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JUN 10 2002
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1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1671 was composed of one water sample designated under SAF No. B01-114 with a Project Designation of: PFP Well Installation Sampling and Analysis – Water.

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 BHI via e-Fax on March 8, 2002.

2.0 ANALYSIS NOTES

2.1 Gross Alpha and Gross Beta Analyses

No problems were encountered during the course of the analyses.

2.2 Tritium Analyses

The LCS and method blank were not scaled to the nominal aliquot of 0.01 L. No problems were encountered during the course of the analyses.

2.3 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.4 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.5 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.6 Isotopic Plutonium Analyses

No problems were encountered during the course of the analyses.

2.7 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.8 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

2.9 Gamma Spectroscopy Analyses

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 Mannion

Melissa C. Mannion
Program Manager

3/8/02

Date

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

SDG 7207
Contact Melissa C. Mannion

SAMPLE SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1671

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B12XL6	200 West, Well No. C3803	WATER		R201157-01	B01-114	B01-114-04	01/18/02 20:41
Method Blank		WATER		R201157-03	B01-114		
Lab Control Sample		WATER		R201157-02	B01-114		
Duplicate (R201157-01)	200 West, Well No. C3803	WATER		R201157-04	B01-114		01/18/02 20:41
Spike (R201157-01)	200 West, Well No. C3803	WATER		R201157-05	B01-114		01/18/02 20:41

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 03/08/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

SDG 7207
Contact Melissa C. Mannion

QC SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1671

QC BATCH	CHAIN OF CUSTODY	CLIENT SAMPLE ID	MATRIX	% SOLIDS	SAMPLE AMOUNT	BASIS AMOUNT	DAYS SINCE RECEIVED	DAYS SINCE COLL	LAB SAMPLE ID	DEPARTMENT SAMPLE ID
7207	B01-114-04	B12XL6	WATER		6.375 L		01/22/02	4	R201157-01	7207-001
		Method Blank	WATER						R201157-03	7207-003
		Lab Control Sample	WATER						R201157-02	7207-002
		Duplicate (R201157-01)	WATER		6.375 L		01/22/02	4	R201157-04	7207-004
		Spike (R201157-01)	WATER		6.375 L		01/22/02	4	R201157-05	7207-005

Lab id TMANC
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Form DVD-QS
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

SDG 7207
Contact Melissa C. Mannion

PREP BATCH SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1671

TEST	MATRIX	METHOD	PREPARATION ERROR BATCH	2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	WATER	Americium 241 in Water	7018-204	5.0	1			1	1	1/1		
NP	WATER	Neptunium in Water	7018-204	5.0	1			1	1	1/1		
PU	WATER	Plutonium, Isotopic in Water	7018-204	5.0	1			1	1	1/1		
U	WATER	Uranium, Isotopic in Water	7018-204	5.0	1			1	1	1/1		
Beta Counting												
SR	WATER	Total Strontium in Water	7018-204	10.0	1			1	1	1/1		
TC	WATER	Technetium 99 in Water	7018-204	10.0	1			1	1	1/1		
Gas Proportional Counting												
80A	WATER	Gross Alpha in Water	7018-204	20.0	1			1	1	1/1		
80B	WATER	Gross Beta in Water	7018-204	15.0	1			1	1	1/1		
Gamma Scan												
GAM	WATER	Gamma Emitters	7018-204	15.0	1			1	1	1/1		
Liquid Scintillation Counting												
H	WATER	Tritium in Water	7018-204	10.0	1			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.

Lab id TMANC
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

SDG 7207
Contact Melissa C. Mannion

WORK SUMMARY

Client Hanford
Contract No. 630
Case no SDG H1671

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B12XL6			R201157-01	7207-001	80A/80		03/07/02	03/08/02	MCM	Gross Alpha in Water
200 West, Well No. C3803		WATER	01/18/02	7207-001	80B/80		03/07/02	03/08/02	MCM	Gross Beta in Water
B01-114-04	B01-114		01/22/02	7207-001	AM		02/28/02	03/08/02	MCM	Americium 241 in Water
				7207-001	GAM		03/01/02	03/08/02	MCM	Gamma Emitters
				7207-001	H		03/02/02	03/08/02	MCM	Tritium in Water
				7207-001	NP		02/21/02	03/08/02	MCM	Neptunium in Water
				7207-001	PU		03/05/02	03/08/02	MCM	Plutonium, Isotopic in Water
				7207-001	SR		02/19/02	03/08/02	MCM	Total Strontium in Water
				7207-001	TC		03/05/02	03/08/02	MCM	Technetium 99 in Water
				7207-001	U		02/15/02	03/08/02	MCM	Uranium, Isotopic in Water
Method Blank			R201157-03	7207-003	80A/80		03/07/02	03/08/02	MCM	Gross Alpha in Water
		WATER		7207-003	80B/80		03/07/02	03/08/02	MCM	Gross Beta in Water
	B01-114			7207-003	AM		02/28/02	03/08/02	MCM	Americium 241 in Water
				7207-003	GAM		03/01/02	03/08/02	MCM	Gamma Emitters
				7207-003	H		03/02/02	03/08/02	MCM	Tritium in Water
				7207-003	NP		02/21/02	03/08/02	MCM	Neptunium in Water
				7207-003	PU		03/05/02	03/08/02	MCM	Plutonium, Isotopic in Water
				7207-003	SR		02/19/02	03/08/02	MCM	Total Strontium in Water
				7207-003	TC		03/06/02	03/08/02	MCM	Technetium 99 in Water
				7207-003	U		02/15/02	03/08/02	MCM	Uranium, Isotopic in Water
Lab Control Sample			R201157-02	7207-002	80A/80		03/08/02	03/08/02	MCM	Gross Alpha in Water
		WATER		7207-002	80B/80		03/08/02	03/08/02	MCM	Gross Beta in Water
	B01-114			7207-002	AM		02/28/02	03/08/02	MCM	Americium 241 in Water
				7207-002	GAM		03/06/02	03/08/02	MCM	Gamma Emitters
				7207-002	H		03/02/02	03/08/02	MCM	Tritium in Water
				7207-002	NP		02/21/02	03/08/02	MCM	Neptunium in Water
				7207-002	PU		03/05/02	03/08/02	MCM	Plutonium, Isotopic in Water
				7207-002	SR		02/19/02	03/08/02	MCM	Total Strontium in Water
				7207-002	TC		03/04/02	03/08/02	MCM	Technetium 99 in Water
				7207-002	U		02/15/02	03/08/02	MCM	Uranium, Isotopic in Water

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

SDG 7207
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract No. 630
Case no SDG H1671

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Duplicate (R201157-01)			R201157-04	7207-004	80A/80		03/07/02	03/08/02	MCM	Gross Alpha in Water
200 West, Well No. C3803 WATER			01/18/02	7207-004	80B/80		03/07/02	03/08/02	MCM	Gross Beta in Water
	B01-114		01/22/02	7207-004	AM		02/28/02	03/08/02	MCM	Americium 241 in Water
				7207-004	GAM		03/04/02	03/08/02	MCM	Gamma Emitters
				7207-004	H		03/02/02	03/08/02	MCM	Tritium in Water
				7207-004	NP		02/21/02	03/08/02	MCM	Neptunium in Water
				7207-004	PU		03/05/02	03/08/02	MCM	Plutonium, Isotopic in Water
				7207-004	SR		02/19/02	03/08/02	MCM	Total Strontium in Water
				7207-004	TC		03/05/02	03/08/02	MCM	Technetium 99 in Water
				7207-004	U		02/15/02	03/08/02	MCM	Uranium, Isotopic in Water
Spike (R201157-01)			R201157-05	7207-005	H		03/02/02	03/08/02	MCM	Tritium in Water
200 West, Well No. C3803 WATER			01/18/02							
	B01-114		01/22/02							

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP	SPIKE	TOTAL
80A/80	B01-114	Gross Alpha in Water	900.0_ALPHABETA_GPC	1			1	1	1		4
80B/80	B01-114	Gross Beta in Water	900.0_ALPHABETA_GPC	1			1	1	1		4
AM	B01-114	Americium 241 in Water	AMCMISO_IE_PLATE_AEA	1			1	1	1		4
GAM	B01-114	Gamma Emitters	GAMMA_GS	1			1	1	1		4
H	B01-114	Tritium in Water	906.0_H3_LSC	1			1	1	1	1	5
NP	B01-114	Neptunium in Water	NP237_LLE_PLATE_AEA	1			1	1	1		4
PU	B01-114	Plutonium, Isotopic in Water	PUISO_PLATE_AEA	1			1	1	1		4
SR	B01-114	Total Strontium in Water	SRTOT_SEP_PRECIP_GPC	1			1	1	1		4
TC	B01-114	Technetium 99 in Water	TC99_TR_SEP_LSC	1			1	1	1		4
U	B01-114	Uranium, Isotopic in Water	UISO_PLATE_AEA	1			1	1	1		4
TOTALS				10			10	10	10	1	41

Lab id TMANC
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

R201157-03 **Method Blank**

METHOD BLANK

SDG	7207	Client/Case no	Hanford	SDG	H1671
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R201157-03	Client sample id	Method Blank		
Dept sample id	7207-003	Material/Matrix		WATER	
		SAF No	B01-114		

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.239	0.79	1.6	3.0	U	80A
Gross Beta	12587-47-2	0.512	2.1	3.5	4.0	U	80B
Tritium	10028-17-8	-2.04	12	20	400	U	H
Total Strontium	SR-RAD	-0.178	0.32	0.70	2.0	U	SR
Technetium 99	14133-76-7	2.05	4.9	11	15	U	TC
Uranium 233/234	U-233/234	-0.024	0.048	0.18	1.0	U	U
Uranium 235	15117-96-1	0	0.058	0.22	1.0	U	U
Uranium 238	U-238	0.024	0.048	0.18	1.0	U	U
Neptunium 237	13994-20-2	0.025	0.051	0.12	1.0	U	NP
Plutonium 238	13981-16-3	0	0.051	0.19	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.051	0.19	1.0	U	PU
Americium 241	14596-10-2	0.126	0.15	0.19	1.0	U	AM
Potassium 40	13966-00-2	U		490		U	GAM
Cobalt 60	10198-40-0	U		15	25	U	GAM
Ruthenium 106	13967-48-1	U		120		U	GAM
Antimony 125	14234-35-6	U		37		U	GAM
Cesium 137	10045-97-3	U		17	15	U	GAM
Radium 226	13982-63-3	U		34		U	GAM
Radium 228	15262-20-1	U		80		U	GAM
Europium 152	14683-23-9	U		39	50	U	GAM
Europium 154	15585-10-1	U		49	50	U	GAM
Europium 155	14391-16-3	U		33	50	U	GAM
Thorium 228	14274-82-9	U		24		U	GAM
Thorium 232	TH-232	U		80		U	GAM
Uranium 235	15117-96-1	U		58		U	GAM
Uranium 238	U-238	U		2000		U	GAM
Americium 241	14596-10-2	U		17		U	GAM

PFP Well Installation Smpl. & Anal.

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/08/02

B L A N K , c o n t .

SDG	7207	Client/Case no	Hanford	SDG	H1671
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R201157-03	Client sample id	Method Blank		
Dept sample id	7207-003	Material/Matrix		WATER	
		SAF No	B01-114		

QC-BLANK 41234

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/08/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

R201157-02 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7207
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1671
Case no No. 630

Lab sample id R201157-02
Dept sample id 7207-002

Client sample id Lab Control Sample
Material/Matrix WATER
SAF No B01-114

ANALYTE	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ADDED pCi/L	2σ ERR pCi/L	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	116	7.8	1.6	3.0		80A	100	4.0	116	63-137	70-130
Gross Beta	106	5.7	4.3	4.0		80B	108	4.3	98	76-124	70-130
Tritium	235	19	20	400	J	H	232	9.3	101	80-120	80-120
Total Strontium	42.8	1.3	0.40	2.0		SR	43.4	1.7	99	83-117	80-120
Technetium 99	2290	52	20	15		TC	2180	87	105	83-117	80-120
Uranium 233/234	19.1	1.8	0.89	1.0		U	18.6	0.74	103	83-117	80-120
Uranium 235	16.2	1.7	0.20	1.0		U	15.1	0.60	107	80-120	80-120
Uranium 238	20.6	1.9	0.85	1.0		U	20.2	0.81	102	83-117	80-120
Neptunium 237	46.4	1.6	0.071	1.0		NP	49.7	2.0	93	90-110	80-120
Plutonium 238	22.5	2.1	0.17	1.0		PU	24.6	0.98	91	84-116	80-120
Plutonium 239/240	24.9	2.2	0.17	1.0		PU	26.4	1.1	94	84-116	80-120
Americium 241	19.6	1.8	0.18	1.0		AM	19.1	0.76	103	83-117	80-120
Cobalt 60	390	45	31	25		GAM	400	16	98	72-128	80-120
Cesium 137	501	44	33	15		GAM	478	19	105	72-128	80-120

PFP Well Installation Smpl. & Anal.

QC-LCS 41233

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 03/08/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

R201157-04 B12XL6

DUPLICATE

SDG 7207		Client/Case no Hanford	SDG H1671
Contact Melissa C. Mannion		Case no No. 630	
DUPLICATE	ORIGINAL		
Lab sample id R201157-04	Lab sample id R201157-01	Client sample id B12XL6	
Dept sample id 7207-004	Dept sample id 7207-001	Location/Matrix 200 West, Well No. C3803	WATER
	Received 01/22/02	Collected/Volume 01/18/02 20:41	6.375 L
		Custody/SAF No B01-114-04	B01-114

ANALYTE	DUPLICATE pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST	ORIGINAL pCi/L	2σ ERR (COUNT)	MDA pCi/L	QUALI-FIERS	RPD %	3σ TOT	PROT LIMIT
Gross Alpha	0.400	1.3	2.1	3.0	U	80A	0.988	1.8	2.7	U	-		
Gross Beta	7.59	2.2	3.0	4.0		80B	8.12	2.7	3.9		7	74	
Tritium	-40.3	120	200	400	U	H	109	120	200	U	-		
Total Strontium	-0.085	0.29	0.64	2.0	U	SR	-0.042	0.28	0.60	U	-		
Technetium 99	0.992	4.7	11	15	U	TC	1.40	4.3	11	U	-		
Uranium 233/234	1.00	0.32	0.17	1.0		U	0.848	0.27	0.17	J	16	69	
Uranium 235	0.027	0.054	0.21	1.0	U	U	0	0.054	0.21	U	-		
Uranium 238	0.600	0.23	0.17	1.0	J	U	0.380	0.18	0.17	J	45	90	
Neptunium 237	0	0.12	0.18	1.0	U	NP	0.093	0.19	0.28	U	-		
Plutonium 238	0	0.060	0.23	1.0	U	PU	-0.026	0.053	0.20	U	-		
Plutonium 239/240	0	0.060	0.23	1.0	U	PU	0	0.052	0.20	U	-		
Americium 241	-0.034	0.067	0.26	1.0	U	AM	0.129	0.10	0.20	U	-		
Potassium 40	U		91		U	GAM	U		100	U	-		
Cobalt 60	U		8.9	25	U	GAM	U		11	U	-		
Ruthenium 106	U		64		U	GAM	U		76	U	-		
Antimony 125	U		19		U	GAM	U		18	U	-		
Cesium 137	U		7.6	15	U	GAM	U		8.8	U	-		
Radium 226	U		15		U	GAM	U		16	U	-		
Radium 228	U		36		U	GAM	U		32	U	-		
Europium 152	U		20	50	U	GAM	U		18	U	-		
Europium 154	U		25	50	U	GAM	U		30	U	-		
Europium 155	U		18	50	U	GAM	U		11	U	-		
Thorium 228	U		11		U	GAM	U		9.7	U	-		
Thorium 232	U		36		U	GAM	U		32	U	-		
Uranium 235	U		26		U	GAM	U		20	U	-		
Uranium 238	U		1000		U	GAM	U		1100	U	-		
Americium 241	U		21		U	GAM	U		7.6	U	-		

PFP Well Installation Smpl. & Anal.

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/08/02

DUPLICATE, cont.

SDG	7207			Client/Case no	Hanford SDG H1671
Contact	Melissa C. Mannion			Case no	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R201157-04	Lab sample id	R201157-01	Client sample id	B12XL6
Dept sample id	7207-004	Dept sample id	7207-001	Location/Matrix	200 West, Well No. C3803 WATER
		Received	01/22/02	Collected/Volume	01/18/02 20:41 6.375 L
				Custody/SAF No	B01-114-04 B01-114

QC-DUP#1 41235

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	03/08/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

R201157-05 B12XL6

MATRIX SPIKE

SDG	7207			Client/Case no	Hanford SDG H1671
Contact	Melissa C. Mannion			Case no	No. 630
	MATRIX SPIKE		ORIGINAL		
Lab sample id	R201157-05	Lab sample id	R201157-01	Client sample id	B12XL6
Dept sample id	7207-005	Dept sample id	7207-001	Location/Matrix	200 West, Well No. C3803 WATER
		Received	01/22/02	Collected/Volume	01/18/02 20:41 6.375 L
				Custody/SAF No	B01-114-04 B01-114

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 LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	154000	1600	260	400	X	H	156000	6200	109	120	99	84-116	60-140

PFP Well Installation Smpl. & Anal.

QC-MS#1 41236

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-MS
Version 3.06
Report date 03/08/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

R201157-01 B12XL6

DATA SHEET

SDG	7207	Client/Case no	Hanford SDG H1671
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R201157-01	Client sample id	B12XL6
Dept sample id	7207-001	Location/Matrix	200 West, Well No. C3803 WATER
Received	01/22/02	Collected/Volume	01/18/02 20:41 6.375 L
		Custody/SAF No	B01-114-04 B01-114

ANALYTE	CAS NO	RESULT pCi/L	2σ ERR (COUNT)	MDA pCi/L	RDL pCi/L	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	0.988	1.8	2.7	3.0	U	80A
Gross Beta	12587-47-2	8.12	2.7	3.9	4.0		80B
Tritium	10028-17-8	109	120	200	400	U	H
Total Strontium	SR-RAD	-0.042	0.28	0.60	2.0	U	SR
Technetium 99	14133-76-7	1.40	4.3	11	15	U	TC
Uranium 233/234	U-233/234	0.848	0.27	0.17	1.0	J	U
Uranium 235	15117-96-1	0	0.054	0.21	1.0	U	U
Uranium 238	U-238	0.380	0.18	0.17	1.0	J	U
Neptunium 237	13994-20-2	0.093	0.19	0.28	1.0	U	NP
Plutonium 238	13981-16-3	-0.026	0.053	0.20	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.052	0.20	1.0	U	PU
Americium 241	14596-10-2	0.129	0.10	0.20	1.0	U	AM
Potassium 40	13966-00-2	U		100		U	GAM
Cobalt 60	10198-40-0	U		11	25	U	GAM
Ruthenium 106	13967-48-1	U		76		U	GAM
Antimony 125	14234-35-6	U		18		U	GAM
Cesium 137	10045-97-3	U		8.8	15	U	GAM
Radium 226	13982-63-3	U		16		U	GAM
Radium 228	15262-20-1	U		32		U	GAM
Europium 152	14683-23-9	U		18	50	U	GAM
Europium 154	15585-10-1	U		30	50	U	GAM
Europium 155	14391-16-3	U		11	50	U	GAM
Thorium 228	14274-82-9	U		9.7		U	GAM
Thorium 232	TH-232	U		32		U	GAM
Uranium 235	15117-96-1	U		20		U	GAM
Uranium 238	U-238	U		1100		U	GAM
Americium 241	14596-10-2	U		7.6		U	GAM

PFP Well Installation Smpl. & Anal.

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	03/08/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

Test AM Matrix WATER
SDG 7207
Contact Melissa C. Mannion

METHOD SUMMARY

AMERICIUM 241 IN WATER
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1671

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241	
Preparation batch 7018-204						
B12XL6	R201157-01			7207-001	U	
BLK (QC ID=41234)	R201157-03			7207-003	U	
LCS (QC ID=41233)	R201157-02			7207-002	ok	
Duplicate (R201157-01)	R201157-04			7207-004	-	U
Nominal values and limits from method				RDLs (pCi/L)	1.0	
PFP Well Installation Smpl. & Anal.						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7018-204	2σ prep error 5.0 %				Reference Lab Notebook 7018 pg. 204											
B12XL6	R201157-01			0.20	0.500			81		109			41	02/28/02	02/28	SS-031
BLK (QC ID=41234)	R201157-03			0.19	0.500			84		109				02/28/02	02/28	SS-039
LCS (QC ID=41233)	R201157-02			0.18	0.500			90		109				02/28/02	02/28	SS-032
Duplicate (R201157-01) (QC ID=41235)	R201157-04			0.26	0.500			64		110			41	02/28/02	02/28	SS-040
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	CP-040	Environmental Water Dissolution, rev 4
	CP-940	Plutonium Separation and Purification, rev 3
	CP-960	Americium-Curium Purification, Large Aliquot, rev 4
	CP-008	Heavy Element Electroplating, rev 6

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	0.21	±	0.072
	YIELD	80	±	22

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/08/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

Test NP Matrix WATER
SDG 7207
Contact Melissa C. Mannion

METHOD SUMMARY

NEPTUNIUM IN WATER

ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1671

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 7018-204						
B12XL6	R201157-01			7207-001	U	
BLK (QC ID=41234)	R201157-03			7207-003	U	
LCS (QC ID=41233)	R201157-02			7207-002	ok	
Duplicate (R201157-01)	R201157-04			7207-004	-	U
Nominal values and limits from method				RDLs (pCi/L)	1.0	
PFP Well Installation Smpl. & Anal.						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7018-204	2σ prep error 5.0 %				Reference Lab Notebook 7018 pg. 204											
B12XL6	R201157-01			0.28	0.200			58		110			34	02/20/02	02/21	SS-042
BLK (QC ID=41234)	R201157-03			0.12	0.200			65		697				02/20/02	02/21	SS-032
LCS (QC ID=41233)	R201157-02			0.071	0.200			89		697				02/20/02	02/21	SS-031
Duplicate (R201157-01) (QC ID=41235)	R201157-04			0.18	0.200			74		127			34	02/20/02	02/21	SS-031
Nominal values and limits from method				1.0	0.200			20-105		100			180			

PROCEDURES	REFERENCE	NP237_LLE_PLATE_AEA
	CP-040	Environmental Water Dissolution, rev 4
	CP-934	Neptunium from Solids and Water by Extraction Chromatography, rev 2

AVERAGES ± 2 SD FOR 4 SAMPLES				
MDA	0.16	±	0.18
YIELD	72	±	27

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/08/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

Test PU Matrix WATER
SDG 7207
Contact Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN WATER
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1671

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 7018-204								
B12XL6	R201157-01			7207-001	U		U	
BLK (QC ID=41234)	R201157-03			7207-003	U		U	
LCS (QC ID=41233)	R201157-02			7207-002	ok		ok	
Duplicate (R201157-01)	R201157-04			7207-004	-	U	-	U
Nominal values and limits from method PFP Well Installation Smpl. & Anal.				RDLs (pCi/L)	1.0		1.0	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7018-204	2σ prep error 5.0 %							Reference Lab Notebook 7018 pg. 204								
B12XL6	R201157-01			0.20	0.500			82		109			46	03/05/02	03/05	SS-043
BLK (QC ID=41234)	R201157-03			0.19	0.500			87		114				03/05/02	03/05	SS-049
LCS (QC ID=41233)	R201157-02			0.17	0.500			95		109				03/05/02	03/05	SS-045
Duplicate (R201157-01) (QC ID=41235)	R201157-04			0.23	0.500			65		114			46	03/05/02	03/05	SS-050
Nominal values and limits from method				1.0	0.500			20-105		100	100		180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	CP-040	Environmental Water Dissolution, rev 4
	CP-940	Plutonium Separation and Purification, rev 3
	CP-008	Heavy Element Electroplating, rev 6

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	0.20	±	0.050
	YIELD	82	±	25

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/08/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

Test U Matrix WATER
SDG 7207
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM, ISOTOPIC IN WATER
ALPHA SPECTROSCOPY

Client Hanford
Contract No. 630
Contract SDG H1671

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Uranium 233/234	2: Uranium 235	3: Uranium 238	RESULT RATIOS (%) 1÷3	2σ	2÷3	2σ
Preparation batch 7018-204											
B12XL6	R201157-01			7207-001	0.848 J	U	0.380 J	223	127	0	14
BLK (QC ID=41234)	R201157-03			7207-003	U	U	U				
LCS (QC ID=41233)	R201157-02			7207-002	ok	ok	ok				
Duplicate (R201157-01)	R201157-04			7207-004	ok	- U	ok J	167	83	4	9
Nominal values and limits from method				RDLs (pCi/L)	1.0	1.0	1.0	100		4	
PFP Well Installation Smpl. & Anal.							Averages	195		2	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7018-204 2σ prep error 5.0 % Reference Lab Notebook 7018 pg. 204																
B12XL6	R201157-01			0.21	0.500			99		108			28	02/15/02	02/15	SS-041
BLK (QC ID=41234)	R201157-03			0.22	0.500			97		102				02/15/02	02/15	SS-041
LCS (QC ID=41233)	R201157-02			0.89	0.500			102		108				02/15/02	02/15	SS-042
Duplicate (R201157-01) (QC ID=41235)	R201157-04			0.21	0.500			105		102			28	02/15/02	02/15	SS-042
Nominal values and limits from method				1.0	0.500			30-105		100	100		180			

PROCEDURES	REFERENCE	UISO_PLATE_AEA
	CP-040	Environmental Water Dissolution, rev 4
	CP-910	Uranium Purification, rev 2
	CP-008	Heavy Element Electroplating, rev 6

AVERAGES ± 2 SD	MDA	0.38	±	0.68
FOR 4 SAMPLES	YIELD	101	±	7

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/08/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

Test SR Matrix WATER
SDG 7207
Contact Melissa C. Mannion

METHOD SUMMARY

TOTAL STRONTIUM IN WATER

BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1671

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium
Preparation batch 7018-204					
B12XL6	R201157-01			7207-001	U
BLK (QC ID=41234)	R201157-03			7207-003	U
LCS (QC ID=41233)	R201157-02			7207-002	ok
Duplicate (R201157-01)	R201157-04			7207-004	- U
Nominal values and limits from method				RDLs (pCi/L)	2.0
PFP Well Installation Smpl. & Anal.					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7018-204 *2σ prep error 10.0 %* *Reference Lab Notebook 7018 pg. 204*																
B12XL6	R201157-01			0.60	0.500			96		100			32	02/19/02	02/19	GRB-217
BLK (QC ID=41234)	R201157-03			0.70	0.500			84		100				02/19/02	02/19	GRB-219
LCS (QC ID=41233)	R201157-02			0.40	0.500			85		200				02/19/02	02/19	GRB-206
Duplicate (R201157-01) (QC ID=41235)	R201157-04			0.64	0.500			87		100			32	02/19/02	02/19	GRB-220
Nominal values and limits from method				2.0	0.500					100			180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	CP-501	Strontium in Water Samples, rev 2

AVERAGES ± 2 SD	MDA	0.58	± 0.26
FOR 4 SAMPLES	YIELD	88	± 11

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/08/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

Test TC Matrix WATER
SDG 7207
Contact Melissa C. Mannion

METHOD SUMMARY

TECHNETIUM 99 IN WATER
BETA COUNTING

Client Hanford
Contract No. 630
Contract SDG H1671

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Technetium 99	
Preparation batch 7018-204						
B12XL6	R201157-01			7207-001	U	
BLK (QC ID=41234)	R201157-03			7207-003	U	
LCS (QC ID=41233)	R201157-02			7207-002	ok	
Duplicate (R201157-01)	R201157-04			7207-004	-	U
Nominal values and limits from method				RDLs (pCi/L)	15	
PFP Well Installation Smpl. & Anal.						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7018-204	2σ prep error 10.0 %				Reference Lab Notebook 7018 pg. 204											
B12XL6	R201157-01			11	0.0500			94		50			46	03/01/02	03/05	GRB-220
BLK (QC ID=41234)	R201157-03			11	0.0500			89		50				03/01/02	03/06	GRB-222
LCS (QC ID=41233)	R201157-02			20	0.0500			53		50				03/01/02	03/04	GRB-202
Duplicate (R201157-01) (QC ID=41235)	R201157-04			11	0.0500			89		50			46	03/01/02	03/05	GRB-222
Nominal values and limits from method				15	0.0500			20-105		50			180			

PROCEDURES	REFERENCE	TC99_TR_SEP_LSC
	CP-021	Preparation of Tc-99m Tracer, rev 1
	CP-002	Q.C. Preparation, rev 3
	CP-003	Tracing, rev 3
	CP-541	Technetium-99 Purification (Water) by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 6

AVERAGES ± 2 SD FOR 4 SAMPLES				
	MDA	13	±	9.0
	YIELD	81	±	38

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/08/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

Test 80A Matrix WATER
SDG 7207
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS ALPHA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1671

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha	
Preparation batch 7018-204						
B12XL6	R201157-01	80		7207-001	U	
BLK (QC ID=41234)	R201157-03	80		7207-003	U	
LCS (QC ID=41233)	R201157-02	80		7207-002	ok	
Duplicate (R201157-01)	R201157-04	80		7207-004	-	U
Nominal values and limits from method				RDLs (pCi/L)	3.0	
PFP Well Installation Smpl. & Anal.						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7018-204	2σ prep error 20.0 % Reference Lab Notebook 7018 pg. 204															
B12XL6	R201157-01	80		2.7	0.200			65		100			48	03/05/02	03/07	GRB-105
BLK (QC ID=41234)	R201157-03	80		1.6	0.200			23		100				03/05/02	03/07	GRB-110
LCS (QC ID=41233)	R201157-02	80		1.6	0.200			22		100				03/05/02	03/08	GRB-114
Duplicate (R201157-01) (QC ID=41235)	R201157-04	80		2.1	0.200			62		100			48	03/05/02	03/07	GRB-111
Nominal values and limits from method				3.0	0.200			5-250		100			180			

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
CP-120 Gross Alpha and Gross Beta in Water, rev 4

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 2.0 ± 1.0
RESIDUE 43 ± 47

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/08/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

Test 80B Matrix WATER
SDG 7207
Contact Melissa C. Mannion

METHOD SUMMARY

GROSS BETA IN WATER
GAS PROPORTIONAL COUNTING

Client Hanford
Contract No. 630
Contract SDG H1671

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta
Preparation batch 7018-204					
B12XL6	R201157-01	80		7207-001	8.12
BLK (QC ID=41234)	R201157-03	80		7207-003	U
LCS (QC ID=41233)	R201157-02	80		7207-002	ok
Duplicate (R201157-01)	R201157-04	80		7207-004	ok
Nominal values and limits from method				RDLs (pCi/L)	4.0
PFP Well Installation Smpl. & Anal.					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7018-204	2σ prep error 15.0 % Reference Lab Notebook 7018 pg. 204															
B12XL6	R201157-01	80		3.9	0.200			65		100			48	03/05/02	03/07	GRB-105
BLK (QC ID=41234)	R201157-03	80		3.5	0.200			23		100				03/05/02	03/07	GRB-110
LCS (QC ID=41233)	R201157-02	80		4.3	0.200			22		100				03/05/02	03/08	GRB-114
Duplicate (R201157-01) (QC ID=41235)	R201157-04	80		3.0	0.200			62		100			48	03/05/02	03/07	GRB-111
Nominal values and limits from method				4.0	0.200			5-250		100			180			

PROCEDURES REFERENCE 900.0_ALPHABETA_GPC
CP-120 Gross Alpha and Gross Beta in Water, rev 4

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 3.7 ± 1.1
RESIDUE 43 ± 47

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/08/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

Test GAM Matrix WATER
SDG 7207
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA EMITTERS

GAMMA SCAN

Client Hanford
Contract No. 630
Contract SDG H1671

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137	
Preparation batch 7018-204								
B12XL6	R201157-01			7207-001	U		U	
BLK (QC ID=41234)	R201157-03			7207-003	U		U	
LCS (QC ID=41233)	R201157-02			7207-002	ok		ok	
Duplicate (R201157-01)	R201157-04			7207-004	-	U	-	U
Nominal values and limits from method				RDLs (pCi/L)	25		15	
PFP Well Installation Smpl. & Anal.								

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7018-204	2σ prep error 15.0 %				Reference Lab Notebook 7018 pg. 204											
B12XL6	R201157-01			24	0.500					1048			42	02/12/02	03/01	01,01,00
BLK (QC ID=41234)	R201157-03			68	0.500					309				02/12/02	03/01	MB,07,00
LCS (QC ID=41233)	R201157-02			33	0.500					318				02/12/02	03/06	01,03,00
Duplicate (R201157-01) (QC ID=41235)	R201157-04			35	0.500					320			45	02/12/02	03/04	01,04,00
Nominal values and limits from method				15	0.500					100			180			

PROCEDURES REFERENCE GAMMA_GS
CP-100 Ge(Li) Preparation for Commercial Samples, rev 3

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 40 ± 39
YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/08/02

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H1671

Test H Matrix WATER
SDG 7207
Contact Melissa C. Mannion

METHOD SUMMARY

TRITIUM IN WATER

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract No. 630
Contract SDG H1671

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 7018-204						
B12XL6	R201157-01			7207-001	U	
BLK (QC ID=41234)	R201157-03			7207-003	U	
LCS (QC ID=41233)	R201157-02			7207-002	ok	J
Duplicate (R201157-01)	R201157-04			7207-004	-	U
Spike (R201157-01)	R201157-05			7207-005	ok	X

Nominal values and limits from method RDLs (pCi/L) 400
PFP Well Installation Smpl. & Anal.

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/L	ALIQ L	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 7018-204	2σ prep error 10.0 %				Reference Lab Notebook 7018 pg. 204											
B12XL6	R201157-01			200	0.0100			100		100			43	03/01/02	03/02	LSC-005
BLK (QC ID=41234)	R201157-03			20	1.00			10		100				03/01/02	03/02	LSC-005
LCS (QC ID=41233)	R201157-02			20	1.00			10		100				03/01/02	03/02	LSC-005
Duplicate (R201157-01) (QC ID=41235)	R201157-04			200	0.0100			100		100			43	03/01/02	03/02	LSC-005
Spike (R201157-01) (QC ID=41236)	R201157-05			260	0.0300			33		68			43	03/01/02	03/02	LSC-005
Nominal values and limits from method				400	0.0100					25			180			

PROCEDURES REFERENCE 906.0_H3_LSC
CP-210 Tritium in Water Samples by Distillation, rev 5

AVERAGES ± 2 SD MDA 140 ± 220
FOR 5 SAMPLES YIELD 51 ± 92

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 03/08/02

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-114-04	Page 1 of 1
Collector: Renee Nielson	Company Contact: Virginia Rohay; Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 7N; Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Water	Sampling Location: H1671 (7207) 200 West; Well Number C3803, Well Name 299-W15-42	SAF No.: B01-114	Air Quality ☐
Ice Chest No.: ERC. 02.103	Field Logbook No.: EL-1562; COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA TMA	Offsite Property No.: A Ø20 Ø64	Bill of Lading/Air Bill No.: 4235 7955 0431	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	HCl to pH <2	HCl or H2SO4 to pH <2 Coo	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	Cool 4C	RIN 1/5/01 HCl or ~~H2SO4~~ to pH <2 Coo	HNO3 to pH <2
Type of Container	P	P	P	aG	P	P	P	aG	aGs*	P
No. of Container(s)	1	1	1	1	1	1	1	2	3	6
Volume	125mL	250mL	250mL	500mL	500mL	500mL	500mL	1000mL	40mL	1L
SAMPLE ANALYSIS	Tritium - H3	Alkalinity - 310.1	Technetium-99	TIC - 415.1M; TOC - 415.1	See item (1) in Special Instructions.	NO2/NO3 - 353.2	See item (1) in Special Instructions.	See item (3) in Special Instructions.	VOA - 8260A (TCL), VOA - 8260A (Add-On) (n-Butylbenzene)	See item (4) in Special Instructions

Sample No.	Matrix *	Sample Date	Sample Time									
B12XL6	WATER	1/18/02	2041	X		X						X
											B12XL3	

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
R Nielson	1-19-02 0945	Gredin Fed Ex	1-19-02 0945
Fed Ex 1725	1-21-02 1030	[illegible]	1-21-02 1030
[illegible] ERC	1-21-02 1030	Fed Ex	1-21-02
Fed Ex Express	1-22-02 9:30	E. Maestas	1/22/02 9:30

Sign/Print Names

SPECIAL INSTRUCTIONS

The ERC acknowledges that the holding time for Nitrate Method 300.0 will not be met. The laboratory is to analyze pH within 24 hours of sample receipt. If a limited quantity of material is received, analyze in the order listed on the FSR.

(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040
(2) ICP Metals - 6010A (TAL) (Cadmium, Calcium, Chromium, Iron, Magnesium, Nickel, Sodium, Zinc); ICP Metals - 6010A (Add-on) (Phosphorus)
(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) (Tributyl phosphate)
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60); Gamma Spec - Add-on (Antimony-125, Ruthenium-106); Americium-241; Neptunium-237; Isotopic Plutonium, Strontium-89,90 -- Total Sr, Isotopic Uranium

Matrix *
S=Soil
SD=Sediment
SO=Solid
S=Sludge
W=Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wi=Wipe
L=Liquid
Ve=Vegetation
X=Other

LABORATORY SECTION	Received By	Title	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (10/99)

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: BECHTEL HANFORD INC. Date/Time received 1-22-02 9:30

CoC No. B01-114-04

Container I.D. No. ERC-02-103 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: 1
7. Number of containers per sample: (1 EACH) (Or see CoC _____)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Red 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 Chris S. Maestas Date: 1-22-02 Time: 9:30 am

Customer Sample No.	cpm	mr/hr	Customer Sample No.	Cpm	mr/hr

Ion Chamber Ser. No. _____ Calibration date _____

Survey Meter Ser No. _____ Calibration date _____

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-114 H1671

DATE RECEIVED: 01/22/02 LVL LOT # :0201L823

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B12XL6	001	W	02LVG013	01/18/02	N/A	01/24/02
B12XL6	001 MS	W	02LVG014	01/18/02	N/A	01/25/02
B12XL6	001 MSD	W	02LVG014	01/18/02	N/A	01/25/02

LAB QC:

VBLKIG	MB1	W	02LVG013	N/A	N/A	01/24/02
VBLKIH	MB1	W	02LVG014	N/A	N/A	01/25/02
VBLKIH	MB1 BS	W	02LVG014	N/A	N/A	01/25/02

RECEIVED FEB 2002

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B01-114
LVL #: 0201L823
SDG/SAF #: H1671/B01-114

W.O. #: 11343-606-001-9999-00
Date Received: 01-22-2002

GC/MS VOLATILE

One (1) water sample was collected on 01-18-2002.

The sample and its associated QC samples were analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8260A for client specified Volatile target compounds on 01-24,25-2002.

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

1. All results presented in this report are derived from samples that met LVLI's sample acceptance policy with the exception of cooler temperature, which has been recorded on the chain of custody.

2. The analysis holding time was met.

3. Non-target compounds were not detected in the sample.

4. All surrogate recoveries were within EPA QC limits.

5. One (1) of ten (10) matrix spike recoveries was outside EPA QC limits.

   One (1) of five (5) blank spike recoveries was outside EPA QC limits.

   The percent recovery for 1,1-Drichloroethene was biased low; however, all other spike and surrogate recoveries were within limits. There was no significant impact on the data. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

6. Internal standard area and retention time criteria were met.

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

by J. Michael Taylor
President
Lionville Laboratory Incorporated

01-30-02
Date

som\group\data\voa\tnu-hanford\0201-823.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 0 pages.

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

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 02VT0028

Initiator: DRychlak Batch: 0102L823, 828 Parameter: 1,4-DCB
Date: 1/28/02 Samples: BS, 001MS/MSD 001MS/MSD Matrix: Water
Client: TNU Method: SW846/MCAWW/CLP/ Prep Batch: ____

1. Reason for SDR

a. COC Discrepancy __ Tech Profile Error __ Client Request __ Sampler Error on C-O-C __ Transcription Error __ Wrong Test Code __ Other ____

b. General Discrepancy

__ Missing Sample/Extract* __ Container Broken __ Wrong Sample Pulled __ Label ID's Illegible
__ Hold Time Exceeded __ Insufficient Sample* __ Preservation Wrong __ Received Past Hold
__ Improper Bottle Type __ Not Amenable to Analysis

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: ____ TE 1/28/02

c. Problem (Include all relevant specific results; attach data if necessary) Upon work up of data, noticed that 1,4-DCB in BS had been manually integrated below the actual baseline. Proceeded to integrate properly and in doing so the recovery go out→60% (lower limit 61%). 1,4-DCB was also out in the above mentioned MS/MSD sets. Can we narrate? Samples still in hold we could rerun MS/MSD's? TE 1/28/02

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description:

__ Re-log
__ Entire Batch
__ Following Samples: ____
__ Re-leach
__ Re-extract
__ Re-digest
__ Revise EDD
__ Change Test Code to ____
__ Place On/Take Off Hold (circle)

report and narrate

4. Project Manager Instructions...signature/date: [signature] 1/29/02

__ Concur with Proposed Action
__ Disagree with Proposed Action; See Instruction
✓ Include in Case Narrative
__ Client Contacted:
Date/Person ____
__ Add
__ Cancel

5. Final Action...signature/date: DRychlak 1/29/02 Other Explanation:

Verified re-[log][leach][extract][digest][analysis] (circle)
X Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

0201L823 BKR 1/30/02
0201L828 BKR 1/30/02

When Final Action has been recorded, forward original to QA Specialist for distribution and filing.

Route	Distribution of Completed SDR	Route	Distribution of Completed SDR
Z	X Initiator	__	__ Metals: Beegle
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
I	X Project Mgr: Stone/Johnson/Haslett	__	__ GC/LC: Kiger
__	X Technical Mgr: Wesson/Daniels	__	__ MS: Rychlak/Layman
__	X QA (file): Alberts	__	__ Log-in: Keppel
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Beegle/Kiger	__	__ Other: ____

QA-105-A-0801

GLOSSARY OF VOA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

GLOSSARY OF VOA DATA

DATA QUALIFIERS

U	=	Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
J	=	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
D	=	Identifies all compounds identified in an analysis at a secondary dilution factor.
I	=	Interference.
NQ	=	Result qualitatively confirmed but not able to quantify.
N	=	Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
X	=	This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
Y	=	Additional qualifiers used as required are explained in the case narrative.

VLI
LIONVILLE LABORATORY INC.

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

MP - Missed Peak: manually added peak not found by automatic quan program.

PA - Peak Assignment: quan report was changed to reflect correct peak assignment.

RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.

SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.

PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

Lionville Laboratory, Inc.

Volatiles By GC/MS, Special List

Report Date: 01/29/02 13:18

RFW Batch Number: 0201L823 Client: **TNUHANFORD B01-114 H1671** Work Order: 11343606001 Page: 1a

	Cust ID:	B12XL6		B12XL6		B12XL6		VBLKIG		VBLKIH		VBLKIH BS	
Sample Information	RFW#:	001		001 MS		001 MSD		02LVG013-MB1		02LVG014-MB1		02LVG014-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Toluene-d8	92	%	99	%	95	%	97	%	96	%	94	%
	Bromofluorobenzene	115	%	112	%	108	%	115	%	110	%	107	%
	1,2-Dichloroethane-d4	103	%	109	%	104	%	97	%	99	%	104	%
Chloromethane		10	U	10	U	10	U	10	U	10	U	10	U
Bromomethane		10	U	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride		10	U	10	U	10	U	10	U	10	U	10	U
Chloroethane		10	U	10	U	10	U	10	U	10	U	10	U
Methylene Chloride		14		4	J	4	J	5	U	5	U	5	U
Acetone		15	J	14	J	14	J	10	U	10	U	10	U
Carbon Disulfide		5	U	5	U	5	U	5	U	5	U	5	U
1,1-Dichloroethene		5	U	55 *	%	61	%	5	U	5	U	60 *	%
1,1-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	5	U	5	U	5	U
Chloroform		17		18		17		5	U	5	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
2-Butanone		14	J	13	J	12	J	10	U	10	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Carbon Tetrachloride		110		120		120		5	U	5	U	5	U
Bromodichloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	5	U	5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Trichloroethene		5	U	88	%	93	%	5	U	5	U	90	%
Dibromochloromethane		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Benzene		5	U	86	%	90	%	5	U	5	U	89	%
Trans-1,3-Dichloropropene		5	U	5	U	5	U	5	U	5	U	5	U
Bromoform		5	U	5	U	5	U	5	U	5	U	5	U
4-Methyl-2-pentanone		10	U	10	U	10	U	10	U	10	U	10	U
2-Hexanone		10	U	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene		5	U	5	U	5	U	5	U	5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	5	U	5	U	5	U
Toluene		2	J	97	%	102	%	5	U	5	U	97	%

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0201L823 Client: TNUHANFORD B01-114 H1671 Work Order: 11343606001 Page: 1b

Cust ID:	B12XL6	B12XL6	B12XL6	VBLKIG	VBLKIH	VBLKIH BS
RFW#:	001	001 MS	001 MSD	02LVG013-MB1	02LVG014-MB1	02LVG014-MB1
Chlorobenzene	5 U	94 %	98 %	5 U	5 U	96 %
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U
N-butylbenzene	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

Lionville Laboratory Use Only

0201L823

Custody Transfer Record/Lab Work Request

Page 1 of 1

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD B01-114

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 1-22-02 Date Due: 2-21-02

		A	C	D	E				F	G		H	I	J			
Refrigerator #		1	3						1	3		3	3	3			
#/Type Container	Liquid	3AG	2AG						1AG	1PL		1PL	1PL	1PL			
	Solid																
Volume	Liquid	40	1L						500	500		500	250	500			
	Solid																
Preservatives		HCL							H2SO4	HNO3		—	—	H2SO4			
ANALYSES REQUESTED		ORGANIC								INORG							
		VOA	BNA	Pest/PCB	Herb				TC TOC	Metal	CN	FC Anions	Alka.	NO2 NO3			
		Lionville Laboratory Use Only															
		0624X	0625X						ITIC IOCT	MET O		IC O IPH	IALKL	INSNL			

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624X	0625X					ITIC IOCT	MET O		IC O IPH	IALKL	INSNL			
001	B12XL6	✓	✓	W	1-18-02	2041	X	X					X	X		X	X	X			

Special Instructions: SAF # B01-114

DATE/REVISIONS:

IC O 1. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4

MET O 2. Cd, Ca, Cr, Fe, Mg, Ni, Na, Zn, P

3.

4.

5.

6.

Lionville Laboratory Use Only

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

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N
COC Record Present Upon Sample Rec't Y or N
Cooler Temp. 10 °C

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 4235 7955 0453

Relinquished by	Received by	Date	Time
FEDEX	[signature]	1-22-02	0940

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-114-04	Page 1 of 1

Collector: Renee Nielson	Company Contact: Virginia Rohay — Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 7N — Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Water	Sampling Location: 200 West; Well Number C3803, Well Name 299-W15-42	SAF No.: B01-114	Air Quality ☐
Ice Chest No.: ERC 96 064	Field Logbook No.: EL-1562 — COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A020094	Bill of Lading/Air Bill No.: 4235 7955 0453	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	HCl to pH <2	HCl or H2SO4 to pH <2 Coo	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	Cool 4C	RIN 11/5/01 HCl or H2SO4 to pH <2 Coo	HNO3 to pH <2
Type of Container	P	P	P	aG	P	P	P	aG	aGs*	P
No. of Container(s)	1	1	1	1	1	1	1	2	3	6
Volume	125mL	250mL	250mL	500mL	500mL	500mL	500mL	1000mL	40mL	1L
SAMPLE ANALYSIS	Tritium - H3	Alkalinity - 310.1	Technetium-99	TIC - 415.1M; TOC - 415.1	See item (1) in Special Instructions.	NO2/NO3 - 353.2	See item (2) in Special Instructions.	See item (3) in Special Instructions.	VOA - 8260A (TCL); VOA - 8260A (Add-On) (n-Butylbenzene)	See item (4) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time									
B12XL6	WATER	1/18/02	2041		X		X	X	X	X	X	X
												B12XL3

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Nielson / R. Nielson	1-19-02 0415	Stored in Ref # 2C	1/19/02 0415
REF 2C	12/02 1100	SJGALE	12/02 1100
ERC SJGALE	12/02 1100	FED EX	
FEDEX	1-22-02 0940	Carl Henry	1-22-02 0940

SPECIAL INSTRUCTIONS

The ERC acknowledges that the holding time for Nitrate Method 300.0 will not be met. The laboratory is to analyze pH within 24 hours of sample receipt. If a limited quantity of material is received, analyze in the order listed on the FSR.

(1) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; pH (Water) - 9040
(2) ICP Metals - 6010A (TAL) {Cadmium, Calcium, Chromium, Iron, Magnesium, Nickel, Sodium, Zinc}; ICP Metals - 6010A (Add-on) {Phosphorus}
(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60}; Gamma Spec - Add-on {Antimony-125, Ruthenium-106}; Americium-241; Neptunium-237; Isotopic Plutonium; Strontium-89,90 -- Total Sr; Isotopic Uranium

SAMPLES STORED IN REF.#2C AT THE 3728 SHIPPING FACILITY ON 1/18/02. COLLECTOR NOT AVAILABLE TO RELINQUISH SAMPLES ON 1/21/02 FOR SHIPMENT.

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

LABORATORY SECTION	Received By	Title
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By — Date/Time

BHI-EE-011 (10/99)

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-114 H1671

DATE RECEIVED: 01/22/02 LVL LOT # :0201L823

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B12XL6	001	W	02LE0071	01/18/02	01/23/02	01/30/02
B12XL6	001 MS	W	02LE0071	01/18/02	01/23/02	01/30/02
B12XL6	001 MSD	W	02LE0071	01/18/02	01/23/02	01/30/02

LAB QC:

SBLKOP	MB1	W	02LE0071	N/A	01/23/02	01/30/02
SBLKOP	MB1 BS	W	02LE0071	N/A	01/23/02	01/30/02

RECEIVED 2002

LIONVILLE LABORATORY INC.

Client: TNU-HANFORD B01-114
LVL #: 0201L823
SDG/SAF #: H1671/B01-114

W.O. #: 11343-606-001-9999-00
Date Received: 01-22-2002

SEMIVOLATILE

One (1) water sample was collected on 01-18-2002.

The sample and its associated QC samples were extracted on 01-23-2002 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for TCL and Tributylphosphate Semivolatile target compounds on 01-30-2002.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of the cooler temperature, which has been recorded on the chain of custody upon sample receipt.

2. The sample was extracted and analyzed within required holding time.

3. Non-target compounds were detected in the sample.

4. All surrogate recoveries were within EPA QC limits.

5. Two (2) of twenty-two (22) matrix spike recoveries were outside EPA QC limits.

6. One (1) of eleven (11) blank spike recoveries was outside EPA QC limits.

7. The method blank contained the common laboratory contaminant Bis (2-Ethylhexyl) phthalate at a level less than the CRQL.

8. Internal standard area and retention time criteria were met.

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

by

J. Michael Taylor
President
Lionville Laboratory Incorporated

02-05-02
Date

som\gorup\data\bna\tnu-hanford-0201-823.doc

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 1 pages.

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

GLOSSARY OF VOA DATA

ABBREVIATIONS

BS	=	Indicates blank spike in which reagent grade water is spiked with the CLP matrix spike solutions and carried through all the steps in the method. Spike recoveries are reported.
BSD	=	Indicates blank spike duplicate.
MS	=	Indicates matrix spike.
MSD	=	Indicates matrix spike duplicate.
DL	=	Suffix added to sample number to indicate that results are from a diluted analysis.
NA	=	Not Applicable.
DF	=	Dilution Factor.
NR	=	Not Required.
SP, Z	=	Indicates Spiked Compound.

GLOSSARY OF VOA DATA

DATA QUALIFIERS

U	=	Compound was analyzed for but not detected. The associated numerical value is the estimated sample quantitation limit which is included and corrected for dilution and percent moisture.
J	=	Indicates an estimated value. This flag is used under the following circumstances: 1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; or 2) when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero. For example, if the limit of detection is 10 ug/L and a concentration of 3 ug/L is calculated, it is reported as 3J.
B	=	This flag is used when the analyte is found in the associated blank as well as in the sample. It indicates possible/probable blank contamination. This flag is also used for a TIC as well as for a positively identified TCL compound.
E	=	Indicates that the compound was detected beyond the calibration range and was subsequently analyzed at a dilution.
D	=	Identifies all compounds identified in an analysis at a secondary dilution factor.
I	=	Interference.
NQ	=	Result qualitatively confirmed but not able to quantify.
N	=	Indicates presumptive evidence of a compound. This flag is only used for tentatively identified compounds (TICs), where the identification is based on a mass spectral library search. It is applied to all TIC results. For generic characterization of a TIC, such as chlorinated hydrocarbon, the N code is not used.
X	=	This flag is used for a TIC compound which is quantified relative to a response factor generated from a daily calibration standard (rather than quantified relative to the closest internal standard).
Y	=	Additional qualifiers used as required are explained in the case narrative.

VLI
LIONVILLE LABORATORY INC

TECHNICAL FLAGS FOR MANUAL INTEGRATION

Manual quan modifications or integrations are performed routinely to improve the data quality for a variety of technical reasons. Documentation of these modifications should be clear and concise. The following "flags" are used to indicate the technical reasons for quan modifications:

MP - Missed Peak: manually added peak not found by automatic quan program.

PA - Peak Assignment: quan report was changed to reflect correct peak assignment.

RI - Routine Integration: routine integrations are performed for some analytes that are consistently integrated improperly by the automatic integration programs. Examples are the dichlorobenzene isomers on the VOA packed column and benzo(b)fluoranthene/benzo(k)fluoranthene which are poorly resolved on the BNA column.

SP - Split Peak: the automatic integration improperly split the peak; a manual integration was performed to get the correct area.

CB - Coelution/Background: peak was manually integrated to eliminate contribution from coeluting compounds, background signal, or other interference.

PI - Proper Integration: a peak with poor or inconsistent integration (e.g., excessive tail) was properly integrated manually.

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List

Report Date: 02/04/02 14:58

RFW Batch Number: **0201L823** Client: **TNUHANFORD B01-114 H1671** Work Order: 11343606001 Page: 1a

	Cust ID:	B12XL6		B12XL6		B12XL6		SBLKOP		SBLKOP BS	
Sample Information	RFW#:	001		001 MS		001 MSD		02LE0071-MB1		02LE0071-MB1	
	Matrix:	WATER		WATER		WATER		WATER		WATER	
	D.F.:	1.00		1.00		1.00		1.00		1.00	
	Units:	ug/L		ug/L		ug/L		ug/L		ug/L	
Surrogate Recovery	Nitrobenzene-d5	74	%	89	%	88	%	87	%	93	%
	2-Fluorobiphenyl	76	%	84	%	83	%	81	%	92	%
	p-Terphenyl-d14	74	%	92	%	85	%	87	%	94	%
	Phenol-d5	68	%	71	%	74	%	77	%	81	%
	2-Fluorophenol	70	%	75	%	80	%	83	%	84	%
	2,4,6-Tribromophenol	95	%	104	%	108	%	93	%	108	%
Phenol		10	U	65	%	65	%	10	U	70	%
bis(2-Chloroethyl)ether		10	U	20	U	20	U	10	U	10	U
2-Chlorophenol		10	U	70	%	72	%	10	U	74	%
1,3-Dichlorobenzene		10	U	20	U	20	U	10	U	10	U
1,4-Dichlorobenzene		10	U	67	%	70	%	10	U	68	%
1,2-Dichlorobenzene		10	U	20	U	20	U	10	U	10	U
2-Methylphenol		10	U	20	U	20	U	10	U	10	U
2,2'-oxybis(1-Chloropropane)		10	U	20	U	20	U	10	U	10	U
3- and/or 4-Methylphenol		10	U	20	U	20	U	10	U	10	U
N-Nitroso-Di-n-propylamine		10	U	70	%	74	%	10	U	79	%
Hexachloroethane		10	U	20	U	20	U	10	U	10	U
Nitrobenzene		10	U	20	U	20	U	10	U	10	U
Isophorone		10	U	20	U	20	U	10	U	10	U
2-Nitrophenol		10	U	20	U	20	U	10	U	10	U
2,4-Dimethylphenol		10	U	20	U	20	U	10	U	10	U
bis(2-Chloroethoxy)methane		10	U	20	U	20	U	10	U	10	U
2,4-Dichlorophenol		10	U	20	U	20	U	10	U	10	U
1,2,4-Trichlorobenzene		10	U	77	%	81	%	10	U	79	%
Naphthalene		10	U	20	U	20	U	10	U	10	U
4-Chloroaniline		10	U	20	U	20	U	10	U	10	U
Hexachlorobutadiene		10	U	20	U	20	U	10	U	10	U
4-Chloro-3-methylphenol		10	U	69	%	79	%	10	U	84	%
2-Methylnaphthalene		10	U	20	U	20	U	10	U	10	U
Hexachlorocyclopentadiene		10	U	20	U	20	U	10	U	10	U
2,4,6-Trichlorophenol		10	U	20	U	20	U	10	U	10	U
2,4,5-Trichlorophenol		25	U	50	U	50	U	25	U	25	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: 0201L823 Client: TNUHANFORD B01-114 H1671 Work Order: 11343606001 Page: 1b

Cust ID:	B12XL6		B12XL6		B12XL6		SBLKOP		SBLKOP BS	
RFW#:	001		001 MS		001 MSD		02LE0071-MB1		02LE0071-MB1	
2-Chloronaphthalene	10	U	20	U	20	U	10	U	10	U
2-Nitroaniline	25	U	50	U	50	U	25	U	25	U
Dimethylphthalate	10	U	20	U	20	U	10	U	10	U
Acenaphthylene	10	U	22		20	U	10	U	10	U
2,6-Dinitrotoluene	10	U	20	U	20	U	10	U	10	U
3-Nitroaniline	25	U	50	U	50	U	25	U	25	U
Acenaphthene	10	U	48	%	81	%	10	U	83	%
2,4-Dinitrophenol	25	U	50	U	50	U	25	U	25	U
4-Nitrophenol	25	U	96 *	%	94 *	%	25	U	93 *	%
Dibenzofuran	10	U	20	U	20	U	10	U	10	U
2,4-Dinitrotoluene	10	U	88	%	89	%	10	U	94	%
Diethylphthalate	10	U	20	U	20	U	10	U	10	U
4-Chlorophenyl-phenylether	10	U	20	U	20	U	10	U	10	U
Fluorene	10	U	20	U	20	U	10	U	10	U
4-Nitroaniline	25	U	50	U	50	U	25	U	25	U
4,6-Dinitro-2-methylphenol	25	U	50	U	50	U	25	U	25	U
N-Nitrosodiphenylamine (1)	10	U	20	U	20	U	10	U	10	U
4-Bromophenyl-phenylether	10	U	20	U	20	U	10	U	10	U
Hexachlorobenzene	10	U	20	U	20	U	10	U	10	U
Pentachlorophenol	25	U	99	%	94	%	25	U	70	%
Phenanthrene	10	U	20	U	20	U	10	U	10	U
Anthracene	10	U	20	U	20	U	10	U	10	U
Carbazole	10	U	20	U	20	U	10	U	10	U
Di-n-Butylphthalate	10	U	20	U	2	J	10	U	10	U
Fluoranthene	10	U	20	U	20	U	10	U	10	U
Pyrene	10	U	72	%	88	%	10	U	90	%
Butylbenzylphthalate	10	U	20	U	20	U	10	U	10	U
3,3'-Dichlorobenzidine	10	U	20	U	20	U	10	U	10	U
Benzo(a)anthracene	10	U	20	U	20	U	10	U	10	U
Chrysene	10	U	20	U	20	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	4	JB	9	JB	10	JB	5	J	4	JB
Di-n-Octyl phthalate	10	U	20	U	20	U	10	U	10	U
Benzo(b)fluoranthene	10	U	20	U	20	U	10	U	10	U
Benzo(k)fluoranthene	10	U	20	U	20	U	10	U	10	U
Benzo(a)pyrene	10	U	20	U	20	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	10	U	20	U	20	U	10	U	10	U
Dibenzo(a,h)anthracene	10	U	20	U	20	U	10	U	10	U
Benzo(g,h,i)perylene	10	U	20	U	20	U	10	U	10	U
Tributylphosphate	10	U	20	U	20	U	10	U	10	U

(1) - Cannot be separated from Diphenylamine. *= Outside of EPA CLP QC limits.

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B12XL6

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B01-114 H1671

Matrix: (soil/water) WATER

Lab Sample ID: 0201L823-001

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: D013006

Level: (low/med) LOW

Date Received: 01/22/02

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 01/23/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 01/30/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	7.194	6	J
2.	UNKNOWN	9.017	8	J
3.	UNKNOWN	18.793	8	J
4. 314-40-9	BROMACIL	19.161	30	NJ
5.	UNKNOWN	21.125	10	J

1F

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

SBLKOP

Lab Name: Lionville Labs, Inc. Work Order: 11343606001

Client: TNUHANFORD B01-114 H1671

Matrix: (soil/water) WATER

Lab Sample ID: 02LE0071-MB1

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: D013004

Level: (low/med) LOW

Date Received: 01/23/02

% Moisture: _____ decanted: (Y/N)__

Date Extracted: 01/23/02

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 01/30/02

Injection Volume: 2.0(uL)

Dilution Factor: 1.00

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: 0

CONCENTRATION UNITS:
(ug/L or ug/Kg) ug/L

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

Lionville Laboratory Use Only

0201L823

Custody Transfer Record/Lab Work Request

Page 1 of 1

LVLI

10

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD B01-114

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: DJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 1-22-02 Date Due: 2-21-02

		A	C	D	E			F	G		H	I	J			
Refrigerator #		1		3				1	3		3	3	3			
#/Type Container	Liquid	3AG		2AG				1AG	1PL		1PL	1PL	1PL			
	Solid															
Volume	Liquid	40		1L				500	500		500	250	500			
	Solid															
Preservatives		HCL						H2SO4	HNO3		—	—	H2SO4			
ANALYSES REQUESTED		ORGANIC: VOA	ORGANIC: BNA	ORGANIC: Pest/PCB	ORGANIC: Herb			TC TOC	INORG: Metal	INORG: CN	IC Anions	Alka.	NO2 NO3			
Lionville Laboratory Use Only		0624X	0625X					ITIC IOCT	MET O		IC O IPH	IALKL	INSNL			

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624X	0625X					ITIC IOCT	MET O		IC O IPH	IALKL	INSNL			
001	B12XC6	✓	✓	W	1-18-02	2041	X	X					X	X		X	X	X			

Special Instructions: SAF # B01-114

DATE/REVISIONS:

IC O 1. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4

MET O 2. Cd, Ca, Cr, Fe, Mg, Ni, Na, Zn, P

3.

4.

5.

6.

Relinquished by	Received by	Date	Time
FEDEX	Carl Hanf	1-22-02	0940

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Lionville Laboratory Use Only

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

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. 10 °C

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 4235 7955 0453

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-114-04	Page 1 of 1

Collector: Renee Nielson	Company Contact: Virginia Rohay — Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 7N — Data Turnaround: 45 Days — Air Quality ☐
Project Designation: PFP Well Installation Sampling and Analysis - Water	Sampling Location: 200 West; Well Number C3803, Well Name 299-W15-42	SAF No.: B01-114	
Ice Chest No.: ERC 96 064	Field Logbook No.: EL-1562 — COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA	Offsite Property No.: A020094	Bill of Lading/Air Bill No.: 4235 7955 0453	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	HCl to pH <2	HCl or H2SO4 to pH <2 Coo	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	Cool 4C	HCl or ~~H2SO4~~ to pH <2 Coo (RIN 11/5/01)	HNO3 to pH <2
Type of Container	P	P	P	sG	P	P	P	sG	sGs*	P
No. of Container(s)	1	1	1	1	1	1	1	2	3	6
Volume	125mL	250mL	250mL	500mL	500mL	500mL	500mL	1000mL	40mL	1L
SAMPLE ANALYSIS	Tritium - H3	Alkalinity - 310.1	Technetium-99	TIC - 415.1M; TOC - 415.1	See item (1) in Special Instructions.	NO2/NO3 - 353.2	See item (2) in Special Instructions.	See item (3) in Special Instructions.	VOA - 8260A (TCL); VOA - 8260A (Add-On) (n-Butylbenzene)	See item (4) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time									
B12XL6	WATER	1/18/02	2041		X		X	X	X	X	X	X
												B12XL3

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R. Nielson / R. Nielson	1-19-02 0415	Steve Lin	1/19/02 0415
REF 2C	12 02 1100	SJGALE	12 02 1100
ERC SJGALE	12 02 1100	FED EX	
FEDEX	1-22-02 0940	Carl Henry	1-22-02 0940

SPECIAL INSTRUCTIONS

The ERC acknowledges that the holding time for Nitrate Method 300.0 will not be met. The laboratory is to analyze pH within 24 hours of sample receipt. If a limited quantity of material is received, analyze in the order listed on the FSR.

(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); pH (Water) - 9040
(2) ICP Metals - 6010A (TAL) (Cadmium, Calcium, Chromium, Iron, Magnesium, Nickel, Sodium, Zinc); ICP Metals - 6010A (Add-on) (Phosphorus)
(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) (Tributyl phosphate)
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy (Cesium-137, Cobalt-60); Gamma Spec - Add-on (Antimony-125, Ruthenium-106); Americium-241; Neptunium-237; Isotopic Plutonium; Strontium-89,90 -- Total Sr; Isotopic Uranium

SAMPLES STORED IN REF.#2C AT THE 3728 SHIPPING FACILITY ON 1/18/02. COLLECTOR NOT AVAILABLE TO RELINQUISH SAMPLES ON 1/21/02 FOR SHIPMENT.

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

LABORATORY SECTION	Received By	Title
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By — Date/Time

BHI-EE-011 (10/99)

RECEIVED FEB 2002

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-114 H1671

DATE RECEIVED: 01/22/02 LVL LOT # :0201L823

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B12XL6						
CALCIUM, TOTAL	001	W	02L0023	01/18/02	01/22/02	01/23/02
CALCIUM, TOTAL	001 REP	W	02L0023	01/18/02	01/22/02	01/23/02
CALCIUM, TOTAL	001 MS	W	02L0023	01/18/02	01/22/02	01/23/02
CALCIUM, TOTAL	001 MSD	W	02L0023	01/18/02	01/22/02	01/23/02
CADMIUM, TOTAL	001	W	02L0023	01/18/02	01/22/02	01/23/02
CADMIUM, TOTAL	001 REP	W	02L0023	01/18/02	01/22/02	01/23/02
CADMIUM, TOTAL	001 MS	W	02L0023	01/18/02	01/22/02	01/23/02
CADMIUM, TOTAL	001 MSD	W	02L0023	01/18/02	01/22/02	01/23/02
CHROMIUM, TOTAL	001	W	02L0023	01/18/02	01/22/02	01/23/02
CHROMIUM, TOTAL	001 REP	W	02L0023	01/18/02	01/22/02	01/23/02
CHROMIUM, TOTAL	001 MS	W	02L0023	01/18/02	01/22/02	01/23/02
CHROMIUM, TOTAL	001 MSD	W	02L0023	01/18/02	01/22/02	01/23/02
IRON, TOTAL	001	W	02L0023	01/18/02	01/22/02	01/23/02
IRON, TOTAL	001 REP	W	02L0023	01/18/02	01/22/02	01/23/02
IRON, TOTAL	001 MS	W	02L0023	01/18/02	01/22/02	01/23/02
IRON, TOTAL	001 MSD	W	02L0023	01/18/02	01/22/02	01/23/02
MAGNESIUM, TOTAL	001	W	02L0023	01/18/02	01/22/02	01/23/02
MAGNESIUM, TOTAL	001 REP	W	02L0023	01/18/02	01/22/02	01/23/02
MAGNESIUM, TOTAL	001 MS	W	02L0023	01/18/02	01/22/02	01/23/02
MAGNESIUM, TOTAL	001 MSD	W	02L0023	01/18/02	01/22/02	01/23/02
SODIUM, TOTAL	001	W	02L0023	01/18/02	01/22/02	01/23/02
SODIUM, TOTAL	001 REP	W	02L0023	01/18/02	01/22/02	01/23/02
SODIUM, TOTAL	001 MS	W	02L0023	01/18/02	01/22/02	01/23/02
SODIUM, TOTAL	001 MSD	W	02L0023	01/18/02	01/22/02	01/23/02
NICKEL, TOTAL	001	W	02L0023	01/18/02	01/22/02	01/23/02
NICKEL, TOTAL	001 REP	W	02L0023	01/18/02	01/22/02	01/23/02
NICKEL, TOTAL	001 MS	W	02L0023	01/18/02	01/22/02	01/23/02
NICKEL, TOTAL	001 MSD	W	02L0023	01/18/02	01/22/02	01/23/02
PHOSPHORUS, TOTAL	001	W	02L0023	01/18/02	01/22/02	01/23/02
PHOSPHORUS, TOTAL	001 REP	W	02L0023	01/18/02	01/22/02	01/23/02
PHOSPHORUS, TOTAL	001 MS	W	02L0023	01/18/02	01/22/02	01/23/02
PHOSPHORUS, TOTAL	001 MSD	W	02L0023	01/18/02	01/22/02	01/23/02
ZINC, TOTAL	001	W	02L0023	01/18/02	01/22/02	01/23/02
ZINC, TOTAL	001 REP	W	02L0023	01/18/02	01/22/02	01/23/02
ZINC, TOTAL	001 MS	W	02L0023	01/18/02	01/22/02	01/23/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-114 H1671

DATE RECEIVED: 01/22/02 LVL LOT # :0201L823

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ZINC, TOTAL	001 MSD	W	02L0023	01/18/02	01/22/02	01/23/02

LAB QC:

CALCIUM LABORATORY	LC1 BS	W	02L0023	N/A	01/22/02	01/23/02
CALCIUM, TOTAL	MB1	W	02L0023	N/A	01/22/02	01/23/02
CADMIUM LABORATORY	LC1 BS	W	02L0023	N/A	01/22/02	01/23/02
CADMIUM, TOTAL	MB1	W	02L0023	N/A	01/22/02	01/23/02
CHROMIUM LABORATORY	LC1 BS	W	02L0023	N/A	01/22/02	01/23/02
CHROMIUM, TOTAL	MB1	W	02L0023	N/A	01/22/02	01/23/02
IRON LABORATORY	LC1 BS	W	02L0023	N/A	01/22/02	01/23/02
IRON, TOTAL	MB1	W	02L0023	N/A	01/22/02	01/23/02
MAGNESIUM LABORATORY	LC1 BS	W	02L0023	N/A	01/22/02	01/23/02
MAGNESIUM, TOTAL	MB1	W	02L0023	N/A	01/22/02	01/23/02
SODIUM LABORATORY	LC1 BS	W	02L0023	N/A	01/22/02	01/23/02
SODIUM, TOTAL	MB1	W	02L0023	N/A	01/22/02	01/23/02
NICKEL LABORATORY	LC1 BS	W	02L0023	N/A	01/22/02	01/23/02
NICKEL, TOTAL	MB1	W	02L0023	N/A	01/22/02	01/23/02
PHOSPHORUS LCS	LC1 BS	W	02L0023	N/A	01/22/02	01/23/02
PHOSPHORUS, TOTAL	MB1	W	02L0023	N/A	01/22/02	01/23/02
ZINC LABORATORY	LC1 BS	W	02L0023	N/A	01/22/02	01/23/02
ZINC, TOTAL	MB1	W	02L0023	N/A	01/22/02	01/23/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-114
LVL#: 0201L823
SDG/SAF#: H1671/B01-114

W.O.#: 11343-606-001-9999-00
Date Received: 01-22-02

METALS CASE NARRATIVE

1. This narrative covers the analysis of 1 water sample.

2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary.

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

4. All results presented in this report are derived from samples that met LVLI's sample acceptance policy with the exception of cooler temperature, which has been recorded on the chain of custody.

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

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

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL), MB value less than 5% of the RCRA limit, or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

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

9. All laboratory control samples (LCS) were within the 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

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

11. The duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.

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

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

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

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

02-05-02
Date

gmb/m01-823

LVLI
LIONVILLE LABORATORY INC.

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Lot#: 0201L823

Leaching Procedure: __1310 __1311 __1312 __Other:_____

CLP Metals __ Digestion and __ Analysis Methods: __ILM03.0 __ILM04.0

Metals Digestion Methods: ✓3005A __3010A __3015 __3020A __3050B __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

	SW846		EPA		STD MTD	EPA OSWR	USATHAMA
Aluminum	__6010B		__200.7				__99
Antimony	__6010B	__7041 [5]	__200.7	__204.2			__99
Arsenic	__6010B	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	__6010B		__200.7				__99
Beryllium	__6010B		__200.7				__99
Bismuth	__6010B [1]		__200.7 [1]			__1620	__99
Boron	__6010B		__200.7				__99
Cadmium	✓6010B	__7131A [5]	__200.7	__213.2			__99
Calcium	✓6010B		__200.7				__99
Chromium	✓6010B	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	__6010B		__200.7				__99
Copper	__6010B	__7211 [5]	__200.7	__220.2			__99
Iron	✓6010B		__200.7				__99
Lead	__6010B	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010B	__7430 [4]	__200.7			__1620	__99
Magnesium	✓6010B		__200.7				__99
Manganese	__6010B		__200.7				__99
Mercury	__7470A [3]	__7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010B		__200.7				__99
Nickel	✓6010B		__200.7				__99
Potassium	__6010B	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010B [1]		__200.7 [1]			__1620	__99
Selenium	__6010B	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010B [1]		__200.7			__1620	__99
Silica	__6010B		__200.7			__1620	__99
Silver	__6010B	__7761 [5]	__200.7	__272.2			__99
Sodium	✓6010B	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010B		__200.7				__99
Thallium	__6010B	__7841 [5]	__200.7	__279.2__200.9			__99
Tin	__6010B		__200.7				__99
Titanium	__6010B		__200.7				__99
Uranium	__6010B [1]		__200.7 [1]			__1620	__99
Vanadium	✓6010B		__200.7				__99
Zinc	✓6010B		__200.7				__99
Zirconium	__6010B [1]		__200.7 [1]			__1620	__99

Other: Phosphorous Method: 6010B

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

2. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, 0.1 grams of sample is taken to a final volume of 50 mL (including all reagents).

3. Modified Hg: Hg1 and Hg2 require less total volume of digestate due to the autosampler analysis. Sample volumes and reagents for mercury determinations in water and soil have been proportionately scaled down to adapt to this semi-automated technique. The sample volume used for water analysis is 33 mL. For soils, three 0.1 gram of sample is taken to a final volume of 50 mL (including all reagents).

4. Flame AA.

5. Graphite Furnace AA.

RFW 21-21L-033/N-10/96

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/05/02

CLIENT: TNUHANFORD B01-114 H1671 LVL LOT #: 0201L823

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B12XL6	Calcium, Total	65500		UG/L	17.7	1.0
		Cadmium, Total	6.8	u	UG/L	6.8	1.0
		Chromium, Total	5.4	u	UG/L	5.4	1.0
		Iron, Total	18.0		UG/L	5.3	1.0
		Magnesium, Total	20900		UG/L	24.3	1.0
		Sodium, Total	26900		UG/L	35.3	1.0
		Nickel, Total	14.1	u	UG/L	14.1	1.0
		Phosphorus, Total	100	u	UG/L	100	1.0
		Zinc, Total	7.2		UG/L	3.3	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/05/02

CLIENT: TNUHANFORD B01-114 H1671 LVL LOT #: 0201L823

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	02L0023-MB1	Calcium, Total	35.3		UG/L	17.7	1.0
		Cadmium, Total	6.8	u	UG/L	6.8	1.0
		Chromium, Total	5.4	u	UG/L	5.4	1.0
		Iron, Total	11.0		UG/L	5.3	1.0
		Magnesium, Total	24.3	u	UG/L	24.3	1.0
		Sodium, Total	59.9		UG/L	35.3	1.0
		Nickel, Total	14.1	u	UG/L	14.1	1.0
		Phosphorus, Total	100	u	UG/L	100	1.0
		Zinc, Total	6.4		UG/L	3.3	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/05/02

CLIENT: TNUHANFORD B01-114 H1671 LVL LOT #: 0201L823

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B12XL6	Calcium, Total	88700	65500	25000	92.9	1.0
		Calcium, Total MSD	89400	65500	25000	95.6	1.0
		Cadmium, Total	46.6	6.8 u	50.0	93.2	1.0
		Cadmium, Total MSD	45.8	6.8 u	50.0	91.6	1.0
		Chromium, Total	194	5.4 u	200	97.2	1.0
		Chromium, Total MSD	190	5.4 u	200	95.0	1.0
		Iron, Total	988	18.0	1000	97.0	1.0
		Iron, Total MSD	992	18.0	1000	97.4	1.0
		Magnesium, Total	44500	20900	25000	94.1	1.0
		Magnesium, Total MSD	44700	20900	25000	95.0	1.0
		Sodium, Total	50000	26900	25000	92.4	1.0
		Sodium, Total MSD	50500	26900	25000	94.4	1.0
		Nickel, Total	504	14.1 u	500	100.9	1.0
		Nickel, Total MSD	476	14.1 u	500	95.2	1.0
		Phosphorus, Total	9800	100 u	10000	98.0	1.0
		Phosphorus, Total MSD	9800	100 u	10000	98.0	1.0
		Zinc, Total	480	7.2	500	94.5	1.0
		Zinc, Total MSD	475	7.2	500	93.6	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 02/05/02

CLIENT: TNUHANFORD B01-114 H1671 LVL LOT #: 0201L823

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
-001	B12XL6	Calcium, Total	92.9	95.6	2.9
		Cadmium, Total	93.2	91.6	1.7
		Chromium, Total	97.2	95.0	2.2
		Iron, Total	97.0	97.4	0.43
		Magnesium, Total	94.1	95.0	0.97
		Sodium, Total	92.4	94.4	2.2
		Nickel, Total	100.9	95.2	5.8
		Phosphorus, Total	98.0	98.0	0.009
		Zinc, Total	94.5	93.6	0.94

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/05/02

CLIENT: TNUHANFORD B01-114 H1671 LVL LOT #: 0201L823

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B12XL6	Calcium, Total	65500	63200	3.6	1.0
		Cadmium, Total	6.8 u	6.8 u	NC	1.0
		Chromium, Total	5.4 u	5.4 u	NC	1.0
		Iron, Total	18.0	25.3	33.7	1.0
		Magnesium, Total	20900	20200	3.7	1.0
		Sodium, Total	26900	26000	3.4	1.0
		Nickel, Total	14.1 u	21.4	NC Z00	1.0
		Phosphorus, Total	100 u	100 u	NC	1.0
		Zinc, Total	7.2	3.3 u	NC Z00	1.0

MB 2/5/02

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/05/02

CLIENT: TNUHANFORD B01-114 H1671 LVL LOT #: 0201L823

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	02L0023-LC1	Calcium, LCS	23900	25000	UG/L	95.4
		Cadmium, LCS	229	250	UG/L	91.7
		Chromium, LCS	481	500	UG/L	96.3
		Iron, LCS	4860	5000	UG/L	97.3
		Magnesium, LCS	24100	25000	UG/L	96.2
		Sodium, LCS	23800	25000	UG/L	95.0
		Nickel, LCS	1940	2000	UG/L	97.0
		Phosphorus, LCS	4890	5000	UG/L	97.7
		Zinc, LCS	970	1000	UG/L	97.0

Lionville Laboratory Use Only

0201L823

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

LVLI Lionville Laboratory Inc

Client: TNU-HANFORD B01-114

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 1-22-02 Date Due: 2-21-02

		A	C	D	E				F	G		H	I	J			
Refrigerator #		1	3						1	3		3	3	3			
#/Type Container	Liquid	3AG	2AG						1AG	1PL		1PL	1PL	1PL			
	Solid																
Volume	Liquid	40	1L						500	500		500	250	500			
	Solid																
Preservatives		HCL							H2SO4	HNO3		—	—	H2SO4			
ANALYSES REQUESTED		ORGANIC								INORG							
		VOA	BNA	Pest/PCB	Herb				TIC TOC	Metal	CN	FC Anions	Alka.	NO2 NO3			
		Lionville Laboratory Use Only															
		0624X	0625X						ITIC IOCT	MET ①		IC ① IPH	IALKL	INSNL			

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624X	0625X					ITIC IOCT	MET ①		IC ① IPH	IALKL	INSNL			
001	B12XL6	✓	✓	W	1-18-02	2041	X	X					X	X		X	X	X			

Special Instructions: SAF # B01-114

DATE/REVISIONS:

IC ① 1. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4

MET ① 2. Cd, Ca, Cr, Fe, Mg, Ni, Na, Zn, P

3.

4.

5.

6.

Lionville Laboratory Use Only

Samples were: 1) Shipped ✓ or Hand Delivered ___ Airbill # ___

2) Ambient or Chilled

3) Received in Good Condition (Y) or N

4) Samples Properly Preserved (Y) or N

5) Received Within Holding Times (Y) or N, H

Tamper Resistant Seal was: 1) Present on Outer Package (Y) or N

2) Unbroken on Outer Package (Y) or N

3) Present on Sample (Y) or N

4) Unbroken on Sample (Y) or N

COC Record Present Upon Sample Rec't (Y) or N

Cooler Temp. 1° °C

Discrepancies Between Samples Labels and COC Record? Y or (N)

NOTES: 4235 7955 0453

Relinquished by	Received by	Date	Time
FEDEX	[signature]	1-22-02	0940

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-114-04	Page 1 of 1
Collector: Renee Nielson	Company Contact: Virginia Rohay; Telephone No.: 372-9100	Project Coordinator: TRENT, SJ	Price Code: 7N; Data Turnaround: 45 Days
Project Designation: PFP Well Installation Sampling and Analysis - Water	Sampling Location: 200 West; Well Number C3803, Well Name 299-W15-42	SAF No.: B01-114	Air Quality ☐
Ice Chest No.: ERC 96 064	Field Logbook No.: EL-1562; COA: T20ZP1D722	Method of Shipment: Federal Express	
Shipped To: TMA/RECRA RECRA	Offsite Property No.: A020094	Bill of Lading/Air Bill No.: 4235 7955 0453	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

Preservation	None	Cool 4C	HCl to pH <2	HCl or H2SO4 to pH <2 Coo	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	Cool 4C	HCl or ~~H2SO4~~ to pH <2 Coo (JN 11/5/01)	HNO3 to pH <2
Type of Container	P	P	P	aG	P	P	P	aG	aGs*	P
No. of Container(s)	1	1	1	1	1	1	1	2	3	6
Volume	125mL	250mL	250mL	500mL	500mL	500mL	500mL	1000mL	40mL	1L
SAMPLE ANALYSIS	Tritium - H3	Alkalinity - 310.1	Technetium-99	TIC - 415.1M; TOC - 415.1	See item (1) in Special Instructions.	NO2/NO3 - 353.2	See item (2) in Special Instructions.	See item (3) in Special Instructions.	VOA - 8260A (TCL); VOA - 8260A (Add-On) (n-Butylbenzene)	See item (4) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time									
B12XL6	WATER	1/18/02	2041		X		X	X	X	X	X	X
												B12XL3

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
R Nielson	1-19-02 0415	Stored in Ref # 2C	1/19/02 0415
REF 2C	1/21/02 1100	SJGALE	1/21/02 1100
ERC SJGALE	1/21/02 1100	FED EX	
FEDEX	1-22-02 0940	Carl Hanf	1-22-02 0940

SPECIAL INSTRUCTIONS

The ERC acknowledges that the holding time for Nitrate Method 300.0 will not be met. The laboratory is to analyze pH within 24 hours of sample receipt. If a limited quantity of material is received, analyze in the order listed on the FSR.

(1) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; pH (Water) - 9040
(2) ICP Metals - 6010A (TAL) {Cadmium, Calcium, Chromium, Iron, Magnesium, Nickel, Sodium, Zinc}; ICP Metals - 6010A (Add-on) {Phosphorus}
(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60}; Gamma Spec - Add-on {Antimony-125, Ruthenium-106}; Americium-241; Neptunium-237; Isotopic Plutonium; Strontium-89,90 -- Total Sr, Isotopic Uranium

SAMPLES STORED IN REF.#2C AT THE 3728 SHIPPING FACILITY ON 1/18/02. COLLECTOR NOT AVAILABLE TO RELINQUISH SAMPLES ON 1/21/02 FOR SHIPMENT.

Matrix *: S=Soil; SD=Sediment; SO=Solid; S=Sludge; W=Water; O=Oil; A=Air; DS=Drum Solids; DL=Drum Liquids; T=Tissue; Wp=Wipe; L=Liquid; V=Vegetation; X=Other

LABORATORY SECTION	Received By	Title
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By / Date/Time

14

BHI-EE-011 (10/99)

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-114 H1671

DATE RECEIVED: 01/22/02 LVL LOT # :0201L823

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS	ANALYSIS TIME
B12XL6							
ALKALINITY	001	W	02LAKA05	01/18/02	01/30/02	01/30/02	
ALKALINITY	001 REP	W	02LAKA05	01/18/02	01/30/02	01/30/02	
CHLORIDE BY IC	001	W	02LIC009	01/18/02	01/24/02	01/24/02	
CHLORIDE BY IC	001 REP	W	02LIC009	01/18/02	01/24/02	01/24/02	
CHLORIDE BY IC	001 MS	W	02LIC009	01/18/02	01/24/02	01/24/02	
FLUORIDE BY IC	001	W	02LIC009	01/18/02	01/24/02	01/24/02	
FLUORIDE BY IC	001 REP	W	02LIC009	01/18/02	01/24/02	01/24/02	
FLUORIDE BY IC	001 MS	W	02LIC009	01/18/02	01/24/02	01/24/02	
NITRITE BY IC	001	W	02LIC009	01/18/02	01/24/02	01/24/02	15:28
NITRITE BY IC	001 REP	W	02LIC009	01/18/02	01/24/02	01/24/02	15:39
NITRITE BY IC	001 MS	W	02LIC009	01/18/02	01/24/02	01/24/02	15:49
NITRATE BY IC	001	W	02LIC009	01/18/02	01/24/02	01/24/02	15:28
NITRATE BY IC	001 REP	W	02LIC009	01/18/02	01/24/02	01/24/02	15:39
NITRATE BY IC	001 MS	W	02LIC009	01/18/02	01/24/02	01/24/02	15:49
PHOSPHATE BY IC	001	W	02LIC009	01/18/02	01/24/02	01/24/02	12:29
PHOSPHATE BY IC	001 REP	W	02LIC009	01/18/02	01/24/02	01/24/02	14:49
PHOSPHATE BY IC	001 MS	W	02LIC009	01/18/02	01/24/02	01/24/02	15:17
SULFATE BY IC	001	W	02LIC009	01/18/02	01/24/02	01/24/02	
SULFATE BY IC	001 REP	W	02LIC009	01/18/02	01/24/02	01/24/02	
SULFATE BY IC	001 MS	W	02LIC009	01/18/02	01/24/02	01/24/02	
NITRATE NITRITE	001	W	02LN3B08	01/18/02	01/29/02	01/29/02	
NITRATE NITRITE	001 REP	W	02LN3B08	01/18/02	01/29/02	01/29/02	
NITRATE NITRITE	001 MS	W	02LN3B08	01/18/02	01/29/02	01/29/02	
TOTAL ORGANIC CARBON	001	W	02LTC008	01/18/02	02/01/02	02/01/02	
TOTAL ORGANIC CARBON	001 REP	W	02LTC008	01/18/02	02/01/02	02/01/02	
TOTAL ORGANIC CARBON	001 MS	W	02LTC008	01/18/02	02/01/02	02/01/02	
PH	001	W	02LPH004	01/18/02	01/25/02	01/25/02	09:40
PH	001 REP	W	02LPH004	01/18/02	01/25/02	01/25/02	09:45
TOTAL INORGANIC CARB	001	W	02LTCA08	01/18/02	02/01/02	02/01/02	

LAB QC:

ALKALINITY	MB1	W	02LAKA05	N/A	01/30/02	01/30/02
ALKALINITY	MB1 BS	W	02LAKA05	N/A	01/30/02	01/30/02
ALKALINITY	MB1 BSD	W	02LAKA05	N/A	01/30/02	01/30/02

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-114 H1671

DATE RECEIVED: 01/22/02 LVL LOT # :0201L823

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHLORIDE BY IC	MB1	W	02LIC009	N/A	01/24/02	01/24/02
CHLORIDE BY IC	MB1 BS	W	02LIC009	N/A	01/24/02	01/24/02
FLUORIDE BY IC	MB1	W	02LIC009	N/A	01/24/02	01/24/02
FLUORIDE BY IC	MB1 BS	W	02LIC009	N/A	01/24/02	01/24/02
NITRITE BY IC	MB1	W	02LIC009	N/A	01/24/02	01/24/02
NITRITE BY IC	MB1 BS	W	02LIC009	N/A	01/24/02	01/24/02
NITRATE BY IC	MB1	W	02LIC009	N/A	01/24/02	01/24/02
NITRATE BY IC	MB1 BS	W	02LIC009	N/A	01/24/02	01/24/02
PHOSPHATE BY IC	MB1	W	02LIC009	N/A	01/24/02	01/24/02
PHOSPHATE BY IC	MB1 BS	W	02LIC009	N/A	01/24/02	01/24/02
SULFATE BY IC	MB1	W	02LIC009	N/A	01/24/02	01/24/02
SULFATE BY IC	MB1 BS	W	02LIC009	N/A	01/24/02	01/24/02
NITRATE NITRITE	MB1	W	02LN3B08	N/A	01/29/02	01/29/02
NITRATE NITRITE	MB1 BS	W	02LN3B08	N/A	01/29/02	01/29/02
TOTAL ORGANIC CARBON	MB1	W	02LTC008	N/A	02/01/02	02/01/02
TOTAL ORGANIC CARBON	MB1 BS	W	02LTC008	N/A	02/01/02	02/01/02
TOTAL ORGANIC CARBON	MB1 BSD	W	02LTC008	N/A	02/01/02	02/01/02
TOTAL INORGANIC CARB	MB1	W	02LTCA08	N/A	02/01/02	02/01/02
TOTAL INORGANIC CARB	MB1 BS	W	02LTCA08	N/A	02/01/02	02/01/02
TOTAL INORGANIC CARB	MB1 BSD	W	02LTCA08	N/A	02/01/02	02/01/02

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-114 H1671
LVL#: 0201L823

W.O.#: 11343-606-001-9999-00
Date Received: 01-22-02

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 water sample.

2. The sample was prepared and analyzed in accordance with the methods checked on the attached glossary.

3. All results presented in this report are derived from samples that met LvLI's sample acceptance policy with the exception of cooler temperature that was recorded on the chain of as custody as well as the exceeded holding times for Nitrate, Nitrite, Phosphate and pH.

4. Sample holding times as required by the method and/or contract were met with the exception of those received past hold (see sample chronology summary for analysis times).

5. The method blanks were within the method criteria.

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

7. The matrix spike recoveries were within the 75-125% control limits.

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

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

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

02-07-02
Date

njp\i01-823

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of ~~20~~ 13 pages. 2/7/02

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

Lionville Laboratory Incorporated

WET CHEMISTRY

METHODS GLOSSARY FOR WATER SAMPLE ANALYSIS

	EPA /600	SW846	OTHER
Acidity	✓ 305.1		
✓ Alkalinity ___ Bicarbonate ___ Carbonate	✓ 310.1		
BOD	___ 405.1		___ 5210B (b)
Ion Chromatography:			
___ Bromide ✓ Chloride ✓ Fluoride	✓ 300.0	___ 9056	
✓ Nitrate ✓ Nitrite ✓ Phosphate	✓ 300.0	___ 9056	
✓ Sulfate ___ Formate ___ Acetate ___ Oxalate	✓ 300.0	___ 9056	
Chloride	___ 325.2	___ 9251	
Chorine, Residual	___ 330.5 (mod)		
Cyanide, Amenable to Chlorination	___ 335.2	___ 9010B	
Cyanide, Total	___ 335.2	___ 9010B ___ 9014	___ ILMO4.0 (e)
Cyanide, Weak Acid Dissociable		___	___ 412 (a) ___ 4500CN-I (b)
COD	___ 410.4(mod)		___ 5220C (b)
Color	___ 110.2		
Corrosivity by Coupon		___ 1110(mod)	
Chromium VI		___ 7196A	___ 3500Cr-D (b)
Fluoride	___ 340.2		___ 4500-FC
Hardness, Calcium	___ 215.2		
Hardness, Total	___ 130.2		
Iodide			___ ASTM D19P202 (1)
Surfactant	✓ 425.1		
✓ Nitrate-Nitrite ___ Nitrate ___ Nitrite	✓ 353.2		
Ammonia	___ 350.3		
Total ___ Kjeldahl ___ Organic Nitrogen	___ 351.3		
Total ✓ Organic ✓ Inorganic Carbon	✓ 415.1	___ 9060	
Oil & Grease	___ 413.1	___ 9070	
✓ pH ___ pH; paper	___ 150.1	✓ 9040B ___ 9041A	
Petroleum Hydrocarbons, Total Recoverable	___ 418.1		
Phenol	___ 420.1 ___ 420.2	___ 9065 ___ 9066	
___ Ortho ___ Total Phosphate	___ 365.2		___ 4500-P B ___ C
Salinity			___ 210A (a) ___ 2520 (b)
Settleable Solids	___ 160.5		
Sulfide	___ 376.1	___ 9030B/9034 (acid soluble)	
Reactive ___ Cyanide ___ Sulfide		___ Section 7.3 (___ 9014 ___ 9030B)	
Silica	___ 370.1		
Sulfite	___ 377.1		
Sulfate	___ 375.4	___ 9038	
Specific Conductance	___ 120.1	___ 9050A	
Specific Gravity			___ D5057-90 ___ 213E (a)
Synthetic Precipitation Leach	___ 1312		
Total ___ Dissolved ___ Suspended ___ Solids	160 ___.1 ___.2 ___.3		
Total Organic Halides	___ 450.1	___ 9020B	
Turbidity	___ 180.1		
Volatile Solids:			
___ Total ___ Dissolved ___ Suspended	___ 160.4		

Other: **Method:**

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

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

ANALYTICAL WET CHEMISTRY METHODS

1. ASTM Standard Methods.

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

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

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

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

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

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

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

f. Code of Federal Regulations.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/06/02

CLIENT: TNUHANFORD B01-114 H1671 LVL LOT #: 0201L823

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B12XL6	Alkalinity	143	MG/L	1.0	1.0
		Chloride by IC	32.0	MG/L	2.5	10.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	2.50 u	MG/L	2.50	10.0
		Nitrate by IC	93.1	MG/L	2.50	10.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	53.2	MG/L	2.5	10.0
		Nitrate Nitrite	21.5	MG/L	1.0	50.0
		Total Organic Carbon	2.3	MG/L	0.50	1.0
		pH	7.8	PH UNIT	0.01	1.0
		Total Inorganic Carbon	26.5	MG/L	0.50	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/06/02

CLIENT: TNUHANFORD B01-114 H1671 LVL LOT #: 0201L823

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	02LAKA05-MB1	Alkalinity	0.50 u	MG/L	0.50	1.0
BLANK10	02LIC009-MB1	Chloride by IC	0.25 u	MG/L	0.25	1.0
		Fluoride by IC	0.50 u	MG/L	0.50	1.0
		Nitrite by IC	0.25 u	MG/L	0.25	1.0
		Nitrate by IC	0.25 u	MG/L	0.25	1.0
		Phosphate by IC	0.25 u	MG/L	0.25	1.0
		Sulfate by IC	0.25 u	MG/L	0.25	1.0
BLANK10	02LN3B08-MB1	Nitrate Nitrite	0.020u	MG/L	0.020	1.0
BLANK10	02LTC008-MB1	Total Organic Carbon	0.50 u	MG/L	0.50	1.0
BLANK10	02LTCA08-MB1	Total Inorganic Carbon	0.50 u	MG/L	0.50	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 02/06/02

CLIENT: TNUHANFORD B01-114 H1671 LVL LOT #: 0201L823

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B12XL6	Chloride by IC	84.1	32.0	50.0	104.1	10.0
		Fluoride by IC	12.0	0.48	10.0	114.8	1.0
		Nitrite by IC	52.0	2.50u	50.0	103.9	10.0
		Nitrate by IC	197	93.1	100	103.9	20.0
		Phosphate by IC	5.3	0.25u	5.0	105.7	1.0
		Sulfate by IC	158	53.2	100	105.1	20.0
		Nitrate Nitrite	46.8	21.5	25.0	101.2	50.0
		Total Organic Carbon	7.4	2.3	5.0	101.8	1.0
BLANK10	02LAKA05-MB1	Alkalinity	100	0.50u	100	100.5	1.0
		Alkalinity MSD	101	0.50u	100	101.0	1.0
BLANK10	02LIC009-MB1	Chloride by IC	4.5	0.25u	5.0	90.3	1.0
		Fluoride by IC	10.6	0.50u	10.0	105.6	1.0
		Nitrite by IC	4.87	0.25u	5.00	97.4	1.0
		Nitrate by IC	4.70	0.25u	5.00	94.0	1.0
		Phosphate by IC	5.0	0.25u	5.0	99.6	1.0
		Sulfate by IC	4.6	0.25u	5.0	92.7	1.0
BLANK10	02LN3B08-MB1	Nitrate Nitrite	0.50	0.02u	0.50	100.6	1.0
BLANK10	02LTC008-MB1	Total Organic Carbon	5.4	0.50u	5.0	107.9	1.0
		Total Organic Carbon	5.2	0.50u	5.0	104.7	1.0
BLANK10	02LTCA08-MB1	Total Inorganic Carbon	5.4	0.50u	5.0	107.9	1.0
		Total Inorg. Carbon M	5.2	0.50u	5.0	104.7	1.0

Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 02/06/02

CLIENT: TNUHANFORD B01-114 H1671 LVL LOT #: 0201L823

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	02LAKA05-MB1	Alkalinity	100.5	101.0	0.50
BLANK10	02LTC008-MB1	Total Organic Carbon	107.9	104.7	3.1
BLANK10	02LTCA08-MB1	Total Inorg. Carbon	107.9	104.7	3.1

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 02/06/02

CLIENT: TNUHANFORD B01-114 H1671 LVL LOT #: 0201L823

WORK ORDER: 11343-606-001-9999-00

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B12XL6	Alkalinity	143	143	0.00	1.0
		Chloride by IC	32.0	32.4	1.3	10.0
		Fluoride by IC	0.50u	0.50u	NC	1.0
		Nitrite by IC	2.50u	2.50u	NC	10.0
		Nitrate by IC	93.1	90.5	2.9	10.0
		Phosphate by IC	0.25u	0.25u	NC	1.0
		Sulfate by IC	53.2	52.5	1.3	10.0
		Nitrate Nitrite	21.5	21.4	0.23	50.0
		Total Organic Carbon	2.3	2.3	3.6	1.0
		pH	7.8	7.8	0.4	1.0

Lionville Laboratory Use Only

0201L823

Custody Transfer Record/Lab Work Request

Page 1 of 1

VLI

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Client: TNU-HANFORD B01-114

Est. Final Proj. Sampling Date:

Project #: 11343-606-001-9999-00

Project Contact/Phone #:

Lionville Laboratory Project Manager: OJ

QC: SPEC Del: STD TAT: 30 days

Date Rec'd: 1-22-02 Date Due: 2-21-02

		A	C	D	E				F	G		H	I	J			
Refrigerator #		1		3					1	3		3	3	3			
#/Type Container	Liquid	3AG		2AG					1AG	1PL		1PL	1PL	1PL			
	Solid																
Volume	Liquid	40		1L					500	500		500	250	500			
	Solid																
Preservatives		HCL							H2SO4	HNO3		—	—	H2SO4			
ANALYSES REQUESTED		ORGANIC								INORG							
		VOA		BNA	Pest/PCB	Herb			TIC TOC	Metal	CN	IC Anions	Alka.	NO2 NO3			
		Lionville Laboratory Use Only															
		0624X		0625X					ITIC IOCT	MET ①		IC ① IPH	IACKL	INSNL			

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	0624X	0625X					ITIC IOCT	MET ①		IC ① IPH	IACKL	INSNL			
001	B12XL6	✓	✓	W	1-18-02	2041	X	X					X	X		X	X	X			

Special Instructions: SAF # B01-114

DATE/REVISIONS:

IC ① 1. ICCL, ICFL, ICNO3, ICNO2, ICPO4, ICSO4

MET ① 2. Cd, Ca, Cr, Fe, Mg, Ni, Na, Zn, P

3.

4.

5.

6.

Lionville Laboratory Use Only

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

Tamper Resistant Seal was:
1) Present on Outer Package Y or N
2) Unbroken on Outer Package Y or N
3) Present on Sample Y or N
4) Unbroken on Sample Y or N

COC Record Present Upon Sample Rec't Y or N

Cooler Temp. 10 °C

Discrepancies Between Samples Labels and COC Record? Y or N

NOTES: 4235 7955 0453

pH NO2, NO3, PO4 rec'd [illegible]

Relinquished by	Received by	Date	Time
FEDEX	[signature]	1-22-02	0940

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-114-04	Page 1 of 1

Collector Renee Nielson	**Company Contact** Virginia Rohay **Telephone No.** 372-9100	**Project Coordinator** TRENT, SJ	**Price Code** 7N **Data Turnaround** 45 Days
Project Designation PFP Well Installation Sampling and Analysis - Water	**Sampling Location** 200 West; Well Number C3803, Well Name 299-W15-42	**SAF No.** B01-114	**Air Quality** ☐
Ice Chest No. ERC 96 064	**Field Logbook No.** EL-1562 / **COA** T20ZP1D722	**Method of Shipment** Federal Express	
Shipped To TMA/RECRA RECRA	**Offsite Property No.** A020094	**Bill of Lading/Air Bill No.** 4235 7955 0453	

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation	None	Cool 4C	HCl to pH <2	HCl or H2SO4 to pH <2 Coo	Cool 4C	H2SO4 to pH <2 Cool 4C	HNO3 to pH <2	Cool 4C	HCl or ~~H2SO4~~ to pH <2 Coo (RIN 11/5/01)	HNO3 to pH <2
	Type of Container	P	P	P	aG	P	P	P	aG	aGs*	P
	No. of Container(s)	1	1	1	1	1	1	1	2	3	6
Special Handling and/or Storage	Volume	125mL	250mL	250mL	500mL	500mL	500mL	500mL	1000mL	40mL	1L
SAMPLE ANALYSIS		Tritium - H3	Alkalinity - 310.1	Technetium-99	TIC - 415.1M; TOC - 415.1	See item (1) in Special Instructions.	NO2/NO3 - 353.2	See item (2) in Special Instructions.	See item (3) in Special Instructions.	VOA - 8260A (TCL); VOA - 8260A (Add-On) (n-Butylbenzene)	See item (4) in Special Instructions.

Sample No.	Matrix *	Sample Date	Sample Time									
B12XL6	WATER	1/18/02	2041		X		X	X	X	X	X	X
												B12XL3

CHAIN OF POSSESSION — **Sign/Print Names**

Relinquished By	Date/Time	Received By	Date/Time
R. Nielson	1-19-02 0415	Steve Tn Ref # 2C	1/19/02 0415
REF 2C	12 02 1100	SJGALE	12/02 1100
ERC SJGALE	12/02 1100	FED EX	
FEDEX	1-22-02 0940	Carl Henry	1-22-02 0940

SPECIAL INSTRUCTIONS

The ERC acknowledges that the holding time for Nitrate Method 300.0 will not be met. The laboratory is to analyze pH within 24 hours of sample receipt. If a limited quantity of material is received, analyze in the order listed on the FSR.

(1) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; pH (Water) - 9040
(2) ICP Metals - 6010A (TAL) {Cadmium, Calcium, Chromium, Iron, Magnesium, Nickel, Sodium, Zinc}; ICP Metals - 6010A (Add-on) {Phosphorus}
(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {Tributyl phosphate}
(4) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60}; Gamma Spec - Add-on {Antimony-125, Ruthenium-106}; Americium-241; Neptunium-237; Isotopic Plutonium; Strontium-89,90 -- Total Sr; Isotopic Uranium

SAMPLES STORED IN REF.#2C AT THE 3728 SHIPPING FACILITY ON 1/18/02. COLLECTOR NOT AVAILABLE TO RELINQUISH SAMPLES ON 1/22/02 FOR SHIPMENT.

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

LABORATORY SECTION	Received By	Title	
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (10/99)

Figure 1. Sample Check-in List

Date/Time Received: 1-22-02 0940

SDG#: 02011823

Work Order Number: _____ SAF# B01-113

Shipping Container ID: ERC96-064 Chain of Custody # B01-113-37

1. Custody Seals on shipping container intact? Yes [✓] No [ ]
2. Custody Seals dated and signed? Yes [✓] No [ ]
3. Chain-of-Custody record present? Yes [✓] No [ ]
4. Cooler temperature 10°
5. Vermiculite/packing materials is Wet [ ] Dry [✓]
6. Number of samples in shipping container: 10
7. Sample holding times exceeded? Yes [ ] No [✓]

8. Samples have:
   - ✓ tape
   - ✓ custody seals
   - ____ hazard labels
   - ____ appropriate sample labels

9. Samples are:
   - ✓ in good condition
   - ____ broken
   - ____ leaking
   - ____ have air bubbles

10. Were any anomalies identified in sample receipt? Yes [ ] No [✓]
11. Description of anomalies (include sample numbers): _____

Sample Custodian/Laboratory: [signature] Date: 1-22-02

Telephoned to: _____ On _____ By _____