	L	=	Liquid
O	=	Oil	V	=	Vegetation
A	=	Air	X	=	Other

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

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

**PNNL**  
 Collector: **K.J. YOUNG**  
 SAF No.: C99-045  
 Project Title: **ERDE GW MONITORING, SEPTEMBER 1999**  
 Shipped To (Lab): **TMA/RECRA**  
 Protocol: **CERCLA**  
 Contact/Requester: **JH KESSNER**  
 Sampling Origin: **HANFORD SITE**  
 Logbook No.: **wm-sml H 25, PAGE 25**  
 Method of Shipment: **GOVT. VEHICLE**  
 Data Turnaround: **45 Days**  
 Ice Chest No.: **SML 462** Temp: **cool 40C**  
 Bill of Lading/Air Bill No.: **42579529942**  
 Offsite Property No.: **299-0-0324**  
 Telephone No.: **(509) 375-4688** MSIN: \_\_\_\_\_ FAX: \_\_\_\_\_  
 Purchase Order/Charge Code: \_\_\_\_\_  
 Total Activity Exemption: Yes  No

**SPECIAL INSTRUCTIONS** Hold Time \_\_\_\_\_  
**TOTAL ACTIVITY EXEMPTION APPLIES**  
 FAX copies of TMA log-in to DL Stewart (372-1704) & JH Kessner (372-9487) SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHL.

Sample No.	Lab ID	*	Date	Time	Nov/Type Container	Sample Analysis	Preservative
TOV466 (F)		W	9-28-99	1323	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Selenium - 7740 - (GFAA); Arsenic - 7060 - (GFAA)	HNO3 to pH <2
TOV467		W			3x40-mL aGs*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
TOV467		W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Selenium - 7740 - (GFAA); Arsenic - 7060 - (GFAA)	HNO3 to pH <2
TOV467		W			1x500-mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
TOV467		W			1x500-mL G/P	Alkalinity - 310.1	Cool 4C
TOV467		W			1x500-mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C
TOV467		W			1x20-mL P	Activity Scan	None
TOV467		W			2x1000-mL G/P	Gross Alpha; Gross Beta; Total Radium	HNO3 to pH <2
TOV467		W			5x1000-mL G/P	Iodine-129; Carbon-14	None
TOV467		W			1x1000-mL G/P	Technetium-99	HCl to pH <2
TOV467		W			1x125-mL G/P	Total Uranium	HNO3 to pH <2
TOV467		W			1x500-mL G/P	TDS - 160.1	Cool 4C

Relinquished By: **K.J. YOUNG** Sign: *[Signature]* Date/Time: **9-28-99**  
 Relinquished By: **R.R. Fox** Sign: *[Signature]* Date/Time: **9-28-99**  
 Relinquished By: **FedEx** Sign: *[Signature]* Date/Time: **9-28-99**  
 Relinquished By: **TAN M. Goldberg** Sign: *[Signature]* Date/Time: **9-29-99 10:00**  
 Relinquished By: **FedEx** Sign: *[Signature]* Date/Time: **9-29-99 10:00**

Matrix \*  
 S = Soil SE = Sediment SO = Solid SL = Sludge W = Water O = Oil A = Air  
 DS = Drum Solid DL = Drum Liquid T = Tissue W1 = Wine L = Liquid V = Vegetation X = Other

Received By: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Disposed By: \_\_\_\_\_ Date/Time: \_\_\_\_\_

**FINAL SAMPLE DISPOSITION**

# CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

PNNL

Collector **K. Young** Telephone No. **MSIN**  
 SAF No. **C99-045** (509) 375-4688 FAX  
 Project Title **ERDE GW MONITORING - SEPTEMBER 1999** Purchase Order/Charge Code  
 Shipped To (Lab) **IMA/RECRA** Ice Chest No. **SMC 450** Temp. **COOL 4°C**  
 Method of Shipment **GOVT. VEHICLE** Bill of Lading/Air Bill No.  
 Data Turnaround **45 Days** Offsite Property No.

**SPECIAL INSTRUCTIONS** Hold Time Total Activity Exemption: Yes  No   
 TOTAL ACTIVITY EXEMPTION APPLIES  
 FAX copies of TMA log-in to DI Stewart (372-1704) & JH Kessner (372-9487) SUBMIT INVOICES AND DELIVERABLES TO JH KESSNER, BHL

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
TOV468 (F)		W	9-28-99	0815	1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Selenium - 7740 - (GFAA); Arsenic - 7060 - (GFAA)	HNO3 to pH <2
TOV469		W			3x40 - mL aG*	VOA - 8240A (TCL)	HCl or H2SO4 to pH <2 Cool 4C
TOV469		W			1x1000-mL G/P	ICP Metals - 6010A RCRA GW (Barium, Chromium, Lead, Tin, Vanadium, Zinc); Selenium - 7740 - (GFAA); Arsenic - 7060 - (GFAA)	HNO3 to pH <2
TOV469		W			1x500 - mL P	IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Sulfate)	Cool 4C
TOV469		W			1x500 - mL G/P	Alkalinity - 310.1	Cool 4C
TOV469		W			1x500 - mL G/P	NO2/NO3 - 353.1	H2SO4 to pH <2 Cool 4C
TOV469		W			1x20 - mL P	Activity Scan	None
TOV469		W			2x1000 - mL G/P	Gross Alpha; Gross Beta; Total Radium	HNO3 to pH <2
TOV469		W			5x1000 - mL G/P	Iodine-129; Carbon-14	None
TOV469		W			1x1000 - mL G/P	Technetium-99	HCl to pH <2
TOV469		W			1x125 - mL G/P	Total Uranium	HNO3 to pH <2
TOV469		W			1x500 - mL G/P	TDS - 160.1	Cool 4C

Relinquished By **K. Young** Date/Time **9-28-99** Sign **[Signature]** Date/Time **1430**  
 Relinquished By **P.R. Fox** Date/Time **9-28-99** Sign **[Signature]** Date/Time **9-28-99**  
 Relinquished By **Fed Ex** Date/Time **9-28-99** Sign **[Signature]** Date/Time **10:00**  
 Relinquished By **Fed Ex** Date/Time **9-29-99 10:00** Sign **[Signature]** Date/Time **10:00**

Matrix \*  
 S = Soil DS = Drum Solid  
 SE = Sediment DL = Drum Liquid  
 SO = Solid T = Tissue  
 SL = Sludge W1 = Wine  
 W = Water L = Lignid  
 O = Oil V = Vegetation  
 A = Air X = Other

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

Disposed By \_\_\_\_\_ Date/Time \_\_\_\_\_

SAMPLE RECEIPT CHECKLIST

**SAMPLE RECEIPT**

Client: Brechtel Hanford Inc Date/Time received 9-29-99 10:00  
 CoC No. 099-045-5  
 Container I.D. No. \_\_\_\_\_ Requested TAT (Days) 45 P.O. Received Yes [ ] No [  ]

**INSPECTION**

1. Custody seals on shipping container intact? Yes [  ] No [ ] N/A [ ]
2. Custody seals on shipping container dated & signed? Yes [  ] No [ ] N/A [ ]
3. Custody seals on sample containers intact? Yes [  ] No [ ] N/A [ ]
4. Custody seals on sample containers dated & signed? Yes [  ] No [ ] N/A [ ]
5. Cooler Temperature: \_\_\_\_\_ Packing material is: Wet [ ] Dry [  ]
6. Number of samples in shipping container: 15
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 M. Goldenberg Date: 9-29-99 Time: 10:00

**LOGIN**

TNU W.O. No. \_\_\_\_\_ Group No. \_\_\_\_\_ Client W.O. No. \_\_\_\_\_

**PROGRAM MANAGER**

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name \_\_\_\_\_ Date/time \_\_\_\_\_

SAMPLE RECEIPT CHECKLIST

**SAMPLE RECEIPT**

Client: Bechtel Hanford Inc Date/Time received 9-29-99 10:00

CoC No. 299-045-6

Container I.D. No. SM2 382 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: 13

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 Mc Goldentberg Date: 9-29-99 Time: 10:00

**LOGIN**

TNU W.O. No. \_\_\_\_\_ Group No. \_\_\_\_\_ Client W.O. No. \_\_\_\_\_

**PROGRAM MANAGER**

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name \_\_\_\_\_ Date/time \_\_\_\_\_

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Beehnel Hanford Inc Date/Time received 9-29-99 10:00

CoC No. P99-045-2

Container I.D. No. \_\_\_\_\_ Requested TAT (Days) 48 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: 13
- 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 M. Coldenberg Date: 9-29-99 Time: 10:00

LOGIN

TNU W.O. No. \_\_\_\_\_ Group No. \_\_\_\_\_ Client W.O. No. \_\_\_\_\_

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name \_\_\_\_\_ Date/time \_\_\_\_\_

SAMPLE RECEIPT CHECKLIST

**SAMPLE RECEIPT**

Client: Beecham Hartford Inc Date/Time received 9-29-99 10:00

CoC No. ~~SMZ-57~~ C99-045-1, 8

Container I.D. No. SMZ-571 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: 15
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 M. Goldenberg Date: 9-29-99 Time: 10:00

**LOGIN**

TNU W.O. No. \_\_\_\_\_ Group No. \_\_\_\_\_ Client W.O. No. \_\_\_\_\_

**PROGRAM MANAGER**

Sample holding times exceeded? Yes [  ] No [  ]

Client Notified: Name \_\_\_\_\_ Date/time \_\_\_\_\_

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Beehnel Haysford Inc Date/Time received 9-29-99 10:00  
CoC No. C99-095-4  
Container I.D. No. SML 450 Requested TAT (Days) 95 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: 13
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 M. Golodenberg Date: 9-29-99 Time: 10:00

LOGIN

TNU W.O. No. \_\_\_\_\_ Group No. \_\_\_\_\_ Client W.O. No. \_\_\_\_\_

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name \_\_\_\_\_ Date/time \_\_\_\_\_

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT			
Client:	<u>Beecham Hanford Inc</u>	Date/Time received	<u>9-29-99 10:00</u>
CoC No.	<u>C99-045-7, II</u>		
Container I.D. No.	Requested TAT (Days) <u>45</u>	P.O. Received	Yes [ ] No [ <input checked="" type="checkbox"/> ]
INSPECTION			
1.	Custody seals on shipping container intact?	Yes [ <input checked="" type="checkbox"/> ]	No [ ] N/A [ ]
2.	Custody seals on shipping container dated & signed?	Yes [ <input checked="" type="checkbox"/> ]	No [ ] N/A [ ]
3.	Custody seals on sample containers intact?	Yes [ <input checked="" type="checkbox"/> ]	No [ ] N/A [ ]
4.	Custody seals on sample containers dated & signed?	Yes [ <input checked="" type="checkbox"/> ]	No [ ] N/A [ ]
5.	Cooler Temperature: _____	Packing material is:	Wet [ ] Dry [ <input checked="" type="checkbox"/> ]
6.	Number of samples in shipping container:	<u>15</u>	
7.	Number of containers per sample: _____	(Or see CoC <u>✓</u> )	
8.	Paperwork agrees with samples?	Yes [ <input checked="" type="checkbox"/> ]	No [ ]
9.	Samples have:	Tape [ ] Hazard labels [ ] Rad labels [ ]	Appropriate sample labels [ <input checked="" type="checkbox"/> ]
10.	Samples are:	In good condition [ <input checked="" type="checkbox"/> ]	Leaking [ ] Broken Container [ ] Missing [ ]
11.	Describe any anomalies: _____ _____ _____		
13.	Was P.M. notified of any anomalies?	Yes [ ] No [ ]	Date _____
14.	Received by <u>M. Goldenberg</u>	Date: <u>9-29-99</u>	Time: <u>10:00</u>
LOGIN			
TNU W.O. No.	Group No.	Client W.O. No.	
PROGRAM MANAGER			
Sample holding times exceeded?	Yes [ ]	No [ ]	
Client Notified: Name	Date/time		

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT			
Client:	<u>Bechtel Hanford Inc</u>	Date/Time received	<u>9-29-99 10:00</u>
CoC No.	<u>C99-045-3,10</u>		
Container I.D. No.	<u>SML-462</u>	Requested TAT (Days)	<u>45</u> P.O. Received Yes [ ] No [ <input checked="" type="checkbox"/> ]
INSPECTION			
1.	Custody seals on shipping container intact?	Yes [ <input checked="" type="checkbox"/> ]	No [ ] N/A [ ]
2.	Custody seals on shipping container dated & signed?	Yes [ <input checked="" type="checkbox"/> ]	No [ ] N/A [ ]
3.	Custody seals on sample containers intact?	Yes [ <input checked="" type="checkbox"/> ]	No [ ] N/A [ ]
4.	Custody seals on sample containers dated & signed?	Yes [ <input checked="" type="checkbox"/> ]	No [ ] N/A [ ]
5.	Cooler Temperature: _____	Packing material is:	Wet [ ] Dry [ <input checked="" type="checkbox"/> ]
6.	Number of samples in shipping container:	<u>15</u>	
7.	Number of containers per sample: _____	(Or see CoC <input checked="" type="checkbox"/> )	
8.	Paperwork agrees with samples?	Yes [ <input checked="" type="checkbox"/> ]	No [ ]
9.	Samples have:	Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [ <input checked="" type="checkbox"/> ]	
10.	Samples are:	In good condition [ <input checked="" type="checkbox"/> ] Leaking [ ] Broken Container [ ] Missing [ ]	
11.	Describe any anomalies: _____ _____ _____ _____		
13.	Was P.M. notified of any anomalies?	Yes [ ]	No [ ] Date _____
14.	Received by	<u>M. Goldenberg</u>	Date: <u>9-29-99</u> Time: <u>10:00</u>
LOGIN			
TNU W.O. No.	Group No.	Client W.O. No.	
PROGRAM MANAGER			
Sample holding times exceeded?	Yes [ ]	No [ ]	
Client Notified: Name	_____		Date/time _____

# Thermo NUtech - Richmond

A ThermoRetec Company

## ICE CHEST RECEIPT LOG

Use one form per shipment. Refer to Thermometer Correction Log for correction factor.

Customer: Bechtel Hanford Inc Date: 9-29-99

Ice chest # or description	SML 462					
Thermometer: time in	10:20					
Thermometer: time out	10:50					
Thermometer reading	2°C					
Thermometer number	1911					
Correction factor						
Actual temperature*						
Custody seals on ice chest intact?	yes					
Custody seals dated?	yes					
Custody seals signed?	yes					
Custody seals on samples?	yes					
Ice chest scanned for activity?	yes					

\* Temperature is in degrees centigrade.

Technician: M. Goldemberg

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

# Thermo NUtech - Richmond

A ThermoRetec Company

## ICE CHEST RECEIPT LOG

Use one form per shipment. Refer to Thermometer Correction Log for correction factor.

Customer: Bechtel Hanford Inc Date: 9-29-99

Ice chest # or description	SM L 366					
Thermometer: time in	10:10					
Thermometer: time out	10:40					
Thermometer reading	1°c					
Thermometer number	194					
Correction factor						
Actual temperature*						
Custody seals on ice chest intact?	Yes					
Custody seals dated?	Yes					
Custody seals signed?	Yes					
Custody seals on samples?	Yes					
Ice chest scanned for activity?	Yes					

\* Temperature is in degrees centigrade.

Technician: M. Goldenberg

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

# Thermo NUtech - Richmond

A ThermoRetec Company

## ICE CHEST RECEIPT LOG

Use one form per shipment. Refer to Thermometer Correction Log for correction factor.

Customer: Bechtel Hanford Inc Date: 9-29-99

Ice chest # or description	<u>SMC 382</u>					
Thermometer: time in	<u>10:20</u>					
Thermometer: time out	<u>10:50</u>					
Thermometer reading	<u>2°</u>					
Thermometer number	<u>194</u>					
Correction factor						
Actual temperature*						
Custody seals on ice chest intact?	<u>yes</u>					
Custody seals dated?	<u>yes</u>					
Custody seals signed?	<u>yes</u>					
Custody seals on samples?	<u>yes</u>					
Ice chest scanned for activity?	<u>yes</u>					

\* Temperature is in degrees centigrade.

Technician: M. Goldenberg

Comments: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

AIR OVERNIGHT

Contractor WASTE MANAGEMENT TECHNICAL SERVICES	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT) W99-0-0323
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PART I - TO BE COMPLETED BY ORIGINATOR

Department SAMPLING & WELL SERVICES	Section SAMPLING	Unit
The following items are to be shipped from		<input checked="" type="checkbox"/> Contractor <input type="checkbox"/> Vendor
Routing Fed. EX		<input checked="" type="checkbox"/> Prepaid <input type="checkbox"/> Collect
Shipped to Company Address City Country	TMA/WESTON 2030 WRIGHT AV RICHMOND CA Zip Code 94804	Off-site Custodian DELORES SANCHEZ On-site Custodian JG HOGAN Payroll No.

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
		POLYCOOLERS: ENVIRONMENTAL WATER SAMPLES	
		COOLER SML461 WEIGHT 64 423579529929	
		SML382 75 423579529930	
		SML366 76 423579529940	
		SML571 67 423579529951	

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 PRESENTLY 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 <i>JG Hogan</i>	RM Survey No. N/A	Date 9-28-99
--	----------------------	-----------------

Location of and Contact for Property (Name/Phone No./Bldg./Area)  
JG HOGAN/539-2752/6269/600

Date Ready for Shipment 9-28-99	Cost Code to be Charged K96917	Approximate Date This Property will be Returned N/A
------------------------------------	-----------------------------------	--

Originated By <i>JG Hogan</i>	Date 9-28-99	Authorized By <i>JG Hogan</i>	Date 9-28-99
----------------------------------	-----------------	----------------------------------	-----------------

Property Representative Signature	Date	Property Management Approval <i>Kathy Casey</i>	Date 9/28/99
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PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature <i>C.R. Wilson</i>	Date 9-28-99
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DISTRIBUTION (AFTER FINAL SIGNATURES)

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

AIR OVERNIGHT

Contractor <b>WASTE MANAGEMENT TECHNICAL SERVICES</b>	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT) <b>W299-0-0323</b>
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PART I - TO BE COMPLETED BY ORIGINATOR

Department <b>SAMPLING + WELL SERVICES</b>	Section <b>SAMPLING</b>	Unit
The following items are to be shipped from <input checked="" type="checkbox"/> Contractor <input type="checkbox"/> Vendor		
Routing <b>Fed. EX</b> <input checked="" type="checkbox"/> Prepaid <input type="checkbox"/> Collect		
Shipped to <b>TMA/WESTON</b> Company <b>2030 WRIGHT AV</b> Address City <b>RICHMOND</b> State <b>CA</b> Zip Code <b>94804</b> Country		Off-site Custodian <b>DELORES SANCHEZ</b> On-site Custodian <b>JG HOGAN</b> Payroll No.

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
		<b>POLYCOOLERS: ENVIRONMENTAL WATER SAMPLES</b>	
		<b>COOLER SML 461 WEIGHT 64 423579524929</b>	
		<b>SML 382 75 423579529930</b>	
		<b>SML 366 76 423579529940</b>	
		<b>SML 571 67 423579529951</b>	

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 PRESENTLY  
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 <b>JG HOGAN</b>	RM Survey No. <b>N/A</b>	Date <b>9-28-99</b>
Location of and Contact for Property (Name/Phone No./Bldg./Area) <b>JG HOGAN/539-2752/6269/600</b>		
Date Ready for Shipment <b>9-28-99</b>	Cost Code to be Charged <b>K96917</b>	Approximate Date This Property will be Returned <b>N/A</b>
Originated By <b>JG HOGAN</b>	Date <b>9-28-99</b>	Authorized By <b>JG HOGAN</b>
Property Representative Signature <b>JG HOGAN</b>	Date	Property Management Approval <b>Franky Casey</b>
		Date <b>9/28/99</b>

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature <b>C.R. Nelson</b>	Date <b>9-28-99</b>
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DISTRIBUTION (AFTER FINAL SIGNATURES)

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

AIR OVERNIGHT

Contractor <b>WASTE MANAGEMENT TECHNICAL SERVICES</b>	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT) <b>W299-0-0323</b>
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PART I - TO BE COMPLETED BY ORIGINATOR

Department <b>SAMPLING + WELL SERVICES</b>	Section <b>SAMPLING</b>	Unit
The following items are to be shipped from		<input checked="" type="checkbox"/> Contractor <input type="checkbox"/> Vendor
Routing <b>Fed. EX</b>		<input checked="" type="checkbox"/> Pre-aid <input type="checkbox"/> Collect
Shipped to Company <b>TMA/WESTON</b> Address <b>2030 WRIGHT AV</b> City <b>RICHMOND</b> State <b>CA</b> Zip Code <b>94804</b> Country	Off-site Custodian <b>DELORES SANCHEZ</b>	Payroll No.
	On-site Custodian <b>JG HOGAN</b>	

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
		<b>POLYCOOLERS: ENVIRONMENTAL WATER SAMPLES</b>	
		<b>COOLER SML461 WEIGHT 64 423579529929</b>	
		<b>SML382 75 423579529930</b>	
		<b>SML366 76 423579529940</b>	
		<b>SML571 67 423579529951</b>	

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 PRESENTLY  
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 <b>JG HOGAN</b>	RM Survey No. <b>N/A</b>	Date <b>9-28-99</b>
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Location of and Contact for Property (Name/Phone No./Bldg./Area)  
**JG HOGAN/539-2752/6269/600**

Date Ready for Shipment <b>9-28-99</b>	Cost Code to be Charged <b>K96917</b>	Approximate Date This Property will be Returned <b>N/A</b>
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Originated By <b>JG HOGAN</b>	Date <b>9-28-99</b>	Authorized By <b>JG HOGAN</b>	Date <b>9-28-99</b>
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Property Representative Signature	Date	Property Management Approval <b>Franky Casey</b>	Date <b>9/28/99</b>
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PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature <b>C.R. Nelson</b>	Date <b>9-28-99</b>
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DISTRIBUTION (AFTER FINAL SIGNATURES)

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

OVERNIGHT AIR

Contractor <i>Waste Management T.S.</i>	OFF-SITE PROPERTY CONTROL	CONTROL NO. <i>(To be obtained from PROPERTY MANAGEMENT)</i> <i>W99-0-0324</i>
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PART I - TO BE COMPLETED BY ORIGINATOR

Department <i>Environmental Services</i>	Section <i>Analytical Chemistry</i>	Unit <i>Sampling + Mobile Labs</i>
The following items are to be shipped from		<input checked="" type="checkbox"/> Contractor <input type="checkbox"/> Vendor
Routing <i>Fed Ex</i>		<input checked="" type="checkbox"/> Prepaid <input type="checkbox"/> Collect
Shipped to Company <i>TMA / RECRA</i> Address <i>2030 Wright Ave.</i> City <i>Richmond</i> State <i>CA</i> Zip Code <i>94804</i> Country		Off-site Custodian <i>Delores Sanchez</i>
		On-site Custodian Payroll No.

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
3	Coolers.	Groundwater samples that are double bagged and on wet ice.	
		Cooler # <i>SML-462</i> Weight <i>68 lbs</i> <i>423579529962</i>	
		Cooler # <i>SML-519</i> Weight <i>66 lbs</i> <i>423579529973</i>	
		Cooler # <i>SML-450</i> Weight <i>65 lbs</i> <i>423579529984</i>	

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 from an off-site lab.*

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

RM Clearance for Public Release <i>NA</i>	RM Survey No. <i>NA</i>	Date <i>NA</i>
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Location of and Contact for Property (Name/Phone No./Bldg./Area)  
*Rory Z Steffler 372-2321 345 Hill St. 1100*

Date Ready for Shipment <i>9-28-99</i>	Cost Code to be Charged <i>K96917 / 08000</i>	Approximate Date This Property will be Returned <i>NA</i>
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Originated By <i>R.P. Fox</i>	Relinquished by: Time <i>1500</i>	Date <i>9-28-99</i>	Authorized By <i>J.H. Waley</i>	Date <i>9/28/99</i>
Property Representative Signature		Date	Property Management Approval <i>Kathy Casey</i>	Date <i>9/28/99</i>

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature <i>C.R. Khan</i>	Date <i>9-28-99</i>
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DISTRIBUTION (AFTER FINAL SIGNATURES)

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

AIR OVERNIGHT

Contractor  
WASTE MANAGEMENT  
TECHNICAL SERVICES

OFF-SITE  
PROPERTY CONTROL

CONTROL NO.  
(To be obtained from PROPERTY MANAGEMENT)  
W99-0-0323

PART I - TO BE COMPLETED BY ORIGINATOR

Department  
SAMPLING + WELL SERVICES Section  
SIAM

The following items are to be shipped from

Routing  
Fed. EX

Shipped to  
Company  
Address  
City  
Country

Contractor  Vendor  
 Prepaid  Collect

Off-site Custodian  
DELORES SANCHEZ

Off-site Custodian  
JG HOGAN Payroll No.

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
		POLYCOOLERS: ENVIRONMENTAL WATER SAMPLES	
		COOLER SML461 WEIGHT 64 423579529929	
		SML382 75 423579529930	
		SML366 76 423579529940	
		SML571 67 423579529951	

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 PRESENTLY 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 *JG HOGAN* RM Survey No. N/A Date 9-28-99

Location of and Contact for Property (Name/Phone No./Bldg./Area)  
JG HOGAN / 539-2752 / 6269 / 600

Date Ready for Shipment 9-28-99 Cost Code to be Charged K96917 Approximate Date This Property will be Returned N/A

Originated By JG HOGAN Date 9-28-99 Authorized By *JG HOGAN* Date 9-28-99

Property Representative Signature \_\_\_\_\_ Date \_\_\_\_\_ Property Management Approval *Franky Casey* Date 9/28/99

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature *C.R. Nelson* Date 9-28-99

DISTRIBUTION (AFTER FINAL SIGNATURES)

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