



EBERLINE SERVICES



April 20, 2006

Ms. Joan Kessner
Washington Closure Hanford
3190 George Washington Way
MSIN H9-02
Richland, WA 99352

Reference: **P.O. #630**
Eberline Services R6-03-043-7399, SDG K0248

Dear Ms. Kessner:

Enclosed is the data report for seven water samples designated under SAF No. RC-008 received at Eberline Services on March 4, 2006. The samples were analyzed according to the accompanying chain-of-custody documents.

Please call if you have any questions concerning this report.

Sincerely,

Melissa C. Mannion
Senior Program Manager

MCM/

Enclosure: Data Package

Analytical Services
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Richmond, California 94804-0040
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1.0 GENERAL

Washington Closure Hanford (WCH) Sample Delivery Group K0248 was composed of seven water samples designated under SAF No. RC-008 with a Project Designation of: ERDF Groundwater Well Samples.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to WCH via e-mail on April 18, 2006.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analysis

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analysis

No problems were encountered during the course of the analyses.

2.3 Total Radium Analysis

No problems were encountered during the course of the analyses.

2.4 Technetium-99 Analysis

No problems were encountered during the course of the analyses.

2.5 Iodine-129 Analysis

No problems were encountered during the course of the analyses.

2.6 Total Uranium Analysis

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

"I certify that this data package is in compliance with the SOW, both technically and for completeness, for other than the conditions detailed above. Release of the data obtained in this hard copy data package has been authorized by the Laboratory Manager or a designee, as verified by the following signature."



Melissa C. Mannion
Senior Program Manager

4/20/06

Date

EBRLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K0248

SDG 7399
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Case no SDG_K0248

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Melissa Mannion
Prepared by

Melissa Mannion
Reviewed by

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-TOC
Version 3.06
Report date 04/18/06

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0248

SDG 7399
Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
Contract No. 630
Case no SDG K0248

ABOUT THE DATA SUMMARY SECTION

The Data Summary Section of a Data Package has all data, in several useful orders, necessary for first level, routine review of the data package for a Sample Delivery Group (SDG). This section follows the Data Package Narrative, which has an overview of the data package and a discussion of special problems. It is followed by the Raw Data Section, which has full details.

The Data Summary Section has several groups of reports:

SAMPLE SUMMARIES

The Sample and QC Summary Reports show all samples, including QC samples, reported in one SDG. These reports cross-reference client and lab sample identifiers.

PREPARATION BATCH SUMMARY

The Preparation Batch Summary Report shows all preparation batches (lab groupings reflecting how work was organized) relevant to the reported SDG with information necessary to check the completeness and consistency of the SDG.

WORK SUMMARY

The Work Summary Report shows all samples and work done on them relevant to the reported SDG.

METHOD BLANKS

The Method Blank Reports, one for each Method Blank relevant to the SDG, show all results and primary supporting information for the blanks.

LAB CONTROL SAMPLES

The Lab Control Sample Reports, one for each Lab Control Sample relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

REPORT GUIDES

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SAMPLE DELIVERY GROUP K0248

SDG 7399
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG K0248

ABOUT THE DATA SUMMARY SECTION

DUPLICATES

The Duplicate Reports, one for each Duplicate and Original sample pair relevant to the SDG, show all results, differences and primary supporting information for these QC samples.

MATRIX SPIKES

The Matrix Spike Reports, one for each Spiked and Original sample pair relevant to the SDG, show all results, recoveries and primary supporting information for these QC samples.

DATA SHEETS

The Data Sheet Reports, one for each client sample in the SDG, show all results and primary supporting information for these samples.

METHOD SUMMARIES

The Method Summary Reports, one for each test used in the SDG, show all results, QC and method performance data for one analyte on one or two pages. (A test is a short code for the method used to do certain work to the client's specification.)

REPORT GUIDES

The Report Guides, one for each of the above groups of reports, have documentation on how to read the associated reports.

REPORT GUIDES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

LAB SAMPLE SUMMARY

SDG 7399

Contact Melissa C. Mannion

Client Hanford

Contract No. 630

Case no SDG K0248

LAB SAMPLE ID	CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	SAF NO	CHAIN OF CUSTODY	COLLECTED
R603043-01	B1HRF3	Hanford Site	WATER		RC-008	RC-008-2	03/03/06 09:34
R603043-02	B1HRF6	Hanford Site	WATER		RC-008	RC-008-5	03/03/06 09:34
R603043-03	B1HRM0	Hanford Site	WATER		RC-008	RC-008-7	03/03/06 11:59
R603043-04	B1HRH4	Hanford Site	WATER		RC-008	RC-008-10	03/03/06 08:00
R603043-05	B1HRH8	Hanford Site	WATER		RC-008	RC-008-13	03/03/06 09:57
R603043-06	B1HRJ2	Hanford Site	WATER		RC-008	RC-008-16	03/03/06 08:45
R603043-07	B1HRJ6	Hanford Site	WATER		RC-008	RC-008-19	03/03/06 11:58
R603043-08	Lab Control Sample		WATER		RC-008		
R603043-09	Method Blank		WATER		RC-008		
R603043-10	Duplicate (R603043-03)	Hanford Site	WATER		RC-008		03/03/06 11:59
R603043-11	Spike (R603043-03)	Hanford Site	WATER		RC-008		03/03/06 11:59

LAB SUMMARY

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Protocol Hanford

Version Ver 1.0

Form DVD-LS

Version 3.06

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

SDG 7399
 Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG K0248

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
7399	RC-008-10	B1HRH4	WATER		7.2 L		03/04/06 1	R603043-04		7399-004
	RC-008-13	B1HRH8	WATER		7.2 L		03/04/06 1	R603043-05		7399-005
	RC-008-16	B1HRJ2	WATER		7.2 L		03/04/06 1	R603043-06		7399-006
	RC-008-19	B1HRJ6	WATER		7.2 L		03/04/06 1	R603043-07		7399-007
	RC-008-2	B1HRF3	WATER		7.2 L		03/04/06 1	R603043-01		7399-001
	RC-008-5	B1HRF6	WATER		7.2 L		03/04/06 1	R603043-02		7399-002
	RC-008-7	B1HRH0	WATER		7.2 L		03/04/06 1	R603043-03		7399-003
		Method Blank	WATER					R603043-09		7399-009
		Lab Control Sample	WATER					R603043-08		7399-008
		Duplicate (R603043-03)	WATER		7.2 L		03/04/06 1	R603043-10		7399-010
		Spike (R603043-03)	WATER		7.2 L		03/04/06 1	R603043-11		7399-011

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SAMPLE DELIVERY GROUP K0248

SDG 7399
 Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
 Contract No. 630
 Case no SDG K0248

TEST	MATRIX	METHOD	PREPARATION ERROR		PLANCHETS ANALYZED				QUALI- FIERS	
			BATCH	2σ %	CLIENT	MORE	RE	BLANK		LCS
Beta Counting										
TC	WATER	Technetium 99 in Water	7131-105	10.0	7			1	1	1/1
Gas Proportional Counting										
RAT	WATER	Total Alpha Radium in Water	7131-105	5.0	7			1	1	1/1
Gas Proportional Counting										
93A	WATER	Gross Alpha in Water	7131-105	20.0	7			1	1	1/1
93B	WATER	Gross Beta in Water	7131-105	15.0	7			1	1	1/1
Gamma Spectroscopy										
I	WATER	Iodine 129 in Water	7131-105	5.0	7			1	1	1/1
Kinetic Phosphorimetry (KPA)										
U_T	WATER	Uranium, Total in Water	7131-105	9.0	7			1	1	1/1
Liquid Scintillation Counting										
C	WATER	Carbon 14 in Water	7131-105	10.0	7			1	1	1/1 1/1 X

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.

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SAMPLE DELIVERY GROUP K0248

LAB WORK SUMMARY

SDG 7399
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Case no SDG K0248

LAB SAMPLE	CLIENT SAMPLE ID									
COLLECTED	LOCATION	MATRIX	SUF-							
RECEIVED	CUSTODY	SAF No	PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
R603043-01	B1HRF3		7399-001	93A/93		03/30/06	04/18/06	MWT	Gross Alpha in Water	
03/03/06	Hanford Site		7399-001	93B/93		03/30/06	04/18/06	MWT	Gross Beta in Water	
03/04/06	RC-008-2	RC-008	7399-001	C		04/10/06	04/18/06	MWT	Carbon 14 in Water	
			7399-001	I		03/31/06	04/18/06	MWT	Iodine 129 in Water	
			7399-001	RAT		04/08/06	04/18/06	MWT	Total Alpha Radium in Water	
			7399-001	TC		04/03/06	04/18/06	MWT	Technetium 99 in Water	
			7399-001	U_T		03/29/06	04/18/06	MWT	Uranium, Total in Water	
R603043-02	B1HRF6		7399-002	93A/93		03/30/06	04/18/06	MWT	Gross Alpha in Water	
03/03/06	Hanford Site		7399-002	93B/93		03/30/06	04/18/06	MWT	Gross Beta in Water	
03/04/06	RC-008-5	RC-008	7399-002	C		04/10/06	04/18/06	MWT	Carbon 14 in Water	
			7399-002	I		04/03/06	04/18/06	MWT	Iodine 129 in Water	
			7399-002	RAT		04/06/06	04/18/06	MWT	Total Alpha Radium in Water	
			7399-002	TC		04/03/06	04/18/06	MWT	Technetium 99 in Water	
			7399-002	U_T		03/29/06	04/18/06	MWT	Uranium, Total in Water	
R603043-03	B1HRH0		7399-003	93A/93		03/30/06	04/18/06	MWT	Gross Alpha in Water	
03/03/06	Hanford Site		7399-003	93B/93		03/30/06	04/18/06	MWT	Gross Beta in Water	
03/04/06	RC-008-7	RC-008	7399-003	C		04/10/06	04/18/06	MWT	Carbon 14 in Water	
			7399-003	I		04/04/06	04/18/06	MWT	Iodine 129 in Water	
			7399-003	RAT		04/06/06	04/18/06	MWT	Total Alpha Radium in Water	
			7399-003	TC		04/03/06	04/18/06	MWT	Technetium 99 in Water	
			7399-003	U_T		03/29/06	04/18/06	MWT	Uranium, Total in Water	
R603043-04	B1HRH4		7399-004	93A/93		03/31/06	04/18/06	MWT	Gross Alpha in Water	
03/03/06	Hanford Site		7399-004	93B/93		03/31/06	04/18/06	MWT	Gross Beta in Water	
03/04/06	RC-008-10	RC-008	7399-004	C		04/10/06	04/18/06	MWT	Carbon 14 in Water	
			7399-004	I		04/05/06	04/18/06	MWT	Iodine 129 in Water	
			7399-004	RAT		04/08/06	04/18/06	MWT	Total Alpha Radium in Water	
			7399-004	TC		04/03/06	04/18/06	MWT	Technetium 99 in Water	
			7399-004	U_T		03/29/06	04/18/06	MWT	Uranium, Total in Water	
R603043-05	B1HRH8		7399-005	93A/93		03/31/06	04/18/06	MWT	Gross Alpha in Water	
03/03/06	Hanford Site		7399-005	93B/93		03/31/06	04/18/06	MWT	Gross Beta in Water	
03/04/06	RC-008-13	RC-008	7399-005	C		04/10/06	04/18/06	MWT	Carbon 14 in Water	
			7399-005	I		04/06/06	04/18/06	MWT	Iodine 129 in Water	
			7399-005	RAT		04/08/06	04/18/06	MWT	Total Alpha Radium in Water	
			7399-005	TC		04/01/06	04/18/06	MWT	Technetium 99 in Water	
			7399-005	U_T		03/29/06	04/18/06	MWT	Uranium, Total in Water	

WORK SUMMARY

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

WORK SUMMARY, cont.

SDG 7399
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Case no SDG K0248

LAB SAMPLE	CLIENT SAMPLE ID										
COLLECTED	LOCATION		MATRIX		SUF-						
RECEIVED	CUSTODY	SAF No		PLANCHET	TEST	FIX	ANALYZED	REVIEWED	BY	METHOD	
R603043-06	B1HRJ2			7399-006	93A/93		03/30/06	04/18/06	MWT	Gross Alpha in Water	
03/03/06	Hanford Site		WATER	7399-006	93B/93		03/30/06	04/18/06	MWT	Gross Beta in Water	
03/04/06	RC-008-16	RC-008		7399-006	C		04/10/06	04/18/06	MWT	Carbon 14 in Water	
				7399-006	I		04/07/06	04/18/06	MWT	Iodine 129 in Water	
				7399-006	RAT		04/08/06	04/18/06	MWT	Total Alpha Radium in Water	
				7399-006	TC		04/01/06	04/18/06	MWT	Technetium 99 in Water	
				7399-006	U_T		03/29/06	04/18/06	MWT	Uranium, Total in Water	
R603043-07	B1HRJ6			7399-007	93A/93		03/31/06	04/18/06	MWT	Gross Alpha in Water	
03/03/06	Hanford Site		WATER	7399-007	93B/93		03/31/06	04/18/06	MWT	Gross Beta in Water	
03/04/06	RC-008-19	RC-008		7399-007	C		04/10/06	04/18/06	MWT	Carbon 14 in Water	
				7399-007	I		04/10/06	04/18/06	MWT	Iodine 129 in Water	
				7399-007	RAT		04/08/06	04/18/06	MWT	Total Alpha Radium in Water	
				7399-007	TC		04/01/06	04/18/06	MWT	Technetium 99 in Water	
				7399-007	U_T		03/29/06	04/18/06	MWT	Uranium, Total in Water	
R603043-08	Lab Control Sample			7399-008	93A/93		03/30/06	04/18/06	MWT	Gross Alpha in Water	
			WATER	7399-008	93B/93		03/30/06	04/18/06	MWT	Gross Beta in Water	
		RC-008		7399-008	C		04/10/06	04/18/06	MWT	Carbon 14 in Water	
				7399-008	I		04/11/06	04/18/06	MWT	Iodine 129 in Water	
				7399-008	RAT		04/06/06	04/18/06	MWT	Total Alpha Radium in Water	
				7399-008	TC		04/01/06	04/18/06	MWT	Technetium 99 in Water	
				7399-008	U_T		03/29/06	04/18/06	MWT	Uranium, Total in Water	
R603043-09	Method Blank			7399-009	93A/93		03/30/06	04/18/06	MWT	Gross Alpha in Water	
			WATER	7399-009	93B/93		03/30/06	04/18/06	MWT	Gross Beta in Water	
		RC-008		7399-009	C		04/10/06	04/18/06	MWT	Carbon 14 in Water	
				7399-009	I		04/11/06	04/18/06	MWT	Iodine 129 in Water	
				7399-009	RAT		04/10/06	04/18/06	MWT	Total Alpha Radium in Water	
				7399-009	TC		04/01/06	04/18/06	MWT	Technetium 99 in Water	
				7399-009	U_T		03/29/06	04/18/06	MWT	Uranium, Total in Water	
R603043-10	Duplicate (R603043-03)			7399-010	93A/93		03/30/06	04/18/06	MWT	Gross Alpha in Water	
03/03/06	Hanford Site		WATER	7399-010	93B/93		03/30/06	04/18/06	MWT	Gross Beta in Water	
03/04/06		RC-008		7399-010	C		04/10/06	04/18/06	MWT	Carbon 14 in Water	
				7399-010	I		04/12/06	04/18/06	MWT	Iodine 129 in Water	
				7399-010	RAT		04/10/06	04/18/06	MWT	Total Alpha Radium in Water	
				7399-010	TC		04/01/06	04/18/06	MWT	Technetium 99 in Water	
				7399-010	U_T		03/29/06	04/18/06	MWT	Uranium, Total in Water	

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

WORK SUMMARY, cont.

SDG 7399
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Case no SDG K0248

LAB SAMPLE	CLIENT SAMPLE ID									
COLLECTED	LOCATION	MATRIX	PLANCHET	TEST	SUP-	ANALYZED	REVIEWED	BY	METHOD	
RECEIVED	CUSTODY	SAF No			FIX					
R603043-11	Spike (R603043-03)		7399-011	C		04/10/06	04/18/06	MWT	Carbon 14 in Water	
03/03/06	Hanford Site									
03/04/06		RC-008								

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
93A/93	RC-008	Gross Alpha in Water	900.0_ALPHABETA_GPC	7			1	1	1	10
93B/93	RC-008	Gross Beta in Water	900.0_ALPHABETA_GPC	7			1	1	1	10
C	RC-008	Carbon 14 in Water	C14_CHEM_LSC	7			1	1	1	11
I	RC-008	Iodine 129 in Water	I129_SEP_LEPS_GS	7			1	1	1	10
RAT	RC-008	Total Alpha Radium in Water	RATOT_GPC	7			1	1	1	10
TC	RC-008	Technetium 99 in Water	TC99_TR_SEP_GPC	7			1	1	1	10
U_T	RC-008	Uranium, Total in Water	UTOT_KPA	7			1	1	1	10
TOTALS				49			7	7	7	71

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

7399-010

B1HRHO

DUPLICATE

SDG <u>7399</u>	Client/Case no <u>Hanford</u>	SDG <u>K0248</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
DUPLICATE	ORIGINAL	
Lab sample id <u>R603043-10</u>	Lab sample id <u>R603043-03</u>	Client sample id <u>B1HRHO</u>
Dept sample id <u>7399-010</u>	Dept sample id <u>7399-003</u>	Location/Matrix <u>Hanford Site</u> <u>WATER</u>
	Received <u>03/04/06</u>	Collected/Volume <u>03/03/06 11:59</u> <u>7.2 L</u>
		Custody/SAF No <u>RC-008-7</u> <u>RC-008</u>

ANALYTE	DUPLICATE	2σ ERR	MDA	RDL	QUALI-	TEST	ORIGINAL	2σ ERR	MDA	QUALI-	RPD	3σ	DER
	pCi/L	(COUNT)	pCi/L	pCi/L	FIERS		pCi/L	(COUNT)	pCi/L	FIERS	%	TOT	σ
Gross Alpha	-1.20	1.3	2.7	3.0	U	93A	-0.146	1.6	2.8	U	-		1.0
Gross Beta	29.5	2.4	1.9	4.0		93B	30.0	2.4	1.9		2	36	0.1
Carbon 14	42.7	37	60	200	U	C	1.44	36	60	U	-		1.6
Technetium 99	55.2	3.9	3.7	15		TC	59.2	5.0	6.4		7	27	0.8
Total Uranium (ug/L)	2.20	0.23	0.046	0.10		U_T	2.14	0.23	0.046		3	30	0.3
Total Radium	-0.186	0.22	0.62	1.0	U	RAT	0.045	0.14	0.54	U	-		1.8
Iodine 129	14.3	2.9	<u>6.1</u>	5.0		I	13.5	2.5	<u>5.2</u>		6	43	0.4

ERDF Groundwater Well Samples

QC-DUP#3 56488

DUPLICATES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

7399-011

B1HRHO

MATRIX SPIKE

SDG <u>7399</u>	Client/Case no <u>Hanford</u>	SDG <u>K0248</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R603043-11</u>	Lab sample id <u>R603043-03</u>	Client sample id <u>B1HRHO</u>
Dept sample id <u>7399-011</u>	Dept sample id <u>7399-003</u>	Location/Matrix <u>Hanford Site</u> <u>WATER</u>
	Received <u>03/04/06</u>	Collected/Volume <u>03/03/06 11:59</u> <u>7.2 L</u>
		Custody/SAF No <u>RC-008-7</u> <u>RC-008</u>

ANALYTE	SPIKE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS TEST	ADDED pCi/L	2σ ERR pCi/L	ORIGINAL pCi/L	2σ ERR (COUNT)	REC 3σ ‡ (TOTAL)	LMTS LIMITS	PROTOCOL LIMITS
Carbon 14	21100	720	<u>270</u>	200	X C	23900	960	1.44	36	88	85-115	60-140

ERDF Groundwater Well Samples

QC-MS#3 56489

MATRIX SPIKES

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version Ver <u>1.0</u>
Form <u>DVD-MS</u>
Version <u>3.06</u>
Report date <u>04/18/06</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K0248

7399-001

B1HRF3

DATA SHEET

SDG <u>7399</u>	Client/Case no <u>Hanford</u>	SDG <u>K0248</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R603043-01</u>	Client sample id <u>B1HRF3</u>	
Dept sample id <u>7399-001</u>	Location/Matrix <u>Hanford Site</u>	<u>WATER</u>
Received <u>03/04/06</u>	Collected/Volume <u>03/03/06 09:34</u>	<u>7.2 L</u>
	Custody/SAF No <u>RC-008-2</u>	<u>RC-008</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.264	1.5	2.4	3.0	U	93A
Gross Beta	12587-47-2	45.4	2.8	1.8	4.0		93B
Carbon 14	14762-75-5	34.2	36	60	200	U	C
Technetium 99	14133-76-7	74.3	5.2	5.8	15		TC
Total Uranium (ug/L)	7440-61-1	2.35	0.25	0.046	0.10		U_T
Total Radium	ALPHA-RA	<u>-0.294</u>	0.13	0.67	1.0	U	RAT
Iodine 129	15046-84-1	2.87	1.5	3.4	5.0	U	I

ERDF Groundwater Well Samples

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>04/18/06</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K0248

7399-002

B1HRF6

DATA SHEET

SDG <u>7399</u>	Client/Case no <u>Hanford</u>	SDG <u>K0248</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R603043-02</u>	Client sample id <u>B1HRF6</u>	
Dept sample id <u>7399-002</u>	Location/Matrix <u>Hanford Site</u>	<u>WATER</u>
Received <u>03/04/06</u>	Collected/Volume <u>03/03/06 09:34</u>	<u>7.2 L</u>
	Custody/SAF No <u>RC-008-5</u>	<u>RC-008</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	1.16	1.8	2.5	3.0	U	93A
Gross Beta	12587-47-2	44.6	2.9	2.2	4.0		93B
Carbon 14	14762-75-5	16.1	36	60	200	U	C
Technetium 99	14133-76-7	80.0	5.6	5.9	15		TC
Total Uranium (ug/L)	7440-61-1	2.30	0.24	0.046	0.10		U_T
Total Radium	ALPHA-RA	-0.042	0.15	0.71	1.0	U	RAT
Iodine 129	15046-84-1	1.91	1.9	4.2	5.0	U	I

ERDF Groundwater Well Samples

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>04/18/06</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K0248

7399-003

B1HRH0

DATA SHEET

SDG <u>7399</u>	Client/Case no <u>Hanford</u>	SDG <u>K0248</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R603043-03</u>	Client sample id <u>B1HRH0</u>	
Dept sample id <u>7399-003</u>	Location/Matrix <u>Hanford Site</u>	<u>WATER</u>
Received <u>03/04/06</u>	Collected/Volume <u>03/03/06 11:59</u>	<u>7.2 L</u>
	Custody/SAF No <u>RC-008-7</u>	<u>RC-008</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.146	1.6	2.8	3.0	U	93A
Gross Beta	12587-47-2	30.0	2.4	1.9	4.0		93B
Carbon 14	14762-75-5	1.44	36	60	200	U	C
Technetium 99	14133-76-7	59.2	5.0	6.4	15		TC
Total Uranium (ug/L)	7440-61-1	2.14	0.23	0.046	0.10		U_T
Total Radium	ALPHA-RA	0.045	0.14	0.54	1.0	U	RAT
Iodine 129	15046-84-1	13.5	2.5	<u>5.2</u>	5.0		I

ERDF Groundwater Well Samples

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>04/18/06</u>

DATA SHEETS

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K0248

7399-004

B1HRH4

DATA SHEET

SDG <u>7399</u>	Client/Case no <u>Hanford</u>	SDG <u>K0248</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R603043-04</u>	Client sample id <u>B1HRH4</u>	
Dept sample id <u>7399-004</u>	Location/Matrix <u>Hanford Site</u>	<u>WATER</u>
Received <u>03/04/06</u>	Collected/Volume <u>03/03/06 08:00</u>	<u>7.2 L</u>
	Custody/SAF No <u>RC-008-10</u>	<u>RC-008</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	-0.495	0.63	1.4	3.0	U	93A
Gross Beta	12587-47-2	0.663	1.6	2.8	4.0	U	93B
Carbon 14	14762-75-5	-1.41	35	59	200	U	C
Technetium 99	14133-76-7	1.43	2.3	5.9	15	U	TC
Total Uranium (ug/L)	7440-61-1	0	0.020	0.046	0.10	U	U_T
Total Radium	ALPHA-RA	-0.131	0.14	0.69	1.0	U	RAT
Iodine 129	15046-84-1	<u>-2.35</u>	2.0	4.5	5.0	U	I

ERDF Groundwater Well Samples

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>04/18/06</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K0248

7399-005

B1HRH8

DATA SHEET

SDG <u>7399</u>	Client/Case no <u>Hanford</u>	SDG <u>K0248</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R603043-05</u>	Client sample id <u>B1HRH8</u>	
Dept sample id <u>7399-005</u>	Location/Matrix <u>Hanford Site</u>	<u>WATER</u>
Received <u>03/04/06</u>	Collected/Volume <u>03/03/06 09:57</u>	<u>7.2 L</u>
	Custody/SAF No <u>RC-008-13</u>	<u>RC-008</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	1.12	1.8	2.6	3.0	U	93A
Gross Beta	12587-47-2	30.0	2.5	2.1	4.0		93B
Carbon 14	14762-75-5	-22.6	34	59	200	U	C
Technetium 99	14133-76-7	46.0	4.0	4.9	15		TC
Total Uranium (ug/L)	7440-61-1	2.94	0.31	0.046	0.10		U_T
Total Radium	ALPHA-RA	-0.199	0.19	0.65	1.0	U	RAT
Iodine 129	15046-84-1	7.66	2.5	5.4	5.0		I

ERDF Groundwater Well Samples

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>04/18/06</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K0248

7399-006

B1HRJ2

DATA SHEET

SDG <u>7399</u>	Client/Case no <u>Hanford</u>	SDG <u>K0248</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R603043-06</u>	Client sample id <u>B1HRJ2</u>	
Dept sample id <u>7399-006</u>	Location/Matrix <u>Hanford Site</u>	<u>WATER</u>
Received <u>03/04/06</u>	Collected/Volume <u>03/03/06 08:45</u>	<u>7.2 L</u>
	Custody/SAF No <u>RC-008-16</u>	<u>RC-008</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	<u>-0.553</u>	0.55	1.4	3.0	U	93A
Gross Beta	12587-47-2	<u>-0.235</u>	0.98	1.8	4.0	U	93B
Carbon 14	14762-75-5	<u>-12.1</u>	34	59	200	U	C
Technetium 99	14133-76-7	<u>1.12</u>	2.1	5.3	15	U	TC
Total Uranium (ug/L)	7440-61-1	<u>0</u>	0.020	0.046	0.10	U	U_T
Total Radium	ALPHA-RA	<u>-0.366</u>	0.12	0.70	1.0	U	RAT
Iodine 129	15046-84-1	<u>-1.91</u>	2.6	<u>5.9</u>	5.0	U	I

ERDF Groundwater Well Samples

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>04/18/06</u>

DATA SHEETS

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SUMMARY DATA SECTION

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP K0248

7399-007

B1HRJ6

DATA SHEET

SDG <u>7399</u>	Client/Case no <u>Hanford</u>	SDG <u>K0248</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R603043-07</u>	Client sample id <u>B1HRJ6</u>	
Dept sample id <u>7399-007</u>	Location/Matrix <u>Hanford Site</u>	<u>WATER</u>
Received <u>03/04/06</u>	Collected/Volume <u>03/03/06 11:58</u>	<u>7.2 L</u>
	Custody/SAF No <u>RC-008-19</u>	<u>RC-008</u>

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI- FIERS	TEST
Gross Alpha	12587-46-1	0.117	1.7	2.9	3.0	U	93A
Gross Beta	12587-47-2	45.4	3.1	3.1	4.0		93B
Carbon 14	14762-75-5	6.04	35	58	200	U	C
Technetium 99	14133-76-7	60.4	9.0	5.5	15		TC
Total Uranium (ug/L)	7440-61-1	2.68	0.28	0.046	0.10		U_T
Total Radium	ALPHA-RA	<u>-0.194</u>	0.12	0.54	1.0	U	RAT
Iodine 129	15046-84-1	0.379	1.7	3.9	5.0	U	I

ERDF Groundwater Well Samples

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>04/18/06</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

LAB METHOD SUMMARY

TECHNETIUM 99 IN WATER

BETA COUNTING

Test TC Matrix WATER
 SDG 7399
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG K0248

RESULTS

LAB	RAW	SUF-	Technetium	
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID
Preparation batch 7131-105				
R603043-01			7399-001	B1HRF3 74.3
R603043-02			7399-002	B1HRF6 80.0
R603043-03			7399-003	B1HRH0 59.2
R603043-04			7399-004	B1HRH4 U
R603043-05			7399-005	B1HRH8 46.0
R603043-06			7399-006	B1HRJ2 U
R603043-07			7399-007	B1HRJ6 60.4
R603043-08			7399-008	LCS (QC ID=56486) ok
R603043-09			7399-009	BLK (QC ID=56487) U
R603043-10			7399-010	Duplicate (R603043-03) ok

Nominal values and limits from method RDLs (pCi/L) 15
 ERDF Groundwater Well Samples

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-				
SAMPLE ID	TEST	FIX	CLIENT	SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7131-105 2σ prep error 10.0 % Reference Lab Notebook 7131 pg. 105																	
R603043-01			B1HRF3		5.8	0.100			89		50		31	03/29/06	04/03	GRB-220	
R603043-02			B1HRF6		5.9	0.100			85		50		31	03/29/06	04/03	GRB-222	
R603043-03			B1HRH0		6.4	0.100			81		50		31	03/29/06	04/03	GRB-223	
R603043-04			B1HRH4		5.9	0.100			84		50		31	03/29/06	04/03	GRB-224	
R603043-05			B1HRH8		4.9	0.100			89		69		29	03/29/06	04/01	GRB-218	
R603043-06			B1HRJ2		5.3	0.100			88		69		29	03/29/06	04/01	GRB-219	
R603043-07			B1HRJ6		5.5	0.100			78		69		29	03/29/06	04/01	GRB-220	
R603043-08			LCS (QC ID=56486)		3.8	0.100			90		120			03/29/06	04/01	GRB-201	
R603043-09			BLK (QC ID=56487)		3.5	0.100			89		120			03/29/06	04/01	GRB-202	
R603043-10			Duplicate (R603043-03)		3.7	0.100			84		120			03/29/06	04/01	GRB-203	
			(QC ID=56488)														

Nominal values and limits from method 15 0.100 20-105 50 180

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 04/18/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

LAB METHOD SUMMARY, cont.

TECHNETIUM 99 IN WATER

BETA COUNTING

Test TC Matrix WATER
SDG 7399
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG K0248

PROCEDURES	REFERENCE	TC99_TR_SEP_GPC
	CP-431	Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES \pm 2 SD	MDA	<u>5.1</u>	\pm	<u>2.1</u>
FOR 10 SAMPLES	YIELD	<u>86</u>	\pm	<u>8</u>

Lab id	<u>EBRLNE</u>
Protocol	<u>Hanford</u>
Version	<u>Ver 1.0</u>
Form	<u>DVD-LMS</u>
Version	<u>3.06</u>
Report date	<u>04/18/06</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

LAB METHOD SUMMARY

TOTAL ALPHA RADIUM IN WATER
GAS PROPORTIONAL COUNTING

Test RAT Matrix WATER
SDG 7399
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG K0248

RESULTS

LAB	RAW	SUF-			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Total Radium	
Preparation batch 7131-105					
R603043-01		7399-001	B1HRF3	U	
R603043-02		7399-002	B1HRF6	U	
R603043-03		7399-003	B1HRH0	U	
R603043-04		7399-004	B1HRH4	U	
R603043-05		7399-005	B1HRH8	U	
R603043-06		7399-006	B1HRJ2	U	
R603043-07		7399-007	B1HRJ6	U	
R603043-08		7399-008	LCS (QC ID=56486)	ok	
R603043-09		7399-009	BLK (QC ID=56487)	U	
R603043-10		7399-010	Duplicate (R603043-03)	- U	

Nominal values and limits from method RDLs (pCi/L) 1.0
ERDF Groundwater Well Samples

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7131-105			2σ prep error 5.0 %		Reference Lab Notebook 7131 pg. 105										
R603043-01		B1HRF3	0.67	0.200			88		100			36	04/03/06	04/08	GAW-213
R603043-02		B1HRF6	0.71	0.200			91		100			34	04/03/06	04/06	GAW-111
R603043-03		B1HRH0	0.54	0.200			90		100			34	04/03/06	04/06	GAW-112
R603043-04		B1HRH4	0.69	0.200			89		100			36	04/03/06	04/08	GAW-115
R603043-05		B1HRH8	0.65	0.200			89		100			36	04/03/06	04/08	GAW-213
R603043-06		B1HRJ2	0.70	0.200			91		100			36	04/03/06	04/08	GAW-214
R603043-07		B1HRJ6	0.54	0.200			91		100			36	04/03/06	04/08	GAW-216
R603043-08		LCS (QC ID=56486)	0.63	0.200			90		100				04/03/06	04/06	GAW-109
R603043-09		BLK (QC ID=56487)	0.63	0.200			88		100				04/03/06	04/10	GAW-115
R603043-10		Duplicate (R603043-03)	0.62	0.200			91		100			38	04/03/06	04/10	GAW-115
		(QC ID=56488)													

Nominal values and limits from method 1.0 0.200 20-105 100 180

METHOD SUMMARIES

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 04/18/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

LAB METHOD SUMMARY, cont.

TOTAL ALPHA RADIUM IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford

Contract No. 630

Contract SDG K0248

Test RAT Matrix WATER

SDG 7399

Contact Melissa C. Mannion

PROCEDURES	REFERENCE	RATOT_GPC
	DWP-880	Total Radium in Drinking Water, rev 0

AVERAGES \pm 2 SD	MDA	<u>0.64</u>	\pm	<u>0.12</u>
FOR 10 SAMPLES	YIELD	<u>90</u>	\pm	<u>2</u>

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE

Protocol Hanford

Version Ver 1.0

Form DVD-LMS

Version 3.06

Report date 04/18/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

LAB METHOD SUMMARY

GROSS ALPHA IN WATER

GAS PROPORTIONAL COUNTING

Test 93A Matrix WATER
 SDG 7399
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG K0248

RESULTS

LAB	RAW	SUF-			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID		Gross Alpha
Preparation batch 7131-105					
R603043-01	93	7399-001	B1HRF3		U
R603043-02	93	7399-002	B1HRF6		U
R603043-03	93	7399-003	B1HRH0		U
R603043-04	93	7399-004	B1HRH4		U
R603043-05	93	7399-005	B1HRH8		U
R603043-06	93	7399-006	B1HRJ2		U
R603043-07	93	7399-007	B1HRJ6		U
R603043-08	93	7399-008	LCS (QC ID=56486)		ok
R603043-09	93	7399-009	BLK (QC ID=56487)		U
R603043-10	93	7399-010	Duplicate (R603043-03)	-	U

Nominal values and limits from method RDLs (pCi/L) 3.0
 ERDF Groundwater Well Samples

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	RESID	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	mg	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7131-105 2σ prep error 20.0 % Reference Lab Notebook 7131 pg. 105															
R603043-01	93	B1HRF3	2.4	0.300			92		100			27	03/29/06	03/30	GRB-109
R603043-02	93	B1HRF6	2.5	0.300			86		100			27	03/29/06	03/30	GRB-110
R603043-03	93	B1HRH0	2.8	0.300			117		100			27	03/29/06	03/30	GRB-111
R603043-04	93	B1HRH4	1.4	0.300			<u>0</u>		100			28	03/29/06	03/31	GRB-214
R603043-05	93	B1HRH8	2.6	0.300			94		100			28	03/29/06	03/31	GRB-105
R603043-06	93	B1HRJ2	1.4	0.300			<u>0</u>		100			27	03/29/06	03/30	GRB-210
R603043-07	93	B1HRJ6	2.9	0.300			96		100			28	03/29/06	03/31	GRB-213
R603043-08	93	LCS (QC ID=56486)	2.4	0.300			65		100				03/29/06	03/30	GRB-213
R603043-09	93	BLK (QC ID=56487)	2.6	0.300			65		100				03/29/06	03/30	GRB-214
R603043-10	93	Duplicate (R603043-03)	2.7	0.300			105		100			27	03/29/06	03/30	GRB-216
		(QC ID=56488)													

Nominal values and limits from method 3.0 0.300 5-250 100 180

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 04/18/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

LAB METHOD SUMMARY, cont.

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Test 93A Matrix WATER
SDG 7399
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG K0248

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
SPP-120 Gross Alpha and Gross Beta in Water, rev 0

AVERAGES \pm 2 SD MDA 2.4 \pm 1.1
FOR 10 SAMPLES RESIDUE 72 \pm 82

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 04/18/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

LAB METHOD SUMMARY

GROSS BETA IN WATER

GAS PROPORTIONAL COUNTING

Test 93B Matrix WATER
 SDG 7399
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG K0248

RESULTS

LAB	RAW	SUF-			
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID		Gross Beta
Preparation batch 7131-105					
R603043-01	93		7399-001	B1HRF3	45.4
R603043-02	93		7399-002	B1HRF6	44.6
R603043-03	93		7399-003	B1HRH0	30.0
R603043-04	93		7399-004	B1HRH4	U
R603043-05	93		7399-005	B1HRH8	30.0
R603043-06	93		7399-006	B1HRJ2	U
R603043-07	93		7399-007	B1HRJ6	45.4
R603043-08	93		7399-008	LCS (QC ID=56486)	ok
R603043-09	93		7399-009	BLK (QC ID=56487)	U
R603043-10	93		7399-010	Duplicate (R603043-03)	ok

Nominal values and limits from method RDLs (pCi/L) 4.0
 ERDF Groundwater Well Samples

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	RESID	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	mg	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7131-105 2σ prep error 15.0 % Reference Lab Notebook 7131 pg. 105															
R603043-01	93	B1HRF3	1.8	0.300			92		100			27	03/29/06	03/30	GRB-109
R603043-02	93	B1HRF6	2.2	0.300			86		100			27	03/29/06	03/30	GRB-110
R603043-03	93	B1HRH0	1.9	0.300			117		100			27	03/29/06	03/30	GRB-111
R603043-04	93	B1HRH4	2.8	0.300			<u>0</u>		100			28	03/29/06	03/31	GRB-214
R603043-05	93	B1HRH8	2.1	0.300			94		100			28	03/29/06	03/31	GRB-105
R603043-06	93	B1HRJ2	1.8	0.300			<u>0</u>		100			27	03/29/06	03/30	GRB-210
R603043-07	93	B1HRJ6	3.1	0.300			96		100			28	03/29/06	03/31	GRB-213
R603043-08	93	LCS (QC ID=56486)	3.0	0.300			65		100				03/29/06	03/30	GRB-213
R603043-09	93	BLK (QC ID=56487)	2.9	0.300			65		100				03/29/06	03/30	GRB-214
R603043-10	93	Duplicate (R603043-03)	1.9	0.300			105		100			27	03/29/06	03/30	GRB-216
		(QC ID=56488)													

Nominal values and limits from method 4.0 0.300 5-250 100 180

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 04/18/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

LAB METHOD SUMMARY, cont.

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Test 93B Matrix WATER
SDG 7399
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG K0248

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
SPP-120 Gross Alpha and Gross Beta in Water, rev 0

AVERAGES \pm 2 SD MDA 2.4 \pm 1.1
FOR 10 SAMPLES RESIDUE 72 \pm 82

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 04/18/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

LAB METHOD SUMMARY

IODINE 129 IN WATER
GAMMA SPECTROSCOPY

Test I Matrix WATER
SDG 7399
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG K0248

RESULTS

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

Preparation batch 7131-105

R603043-01		7399-001	B1HRF3	U
R603043-02		7399-002	B1HRF6	U
R603043-03		7399-003	B1HRH0	13.5
R603043-04		7399-004	B1HRH4	U
R603043-05		7399-005	B1HRH8	7.66
R603043-06		7399-006	B1HRJ2	U
R603043-07		7399-007	B1HRJ6	U
R603043-08		7399-008	LCS (QC ID=56486)	ok
R603043-09		7399-009	BLK (QC ID=56487)	U
R603043-10		7399-010	Duplicate (R603043-03)	ok

Nominal values and limits from method RDLs (pCi/L) 5.0
ERDF Groundwater Well Samples

METHOD PERFORMANCE

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

Preparation batch 7131-105 2σ prep error 5.0 % Reference Lab Notebook 7131 pg. 105

R603043-01		B1HRF3	3.4	0.250			83	1076			28	03/31/06	03/31	XSPEC-004
R603043-02		B1HRF6	4.2	0.250			84	930			31	03/31/06	04/03	XSPEC-004
R603043-03		B1HRH0	5.2	0.250			65	516			32	03/31/06	04/04	XSPEC-004
R603043-04		B1HRH4	4.5	0.250			76	897			33	03/31/06	04/05	XSPEC-004
R603043-05		B1HRH8	5.4	0.250			61	1017			34	03/31/06	04/06	XSPEC-004
R603043-06		B1HRJ2	5.9	0.250			50	1112			35	03/31/06	04/07	XSPEC-004
R603043-07		B1HRJ6	3.9	0.250			89	875			38	03/31/06	04/10	XSPEC-004
R603043-08		LCS (QC ID=56486)	6.2	0.250			65	608				03/31/06	04/11	XSPEC-004
R603043-09		BLK (QC ID=56487)	5.9	0.250			54	830				03/31/06	04/11	XSPEC-004
R603043-10		Duplicate (R603043-03)	6.1	0.250			51	869			40	03/31/06	04/12	XSPEC-004
		(QC ID=56488)												

Nominal values and limits from method 5.0 0.250 20-105 300 100 180

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 04/18/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

LAB METHOD SUMMARY, cont.

IODINE 129 IN WATER
GAMMA SPECTROSCOPY

Test I Matrix WATER
SDG 7399
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG K0248

PROCEDURES REFERENCE I129_SEP_LEPS_GS
CP-024 Iodine-129, Sample Dissolution, rev 5
CP-530 Iodine-129 Purification, rev 1

AVERAGES \pm 2 SD MDA 5.1 \pm 2.0
FOR 10 SAMPLES YIELD 68 \pm 29

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 04/18/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

LAB METHOD SUMMARY

URANIUM, TOTAL IN WATER
KINETIC PHOSPHORIMETRY (KPA)

Test U T Matrix WATER
SDG 7399
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG K0248

RESULTS

LAB	RAW	SUF-		Total
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Uranium
Preparation batch 7131-105				
R603043-01		7399-001	B1HRF3	2.35
R603043-02		7399-002	B1HRF6	2.30
R603043-03		7399-003	B1HRH0	2.14
R603043-04		7399-004	B1HRH4	U
R603043-05		7399-005	B1HRH8	2.94
R603043-06		7399-006	B1HRJ2	U
R603043-07		7399-007	B1HRJ6	2.68
R603043-08		7399-008	LCS (QC ID=56486)	ok
R603043-09		7399-009	BLK (QC ID=56487)	U
R603043-10		7399-010	Duplicate (R603043-03)	ok

Nominal values and limits from method RDLs (ug/L) 0.10
ERDF Groundwater Well Samples

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	ug/L	L	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED DETECTOR
Preparation batch 7131-105 2σ prep error 9.0 % Reference Lab Notebook 7131 pg. 105													
R603043-01		B1HRF3	0.046	0.0200								26 03/29/06	03/29 KPA-001
R603043-02		B1HRF6	0.046	0.0200								26 03/29/06	03/29 KPA-001
R603043-03		B1HRH0	0.046	0.0200								26 03/29/06	03/29 KPA-001
R603043-04		B1HRH4	0.046	0.0200								26 03/29/06	03/29 KPA-001
R603043-05		B1HRH8	0.046	0.0200								26 03/29/06	03/29 KPA-001
R603043-06		B1HRJ2	0.046	0.0200								26 03/29/06	03/29 KPA-001
R603043-07		B1HRJ6	0.046	0.0200								26 03/29/06	03/29 KPA-001
R603043-08		LCS (QC ID=56486)	<u>0.46</u>	0.0200								03/29/06	03/29 KPA-001
R603043-09		BLK (QC ID=56487)	0.046	0.0200								03/29/06	03/29 KPA-001
R603043-10		Duplicate (R603043-03)	0.046	0.0200								26 03/29/06	03/29 KPA-001
		(QC ID=56488)											

Nominal values and limits from method 0.10 0.0200 180

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 04/18/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

LAB METHOD SUMMARY, cont.

URANIUM, TOTAL IN WATER
KINETIC PHOSPHORIMETRY (KPA)

Test U T Matrix WATER
SDG 7399
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG K0248

PROCEDURES	REFERENCE	UTOT_KPA
	CP-044	Sample Preparation for Total Uranium by Kinetic Phosphorimetry, rev 6
	CP-929	Calibration of the Kinetic Phosphorimeter, rev 9

AVERAGES ± 2 SD	MDA <u>0.087</u> ± <u>0.26</u>
FOR 10 SAMPLES	YIELD _____ ± _____

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LMS</u>
Version <u>3.06</u>
Report date <u>04/18/06</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

LAB METHOD SUMMARY

CARBON 14 IN WATER

LIQUID SCINTILLATION COUNTING

Test C Matrix WATER
 SDG 7399
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG K0248

RESULTS

LAB	RAW	SUF-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Carbon 14
Preparation batch 7131-105				
R603043-01		7399-001	B1HRF3	U
R603043-02		7399-002	B1HRF6	U
R603043-03		7399-003	B1HRH0	U
R603043-04		7399-004	B1HRH4	U
R603043-05		7399-005	B1HRH8	U
R603043-06		7399-006	B1HRJ2	U
R603043-07		7399-007	B1HRJ6	U
R603043-08		7399-008	LCS (QC ID=56486)	ok
R603043-09		7399-009	BLK (QC ID=56487)	U
R603043-10		7399-010	Duplicate (R603043-03)	- U
R603043-11		7399-011	Spike (R603043-03)	ok X

Nominal values and limits from method RDLs (pCi/L) 200
 ERDF Groundwater Well Samples

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/L	L	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 7131-105 2σ prep error 10.0 % Reference Lab Notebook 7131 pg. 105															
R603043-01		B1HRF3	60	0.0300			100		50			38	04/07/06	04/10	LSC-004
R603043-02		B1HRF6	60	0.0300			100		50			38	04/07/06	04/10	LSC-004
R603043-03		B1HRH0	60	0.0300			100		50			38	04/07/06	04/10	LSC-004
R603043-04		B1HRH4	59	0.0300			100		50			38	04/07/06	04/10	LSC-004
R603043-05		B1HRH8	59	0.0300			100		50			38	04/07/06	04/10	LSC-004
R603043-06		B1HRJ2	59	0.0300			100		50			38	04/07/06	04/10	LSC-004
R603043-07		B1HRJ6	58	0.0300			100		50			38	04/07/06	04/10	LSC-004
R603043-08		LCS (QC ID=56486)	140	0.0300			100		<u>10</u>				04/07/06	04/10	LSC-004
R603043-09		BLK (QC ID=56487)	60	0.0300			100		50				04/07/06	04/10	LSC-004
R603043-10		Duplicate (R603043-03)	60	0.0300			100		50			38	04/07/06	04/10	LSC-004
		(QC ID=56488)													
R603043-11		Spike (R603043-03)	<u>270</u>	<u>0.0200</u>			100		<u>5</u>			38	04/07/06	04/10	LSC-004
		(QC ID=56489)													

Nominal values and limits from method 200 0.0300 50 180

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LMS
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 Report date 04/18/06

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP K0248

LAB METHOD SUMMARY, cont.

CARBON 14 IN WATER

LIQUID SCINTILLATION COUNTING

Test C Matrix WATER
SDG 7399
Contact Melissa C. Mannion

Client Hanford
Contract No. 630
Contract SDG K0248

PROCEDURES REFERENCE C14_CHEM_LSC
CP-241 Carbon-14 in Aqueous Samples, rev 6

AVERAGES \pm 2 SD MDA 86 \pm 130
FOR 11 SAMPLES YIELD 100 \pm 0

METHOD SUMMARIES

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SUMMARY DATA SECTION

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Lab id EBRLE
Protocol Hanford
Version Ver 1.0
Form DVD-LMS
Version 3.06
Report date 04/18/06

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0248

SDG 7399
Contact Melissa C. Mannion

R E P O R T G U I D E

Client Hanford
Contract No. 630
Case no SDG_K0248

S A M P L E S U M M A R Y

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.

REPORT GUIDES

Page 1

SUMMARY DATA SECTION

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Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/18/06

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0248

SDG 7399
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG K0248

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

These qualifiers should be reviewed as follows:

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

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

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 Protocol Hanford
 Version Ver 1.0
 Form DVD-RG
 Version 3.06
 Report date 04/18/06

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0248

SDG 7399
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG K0248

WORK SUMMARY

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

The following notes apply to this report:

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

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0248

SDG 7399
 Contact Melissa C. Mannion

REPORT GUIDE

Client Hanford
 Contract No. 630
 Case no SDG K0248

DATA SHEET

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

The following notes apply to this report:

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

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

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

The following qualifiers are defined by the DVD system:

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

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EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0248

SDG 7399
 Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
 Contract No. 630
 Case no SDG K0248

DATA SHEET

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

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

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

The following values are underlined to indicate possible problems:

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

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 Form DVD-RG
 Version 3.06
 Report date 04/18/06

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP K0248

SDG 7399
Contact Melissa C. Mannion

GUIDE, cont.

Client Hanford
Contract No. 630
Case no SDG K0248

DATA SHEET

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

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LAB CONTROL SAMPLE

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

The following notes apply to this report:

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

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

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

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

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DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

This value reported for this limit is at most 999.

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

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DUPLICATE

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

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

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

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

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MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

2. The error of ADDED.

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

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

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MATRIX SPIKE

for the recovery.

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

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

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METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

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

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

- * Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.
 - * If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.
- MDAs are underlined if greater than the printed RDL.
- * Aliquots are underlined if less than the nominal value specified for the method.
 - * Preparation factors are underlined if greater than the nominal value specified for the method.
 - * Dilution factors are underlined if greater than the nominal value specified for the method.
 - * Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.
 - * Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.
 - * Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

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

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

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

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

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

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

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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.

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PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # RC-008-2
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Collector DURATEK	Contact/Requester J Kessner K0248 (7399)	Telephone No. MSIN FAX 509-375-4688
SAF No. D. G. PARCHEN RC-008	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTJ-SAW3-H104	Ice Chest No. GR7-03-015 Temp.
Shipped To (Lab) Eberline Services	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7926 7028 2555
Protocol GPP	Priority: 45 Days	Offsite Property No. 16982

POSSIBLE SAMPLE HAZARDS/REMARKS * * *	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--	--

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative	
B1HRF3		W	3-3-06	0934	1x20-mL P	Activity Scan	None	
B1HRF3		W	↓	↓	2x1000-mL G/P	Gross Alpha; Gross Beta	HNO3 to pH <2	
B1HRF3		W			1x125-mL G/P	Carbon-14	None	
B1HRF3		W			4x1000-mL G/P	Iodine-129	None	
B1HRF3		W			1x1000-mL G/P	Total Radium	HNO3 to pH <2	
B1HRF3		W			1x250-mL G/P	Technetium-99	HCl to pH <2	
B1HRF3		W			1x100-mL G/P	Total Uranium	HNO3 to pH <2	

Relinquished By DURATEK D. G. PARCHEN	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time MAR 04 2006	Received By <i>[Signature]</i>	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time 3/4/06	Matrix * S = Soil DS = Drum Solid SE = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By	<i>FED EX</i>		Date/Time	Received By	<i>[Signature]</i>		Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			Date/Time	

Collector DURATEK	Contact/Requester J Kessner K0248 (7399)	Telephone No. MSIN FAX 509-375-4688
SAF No. D E. PARCHEN RC-008	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title ERDF Groundwater Well Samples	DTS-SA05-1104	Ice Chest No. GRP-03-015 Temp.
Shipped To (Lab) Eberline Services	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7926 7628 2555
Protocol GPP	Priority: 45 Days	Offsite Property No. 16982

POSSIBLE SAMPLE HAZARDS/REMARKS * *	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1HRF6		W	3-7-06	0934	1x20-mL P	Activity Scan	None
B1HRF6		W			2x1000-mL G/P	Gross Alpha; Gross Beta	HNO3 to pH <2
B1HRF6		W			1x125-mL G/P	Carbon-14	None
B1HRF6		W			4x1000-mL G/P	Iodine-129	None
B1HRF6		W			1x1000-mL G/P	Total Radium	HNO3 to pH <2
B1HRF6		W			1x250-mL G/P	Technetium-99	HCl to pH <2
B1HRF6		W			1x100-mL G/P 125 & 37-06	Total Uranium	HNO3 to pH <2

Relinquished By DURATEK PARCHEN	Print	Sign	Date/Time MAR 06 2006	Received By FedEx	Print	Sign	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge W1 = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By FED EX			Date/Time	Received By JKR/JFM			Date/Time 3/4/06	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			Date/Time	

PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # RC-008-7
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Collector R.T. SICKLE	Contact/Requester J Kessner K0248 (399)	Telephone No. MSIN FAX 509-375-4688
SAF No. RC-008	Sampling Origin Hanford Site	Purchase Order/Charge Code SMX 443
Project Title ERDE Groundwater Well Samples	DTS-SAWS-H103B	Ice Chest No. Temp. ERC 90 877 177
Shipped To (Lab) Eberline Services	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7926 7628 2533
Protocol GPP	Priority: 45 Days	Offsite Property No. 16982

POSSIBLE SAMPLE HAZARDS/REMARKS ** **	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1HRH0		W	3-3-06	1159	1x20-mL P	Activity Scan	None
B1HRH0		W			2x1000-mL G/P	Gross Alpha; Gross Beta	HNO3 to pH <2
B1HRH0		W			1x125-mL G/P	Carbon-14	None
B1HRH0		W			4x1000-mL G/P	Iodine-129	None
B1HRH0		W			1x1000-mL G/P	Total Radium	HNO3 to pH <2
B1HRH0		W			1x250-mL G/P	Technetium-99	HCl to pH <2
B1HRH0		W			1x100-mL G/P	Total Uranium	HNO3 to pH <2

Relinquished By R.T. SICKLE	Date/Time MAR 03 2006	Received By FED EX	Date/Time 3/4/06	Matrix * S = Soil DS = Drum Solid SE = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By FED EX	Date/Time	Received By FOR / PM	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	
Relinquished By	Date/Time	Received By	Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)		Disposed By	Date/Time

Collector DURATEK R. T. SICKLE	Contact/Requester J Kessner K0248 (7399)	Telephone No. 509-375-4688 MSIN FAX
SAF No. RC-008	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title ERDE Groundwater Well Samples	DTS-SAWS-H103B	Ice Chest No. SML-443 Temp.
Shipped To (Lab) Eberline Services	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7926 7628 2533
Protocol GPP	Priority: 45 Days	Offsite Property No. 16982

POSSIBLE SAMPLE HAZARDS/REMARKS * * *	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1HRH4		W	3-3-06	0800	1x20-mL P	Activity Scan	None
B1HRH4		W			2x1000-mL G/P	Gross Alpha; Gross Beta	HNO3 to pH <2
B1HRH4		W			1x125-mL G/P	Carbon-14	None
B1HRH4		W			4x1000-mL G/P	Iodine-129	None
B1HRH4		W			1x1000-mL G/P	Total Radium	HNO3 to pH <2
B1HRH4		W			1x250-mL G/P	Technetium-99	HCl to pH <2
B1HRH4		W			1x100-mL G/P <i>125 mL 3-3-06</i>	Total Uranium	HNO3 to pH <2

Relinquished By DURATEK R. T. SICKLE	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time 3-3-06 1400	Received By <i>[Signature]</i>	Print <i>[Signature]</i>	Sign <i>[Signature]</i>	Date/Time 3/4/06	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liner SO = Solid T = Tissue SL = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			Date/Time	

PNNL

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

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Collector R.T. SICKLE	Contact/Requester J Kessner K0248 (7399)	Telephone No. 509-375-4688	MSIN	FAX
SAF No. RC-008	Sampling Origin Hanford Site	Purchase Order/Charge Code		
Project Title ERDE Groundwater Well Samples	DTG - S4W5 - H103B	Ice Chest No. 96-933	Temp. SMC-443	
Shipped To (Lab) Eberline Services	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7926 7628 2533		
Protocol GPP	Priority: 45 Days	Offsite Property No. 16982		

POSSIBLE SAMPLE HAZARDS/REMARKS ** **	SPECIAL INSTRUCTIONS	Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1HRH8		W	3-3-06	0957	1x20-mL P	Activity Scan	None
B1HRH8		W			2x1000-mL G/P	Gross Alpha; Gross Beta	HNO3 to pH <2
B1HRH8		W			1x125-mL G/P	Carbon-14	None
B1HRH8		W			4x1000-mL G/P	Iodine-129	None
B1HRH8		W			1x1000-mL G/P	Total Radium	HNO3 to pH <2
B1HRH8		W			1x250-mL G/P	Technetium-99	HCl to pH <2
B1HRH8		W			1x100-mL G/P	Total Uranium	HNO3 to pH <2

Relinquished By R.T. SICKLE	Print	Sign	Date/Time 400	Received By FED EX	Print	Sign	Date/Time	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SL = Shalee WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By			Date/Time	Received By			Date/Time	
				FED EX			3/4/06	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	

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

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

C.O.C. #

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Collector R.T. SICKLE	Contact/Requester J Kessner K0248 (7399)	Telephone No. 509-375-4688	MSIN	FAX
SAF No. RC-008	Sampling Origin Hanford Site	Purchase Order/Charge Code		
Project Title ERDF Groundwater Well Samples	DTS-SAWS-H103B	Ice Chest No. 3-3-06 ERC-96-935	Temp. SIML-443	
Shipped To (Lab) Eberline Services	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7926 7628 2533		
Protocol GPP	Priority: 45 Days	Offsite Property No. 16282		

POSSIBLE SAMPLE HAZARDS/REMARKS ** **	SPECIAL INSTRUCTIONS	Hold Time	Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1HRJ2		W	3-3-06	0845	1x20-mL P	Activity Scan	None
B1HRJ2		W			2x1000-mL G/P	Gross Alpha: Gross Beta	HNO3 to pH <2
B1HRJ2		W			1x125-mL G/P	Carbon-14	None
B1HRJ2		W			4x1000-mL G/P	Iodine-129	None
B1HRJ2		W			1x1000-mL G/P	Total Radium	HNO3 to pH <2
B1HRJ2		W			1x250-mL G/P	Technetium-99	HCl to pH <2
B1HRJ2		W			1x100-mL G/P	Total Uranium	HNO3 to pH <2

Relinquished By R.T. SICKLE	Print	Signature	Date/Time MAR 03 2006	Received By FED EX	Print	Signature	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
Relinquished By FED EX			Date/Time	Received By [Signature]			Date/Time 3/4/06	
Relinquished By			Date/Time	Received By			Date/Time	
Relinquished By			Date/Time	Received By			Date/Time	
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By			Date/Time	

PNNL	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	C.O.C. # RC-008-19
		Page 1 of 1

Collector DURATEK D. E. PARCHEN	Contact/Requester J Kessner K0248 (7399)	Telephone No. MSIN FAX 509-375-4688
SAF No. RC-008	Sampling Origin Hanford Site	Purchase Order/Charge Code
Project Title ERDE Groundwater Well Samples	DTS-SAWS-H104	Ice Chest No. GRP-03-015 Temp. 95
Shipped To (Lab) Eberline Services	Method of Shipment Govt. Vehicle	Bill of Lading/Air Bill No. 7926 7628 2555
Protocol GPP	Priority: 45 Days	Offsite Property No. 16982

POSSIBLE SAMPLE HAZARDS/REMARKS * *	SPECIAL INSTRUCTIONS Hold Time Total Activity Exemption: Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
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Sample No.	Lab ID	*	Date	Time	No/Type Container	Sample Analysis	Preservative
B1HRJ6		W	3-3-06	1158	1x20-mL P	Activity Scan	None
B1HRJ6		W			2x1000-mL G/P	Gross Alpha; Gross Beta	HNO3 to pH <2
B1HRJ6		W			1x125-mL G/P	Carbon-14	None
B1HRJ6		W			4x1000-mL G/P	Iodine-129	None
B1HRJ6		W			1x1000-mL G/P	Total Radium	HNO3 to pH <2
B1HRJ6		W			1x250-mL G/P	Technetium-99	HCl to pH <2
B1HRJ6		W			1x400-mL G/P 125 @ 3-3-06	Total Uranium	HNO3 to pH <2

Relinquished By D. E. PARCHEN	Print <i>(Signature)</i>	Sign <i>(Signature)</i>	Date/Time: 400 MAR 03 2006	Received By Fed Ex	Print Fed Ex	Sign <i>(Signature)</i>	Date/Time 3/4/06	Matrix * S = Soil DS = Drum Solid SF = Sediment DI = Drum Liquid SO = Solid T = Tissue SI = Sludge WI = Wine W = Water L = Liquid O = Oil V = Vegetation A = Air X = Other
Relinquished By <i>(Signature)</i>	Date/Time	Received By <i>(Signature)</i>	Date/Time	Received By <i>(Signature)</i>	Date/Time	Date/Time		
Relinquished By	Date/Time	Received By	Date/Time	Received By	Date/Time	Date/Time		
Relinquished By	Date/Time	Received By	Date/Time	Received By	Date/Time	Date/Time		
FINAL SAMPLE DISPOSITION	Disposal Method (e.g., Return to customer, per lab procedure, used in process)			Disposed By		Date/Time		



RICHMOND, CA LABORATORY

SAMPLE RECEIPT CHECKLIST

~~SDS# 11305~~ a/

Client: WHC PNNL, F. HANFORD City RICHLAND State WA
 Date/Time received 3/4/06 CoC No. RC-008 (2, 5, 7, 10, 13, 16, 19, 20)
 Container I.D. No. GRP 03 015 SML 443 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. Packing material is: Wet [] Dry []
6. Number of samples in shipping container: 7 Sample Matrix W
7. Number of containers per sample: 11 (Or see CoC _____)
8. Samples are in correct container Yes [] No []
9. Paperwork agrees with samples? Yes [] No []
10. Samples have: Tape [] Hazard labels [] Rad labels [] Appropriate sample labels []
11. Samples are: In good condition [] Leaking [] Broken Container [] Missing []
12. Samples are: Preserved [] Not preserved [] pH 1/7 Preservative _____
13. Describe any anomalies:
~~SAMPLES B1HR-17 AND B1HR-18 (RC-008-20)~~
~~ARE NOT WITH THE SHIPMENT~~
N/A hionville sample, MUM 3/7/06
14. Was P.M. notified of any anomalies? Yes [] No [] Date 03/06/06
15. Inspected by MF Date: 03/06/06 Time: 8:15

Customer Sample No.	cpm	mR/hr	Wipe	Customer Sample No.	cpm	mR/hr	wipe

Ion Chamber Ser. No. _____ Calibration date _____
 Alpha Meter Ser. No. _____ Calibration date _____
 Beta/Gamma Meter Ser. No. _____ Calibration date _____