1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H1214 was composed of one other liquid sample designated under SAF No. B01-022 with a Project Designation of: 105-D & 105-H Rx Waste Sampling – Other Liquid. SDG H1214 is in units of picoCurie per milliliter (pCi/mL).

The sample was 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 February 8, 2001.

2.0 ANALYSIS NOTES

2.1 Tritium Analyses

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analyses

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analyses

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analyses

No problems were encountered during the course of the analyses.

2.5 Isotopic Thorium Analyses

There was contamination in the method blank from Th-230 (0.516 pCi/mL). The activity is probably from degraded Th-229 tracer counts in the Th-230 region of interest (energy region) and not Th-230. The activity was below the RDL (1.0 pCi/mL). No other problems were encountered during the course of the analyses.

2.6 Isotopic Uranium Analyses

No problems were encountered during the course of the analyses.

2.7 Neptunium-237 Analyses

No problems were encountered during the course of the analyses.

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JUN 11 2001
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2.8 Isotopic Plutonium Analyses

The RPD difference between sample B118H5 and its sample duplicate was 182% for Pu-239/240, greater than the 3σ limit of 146%. The difference between sample B118H5 and its duplicate is less than 2-times the RDL (1 pCi/mL). No other problems were encountered during the course of the analyses.

2.9 Americium-241 Analyses

No problems were encountered during the course of the analyses.

2.10 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 C. Mannion
Program Manager

Date

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

SAMPLE SUMMARY

SDG 7611
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1214

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B118H2	105D Reactor Room 113C	LIQUID		R101096-01	B01-022	B01-022-02	01/12/01 09:00
B118H3	105D Reactor Room 113C	LIQUID		R101096-02	B01-022	B01-022-02	01/12/01 09:17
B118H4	105D Reactor Room 113C	LIQUID		R101096-03	B01-022	B01-022-02	01/12/01 10:05
B118H5	105D Reactor Room 113C	LIQUID		R101096-04	B01-022	B01-022-02	01/12/01 10:32
B118H6	105D Reactor Room 113C	LIQUID		R101096-05	B01-022	B01-022-02	01/12/01 10:32
Method Blank		LIQUID		R101096-06	B01-022		
Lab Control Sample		LIQUID		R101096-08	B01-022		
Duplicate (R101096-04)	105D Reactor Room 113C	LIQUID		R101096-07	B01-022		01/12/01 10:32

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

QC SUMMARY

SDG 7611
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1214

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
7611	B01-022-02	B118H2	LIQUID				01/18/01	6	R101096-01	7611-001
		B118H3	LIQUID				01/18/01	6	R101096-02	7611-002
		B118H4	LIQUID				01/18/01	6	R101096-03	7611-003
		B118H5	LIQUID				01/18/01	6	R101096-04	7611-004
		B118H6	LIQUID				01/18/01	6	R101096-05	7611-005
		Method Blank	LIQUID						R101096-06	7611-006
		Lab Control Sample	LIQUID						R101096-08	7611-008
		Duplicate (R101096-04)	LIQUID				01/18/01	6	R101096-07	7611-007

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
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Report date 02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

PREP BATCH SUMMARY

SDG 7611
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1214

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Alpha Spectroscopy												
AM	LIQUID	Americium 241 in Liquid	6963-073	5.0	5			1	1	1/1		
NP	LIQUID	Neptunium in liquids	6963-073	5.0	5			1	1	1/1		
PU	LIQUID	Plutonium-238,239/240, Liquid	6963-073	5.0	5			1	1	1/1		
TH	LIQUID	Thorium, Isotopic in Liquid	6963-073	5.0	5			1	1	1/1		
U	LIQUID	Uranium in Liquid	6963-073	5.0	5			1	1	1/1		
Beta Counting												
SR	LIQUID	Total Strontium in Liquids	6963-073	10.0	5			1	1	1/1		
Gamma Spectroscopy												
GAM	LIQUID	Gamma Scan in Liquid	6963-073	10.0	5			1	1	1/1		
Liquid Scintillation Counting												
C	LIQUID	Carbon 14 in Liquid	6963-073	10.0	5			1	1	1/1		
H	LIQUID	Tritium in Liquid	6963-073	10.0	5			1	1	1/1		
NI_L	LIQUID	Nickel-63 in Liquid	6963-073	10.0	5			1	1	1/1		

Duplicates and Matrix Spikes are those with original (Client) sample in this Sample Delivery Group.
Blank and LCS planchets are those in the same preparation batch as some Client, Duplicate or Spike sample.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-PBS
Version 3.06
Report date 02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

WORK SUMMARY

SDG 7611
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1214

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B118H2			R101096-01	7611-001	AM		01/31/01	02/08/01	MCM	Americium 241 in Liquid
105D Reactor Room 113C		LIQUID	01/12/01	7611-001	C		01/27/01	02/08/01	MCM	Carbon 14 in Liquid
B01-022-02	B01-022		01/18/01	7611-001	GAM		01/24/01	02/08/01	MCM	Gamma Scan in Liquid
				7611-001	H		01/26/01	02/08/01	MCM	Tritium in Liquid
				7611-001	NI_L		01/25/01	02/08/01	MCM	Nickel-63 in Liquid
				7611-001	NP		01/31/01	02/08/01	MCM	Neptunium in liquids
				7611-001	PU		01/31/01	02/08/01	MCM	Plutonium-238,239/240, Liquid
				7611-001	SR		01/24/01	02/08/01	MCM	Total Strontium in Liquids
				7611-001	TH		01/30/01	02/08/01	MCM	Thorium, Isotopic in Liquid
				7611-001	U		01/31/01	02/08/01	MCM	Uranium in Liquid
B118H3			R101096-02	7611-002	AM		02/01/01	02/08/01	MCM	Americium 241 in Liquid
105D Reactor Room 113C		LIQUID	01/12/01	7611-002	C		01/27/01	02/08/01	MCM	Carbon 14 in Liquid
B01-022-02	B01-022		01/18/01	7611-002	GAM		01/24/01	02/08/01	MCM	Gamma Scan in Liquid
				7611-002	H		01/26/01	02/08/01	MCM	Tritium in Liquid
				7611-002	NI_L		01/25/01	02/08/01	MCM	Nickel-63 in Liquid
				7611-002	NP		01/31/01	02/08/01	MCM	Neptunium in liquids
				7611-002	PU		01/31/01	02/08/01	MCM	Plutonium-238,239/240, Liquid
				7611-002	SR		01/24/01	02/08/01	MCM	Total Strontium in Liquids
				7611-002	TH		01/30/01	02/08/01	MCM	Thorium, Isotopic in Liquid
				7611-002	U		01/31/01	02/08/01	MCM	Uranium in Liquid
B118H4			R101096-03	7611-003	AM		02/01/01	02/08/01	MCM	Americium 241 in Liquid
105D Reactor Room 113C		LIQUID	01/12/01	7611-003	C		01/27/01	02/08/01	MCM	Carbon 14 in Liquid
B01-022-02	B01-022		01/18/01	7611-003	GAM		01/24/01	02/08/01	MCM	Gamma Scan in Liquid
				7611-003	H		01/26/01	02/08/01	MCM	Tritium in Liquid
				7611-003	NI_L		01/25/01	02/08/01	MCM	Nickel-63 in Liquid
				7611-003	NP		01/31/01	02/08/01	MCM	Neptunium in liquids
				7611-003	PU		01/31/01	02/08/01	MCM	Plutonium-238,239/240, Liquid
				7611-003	SR		01/24/01	02/08/01	MCM	Total Strontium in Liquids
				7611-003	TH		01/31/01	02/08/01	MCM	Thorium, Isotopic in Liquid
				7611-003	U		01/31/01	02/08/01	MCM	Uranium in Liquid

Lab id TMANC
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TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

SDG 7611
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1214

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B118H5			R101096-04	7611-004	AM		02/01/01	02/08/01	MCM	Americium 241 in Liquid
105D Reactor Room 113C		LIQUID	01/12/01	7611-004	C		01/27/01	02/08/01	MCM	Carbon 14 in Liquid
B01-022-02	B01-022		01/18/01	7611-004	GAM		01/24/01	02/08/01	MCM	Gamma Scan in Liquid
				7611-004	H		01/26/01	02/08/01	MCM	Tritium in Liquid
				7611-004	NI_L		01/25/01	02/08/01	MCM	Nickel-63 in Liquid
				7611-004	NP		01/31/01	02/08/01	MCM	Neptunium in liquids
				7611-004	PU		01/31/01	02/08/01	MCM	Plutonium-238,239/240, Liquid
				7611-004	SR		01/24/01	02/08/01	MCM	Total Strontium in Liquids
				7611-004	TH		02/01/01	02/08/01	MCM	Thorium, Isotopic in Liquid
				7611-004	U		01/31/01	02/08/01	MCM	Uranium in Liquid
B118H6			R101096-05	7611-005	AM		02/06/01	02/08/01	MCM	Americium 241 in Liquid
105D Reactor Room 113C		LIQUID	01/12/01	7611-005	C		01/27/01	02/08/01	MCM	Carbon 14 in Liquid
B01-022-02	B01-022		01/18/01	7611-005	GAM		01/24/01	02/08/01	MCM	Gamma Scan in Liquid
				7611-005	H		01/26/01	02/08/01	MCM	Tritium in Liquid
				7611-005	NI_L		01/25/01	02/08/01	MCM	Nickel-63 in Liquid
				7611-005	NP		01/31/01	02/08/01	MCM	Neptunium in liquids
				7611-005	PU		01/31/01	02/08/01	MCM	Plutonium-238,239/240, Liquid
				7611-005	SR		01/24/01	02/08/01	MCM	Total Strontium in Liquids
				7611-005	TH		01/30/01	02/08/01	MCM	Thorium, Isotopic in Liquid
				7611-005	U		01/31/01	02/08/01	MCM	Uranium in Liquid
Method Blank			R101096-06	7611-006	AM		02/01/01	02/08/01	MCM	Americium 241 in Liquid
		LIQUID		7611-006	C		01/27/01	02/08/01	MCM	Carbon 14 in Liquid
	B01-022			7611-006	GAM		01/24/01	02/08/01	MCM	Gamma Scan in Liquid
				7611-006	H		01/26/01	02/08/01	MCM	Tritium in Liquid
				7611-006	NI_L		01/25/01	02/08/01	MCM	Nickel-63 in Liquid
				7611-006	NP		02/01/01	02/08/01	MCM	Neptunium in liquids
				7611-006	PU		02/01/01	02/08/01	MCM	Plutonium-238,239/240, Liquid
				7611-006	SR		01/24/01	02/08/01	MCM	Total Strontium in Liquids
				7611-006	TH		01/30/01	02/08/01	MCM	Thorium, Isotopic in Liquid
				7611-006	U		01/31/01	02/08/01	MCM	Uranium in Liquid

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

SDG 7611
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1214

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
Lab Control Sample			R101096-08	7611-008	AM		02/01/01	02/08/01	MCM	Americium 241 in Liquid
		LIQUID		7611-008	C		01/27/01	02/08/01	MCM	Carbon 14 in Liquid
	B01-022			7611-008	GAM		01/24/01	02/08/01	MCM	Gamma Scan in Liquid
				7611-008	H		01/26/01	02/08/01	MCM	Tritium in Liquid
				7611-008	NI_L		01/25/01	02/08/01	MCM	Nickel-63 in Liquid
				7611-008	NP		02/01/01	02/08/01	MCM	Neptunium in liquids
				7611-008	PU		02/01/01	02/08/01	MCM	Plutonium-238,239/240, Liquid
				7611-008	SR		01/24/01	02/08/01	MCM	Total Strontium in Liquids
				7611-008	TH		02/01/01	02/08/01	MCM	Thorium, Isotopic in Liquid
				7611-008	U		01/31/01	02/08/01	MCM	Uranium in Liquid
Duplicate (R101096-04)			R101096-07	7611-007	AM		02/01/01	02/08/01	MCM	Americium 241 in Liquid
105D Reactor Room 113C		LIQUID	01/12/01	7611-007	C		01/27/01	02/08/01	MCM	Carbon 14 in Liquid
	B01-022		01/18/01	7611-007	GAM		01/24/01	02/08/01	MCM	Gamma Scan in Liquid
				7611-007	H		01/26/01	02/08/01	MCM	Tritium in Liquid
				7611-007	NI_L		01/25/01	02/08/01	MCM	Nickel-63 in Liquid
				7611-007	NP		02/01/01	02/08/01	MCM	Neptunium in liquids
				7611-007	PU		02/01/01	02/08/01	MCM	Plutonium-238,239/240, Liquid
				7611-007	SR		01/24/01	02/08/01	MCM	Total Strontium in Liquids
				7611-007	TH		01/30/01	02/08/01	MCM	Thorium, Isotopic in Liquid
				7611-007	U		01/31/01	02/08/01	MCM	Uranium in Liquid

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

SDG 7611
Contact Melissa C. Mannion

WORK SUMMARY, cont.

Client Hanford
Contract TRC-SBB-207925
Case no SDG H1214

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
AM	B01-022	Americium 241 in Liquid	AMCMISO_IE_PLATE_AEA	5			1	1	1	8
C	B01-022	Carbon 14 in Liquid	C14_COX_LSC	5			1	1	1	8
GAM	B01-022	Gamma Scan in Liquid	GAMMA_GS	5			1	1	1	8
H	B01-022	Tritium in Liquid	TRITIUM_COX_LSC	5			1	1	1	8
NI_L	B01-022	Nickel-63 in Liquid	NI63_LSC	5			1	1	1	8
NP	B01-022	Neptunium in liquids	NP237_LLE_PLATE_AEA	5			1	1	1	8
PU	B01-022	Plutonium-238,239/240, Liquid	PUISO_PLATE_AEA	5			1	1	1	8
SR	B01-022	Total Strontium in Liquids	SRTOT_SEP_PRECIP_GPC	5			1	1	1	8
TH	B01-022	Thorium, Isotopic in Liquid	THISO_IE_PLATE_AEA	5			1	1	1	8
U	B01-022	Uranium in Liquid	UISO_PLATE_AEA	5			1	1	1	8
TOTALS				50			10	10	10	80

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 02/08/01

TMA / RICHMOND
SAMPLE DELIVERY GROUP H1214

R101096-06

Method Blank

METHOD BLANK

SDG	7611	Client/Case no	Hanford	SDG_H1214	
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925		
Lab sample id	R101096-06	Client sample id	Method Blank		
Dept sample id	7611-006	Material/Matrix		LIQUID	
		SAF No	B01-022		

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Tritium	10028-17-8	-33.5	48	84	400	U	H
Carbon 14	14762-75-5	-1.86	41	70	50	U	C
Nickel 63	13981-37-8	-0.665	1.3	2.2	30	U	NI_L
Total Strontium	SR-RAD	0.039	0.19	0.38	1.0	U	SR
Thorium 228	14274-82-9	0.086	0.17	0.33	1.0	U	TH
Thorium 230	14269-63-7	0.516	0.43	0.33	1.0	J	TH
Thorium 232	TH-232	0	0.086	0.33	1.0	U	TH
Uranium 233	U-233/234	0	0.049	0.19	1.0	U	U
Uranium 235	15117-96-1	0.029	0.059	0.23	1.0	U	U
Uranium 238	U-238	0	0.049	0.19	1.0	U	U
Neptunium 237	13994-20-2	-0.062	0.12	0.47	1.0	U	NP
Plutonium 238	13981-16-3	-0.011	0.027	0.054	1.0	U	PU
Plutonium 239/240	PU-239/240	0.005	0.022	0.042	1.0	U	PU
Americium 241	14596-10-2	0.044	0.088	0.13	1.0	U	AM
Potassium 40	13966-00-2	U		0.27		U	GAM
Cobalt 60	10198-40-0	U		0.020	0.050	U	GAM
Barium 133	13981-41-4	U		0.018		U	GAM
Cesium 137	10045-97-3	U		0.018	0.10	U	GAM
Radium 226	13982-63-3	U		0.033	0.10	U	GAM
Radium 228	15262-20-1	U		0.071	0.20	U	GAM
Europium 152	14683-23-9	U		0.044	0.10	U	GAM
Europium 154	15585-10-1	U		0.063	0.10	U	GAM
Europium 155	14391-16-3	U		0.044	0.10	U	GAM
Thorium 228	14274-82-9	U		0.025		U	GAM
Thorium 232	TH-232	U		0.071		U	GAM
Uranium 235	15117-96-1	U		0.063		U	GAM
Uranium 238	U-238	U		1.9		U	GAM
Americium 241	14596-10-2	U		0.061		U	GAM

105-D & 105-H Rx Waste Sampling - OL

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/08/01

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1214

Method Blank

BLANK, cont.

SDG	7611	Client/Case no	Hanford	SDG H1214
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925	
Lab sample id	R101096-06	Client sample id	Method Blank	
Dept sample id	7611-006	Material/Matrix		LIQUID
		SAF No	B01-022	

QC-BLANK 37339

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

R101096-08

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7611
Contact Melissa C. Mannion

Client/Case no Hanford SDG H1214
Case no TRC-SBB-207925

Lab sample id R101096-08
Dept sample id 7611-008

Client sample id Lab Control Sample
Material/Matrix LIQUID
SAF No B01-022

ANALYTE	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST	ADDED pCi/mL	2σ ERR pCi/mL	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	20600	280	84	400		H	21400	860	96	84-116	80-120
Carbon 14	145000	2900	420	50		C	164000	6600	88	85-115	80-120
Nickel 63	226	4.9	2.6	30		NI_L	235	9.4	96	84-116	80-120
Total Strontium	24.3	0.87	0.25	1.0		SR	22.3	0.89	109	82-118	80-120
Thorium 230	45.6	1.6	0.30	1.0	B	TH	41.3	1.7	110	88-112	80-120
Uranium 233	17.4	1.7	0.84	1.0		U	18.8	0.75	93	84-116	80-120
Uranium 235	14.3	1.5	0.20	1.0		U	15.3	0.61	93	83-117	80-120
Uranium 238	18.1	1.7	0.80	1.0		U	20.4	0.82	89	85-115	80-120
Neptunium 237	19.0	1.9	0.36	1.0		NP	21.5	0.86	88	84-116	80-120
Plutonium 238	25.7	0.88	0.035	1.0		PU	25.1	1.0	102	89-111	80-120
Plutonium 239/240	27.8	0.94	0.024	1.0		PU	26.7	1.1	104	89-111	80-120
Americium 241	21.1	1.4	0.14	1.0		AM	19.4	0.78	109	85-115	80-120
Cobalt 60	0.540	0.041	0.020	0.050		GAM	0.495	0.020	109	79-121	80-120
Cesium 137	0.559	0.034	0.023	0.10		GAM	0.497	0.020	112	79-121	80-120

105-D & 105-H Rx Waste Sampling - OL

QC-LCS 37341

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

R101096-07 B118H5

DUPLICATE

SDG 7611		Client/Case no Hanford	SDG H1214
Contact Melissa C. Mannion		Case no TRC-SBB-207925	
DUPLICATE	ORIGINAL		
Lab sample id R101096-07	Lab sample id R101096-04	Client sample id B118H5	
Dept sample id 7611-007	Dept sample id 7611-004	Location/Matrix 105D Reactor Room 113C	LIQUID
	Received 01/18/01	Collected 01/12/01 10:32	
		Custody/SAF No B01-022-02	B01-022

ANALYTE	DUPLICATE pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST	ORIGINAL pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Tritium	-11.6	52	89	400	U	H	-20.0	49	84	U	-	
Carbon 14	-15.4	45	77	50	U	C	-25.0	41	71	U	-	
Nickel 63	-0.624	1.4	2.3	30	U	NI_L	0.424	1.4	2.3	U	-	
Total Strontium	-0.154	0.14	0.34	1.0	U	SR	-0.070	0.11	0.23	U	-	
Thorium 228	0	0.11	0.41	1.0	U	TH	-0.028	0.074	0.16	U	-	
Thorium 230	0.647	0.43	0.41	1.0	JB	TH	0.749	0.24	0.30	JB	15	106
Thorium 232	0	0.11	0.41	1.0	U	TH	-0.009	0.018	0.071	U	-	
Uranium 233	-0.029	0.058	0.22	1.0	U	U	-0.025	0.051	0.19	U	-	
Uranium 235	0	0.070	0.27	1.0	U	U	0	0.062	0.24	U	-	
Uranium 238	0.029	0.058	0.22	1.0	U	U	0	0.051	0.19	U	-	
Neptunium 237	0.184	0.37	0.59	1.0	U	NP	0	0.056	0.13	U	-	
Plutonium 238	0.012	0.019	0.038	1.0	U	PU	0	0.057	0.22	U	-	
Plutonium 239/240	0.022	0.019	0.030	1.0	U	PU	0.456	0.23	0.22	J	182	146
Americium 241	0.027	0.072	0.12	1.0	U	AM	0	0.049	0.078	U	-	
Potassium 40	U		0.098		U	GAM	U		0.25	U	-	
Cobalt 60	U		0.008	0.050	U	GAM	U		0.017	U	-	
Barium 133	U		0.008		U	GAM	U		0.015	U	-	
Cesium 137	U		0.008	0.10	U	GAM	U		0.012	U	-	
Radium 226	U		0.016	0.10	U	GAM	U		0.028	U	-	
Radium 228	U		0.033	0.20	U	GAM	U		0.063	U	-	
Europium 152	U		0.021	0.10	U	GAM	U		0.040	U	-	
Europium 154	U		0.024	0.10	U	GAM	U		0.031	U	-	
Europium 155	U		0.018	0.10	U	GAM	U		0.048	U	-	
Thorium 228	U		0.011		U	GAM	U		0.020	U	-	
Thorium 232	U		0.033		U	GAM	U		0.063	U	-	
Uranium 235	U		0.028		U	GAM	U		0.054	U	-	
Uranium 238	U		0.87		U	GAM	U		1.8	U	-	
Americium 241	U		0.028		U	GAM	U		0.10	U	-	

105-D & 105-H Rx Waste Sampling - OL

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 02/08/01

DUPLICATE, cont.

SDG 7611		Client/Case no Hanford	SDG H1214
Contact Melissa C. Mannion		Case no TRC-SBB-207925	
DUPLICATE	ORIGINAL		
Lab sample id R101096-07	Lab sample id R101096-04	Client sample id B118H5	
Dept sample id 7611-007	Dept sample id 7611-004	Location/Matrix 105D Reactor Room 113C	LIQUID
	Received 01/18/01	Collected 01/12/01 10:32	
		Custody/SAF No B01-022-02	B01-022

QC-DUP#4 37340

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

R101096-01 **B118H2**

DATA SHEET

SDG	7611	Client/Case no	Hanford SDG_H1214
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R101096-01	Client sample id	B118H2
Dept sample id	7611-001	Location/Matrix	105D Reactor Room 113C LIQUID
Received	01/18/01	Collected	01/12/01 09:00
		Custody/SAF No	B01-022-02 B01-022

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Tritium	10028-17-8	-26.9	48	83	400	U	H
Carbon 14	14762-75-5	49.5	43	70	50	U	C
Nickel 63	13981-37-8	-0.297	1.4	2.3	30	U	NI_L
Total Strontium	SR-RAD	-0.083	0.12	0.25	1.0	U	SR
Thorium 228	14274-82-9	0.099	0.40	0.76	1.0	U	TH
Thorium 230	14269-63-7	0.099	0.40	0.76	1.0	U	TH
Thorium 232	TH-232	0.099	0.20	0.76	1.0	U	TH
Uranium 233	U-233/234	-0.040	0.081	0.31	1.0	U	U
Uranium 235	15117-96-1	0	0.098	0.37	1.0	U	U
Uranium 238	U-238	0.040	0.081	0.31	1.0	U	U
Neptunium 237	13994-20-2	-0.028	0.084	0.22	1.0	U	NP
Plutonium 238	13981-16-3	0	0.067	0.25	1.0	U	PU
Plutonium 239/240	PU-239/240	0.033	0.067	0.25	1.0	U	PU
Americium 241	14596-10-2	0.064	0.091	0.13	1.0	U	AM
Potassium 40	13966-00-2	U		0.20		U	GAM
Cobalt 60	10198-40-0	U		0.026	0.050	U	GAM
Barium 133	13981-41-4	U		0.016		U	GAM
Cesium 137	10045-97-3	U		0.017	0.10	U	GAM
Radium 226	13982-63-3	U		0.031	0.10	U	GAM
Radium 228	15262-20-1	U		0.078	0.20	U	GAM
Europium 152	14683-23-9	U		0.042	0.10	U	GAM
Europium 154	15585-10-1	U		0.047	0.10	U	GAM
Europium 155	14391-16-3	U		0.023	0.10	U	GAM
Thorium 228	14274-82-9	U		0.017		U	GAM
Thorium 232	TH-232	U		0.078		U	GAM
Uranium 235	15117-96-1	U		0.036		U	GAM
Uranium 238	U-238	U		2.3		U	GAM
Americium 241	14596-10-2	U		0.016		U	GAM

105-D & 105-H Rx Waste Sampling - OL

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/08/01

TMA/RICHMOND
SAMPLE DELIVERY GROUP H1214

R101096-02 B118H3

DATA SHEET

SDG	7611	Client/Case no	Hanford SDG_H1214
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R101096-02	Client sample id	B118H3
Dept sample id	7611-002	Location/Matrix	105D Reactor Room 113C LIQUID
Received	01/18/01	Collected	01/12/01 09:17
		Custody/SAF No	B01-022-02 B01-022

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Tritium	10028-17-8	47.6	42	69	400	U	H
Carbon 14	14762-75-5	45.2	37	60	50	U	C
Nickel 63	13981-37-8	-0.316	1.4	2.3	30	U	NI_L
Total Strontium	SR-RAD	-0.014	0.17	0.36	1.0	U	SR
Thorium 228	14274-82-9	0.066	0.26	0.63	1.0	U	TH
Thorium 230	14269-63-7	0.329	0.40	0.50	1.0	U	TH
Thorium 232	TH-232	0.066	0.13	0.50	1.0	U	TH
Uranium 233	U-233/234	-0.036	0.073	0.28	1.0	U	U
Uranium 235	15117-96-1	0	0.088	0.34	1.0	U	U
Uranium 238	U-238	0	0.072	0.28	1.0	U	U
Neptunium 237	13994-20-2	0	0.13	0.27	1.0	U	NP
Plutonium 238	13981-16-3	0	0.070	0.27	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.070	0.27	1.0	U	PU
Americium 241	14596-10-2	0.043	0.037	0.034	1.0	J	AM
Potassium 40	13966-00-2	U		0.37		U	GAM
Cobalt 60	10198-40-0	U		0.020	0.050	U	GAM
Barium 133	13981-41-4	U		0.019		U	GAM
Cesium 137	10045-97-3	U		0.018	0.10	U	GAM
Radium 226	13982-63-3	U		0.036	0.10	U	GAM
Radium 228	15262-20-1	U		0.074	0.20	U	GAM
Europium 152	14683-23-9	U		0.050	0.10	U	GAM
Europium 154	15585-10-1	U		0.059	0.10	U	GAM
Europium 155	14391-16-3	U		0.049	0.10	U	GAM
Thorium 228	14274-82-9	U		0.025		U	GAM
Thorium 232	TH-232	U		0.074		U	GAM
Uranium 235	15117-96-1	U		0.069		U	GAM
Uranium 238	U-238	U		2.2		U	GAM
Americium 241	14596-10-2	U		0.061		U	GAM

105-D & 105-H Rx Waste Sampling - OL

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/08/01

TMA / RICHMOND
SAMPLE DELIVERY GROUP H1214

R101096-03

B118H4

DATA SHEET

SDG	7611	Client/Case no	Hanford SDG H1214
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R101096-03	Client sample id	B118H4
Dept sample id	7611-003	Location/Matrix	105D Reactor Room 113C LIQUID
Received	01/18/01	Collected	01/12/01 10:05
		Custody/SAF No	B01-022-02 B01-022

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Tritium	10028-17-8	32.4	40	67	400	U	H
Carbon 14	14762-75-5	41.9	41	67	50	U	C
Nickel 63	13981-37-8	-0.136	1.4	2.4	30	U	NI_L
Total Strontium	SR-RAD	-0.099	0.15	0.34	1.0	U	SR
Thorium 228	14274-82-9	-0.043	0.17	0.47	1.0	U	TH
Thorium 230	14269-63-7	0.640	0.43	0.33	1.0	JB	TH
Thorium 232	TH-232	-0.043	0.085	0.33	1.0	U	TH
Uranium 233	U-233/234	-0.037	0.074	0.28	1.0	U	U
Uranium 235	15117-96-1	0	0.089	0.34	1.0	U	U
Uranium 238	U-238	0	0.074	0.28	1.0	U	U
Neptunium 237	13994-20-2	0	0.067	0.16	1.0	U	NP
Plutonium 238	13981-16-3	0	0.049	0.19	1.0	U	PU
Plutonium 239/240	PU-239/240	0.049	0.049	0.19	1.0	U	PU
Americium 241	14596-10-2	0.030	0.034	0.032	1.0	U	AM
Potassium 40	13966-00-2	U		0.11		U	GAM
Cobalt 60	10198-40-0	U		0.009	0.050	U	GAM
Barium 133	13981-41-4	U		0.009		U	GAM
Cesium 137	10045-97-3	U		0.009	0.10	U	GAM
Radium 226	13982-63-3	U		0.017	0.10	U	GAM
Radium 228	15262-20-1	U		0.038	0.20	U	GAM
Europium 152	14683-23-9	U		0.023	0.10	U	GAM
Europium 154	15585-10-1	U		0.031	0.10	U	GAM
Europium 155	14391-16-3	U		0.022	0.10	U	GAM
Thorium 228	14274-82-9	U		0.012		U	GAM
Thorium 232	TH-232	U		0.038		U	GAM
Uranium 235	15117-96-1	U		0.031		U	GAM
Uranium 238	U-238	U		0.97		U	GAM
Americium 241	14596-10-2	U		0.032		U	GAM

105-D & 105-H Rx Waste Sampling - OL

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/08/01

TMA / RICHMOND

SAMPLE DELIVERY GROUP H1214

R101096-04 B118H5

DATA SHEET

SDG	7611	Client/Case no	Hanford SDG_H1214
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R101096-04	Client sample id	B118H5
Dept sample id	7611-004	Location/Matrix	105D Reactor Room 113C LIQUID
Received	01/18/01	Collected	01/12/01 10:32
		Custody/SAF No	B01-022-02 B01-022

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Tritium	10028-17-8	-20.0	49	84	400	U	H
Carbon 14	14762-75-5	-25.0	41	71	50	U	C
Nickel 63	13981-37-8	0.424	1.4	2.3	30	U	NI_L
Total Strontium	SR-RAD	-0.070	0.11	0.23	1.0	U	SR
Thorium 228	14274-82-9	-0.028	0.074	0.16	1.0	U	TH
Thorium 230	14269-63-7	0.749	0.24	0.30	1.0	JB	TH
Thorium 232	TH-232	-0.009	0.018	0.071	1.0	U	TH
Uranium 233	U-233/234	-0.025	0.051	0.19	1.0	U	U
Uranium 235	15117-96-1	0	0.062	0.24	1.0	U	U
Uranium 238	U-238	0	0.051	0.19	1.0	U	U
Neptunium 237	13994-20-2	0	0.056	0.13	1.0	U	NP
Plutonium 238	13981-16-3	0	0.057	0.22	1.0	U	PU
Plutonium 239/240	PU-239/240	0.456	0.23	0.22	1.0	J	PU
Americium 241	14596-10-2	0	0.049	0.078	1.0	U	AM
Potassium 40	13966-00-2	U		0.25		U	GAM
Cobalt 60	10198-40-0	U		0.017	0.050	U	GAM
Barium 133	13981-41-4	U		0.015		U	GAM
Cesium 137	10045-97-3	U		0.012	0.10	U	GAM
Radium 226	13982-63-3	U		0.028	0.10	U	GAM
Radium 228	15262-20-1	U		0.063	0.20	U	GAM
Europium 152	14683-23-9	U		0.040	0.10	U	GAM
Europium 154	15585-10-1	U		0.031	0.10	U	GAM
Europium 155	14391-16-3	U		0.048	0.10	U	GAM
Thorium 228	14274-82-9	U		0.020		U	GAM
Thorium 232	TH-232	U		0.063		U	GAM
Uranium 235	15117-96-1	U		0.054		U	GAM
Uranium 238	U-238	U		1.8		U	GAM
Americium 241	14596-10-2	U		0.10		U	GAM

105-D & 105-H Rx Waste Sampling - OL

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/08/01

TMA / RICHMOND
SAMPLE DELIVERY GROUP H1214

R101096-05 B118H6

DATA SHEET

SDG	7611	Client/Case no	Hanford SDG_H1214
Contact	Melissa C. Mannion	Contract	TRC-SBB-207925
Lab sample id	R101096-05	Client sample id	B118H6
Dept sample id	7611-005	Location/Matrix	105D Reactor Room 113C LIQUID
Received	01/18/01	Collected	01/12/01 10:32
		Custody/SAF No	B01-022-02 B01-022

ANALYTE	CAS NO	RESULT pCi/mL	2σ ERR (COUNT)	MDA pCi/mL	RDL pCi/mL	QUALI-FIERS	TEST
Tritium	10028-17-8	-20.0	49	84	400	U	H
Carbon 14	14762-75-5	41.7	42	69	50	U	C
Nickel 63	13981-37-8	-0.037	1.4	2.3	30	U	NI_L
Total Strontium	SR-RAD	0.015	0.17	0.36	1.0	U	SR
Thorium 228	14274-82-9	-0.139	0.56	1.5	1.0	U	TH
Thorium 230	14269-63-7	0.139	0.55	1.1	1.0	U	TH
Thorium 232	TH-232	0	0.28	1.1	1.0	U	TH
Uranium 233	U-233/234	-0.050	0.050	0.19	1.0	U	U
Uranium 235	15117-96-1	0	0.060	0.23	1.0	U	U
Uranium 238	U-238	0	0.050	0.19	1.0	U	U
Neptunium 237	13994-20-2	-0.014	0.058	0.16	1.0	U	NP
Plutonium 238	13981-16-3	-0.026	0.10	0.28	1.0	U	PU
Plutonium 239/240	PU-239/240	0.154	0.10	0.20	1.0	U	PU
Americium 241	14596-10-2	0.113	0.15	0.29	1.0	U	AM
Potassium 40	13966-00-2	U		0.52		U	GAM
Cobalt 60	10198-40-0	U		0.017	0.050	U	GAM
Barium 133	13981-41-4	U		0.017		U	GAM
Cesium 137	10045-97-3	U		0.017	0.10	U	GAM
Radium 226	13982-63-3	U		0.037	0.10	U	GAM
Radium 228	15262-20-1	U		0.082	0.20	U	GAM
Europium 152	14683-23-9	U		0.043	0.10	U	GAM
Europium 154	15585-10-1	U		0.053	0.10	U	GAM
Europium 155	14391-16-3	U		0.036	0.10	U	GAM
Thorium 228	14274-82-9	U		0.025		U	GAM
Thorium 232	TH-232	U		0.082		U	GAM
Uranium 235	15117-96-1	U		0.055		U	GAM
Uranium 238	U-238	U		2.1		U	GAM
Americium 241	14596-10-2	U		0.018		U	GAM

105-D & 105-H Rx Waste Sampling - OL

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	02/08/01

Test AM Matrix LIQUID
SDG 7611
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

METHOD SUMMARY

AMERICIUM 241 IN LIQUID
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1214

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Americium 241
Preparation batch 6963-073					
B118H2	R101096-01			7611-001	U
B118H3	R101096-02			7611-002	0.043 J
B118H4	R101096-03			7611-003	U
B118H5	R101096-04			7611-004	U
B118H6	R101096-05			7611-005	U
BLK (QC ID=37339)	R101096-06			7611-006	U
LCS (QC ID=37341)	R101096-08			7611-008	ok
Duplicate (R101096-04)	R101096-07			7611-007	- U
Nominal values and limits from method 105-D & 105-H Rx Waste Sampling - OL				RDLs (pCi/mL)	1.0

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-073 2σ prep error 5.0 % Reference Lab Notebook 6963 pg. 073																
B118H2	R101096-01			0.13	0.502			83		406			19	01/28/01	01/31	SS-019
B118H3	R101096-02			0.034	0.494			80		960			20	01/28/01	02/01	SS-037
B118H4	R101096-03			0.032	0.496			75		960			20	01/28/01	02/01	SS-038
B118H5	R101096-04			0.078	0.508			76		960			20	01/28/01	02/01	SS-041
B118H6	R101096-05			0.29	0.512			59		102			25	01/28/01	02/06	SS-027
BLK (QC ID=37339)	R101096-06			0.13	0.494			74		474				01/28/01	02/01	SS-019
LCS (QC ID=37341)	R101096-08			0.14	0.494			62		460				01/28/01	02/01	SS-022
Duplicate (R101096-04) (QC ID=37340)	R101096-07			0.12	0.508			71		474			20	01/28/01	02/01	SS-021
Nominal values and limits from method				1.0	0.494			20-105		50	100		180			

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

Test	AM
Matrix	LIQUID
SDG	7611
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

AMERICIUM 241 IN LIQUID

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1214

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
	CP-040	Environmental Water Dissolution, rev 3
	CP-940	Plutonium Separation and Purification, rev 2
	CP-960	Americium-Curium Purification, Large Aliquot, rev 4
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD	MDA	0.12	±	0.16
FOR 8 SAMPLES	YIELD	72	±	17

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

Test	NP
Matrix	LIQUID
SDG	7611
Contact	Melissa C. Mannion

METHOD SUMMARY

NEPTUNIUM IN LIQUIDS

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1214

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Neptunium 237	
Preparation batch 6963-073						
B118H2	R101096-01			7611-001	U	
B118H3	R101096-02			7611-002	U	
B118H4	R101096-03			7611-003	U	
B118H5	R101096-04			7611-004	U	
B118H6	R101096-05			7611-005	U	
BLK (QC ID=37339)	R101096-06			7611-006	U	
LCS (QC ID=37341)	R101096-08			7611-008	ok	
Duplicate (R101096-04)	R101096-07			7611-007	-	U
Nominal values and limits from method 105-D & 105-H Rx Waste Sampling - OL				RDLs (pCi/mL)	1.0	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-073 2σ prep error 5.0 % Reference Lab Notebook 6963 pg. 073																
B118H2	R101096-01			0.22	0.502			54		406			19	01/30/01	01/31	SS-018
B118H3	R101096-02			0.27	0.494			35		406			19	01/30/01	01/31	SS-021
B118H4	R101096-03			0.16	0.496			49		398			19	01/30/01	01/31	SS-022
B118H5	R101096-04			0.13	0.508			48		405			19	01/30/01	01/31	SS-023
B118H6	R101096-05			0.16	0.512			52		405			19	01/30/01	01/31	SS-024
BLK (QC ID=37339)	R101096-06			0.47	0.494			57		92				01/30/01	02/01	SS-017
LCS (QC ID=37341)	R101096-08			0.36	0.494			63		106				01/30/01	02/01	SS-021
Duplicate (R101096-04) (QC ID=37340)	R101096-07			0.59	0.508			47		105			20	01/30/01	02/01	SS-018
Nominal values and limits from method				1.0	0.494			20-105		100			180			

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

Test NP	Matrix LIQUID
SDG 7611	
Contact Melissa C. Mannion	

METHOD SUMMARY, cont.

NEPTUNIUM IN LIQUIDS

ALPHA SPECTROSCOPY

Client Hanford	
Contract IRC-SBB-207925	
Contract SDG H1214	

PROCEDURES	REFERENCE	NP237_LLE_PLATE_AEA
	CP-934	Neptunium from Solids and Water by Extraction Chromatography, rev 1
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD	MDA	0.30	±	0.33
FOR 8 SAMPLES	YIELD	51	±	16

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

Test	PU
Matrix	LIQUID
SDG	7611
Contact	Melissa C. Mannion

METHOD SUMMARY

PLUTONIUM-238,239/240, LIQUID

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1214

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Plutonium 238		Plutonium 239/240	
Preparation batch 6963-073								
B118H2	R101096-01			7611-001	U		U	
B118H3	R101096-02			7611-002	U		U	
B118H4	R101096-03			7611-003	U		U	
B118H5	R101096-04			7611-004	U		0.456	J
B118H6	R101096-05			7611-005	U		U	
BLK (QC ID=37339)	R101096-06			7611-006	U		U	
LCS (QC ID=37341)	R101096-08			7611-008	ok		ok	
Duplicate (R101096-04)	R101096-07			7611-007	-	U	OUT	U
Nominal values and limits from method 105-D & 105-H Rx Waste Sampling - OL				RDLs (pCi/mL)	1.0		1.0	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-073 2σ prep error 5.0 % Reference Lab Notebook 6963 pg. 073																
B118H2	R101096-01			0.25	0.502			67		104			19	01/26/01	01/31	SS-035
B118H3	R101096-02			0.27	0.494			64		104			19	01/26/01	01/31	SS-036
B118H4	R101096-03			0.19	0.496			93		104			19	01/26/01	01/31	SS-037
B118H5	R101096-04			0.22	0.508			80		104			19	01/26/01	01/31	SS-038
B118H6	R101096-05			0.28	0.512			84		104			19	01/26/01	01/31	SS-041
BLK (QC ID=37339)	R101096-06			0.054	0.494			88		960				01/26/01	02/01	SS-034
LCS (QC ID=37341)	R101096-08			0.035	0.494			76		960				01/26/01	02/01	SS-036
Duplicate (R101096-04) (QC ID=37340)	R101096-07			0.038	0.508			77		960			20	01/26/01	02/01	SS-035
Nominal values and limits from method				1.0	0.494			20-105		50			180			

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

Test	PU
Matrix	LIQUID
SDG	7611
Contact	Melissa C. Mannion

METHOD SUMMARY, cont.

PLUTONIUM-238,239/240, LIQUID

ALPHA SPECTROSCOPY

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1214

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
	CP-002	Q.C. Preparation, rev 2
	CP-003	Tracing, rev 2
	CP-040	Environmental Water Dissolution, rev 3
	CP-940	Plutonium Separation and Purification, rev 2
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD	MDA	0.17	±	0.21
FOR 8 SAMPLES	YIELD	79	±	20

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

Test TH Matrix LIQUID
SDG 7611
Contact Melissa C. Mannion

METHOD SUMMARY

THORIUM, ISOTOPIC IN LIQUID
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1214

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Thorium 228	Thorium 230	Thorium 232
Preparation batch 6963-073							
B118H2	R101096-01			7611-001	U	U	U
B118H3	R101096-02			7611-002	U	U	U
B118H4	R101096-03			7611-003	U	0.640 J	U
B118H5	R101096-04			7611-004	U	0.749 J	U
B118H6	R101096-05			7611-005	U	U	U
BLK (QC ID=37339)	R101096-06			7611-006	U	0.516 J	U
LCS (QC ID=37341)	R101096-08			7611-008		ok	
Duplicate (R101096-04)	R101096-07			7611-007	- U	ok J	- U
Nominal values and limits from method 105-D & 105-H Rx Waste Sampling - OL				RDLs (pCi/mL)	1.0	1.0	1.0

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-073	2σ prep error 5.0 %			Reference Lab Notebook 6963 pg. 073												
B118H2	R101096-01			0.76	0.251			31		155			18	01/26/01	01/30	SS-027
B118H3	R101096-02			0.63	0.247			46		155			18	01/26/01	01/30	SS-029
B118H4	R101096-03			0.47	0.248			64		168			19	01/26/01	01/31	SS-029
B118H5	R101096-04			0.30	0.254			49		958			20	01/26/01	02/01	SS-031
B118H6	R101096-05			1.5	0.256			21		155			18	01/26/01	01/30	SS-033
BLK (QC ID=37339)	R101096-06			0.33	0.247			68		155				01/26/01	01/30	SS-035
LCS (QC ID=37341)	R101096-08			0.30	0.247			71		958				01/26/01	02/01	SS-032
Duplicate (R101096-04) (QC ID=37340)	R101096-07			0.41	0.254			58		155			18	01/26/01	01/30	SS-036
Nominal values and limits from method				1.0	0.247			20-110		100	100		180			

PROCEDURES	REFERENCE	THISO_IE_PLATE_AEA
	CP-905	Thorium in Dissolved Solid Sample, rev 0
	CP-008	Heavy Element Electroplating, rev 3

AVERAGES ± 2 SD FOR 8 SAMPLES
MDA 0.59 ± 0.81
YIELD 51 ± 36

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

Test U Matrix LIQUID
SDG 7611
Contact Melissa C. Mannion

METHOD SUMMARY

URANIUM IN LIQUID
ALPHA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1214

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	1: Uranium 233		2: Uranium 235		3: Uranium 238		RESULT RATIOS (%) 1÷3	2σ	2÷3	2σ
Preparation batch 6963-073														
B118H2	R101096-01			7611-001	U		U		U					
B118H3	R101096-02			7611-002	U		U		U					
B118H4	R101096-03			7611-003	U		U		U					
B118H5	R101096-04			7611-004	U		U		U					
B118H6	R101096-05			7611-005	U		U		U					
BLK (QC ID=37339)	R101096-06			7611-006	U		U		U					
LCS (QC ID=37341)	R101096-08			7611-008	ok		ok		ok					
Duplicate (R101096-04)	R101096-07			7611-007	-	U	-	U	-	U				
Nominal values and limits from method				RDLs (pCi/mL)	1.0		1.0		1.0					
105-D & 105-H Rx Waste Sampling - OL											Averages			

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-073	2σ prep error 5.0 %			Reference Lab Notebook 6963 pg. 073												
B118H2	R101096-01			0.37	0.502			77		103			19	01/24/01	01/31	SS-022
B118H3	R101096-02			0.34	0.494			73		105			19	01/24/01	01/31	SS-023
B118H4	R101096-03			0.34	0.496			81		105			19	01/24/01	01/31	SS-024
B118H5	R101096-04			0.24	0.508			86		104			19	01/24/01	01/31	SS-027
B118H6	R101096-05			0.23	0.572			77		104			19	01/24/01	01/31	SS-029
BLK (QC ID=37339)	R101096-06			0.23	0.494			89		104				01/24/01	01/31	SS-031
LCS (QC ID=37341)	R101096-08			0.84	0.494			105		104				01/24/01	01/31	SS-034
Duplicate (R101096-04) (QC ID=37340)	R101096-07			0.27	0.508			72		104			19	01/24/01	01/31	SS-032
Nominal values and limits from method				1.0	0.494					100			180			

PROCEDURES REFERENCE UISO_PLATE_AEA
CP-911 Uranium in Water and Dissolved Sample by Extraction Chromatography, rev 2

AVERAGES ± 2 SD FOR 8 SAMPLES
MDA 0.36 ± 0.41
YIELD 82 ± 22

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

METHOD SUMMARY

TOTAL STRONTIUM IN LIQUIDS

BETA COUNTING

Test SR Matrix LIQUID
SDG 7611
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1214

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Total Strontium	
Preparation batch 6963-073						
B118H2	R101096-01			7611-001	U	
B118H3	R101096-02			7611-002	U	
B118H4	R101096-03			7611-003	U	
B118H5	R101096-04			7611-004	U	
B118H6	R101096-05			7611-005	U	
BLK (QC ID=37339)	R101096-06			7611-006	U	
LCS (QC ID=37341)	R101096-08			7611-008	ok	
Duplicate (R101096-04)	R101096-07			7611-007	-	U
Nominal values and limits from method 105-D & 105-H Rx Waste Sampling - OL				RDLs (pCi/mL)	1.0	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-073 2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 073																
B118H2	R101096-01			0.25	1.00			77		140			12	01/24/01	01/24	GRB-221
B118H3	R101096-02			0.36	0.988			77		100			12	01/24/01	01/24	GRB-219
B118H4	R101096-03			0.34	0.992			77		100			12	01/24/01	01/24	GRB-220
B118H5	R101096-04			0.23	1.02			77		140			12	01/24/01	01/24	GRB-222
B118H6	R101096-05			0.36	1.02			72		100			12	01/24/01	01/24	GRB-222
BLK (QC ID=37339)	R101096-06			0.38	0.988			75		100				01/24/01	01/24	GRB-223
LCS (QC ID=37341)	R101096-08			0.25	0.988			78		100				01/24/01	01/24	GRB-204
Duplicate (R101096-04) (QC ID=37340)	R101096-07			0.34	1.02			78		100			12	01/24/01	01/24	GRB-224
Nominal values and limits from method				1.0	0.988					100			180			

PROCEDURES	REFERENCE	SRTOT_SEP_PRECIP_GPC
	CP-501	Strontium in Water Samples, rev 1

AVERAGES ± 2 SD FOR 8 SAMPLES				
MDA	0.31	±	0.12
YIELD	76	±	4

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

Test GAM Matrix LIQUID
SDG 7611
Contact Melissa C. Mannion

METHOD SUMMARY

GAMMA SCAN IN LIQUID
GAMMA SPECTROSCOPY

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1214

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137	
Preparation batch 6963-073								
B118H2	R101096-01			7611-001	U		U	
B118H3	R101096-02			7611-002	U		U	
B118H4	R101096-03			7611-003	U		U	
B118H5	R101096-04			7611-004	U		U	
B118H6	R101096-05			7611-005	U		U	
BLK (QC ID=37339)	R101096-06			7611-006	U		U	
LCS (QC ID=37341)	R101096-08			7611-008	ok		ok	
Duplicate (R101096-04)	R101096-07			7611-007	-	U	-	U
Nominal values and limits from method 105-D & 105-H Rx Waste Sampling - OL				RDLs (pCi/mL)	0.050		0.10	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-073 2σ prep error 10.0 % Reference Lab Notebook 6963 pg. 073																
B118H2	R101096-01			0.026	508					254			12	01/24/01	01/24	01,01,00
B118H3	R101096-02			0.020	508					254			12	01/24/01	01/24	01,03,00
B118H4	R101096-03			0.009	505					254			12	01/24/01	01/24	01,04,00
B118H5	R101096-04			0.017	524					254			12	01/24/01	01/24	MB,05,00
B118H6	R101096-05			0.017	514					254			12	01/24/01	01/24	MB,07,00
BLK (QC ID=37339)	R101096-06			0.020	505					287				01/24/01	01/24	01,03,00
LCS (QC ID=37341)	R101096-08			0.020	505					287				01/24/01	01/24	MB,05,00
Duplicate (R101096-04) (QC ID=37340)	R101096-07			0.008	524					287			12	01/24/01	01/24	01,04,00
Nominal values and limits from method				0.050	505					100			180			

PROCEDURES	REFERENCE	GAMMA_GS
	CP-100	Ge(Li) Preparation for Commercial Samples, rev 2
	CP-071	Soil Dissolution, > 1.0g Aliquot, rev 0

AVERAGES ± 2 SD MDA 0.017 ± 0.012
FOR 8 SAMPLES YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/08/01

Test C Matrix LIQUID
SDG 7611
Contact Melissa C. Mannion

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

METHOD SUMMARY

CARBON 14 IN LIQUID

LIQUID SCINTILLATION COUNTING

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1214

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Carbon 14	
Preparation batch 6963-073						
B118H2	R101096-01			7611-001	U	
B118H3	R101096-02			7611-002	U	
B118H4	R101096-03			7611-003	U	
B118H5	R101096-04			7611-004	U	
B118H6	R101096-05			7611-005	U	
BLK (QC ID=37339)	R101096-06			7611-006	U	
LCS (QC ID=37341)	R101096-08			7611-008	ok	
Duplicate (R101096-04)	R101096-07			7611-007	-	U

Nominal values and limits from method RDLs (pCi/mL) 50
105-D & 105-H Rx Waste Sampling - OL

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-073	2σ prep error 10.0 %				Reference Lab Notebook 6963 pg. 073											
B118H2	R101096-01			70	0.0139			100		100			15	01/25/01	01/27	LSC-004
B118H3	R101096-02			60	0.0167			100		100			15	01/25/01	01/27	LSC-004
B118H4	R101096-03			67	0.0174			100		100			15	01/25/01	01/27	LSC-004
B118H5	R101096-04			71	0.0138			100		100			15	01/25/01	01/27	LSC-004
B118H6	R101096-05			69	0.0139			100		100			15	01/25/01	01/27	LSC-004
BLK (QC ID=37339)	R101096-06			70	0.0138			100		100				01/25/01	01/27	LSC-004
LCS (QC ID=37341)	R101096-08			420	0.0138			100		3				01/25/01	01/27	LSC-004
Duplicate (R101096-04) (QC ID=37340)	R101096-07			77	0.0129			100		100			15	01/25/01	01/27	LSC-004
Nominal values and limits from method				50	0.0138					25			180			

PROCEDURES REFERENCE C14_COX_LSC
CP-251 Tritium/Carbon-14 Oxidation, rev 2

AVERAGES ± 2 SD MDA 110 ± 250
FOR 8 SAMPLES YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

METHOD SUMMARY

TRITIUM IN LIQUID

LIQUID SCINTILLATION COUNTING

Test H Matrix LIQUID
SDG 7611
Contact Melissa C. Mannion

Client Hanford
Contract TRC-SBB-207925
Contract SDG H1214

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Tritium	
Preparation batch 6963-073						
B118H2	R101096-01			7611-001	U	
B118H3	R101096-02			7611-002	U	
B118H4	R101096-03			7611-003	U	
B118H5	R101096-04			7611-004	U	
B118H6	R101096-05			7611-005	U	
BLK (QC ID=37339)	R101096-06			7611-006	U	
LCS (QC ID=37341)	R101096-08			7611-008	ok	
Duplicate (R101096-04)	R101096-07			7611-007	-	U

Nominal values and limits from method RDLs (pCi/mL) 400
105-D & 105-H Rx Waste Sampling - OL

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-073	2σ prep error 10.0 %				Reference Lab Notebook 6963 pg. 073											
B118H2	R101096-01			83	0.0139			100		100			14	01/25/01	01/26	LSC-004
B118H3	R101096-02			69	0.0167			100		100			14	01/25/01	01/26	LSC-004
B118H4	R101096-03			67	0.0174			100		100			14	01/25/01	01/26	LSC-004
B118H5	R101096-04			84	0.0138			100		100			14	01/25/01	01/26	LSC-004
B118H6	R101096-05			84	0.0139			100		100			14	01/25/01	01/26	LSC-004
BLK (QC ID=37339)	R101096-06			84	0.0138			100		100				01/25/01	01/26	LSC-004
LCS (QC ID=37341)	R101096-08			84	0.0138			100		100				01/25/01	01/26	LSC-004
Duplicate (R101096-04) (QC ID=37340)	R101096-07			89	0.0129			100		100			14	01/25/01	01/26	LSC-004
Nominal values and limits from method				400	0.0138					5			180			

PROCEDURES	REFERENCE	TRITIUM_COX_LSC
	CP-251	Tritium/Carbon-14 Oxidation, rev 2

AVERAGES ± 2 SD FOR 8 SAMPLES
MDA 80 ± 16
YIELD 100 ± 0

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 02/08/01

TMA/RICHMOND

SAMPLE DELIVERY GROUP H1214

Test	NI_L
Matrix	LIQUID
SDG	7611
Contact	Melissa C. Mannion

METHOD SUMMARY

NICKEL-63 IN LIQUID

LIQUID SCINTILLATION COUNTING

Client	Hanford
Contract	TRC-SBB-207925
Contract	SDG H1214

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Nickel 63	
Preparation batch 6963-073						
B118H2	R101096-01			7611-001	U	
B118H3	R101096-02			7611-002	U	
B118H4	R101096-03			7611-003	U	
B118H5	R101096-04			7611-004	U	
B118H6	R101096-05			7611-005	U	
BLK (QC ID=37339)	R101096-06			7611-006	U	
LCS (QC ID=37341)	R101096-08			7611-008	ok	
Duplicate (R101096-04)	R101096-07			7611-007	-	U

Nominal values and limits from method RDLs (pCi/mL) 30
105-D & 105-H Rx Waste Sampling - OL

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/mL	ALIQ mL	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6963-073	2σ prep error 10.0 %				Reference Lab Notebook 6963 pg. 073											
B118H2	R101096-01			2.3	0.502			88		100			13	01/25/01	01/25	LSC-004
B118H3	R101096-02			2.3	0.494			91		100			13	01/25/01	01/25	LSC-004
B118H4	R101096-03			2.4	0.496			89		100			13	01/25/01	01/25	LSC-004
B118H5	R101096-04			2.3	0.508			89		100			13	01/25/01	01/25	LSC-004
B118H6	R101096-05			2.3	0.512			88		100			13	01/25/01	01/25	LSC-004
BLK (QC ID=37339)	R101096-06			2.2	0.494			95		100				01/25/01	01/25	LSC-004
LCS (QC ID=37341)	R101096-08			2.6	0.494			93		75				01/25/01	01/25	LSC-004
Duplicate (R101096-04) (QC ID=37340)	R101096-07			2.3	0.500			88		100			13	01/25/01	01/25	LSC-004
Nominal values and limits from method				30	0.494					10			180			

PROCEDURES	REFERENCE	NI63_LSC
	RP-070	Sample Dissolution - HF Method, rev 0
	RP-431	Nickel-63 Purification, rev 0

AVERAGES ± 2 SD	MDA	2.3	±	0.24
FOR 8 SAMPLES	YIELD	90	±	5

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-CMS
Version	3.06
Report date	02/08/01

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-022-02	Page 1 of 2
Collector: Doug Bowers	Company Contact: Jason Adler; Telephone No.: 372-2178	Project Coordinator: TRENT, SJ	Price Code: 9L; Data Turnaround: 21 Days
Project Designation: 105-D & 105-H Rx Waste Sampling - Other Liquid	Sampling Location: 105D reactor room 113C H1214 (7611)	SAF No.: B01-022	Air Quality ☐
Ice Chest No.: 4GV Comb. PKg	Field Logbook No.: EFL1133-8; COA: R105D6280C	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA	Offsite Property No.: HMSR# 000853	Bill of Lading/Air Bill No.: NA	

POSSIBLE SAMPLE HAZARDS/REMARKS
Suspect PCB in liquid. ≤ 50ppm based on process knowledge

Special Handling and/or Storage

Preservation	Cool 4C	Cool 4C	None	Cool 4C	~~None~~ H2SO4				
Type of Container	P	P	P	P	P				
No. of Container(s)	1	1	1	1	1				
Volume	40mL	250mL	500mL	1000mL	1000mL				
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL); PCBs - 8082	See item (3) in Special Instructions.				

Samples stored in Ref.# 1C at the 3728 Shipping Facility on 1/12/01 Collector not available to relinquish samples on 1/17/01 for shipment.

Sample No.	Matrix *	Sample Date	Sample Time									
B118H2	OTHER LIQUID	1-12-01	0900					X			B118H7	
B118H3	OTHER LIQUID	1-12-01	0917					X			B118H8	
B118H4	OTHER LIQUID	1-12-01	1005					X			B118H9	
B118H5	OTHER LIQUID	1-12-01	1032					X			B118J0	
B118H6	OTHER LIQUID	1-12-01	1032					X			B118J1	

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-12-01/1410	Stored in Ref 1C 3728	1-12-01/1410
Removed from Ref 1C 3728	1/17/01 0800	R. Thoron	1/17/01 0800
R. Thoron	1/17/01 1600	FED EX	1-17-01
FEDERAL EXPRESS	01-18-01 10 AM	E. Reguro	01-18-01 10 AM

SPECIAL INSTRUCTIONS
~~(1) IC Anions - 300.0 (Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate); Total Cyanide - 9010; pH (Soil) - 9045; Sulfides - 9030; Ignitability - 1010~~
~~(2) ICP Metals - 6010A (Supernate) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver); Mercury - 7471 - (CV)~~
(3) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155); Gamma Spec - Add-on (Barium-133); Isotopic Plutonium; Isotopic Uranium; Isotopic Thorium (Thorium-228, Thorium-232); Americium-241; Nickel-63; Strontium-89,90 -- Total Sr, Carbon-14, Tritium H-3, Neptinium-237

Matrix *
S=Soil
SE=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	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 01-18-01 10:AM

CoC No. B01-022-02

Container I.D. No. 4 GV COMB. PKG. Requested TAT (Days) 21 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: 5
7. Number of containers per sample: (1 EACH) (Or see CoC _____)
8. Paperwork agrees with samples? Yes [✓] No [ ]
9. Samples have: Tape [ ] Hazard labels [ ] Rad labels [ ] Appropriate sample labels [✓]
10. Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]
11. Describe any anomalies: _____
13. Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____
14. Received by E. Aguro Date: 01-18-01 Time: 10: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 _____

MAR 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-022 H1214

DATE RECEIVED: 01/18/01 RFW LOT # :0101L787

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B118H2						
CHLORIDE BY IC	001	OI	01LAC008	01/12/01	01/29/01	01/29/01
FLUORIDE BY IC	001	OI	01LAC008	01/12/01	01/29/01	01/29/01
NITRITE BY IC	001	OI	01LAC008	01/12/01	01/29/01	01/29/01
NITRATE BY IC	001	OI	01LAC008	01/12/01	01/29/01	01/29/01
TOTAL CYANIDE	001	OI	01LC008	01/12/01	01/24/01	01/24/01
PHOSPHATE BY IC	001	OI	01LAC008	01/12/01	01/29/01	01/29/01
SULFATE BY IC	001	OI	01LAC008	01/12/01	01/29/01	01/29/01
IGNITABILITY	001	OI	01LFP002	01/12/01	01/31/01	01/31/01
PH	001	OI	01LPH007	01/12/01	01/26/01	01/26/01
PH	001 REP	OI	01LPH007	01/12/01	01/26/01	01/26/01
SULFIDE	001	OI	01LSD004	01/12/01	01/19/01	01/19/01
B118H3						
CHLORIDE BY IC	002	OI	01LAC008	01/12/01	01/29/01	01/29/01
FLUORIDE BY IC	002	OI	01LAC008	01/12/01	01/29/01	01/29/01
NITRITE BY IC	002	OI	01LAC008	01/12/01	01/29/01	01/29/01
NITRATE BY IC	002	OI	01LAC008	01/12/01	01/29/01	01/29/01
TOTAL CYANIDE	002	OI	01LC008	01/12/01	01/24/01	01/24/01
PHOSPHATE BY IC	002	OI	01LAC008	01/12/01	01/29/01	01/29/01
SULFATE BY IC	002	OI	01LAC008	01/12/01	01/29/01	01/29/01
IGNITABILITY	002	OI	01LFP002	01/12/01	01/31/01	01/31/01
PH	002	OI	01LPH007	01/12/01	01/26/01	01/26/01
SULFIDE	002	OI	01LSD004	01/12/01	01/19/01	01/19/01
B118H4						
CHLORIDE BY IC	003	OI	01LAC008	01/12/01	01/29/01	01/29/01
CHLORIDE BY IC	003 REP	OI	01LAC008	01/12/01	01/29/01	01/29/01
CHLORIDE BY IC	003 MS	OI	01LAC008	01/12/01	01/29/01	01/29/01
FLUORIDE BY IC	003	OI	01LAC008	01/12/01	01/29/01	01/29/01
FLUORIDE BY IC	003 REP	OI	01LAC008	01/12/01	01/29/01	01/29/01
FLUORIDE BY IC	003 MS	OI	01LAC008	01/12/01	01/29/01	01/29/01
NITRITE BY IC	003	OI	01LAC008	01/12/01	01/29/01	01/29/01
NITRITE BY IC	003 REP	OI	01LAC008	01/12/01	01/29/01	01/29/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-022 H1214

DATE RECEIVED: 01/18/01 RFW LOT # :0101L787

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRITE BY IC	003 MS	OI	01LAC008	01/12/01	01/29/01	01/29/01
NITRATE BY IC	003	OI	01LAC008	01/12/01	01/29/01	01/29/01
NITRATE BY IC	003 REP	OI	01LAC008	01/12/01	01/29/01	01/29/01
NITRATE BY IC	003 MS	OI	01LAC008	01/12/01	01/29/01	01/29/01
TOTAL CYANIDE	003	OI	01LC008	01/12/01	01/24/01	01/24/01
PHOSPHATE BY IC	003	OI	01LAC008	01/12/01	01/29/01	01/29/01
PHOSPHATE BY IC	003 REP	OI	01LAC008	01/12/01	01/29/01	01/29/01
PHOSPHATE BY IC	003 MS	OI	01LAC008	01/12/01	01/29/01	01/29/01
SULFATE BY IC	003	OI	01LAC008	01/12/01	01/29/01	01/29/01
SULFATE BY IC	003 REP	OI	01LAC008	01/12/01	01/29/01	01/29/01
SULFATE BY IC	003 MS	OI	01LAC008	01/12/01	01/29/01	01/29/01
IGNITABILITY	003	OI	01LFP002	01/12/01	01/31/01	01/31/01
PH	003	OI	01LPH007	01/12/01	01/26/01	01/26/01
SULFIDE	003	OI	01LSD004	01/12/01	01/19/01	01/19/01
B118H5						
CHLORIDE BY IC	004	OI	01LAC008	01/12/01	01/29/01	01/29/01
FLUORIDE BY IC	004	OI	01LAC008	01/12/01	01/29/01	01/29/01
NITRITE BY IC	004	OI	01LAC008	01/12/01	01/29/01	01/29/01
NITRATE BY IC	004	OI	01LAC008	01/12/01	01/29/01	01/29/01
TOTAL CYANIDE	004	OI	01LC008	01/12/01	01/24/01	01/24/01
PHOSPHATE BY IC	004	OI	01LAC008	01/12/01	01/29/01	01/29/01
SULFATE BY IC	004	OI	01LAC008	01/12/01	01/29/01	01/29/01
IGNITABILITY	004	OI	01LFP002	01/12/01	01/31/01	01/31/01
PH	004	OI	01LPH007	01/12/01	01/26/01	01/26/01
SULFIDE	004	OI	01LSD004	01/12/01	01/19/01	01/19/01
B118H6						
CHLORIDE BY IC	005	OI	01LAC008	01/12/01	01/29/01	01/29/01
FLUORIDE BY IC	005	OI	01LAC008	01/12/01	01/29/01	01/29/01
NITRITE BY IC	005	OI	01LAC008	01/12/01	01/29/01	01/29/01
NITRATE BY IC	005	OI	01LAC008	01/12/01	01/29/01	01/29/01
TOTAL CYANIDE	005	OI	01LC008	01/12/01	01/24/01	01/24/01
TOTAL CYANIDE	005 REP	OI	01LC008	01/12/01	01/24/01	01/24/01
TOTAL CYANIDE	005 MS	OI	01LC008	01/12/01	01/24/01	01/24/01
PHOSPHATE BY IC	005	OI	01LAC008	01/12/01	01/29/01	01/29/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-022 H1214

DATE RECEIVED: 01/18/01 RFW LOT # :0101L787

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
SULFATE BY IC	005	OI	01LAC008	01/12/01	01/29/01	01/29/01
IGNITABILITY	005	OI	01LFP002	01/12/01	01/31/01	01/31/01
PH	005	OI	01LPH007	01/12/01	01/26/01	01/26/01
SULFIDE	005	OI	01LSD004	01/12/01	01/19/01	01/19/01
SULFIDE	005 REP	OI	01LSD004	01/12/01	01/19/01	01/19/01

LAB QC:

CHLORIDE BY IC	MB1	W	01LAC008	N/A	01/29/01	01/29/01
CHLORIDE BY IC	MB1 BS	W	01LAC008	N/A	01/29/01	01/29/01
FLUORIDE BY IC	MB1	W	01LAC008	N/A	01/29/01	01/29/01
FLUORIDE BY IC	MB1 BS	W	01LAC008	N/A	01/29/01	01/29/01
NITRITE BY IC	MB1	W	01LAC008	N/A	01/29/01	01/29/01
NITRITE BY IC	MB1 BS	W	01LAC008	N/A	01/29/01	01/29/01
NITRATE BY IC	MB1	W	01LAC008	N/A	01/29/01	01/29/01
NITRATE BY IC	MB1 BS	W	01LAC008	N/A	01/29/01	01/29/01
TOTAL CYANIDE	LCS L	S	01LC008	N/A	01/24/01	01/24/01
TOTAL CYANIDE	LCS L	S	01LC008	N/A	01/24/01	01/24/01
TOTAL CYANIDE	MB1	S	01LC008	N/A	01/24/01	01/24/01
PHOSPHATE BY IC	MB1	W	01LAC008	N/A	01/29/01	01/29/01
PHOSPHATE BY IC	MB1 BS	W	01LAC008	N/A	01/29/01	01/29/01
SULFATE BY IC	MB1	W	01LAC008	N/A	01/29/01	01/29/01
SULFATE BY IC	MB1 BS	W	01LAC008	N/A	01/29/01	01/29/01
SULFIDE	MB1	S	01LSD004	N/A	01/19/01	01/19/01
SULFIDE	MB1 BS	S	01LSD004	N/A	01/19/01	01/19/01
SULFIDE	MB1 BSD	S	01LSD004	N/A	01/19/01	01/19/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-022 H1214
LVL#: 0101L787

W.O.#: 10985-001-001-9999-00
Date Received: 01-18-01

INORGANIC NARRATIVE

As of 27 January 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some forms may still reference Recra LabNet Philadelphia.

1. This narrative covers the analyses of 5 oil samples.

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

3. Sample holding times as required by the method and/or contract were met with the exception of pH, Nitrate, Nitrite and Phosphate that were received past hold.

4. The cooler temperatures were recorded on the chain of custody.

5. The method blanks were within the method criteria.

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

7. The matrix spike (MS) recovery for Nitrite was within the 75-125% acceptance limits, however MS recoveries for Chloride, Fluoride, Nitrate, Phosphate and Sulfate were above the acceptance limits and MS recovery for Total Cyanide was below the acceptance limits. Matrix spike analysis was not performed for Sulfide due to the acidic state of the sample matrix.

8. The replicate analyses were within the 20% RPD control limit with the exception of replicate analysis for Chloride that was outside the control limit.

9. Poor matrix spike recoveries and replicate reproducibility may be attributed to matrix effects and sample inhomogeneity.

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 18 pages.

10. Results for Total Cyanide and Sulfide were reported on a wet weight basis. Due to the nature of the sample matrix, these analyses were performed using sample aliquots consistent with solid sample analyses. For pH analysis, the samples were extracted with water to prevent coating, by the sample, of the pH electrode.

11. 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.

J. Michael Taylor
President
Lionville Laboratory Incorporated

03-02-01
Date

njp\i01-818

Recra LabNet Philadelphia Sample Discrepancy Report (SDR) SDR #: 01WC001

Initiator: J Hofbauer Batch: 0101L787 Parameter: SFD/CN⁻
Date: 1-19-01 Samples: 1→5 Matrix: oil
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: _____

c. QC Problem (Include all relevant specific results; attach data if necessary)

- Samples acidic. Maybe preserved with HNO_3.
O. Johnson - Said to Run Samples.

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)

Propose to narrate.
mjP 1-22-01

4. Project Manager Instructions...signature/date: Melissa Johnson 1/23/01

✓ 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: A. Perrone 2-1-01 Other Explanation:

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

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
1	X Initiator J Hofbauer		__ Metals: Doughty
	X Lab Manager: M. Taylor	4,2	__ Inorganic: Perrone
3	X Project Mgr: Stone/Carey/Schrenkel/Johnson		__ GC/LC: Pastor
	X Section Mgr: Wesson/Daniels		__ MS: Durke/Rycklak
5	X QA (file): ~~Recipp~~ Schrenkel		__ Log-in: Keppel
	__ Data Management: Feldman		__ Admin: Soos
	__ Sample Prep: Doughty/Kauffman		__ Other: _____

L-WI-006/E-02/00

Lionville Laboratory, Inc.

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 9045C	
✓ pH ____ pH; paper	___ 150.1	✓ ~~9040B~~ MP 3-1-01 ___ 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:**	

* Oil samples

Lionville Laboratory Incorporated

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.

Inorganic Data Summary Report
Physical Testing Observation

Client: TNU-HANFORD B01-022 H1214
LVL#: 0101L787

W.O.#: 10985-001-001-9999-00
Date Received: 01-18-01

Analyte:

Ignitability

Observation:

Samples B118H2, B118H3, B118H4, B118H5and B118H6 did not ignite.

The samples were heated to 220°F.

p-Xylene was used to determined the accuracy of the ignitability apparatus. The p-Xylene will ignite at 81°F +/- 1°F. For this test, the p-Xylene ignited at 80°F.

njp\i01-787 .pt2

LVLI
LIONVILLE LABORATORY INC.

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/01/01

CLIENT: TNUHANFORD B01-022 H1214 LVL LOT #: 0101L787

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B118H2	Chloride by IC	1250	u	MG/L	1250	5000
		Fluoride by IC	5000	u	MG/L	5000	10000
		Nitrite by IC	125	u	MG/L	125	500
		Nitrate by IC	125	u	MG/L	125	500
		Cyanide, Total	0.49	u	MG/KG	0.49	1.0
		Phosphate by IC	125	u	MG/L	125	500
		Sulfate by IC	895		MG/L	125	500
		pH	3.0		SOIL PH	0.01	1.0
		Sulfide	39.8	u	MG/KG	39.8	1.0
-002	B118H3	Chloride by IC	858		MG/L	500	2000
		Fluoride by IC	1000	u	MG/L	1000	2000
		Nitrite by IC	125	u	MG/L	125	500
		Nitrate by IC	125	u	MG/L	125	500
		Cyanide, Total	0.49	u	MG/KG	0.49	1.0
		Phosphate by IC	125	u	MG/L	125	500
		Sulfate by IC	310		MG/L	125	500
		pH	3.2		SOIL PH	0.01	1.0
		Sulfide	38.4	u	MG/KG	38.4	1.0
-003	B118H4	Chloride by IC	770		MG/L	500	2000
		Fluoride by IC	1000	u	MG/L	1000	2000
		Nitrite by IC	125	u	MG/L	125	500
		Nitrate by IC	125	u	MG/L	125	500
		Cyanide, Total	0.47	u	MG/KG	0.47	1.0
		Phosphate by IC	125	u	MG/L	125	500
		Sulfate by IC	253		MG/L	125	500
		pH	3.2		SOIL PH	0.01	1.0
		Sulfide	39.6	u	MG/KG	39.6	1.0
-004	B118H5	Chloride by IC	2500	u	MG/L	2500	10000
		Fluoride by IC	5000	u	MG/L	5000	10000
		Nitrite by IC	125	u	MG/L	125	500
		Nitrate by IC	125	u	MG/L	125	500
		Cyanide, Total	0.44	u	MG/KG	0.44	1.0
		Phosphate by IC	125	u	MG/L	125	500
		Sulfate by IC	207		MG/L	125	500
		pH	2.9		SOIL PH	0.01	1.0
		Sulfide	38.4	u	MG/KG	38.4	1.0
-005	B118H6	Chloride by IC	2500	u	MG/L	2500	10000

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 03/01/01

CLIENT: TNUHANFORD B01-022 H1214 LVL LOT #: 0101L787

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	B118H6	Fluoride by IC	5000	u	MG/L	5000	10000
		Nitrite by IC	125	u	MG/L	125	500
		Nitrate by IC	125	u	MG/L	125	500
		Cyanide, Total	0.43	u	MG/KG	0.43	1.0
		Phosphate by IC	125	u	MG/L	125	500
		Sulfate by IC	278		MG/L	125	500
		pH	2.9		SOIL PH	0.01	1.0
		Sulfide	39.7	u	MG/KG	39.7	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 03/01/01

CLIENT: TNUHANFORD B01-022 H1214 LVL LOT #: 0101L787

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	01LAC008-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
BLANK1	01LC008-MB1	Cyanide, Total	0.50 u	MG/KG	0.50	1.0
BLANK10	01LSD004-MB1	Sulfide	40.0 u	MG/KG	40.0	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 03/01/01

CLIENT: TNUHANFORD B01-022 H1214 LVL LOT #: 0101L787

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-003	B118H4	Chloride by IC	17900	770	10000	171.8	2000
		Fluoride by IC	37100	494	20000	183.0	2000
		Nitrite by IC	2550	125 u	2500	101.8	500
		Nitrate by IC	3240	125 u	2500	129.6	500
		Phosphate by IC	3450	125 u	2500	138.0	500
		Sulfate by IC	3760	253	2500	140.4	500
-005	B118H6	Cyanide, Total	3.39	0.43u	4.55	74.4	1.0
BLANK10	01LAC008-MB1	Chloride by IC	4.8	0.25u	5.0	95.3	1.0
		Fluoride by IC	10.6	0.50u	10.0	106.0	1.0
		Nitrite by IC	5.06	0.25u	5.00	101.2	1.0
		Nitrate by IC	4.89	0.25u	5.00	97.9	1.0
		Phosphate by IC	5.0	0.25u	5.0	99.4	1.0
		Sulfate by IC	4.9	0.25u	5.0	98.4	1.0
BLANK10	01LSD004-MB1	Sulfide	405	40.0 u	433	93.5	1.0
		Sulfide MSD	373	40.0 u	389	95.9	1.0

Lionville Lababoratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 03/01/01

CLIENT: TNUHANFORD B01-022 H1214 LVL LOT #: 0101L787

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

SAMPLE	SITE ID	ANALYTE	SPIKE#1 %RECOV	SPIKE#2 %RECOV	%DIFF
BLANK10	01LSD004-MB1	Sulfide	93.5	95.9	2.5

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 03/01/01

CLIENT: TNUHANFORD B01-022 H1214 LVL LOT #: 0101L787

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT		REPLICATE		RPD	DILUTION FACTOR(REP)
-001REP	B118H2	pH	3.0		2.9		5.4	1.0
-003REP	B118H4	Chloride by IC	770		590		26.5	2000
		Fluoride by IC	1000	u	1000	u	NC	2000
		Nitrite by IC	125	u	125	u	NC	500
		Nitrate by IC	125	u	125	u	NC	500
		Phosphate by IC	125	u	125	u	NC	500
		Sulfate by IC	253		222		12.8	500
-005REP	B118H6	Cyanide, Total	0.43	u	0.44	u	NC	1.0
		Sulfide	39.7	u	37.2	u	NC	1.0

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 03/01/01

CLIENT: TNUHANFORD B01-022 H1214 LVL LOT #: 0101L787

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCSS1	01LC008-LCS1	Cyanide, Total LCS	1.76	2.0	MG/KG	88.2
LCSS2	01LC008-LCS2	Cyanide, Total LCS	9.78	10.0	MG/KG	97.8

RECRA LabNet Use Only
0101L787

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TMU-Hanford B01-022
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: DJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 1-18-01 Date Due: 2-8-01
Account #:

		A	B
Refrigerator #		1	6
#/Type Container	Liquid	1V	1P
	Solid		
Volume	Liquid	40	500
	Solid		
Preservatives		–	–

ANALYSES REQUESTED →

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	ORGANIC: VOA	BNA	Pest/PCB	Herb				INORG: Metal	CN				RECRA LabNet Use Only: OC24H	OC25H	OPCB		IC①			MRCRATO	ICNTO	IPH	ISFD	IIGN
001	B118H2			O	1-12-01	0900	✓	✓	✓		✓			✓	✓	✓	✓	✓												
002	3					0917	✓	✓	✓		✓			✓	✓	✓	✓	✓												
003	4					1005	✓	✓	✓		✓			✓	✓	✓	✓	✓												
004	5					1032	✓	✓	✓		✓			✓	✓	✓	✓	✓												
005	6					↓	✓	✓	✓		✓			✓	✓	✓	✓	✓												
TE 1-18-01																														

Special Instructions: Saf B01-022
Run Matrix QC
Suspect PCB ≤ 50ppm

DATE/REVISIONS:
IC① 1. Cl, Fl, NO3, NO2, PO4, SO4
2.
3.
4.
5.
6.

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N

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

Cooler Temp. ← °C

Relinquished by	Received by	Date	Time
FedEx	[signature]	1-18-01	0935

Relinquished by	Received by	Date	Time
COMPOSITE WASTE.	ORIGINAL REWRITTEN		

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
811511013592 - 14.4°C
822625260512 - 14.0°C

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-022-02	Page 1 of 2

Collector: Doug Bowers	Company Contact: Jason Adler — Telephone No.: 372-2178	Project Coordinator: TRENT, SJ	Price Code: 9L — Data Turnaround: 21 Days
Project Designation: 105-D & 105-H Rx Waste Sampling - Other Liquid	Sampling Location: 105D reactor room 113C	SAF No.: B01-022	Air Quality ☐
Ice Chest No.: 4GV Comb. Pkg	Field Logbook No.: EFL1133-8 — COA: B105DG280C	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA	Offsite Property No.: HMSR # 000843	Bill of Lading/Air Bill No.: NA	

POSSIBLE SAMPLE HAZARDS/REMARKS: Suspect PCB in liquid. ≤ 50ppm BASED on process knowledge

Special Handling and/or Storage: Cooling Requirements Could not be met

Preservation	Cool 4C	Cool 4C	None	Cool 4C	None
Type of Container	aGs*	P	P	P	P
No. of Container(s)	1	1	1	1	1
Volume	40mL	500ml	500mL	500ml	100mL
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL); PCBs - 8082	See item (3) in Special Instructions.

Samples stored in Ref.# 1C at the 3728 Shipping Facility on 1/12/01. Collector not available to relinquish samples on 1/17/01 for shipment. RT 1/17/01

Sample No.	Matrix *	Sample Date	Sample Time								Tie To:
B118H2	OTHER LIQUID	1-12-01	0900	X	X	X	X				B118H7
B118H3	OTHER LIQUID	1-12-01	0917	X	X	X	X				B118H8
B118H4	OTHER LIQUID	1-12-01	1005	X	X	X	X				B118H9
B118H5	OTHER LIQUID	1-12-01	1032	X	X	X	X				B118J0
B118H6	OTHER LIQUID	1-12-01	1032	X	X	X	X				B118J0

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-12-01/1410	RT Stored in RAFIC 3728	1-12-01/1410
Removed from RAFIC 3728	1/17/01 0800	R.T. Thoren	1/17/01 0800
R.T. Thoren	1/17/01 1000	FED EX	
Fed Ex	1-18-01 0935		1-18-01 0935

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Total Cyanide - 9010; pH (Soil) - 9045; Sulfides - 9030; Ignitability - 1010
(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)
(3) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; ~~Gamma Spec - Add on {Barium-133}; Isotopic Plutonium; Isotopic Uranium; Isotopic Thorium {Thorium-228, Thorium-232}; Americium-241; Nickel-63; Strontium-89,90 - Total S.~~

PLEASE perform analysis (1) in special instructions, and Semi-VOA-8270A (TCL); PCBs-8082 From 500ml Poly. RT 1-18-01

Matrix *: S=Soil, SE=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	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (10/99)

MAR 2001
RECEIVED

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-022 H1214

DATE RECEIVED: 01/18/01 LVL LOT # :0101L787

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B118H2						
SILVER, TOTAL	001	OI	01L0033	01/12/01	01/30/01	02/08/01
SILVER, TOTAL	001 REP	OI	01L0033	01/12/01	01/30/01	02/08/01
SILVER, TOTAL	001 MS	OI	01L0033	01/12/01	01/30/01	02/08/01
ARSENIC, TOTAL	001	OI	01L0033	01/12/01	01/30/01	02/08/01
ARSENIC, TOTAL	001 REP	OI	01L0033	01/12/01	01/30/01	02/08/01
ARSENIC, TOTAL	001 MS	OI	01L0033	01/12/01	01/30/01	02/08/01
BARIUM, TOTAL	001	OI	01L0033	01/12/01	01/30/01	02/08/01
BARIUM, TOTAL	001 REP	OI	01L0033	01/12/01	01/30/01	02/08/01
BARIUM, TOTAL	001 MS	OI	01L0033	01/12/01	01/30/01	02/08/01
CADMIUM, TOTAL	001	OI	01L0033	01/12/01	01/30/01	02/08/01
CADMIUM, TOTAL	001 REP	OI	01L0033	01/12/01	01/30/01	02/08/01
CADMIUM, TOTAL	001 MS	OI	01L0033	01/12/01	01/30/01	02/08/01
CHROMIUM, TOTAL	001	OI	01L0033	01/12/01	01/30/01	02/08/01
CHROMIUM, TOTAL	001 REP	OI	01L0033	01/12/01	01/30/01	02/08/01
CHROMIUM, TOTAL	001 MS	OI	01L0033	01/12/01	01/30/01	02/08/01
MERCURY, TOTAL	001	OI	01C0040	01/12/01	01/30/01	01/31/01
MERCURY, TOTAL	001 REP	OI	01C0040	01/12/01	01/30/01	01/31/01
MERCURY, TOTAL	001 MS	OI	01C0040	01/12/01	01/30/01	01/31/01
LEAD, TOTAL	001	OI	01L0033	01/12/01	01/30/01	02/08/01
LEAD, TOTAL	001 REP	OI	01L0033	01/12/01	01/30/01	02/08/01
LEAD, TOTAL	001 MS	OI	01L0033	01/12/01	01/30/01	02/08/01
SELENIUM, TOTAL	001	OI	01L0033	01/12/01	01/30/01	02/08/01
SELENIUM, TOTAL	001 REP	OI	01L0033	01/12/01	01/30/01	02/08/01
SELENIUM, TOTAL	001 MS	OI	01L0033	01/12/01	01/30/01	02/08/01
B118H3						
SILVER, TOTAL	002	OI	01L0033	01/12/01	01/30/01	02/08/01
ARSENIC, TOTAL	002	OI	01L0033	01/12/01	01/30/01	02/08/01
BARIUM, TOTAL	002	OI	01L0033	01/12/01	01/30/01	02/08/01
CADMIUM, TOTAL	002	OI	01L0033	01/12/01	01/30/01	02/08/01
CHROMIUM, TOTAL	002	OI	01L0033	01/12/01	01/30/01	02/08/01
MERCURY, TOTAL	002	OI	01C0040	01/12/01	01/30/01	01/31/01
LEAD, TOTAL	002	OI	01L0033	01/12/01	01/30/01	02/08/01
SELENIUM, TOTAL	002	OI	01L0033	01/12/01	01/30/01	02/08/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-022 H1214

DATE RECEIVED: 01/18/01 LVL LOT # :0101L787

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B118H4						
SILVER, TOTAL	003	OI	01L0033	01/12/01	01/30/01	02/08/01
ARSENIC, TOTAL	003	OI	01L0033	01/12/01	01/30/01	02/08/01
BARIUM, TOTAL	003	OI	01L0033	01/12/01	01/30/01	02/08/01
CADMIUM, TOTAL	003	OI	01L0033	01/12/01	01/30/01	02/08/01
CHROMIUM, TOTAL	003	OI	01L0033	01/12/01	01/30/01	02/08/01
MERCURY, TOTAL	003	OI	01C0040	01/12/01	01/30/01	01/31/01
LEAD, TOTAL	003	OI	01L0033	01/12/01	01/30/01	02/08/01
SELENIUM, TOTAL	003	OI	01L0033	01/12/01	01/30/01	02/08/01
B118H5						
SILVER, TOTAL	004	OI	01L0033	01/12/01	01/30/01	02/08/01
ARSENIC, TOTAL	004	OI	01L0033	01/12/01	01/30/01	02/08/01
BARIUM, TOTAL	004	OI	01L0033	01/12/01	01/30/01	02/08/01
CADMIUM, TOTAL	004	OI	01L0033	01/12/01	01/30/01	02/08/01
CHROMIUM, TOTAL	004	OI	01L0033	01/12/01	01/30/01	02/08/01
MERCURY, TOTAL	004	OI	01C0040	01/12/01	01/30/01	01/31/01
LEAD, TOTAL	004	OI	01L0033	01/12/01	01/30/01	02/08/01
SELENIUM, TOTAL	004	OI	01L0033	01/12/01	01/30/01	02/08/01
B118H6						
SILVER, TOTAL	005	OI	01L0033	01/12/01	01/30/01	02/08/01
ARSENIC, TOTAL	005	OI	01L0033	01/12/01	01/30/01	02/08/01
BARIUM, TOTAL	005	OI	01L0033	01/12/01	01/30/01	02/08/01
CADMIUM, TOTAL	005	OI	01L0033	01/12/01	01/30/01	02/08/01
CHROMIUM, TOTAL	005	OI	01L0033	01/12/01	01/30/01	02/08/01
MERCURY, TOTAL	005	OI	01C0040	01/12/01	01/30/01	01/31/01
LEAD, TOTAL	005	OI	01L0033	01/12/01	01/30/01	02/08/01
SELENIUM, TOTAL	005	OI	01L0033	01/12/01	01/30/01	02/08/01

LAB QC:

SILVER LABORATORY	LC1 BS	S	01L0033	N/A	01/30/01	02/08/01
SILVER, TOTAL	MB1	S	01L0033	N/A	01/30/01	02/08/01

Lionville Laboratory, Inc.
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-022 H1214

DATE RECEIVED: 01/18/01 LVL LOT # :0101L787

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ARSENIC LABORATORY	LC1 BS	S	01L0033	N/A	01/30/01	02/08/01
ARSENIC, TOTAL	MB1	S	01L0033	N/A	01/30/01	02/08/01
BARIUM LABORATORY	LC1 BS	S	01L0033	N/A	01/30/01	02/08/01
BARIUM, TOTAL	MB1	S	01L0033	N/A	01/30/01	02/08/01
CADMIUM LABORATORY	LC1 BS	S	01L0033	N/A	01/30/01	02/08/01
CADMIUM, TOTAL	MB1	S	01L0033	N/A	01/30/01	02/08/01
CHROMIUM LABORATORY	LC1 BS	S	01L0033	N/A	01/30/01	02/08/01
CHROMIUM, TOTAL	MB1	S	01L0033	N/A	01/30/01	02/08/01
MERCURY LABORATORY	LC1 BS	S	01C0040	N/A	01/30/01	01/31/01
MERCURY, TOTAL	MB1	S	01C0040	N/A	01/30/01	01/31/01
LEAD LABORATORY	LC1 BS	S	01L0033	N/A	01/30/01	02/08/01
LEAD, TOTAL	MB1	S	01L0033	N/A	01/30/01	02/08/01
SELENIUM LABORATORY	LC1 BS	S	01L0033	N/A	01/30/01	02/08/01
SELENIUM, TOTAL	MB1	S	01L0033	N/A	01/30/01	02/08/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-022
LVL#: 0101L787
SDG/SAF#: H1214/B01-022

W.O.#: 10985-001-001-9999-00
Date Received: 01-18-01

METALS CASE NARRATIVE

1. This narrative covers the analyses of 5 oil samples

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

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

4. All cooler temperatures have been recorded on the Chain of Custody.

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within the 90-110% control limits (80-120% for Mercury).

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) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.

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

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.

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 15 pages.

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

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.

14. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some forms may still reference Recra LabNet Philadelphia.

J. Michael Taylor
President
Lionville Laboratory Incorporated

02-21-01
Date

jjw/m01-787

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 0101L787

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:_____ Method:_____

L-WI-033/M-11/99

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 Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/12/01

CLIENT: TNUHANFORD B01-022 H1214 LVL LOT #: 0101L787

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B118H2	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	0.42	MG/KG	0.23	1.0
		Barium, Total	0.14	MG/KG	0.02	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.14	MG/KG	0.06	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	0.95	MG/KG	0.20	1.0
		Selenium, Total	1.6	MG/KG	0.32	1.0
-002	B118H3	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	0.40	MG/KG	0.23	1.0
		Barium, Total	0.16	MG/KG	0.02	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.17	MG/KG	0.06	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	0.78	MG/KG	0.20	1.0
		Selenium, Total	2.2	MG/KG	0.32	1.0
-003	B118H4	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	0.29	MG/KG	0.24	1.0
		Barium, Total	0.1	MG/KG	0.02	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.12	MG/KG	0.06	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	0.26	MG/KG	0.21	1.0
		Selenium, Total	2.0	MG/KG	0.33	1.0

Lionville Lababoratory, Inc.

INORGANICS DATA SUMMARY REPORT 02/12/01

CLIENT: TNUHANFORD B01-022 H1214 LVL LOT #: 0101L787

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B118H5	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Arsenic, Total	0.33	MG/KG	0.23	1.0
		Barium, Total	0.06	MG/KG	0.02	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.13	MG/KG	0.06	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	0.61	MG/KG	0.20	1.0
		Selenium, Total	1.9	MG/KG	0.31	1.0
-005	B118H6	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	0.31	MG/KG	0.24	1.0
		Barium, Total	0.08	MG/KG	0.02	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.11	MG/KG	0.06	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Lead, Total	0.60	MG/KG	0.21	1.0
		Selenium, Total	1.9	MG/KG	0.33	1.0

Lionville Lababoratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 02/12/01

CLIENT: TNUHANFORD B01-022 H1214 LVL LOT #: 0101L787

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	01L0033-MB1	Silver, Total	0.11 u	MG/KG	0.11	1.0
		Arsenic, Total	0.24 u	MG/KG	0.24	1.0
		Barium, Total	0.02	MG/KG	0.02	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.06 u	MG/KG	0.06	1.0
		Lead, Total	0.21 u	MG/KG	0.21	1.0
		Selenium, Total	0.33 u	MG/KG	0.33	1.0
BLANK1	01C0040-MB1	Mercury, Total	0.02	MG/KG	0.02	1.0

Lionville Lababoratory, Inc.

INORGANICS ACCURACY REPORT 02/12/01

CLIENT: TNUHANFORD B01-022 H1214

LVL LOT #: 0101L787

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B118H2	Silver, Total	4.5	0.11u	4.9	91.8	1.0
		Arsenic, Total	183	0.42	194	94.2	1.0
		Barium, Total	185	0.14	194	95.2	1.0
		Cadmium, Total	4.4	0.03u	4.9	89.8	1.0
		Chromium, Total	18.7	0.14	19.4	95.7	1.0
		Mercury, Total	0.18	0.02u	0.16	108.7	1.0
		Lead, Total	44.8	0.95	48.6	90.2	1.0
		Selenium, Total	194	1.6	194	99.3	1.0

Lionville Lababoratory, Inc.

INORGANICS PRECISION REPORT 02/12/01

CLIENT: TNUHANFORD B01-022 H1214 LVL LOT #: 0101L787

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B118H2	Silver, Total	0.11u	0.11u	NC	1.0
		Arsenic, Total	0.42	0.50	18.6	1.0
		Barium, Total	0.14	0.07	62.4	1.0
		Cadmium, Total	0.03u	0.03u	NC	1.0
		Chromium, Total	0.14	0.11	19.8	1.0
		Mercury, Total	0.02u	0.02u	NC	1.0
		Lead, Total	0.95	1.0	4.8	1.0
		Selenium, Total	1.6	1.8	11.8	1.0

Lionville Lababoratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 02/12/01

CLIENT: TNUHANFORD B01-022 H1214 LVL LOT #: 0101L787

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	01L0033-LC1	Silver, LCS	49.1	50.0	MG/KG	98.2
		Arsenic, LCS	933	1000	MG/KG	93.3
		Barium, LCS	488	500	MG/KG	97.6
		Cadmium, LCS	24.3	25.0	MG/KG	97.2
		Chromium, LCS	49.5	50.0	MG/KG	99.0
		Lead, LCS	241	250	MG/KG	96.5
		Selenium, LCS	900	1000	MG/KG	90.0
LCS1	01C0040-LC1	Mercury, LCS	2.9	2.5	MG/KG	118.2

RECRA LabNet Use Only: 0101L787

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

14

Client: TMU-Hanford B01-022
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: DJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 1-18-01 Date Due: 2-8-01
Account #:

		A	B
Refrigerator #		1	6
#/Type Container	Liquid	1V	1P
	Solid		
Volume	Liquid	40	500
	Solid		
Preservatives		-	-

ANALYSES REQUESTED →

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	Metal	CN

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

RECRA LabNet Use Only

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	OC24H	OC25H	OPCB		IC①			MRCRATC	ICNTO	IPH	ISFD	IIGN
001	B11BH2			O	1-12-01	0900	✓	✓	✓		✓			✓	✓	✓	✓	✓
002	3					0917	✓	✓	✓		✓			✓	✓	✓	✓	✓
003	4					1005	✓	✓	✓		✓			✓	✓	✓	✓	✓
004	5					1032	✓	✓	✓		✓			✓	✓	✓	✓	✓
005	6						✓	✓	✓		✓			✓	✓	✓	✓	✓
TC1-1Del																		

Special Instructions: Saf B01-022
Run Matrix QC
Suspect PCB ≤ 50ppm

DATE/REVISIONS:
IC① 1. Cl, Fl, NO3, NO2, PO4, SO4
2.
3.
4.
5.
6.

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N

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

Cooler Temp. ← °C

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

NOTES:
811511013592 - 14.4°C
822625260512 - 14.0°C

Relinquished by	Received by	Date	Time
FedEx	[signature]	1-18-01	0935

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Collector: Doug Bowers	Company Contact: Jason Adler	Telephone No.: 372-2178	Project Coordinator: TRENT, SJ
Price Code			
Project Designation: 105-D & 105-H Rx Waste Sampling - Other Liquid	Sampling Location: 105D reactor room 113C		SAF No.: B01-022
Air Quality ☐			
Ice Chest No.: 4GV Comb. PKg	Field Logbook No.: EFL1133-8	COA: R105D6280C	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: HMSR # 000843		Bill of Lading/Air Bill No.: NA

BTB 1-11-01

POSSIBLE SAMPLE HAZARDS/REMARKS

Suspect PCB in liquid. ≤ 50ppm BASED on process Knowledge

Special Handling and/or Storage

Cooling Requirements Could not be met

Preservation	Cool 4C ~~HGI~~ BTB 1-12-01	Cool 4C BTB 1-12-01	None BTB 1-11-01	Cool 4C	None
Type of Container	aGs*	P	P	P BTB 1-15-01	P
No. of Container(s)	1	Ø BTB 1-15-01	1	Ø + RT 1-15-01	
Volume	40mL	~~250mL~~ 500ml	500mL	~~1000mL~~ 500ml	1000mL
	VOA - 8260A (TCL)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL); PCBs - 8082	See item (3) in Special Instructions.

Samples stored in Ref.# 1C at the 3728 Shipping Facility on 1/12/01. Collector not available to relinquish samples on 1/17/01 for shipment.

RT 1/17/01

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time									Tie To:
118H2	OTHER LIQUID	1-12-01	0900	X	X	X	X					B118H7
118H3	OTHER LIQUID	1-12-01	0917	X	X	X	X					B118H8
118H4	OTHER LIQUID	1-12-01	1005	X	X	X	X					B118H9
118H5	OTHER LIQUID	1-12-01	1032	X	X	X	X					B118JØ
118H6	OTHER LIQUID	1-12-01	1032	X	X	X	X					B118JØ

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-12-01/1410	~~Received By~~ Stored in RefIC 3728	1-12-01/1410
Removed from Ref IC 3728	1/17/01 0800	R.J. R. Thoren	1/17/01 0800
R Thoren	1/17/01 1000	FED EX	
	1-18-01 0935		1-18-01 0935

Sign/Print Names

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 {Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate}; Total Cyanide - 9010; pH (Soil) - 9045; Sulfides - 9030; Ignitability - 1010

(2) ICP Metals - 6010A (Supertrace) {Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver}; Mercury - 7471 - (CV)

(3) ~~Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add on {Barium-133}; Isotopic Plutonium; Isotopic Uranium; Isotopic Thorium {Thorium-230, Thorium-232}; Americium-241; Nickel-63; Strontium-89,90 - Total S.~~

please perform analysis (1) in special instructions, and semi-voa-8270A (TCL); PCBs-8082 from 500ml Poly.

RT 1-15-01

Matrix *

S=Soil
SE=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	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

HI-EE-011 (10/99)

MAR 2001
RECEIVED

Lionville Laboratory, Inc.
PCB ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-022 H1214

DATE RECEIVED: 01/18/01 RFW LOT # :0101L787

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B118H2	001	OI	01LE0073	01/12/01	01/22/01	02/08/01
B118H2	001 MS	OI	01LE0073	01/12/01	01/22/01	02/08/01
B118H2	001 MSD	OI	01LE0073	01/12/01	01/22/01	02/08/01
B118H3	002	OI	01LE0073	01/12/01	01/22/01	02/08/01
B118H4	003	OI	01LE0073	01/12/01	01/22/01	02/08/01
B118H5	004	OI	01LE0073	01/12/01	01/22/01	02/08/01
B118H6	005	OI	01LE0073	01/12/01	01/22/01	02/08/01

LAB QC:

PBLKOP	MB1	S	01LE0073	N/A	01/22/01	02/08/01
PBLKOP	MB1 BS	S	01LE0073	N/A	01/22/01	02/08/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU HANFORD B01-022
LVL#: 0101L787
SDG/SAF#: H1214/B01-022

W.O.#: 10985-001-001-9999-00
Date Received: 01-18-01

PCB

The set of samples consisted of five (5) oil samples collected on 01-12-01.

The samples and their associated QC samples were extracted on 01-22-01 and analyzed according to Lionville Laboratory OPs based on SW846, 3rd Edition procedures on 02-08-01. The extraction procedure was based on method 3580A (Waste Dilution, 1g into 10 mL hexane) and the extracts were analyzed based on method 8082 for Aroclors only.

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 cooler temperatures have been recorded on the chain-of-custody.

2. All required holding times for extraction and analysis have been met.

3. The sample matrix was not soluble in hexane; the extract remained biphasic. A 1 mL aliquot of the hexane fraction was acid cleaned and transferred for analysis. A copy of the Sample Discrepancy Report (SDR) has been enclosed.

4. The samples and their associated QC samples received a sulfuric acid and sulfur cleanup.

5. The method blank was below the reporting limits for all target compounds.

6. One (1) of eighteen (18) surrogate recoveries was outside QC limits; however, the surrogate recovery acceptance criteria were met (i.e., no more than one outlier per sample).

7. The blank spike recovery was within acceptance criteria.

8. All matrix spike recoveries were within acceptance criteria.

9. All initial calibrations associated with this data set were within acceptance criteria.

10. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.

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 11 pages.

11. As of January 27, 2001, Recra Labnet Philadelphia became Lionville Laboratory Incorporated. Some forms may still reference Recra Labnet Philadelphia.

12. 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 _____ 02-14-01

J. Michael Taylor
President
Lionville Laboratory Incorporated

Date

pef\r:\group\data\pest\01L-787.pcb

LVLI
LIONVILLE LABORATORY INC

GLOSSARY OF PESTICIDE/PCB DATA

DATA QUALIFIERS

U = Indicates that the compound was analyzed for but not detected. The minimum detection limit for the sample (not the method detection limit) is reported with the U (e.g., 10U).

J = Indicates an estimated value. This flag is used in cases where a target analyte is detected at a level less than the lower quantification level. If the limit of quantification 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.

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

I = Interference.

ABBREVIATIONS

BS = Indicates blank spike in which reagent grade water is spiked with the CLP matrix spiking 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 = Indicates that recoveries were not obtained because the extract had to be diluted for analysis.

NA = Not Applicable.

DF = Dilution Factor.

NR = Not Required.

SP = Indicates Spiked Compound.

GLOSSARY OF PESTICIDE/PCB DATA

P = This flag is used for a pesticide/Aroclor target analyte when there is greater than 25% difference for detected concentrations between the two GC columns (see Form X). The lower of the two values is reported on Form I and flagged with a "P".

D = This flag identifies all compounds identified in an analysis at a secondary dilution factor.

C = This flag applies to a compound that has been confirmed by GC/MS.

Lionville Laboratory Sample Discrepancy Report (SDR) SDR #: 01E~~00~~019 Re-extn

Initiator: Bernard Foley Batch: 0101L787 Parameter: OPCB
Date: 2/7/01 Samples: 1-5 Matrix: O.1
Client: TN Method: SW846/MCAWW/CLP/ Prep Batch: 01LE2173

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: _____

c. Problem (Include all relevant specific results; attach data if necessary)

Samples were extrated by Waste Dilution Method but were not soluble in hexane

2. Known or Probable Causes(s)

Matrix effect.

3. Discussion and Proposed Action Other Description: Transfer 1mL of hexane to clean for analysis. 2/7/01

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

4. Project Manager Instructions...signature/date: 2/8/01

__ 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: 2/13/01 Other Explanation:

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

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
__	X Initiator	__	__ Metals: Doughty
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
1	X Project Mgr: Stone/Johnson	2	X GC/LC: Pastor / Kiger
__	X Technical Mgr: Wesson/Daniels	__	__ MS: Rycklak/Layman
__	X QA (file): Alberts	__	__ Log-in: Keppel
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Doughty/Kiger	__	__ Other: _____

L-WI-006/E-01/01

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 02/12/01 17:45

RFW Batch Number: **0101L787** Client: **TNUHANFORD B01-022 H1214** Work Order: 10985001001 Page: 1

	Cust ID:	B118H2	B118H2	B118H2	B118H3	B118H4	B118H5
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	OIL	OIL	OIL	OIL	OIL	OIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	112 %	115 %	122 * %	115 %	115 %	118 %
	Decachlorobiphenyl	102 %	110 %	118 %	110 %	114 %	113 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		980 U	1000 U	940 U	1000 U	890 U	1000 U
Aroclor-1221		2000 U	2000 U	1900 U	2000 U	1800 U	2000 U
Aroclor-1232		980 U	1000 U	940 U	1000 U	890 U	1000 U
Aroclor-1242		980 U	1000 U	940 U	1000 U	890 U	1000 U
Aroclor-1248		980 U	1000 U	940 U	1000 U	890 U	1000 U
Aroclor-1254		980 U	66 %	66 %	1000 U	890 U	1000 U
Aroclor-1260		980 U	1000 U	940 U	1000 U	890 U	1000 U

	Cust ID:	B118H6	PBLKOP	PBLKOP BS
Sample Information	RFW#:	005	01LE0073-MB1	01LE0073-MB1
	Matrix:	OIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	118 %	100 %	108 %
	Decachlorobiphenyl	117 %	99 %	90 %
		fl	fl	fl
Aroclor-1016		670 U	1000 U	1000 U
Aroclor-1221		1300 U	2000 U	2000 U
Aroclor-1232		670 U	1000 U	1000 U
Aroclor-1242		670 U	1000 U	1000 U
Aroclor-1248		670 U	1000 U	1000 U
Aroclor-1254		670 U	1000 U	77 %
Aroclor-1260		670 U	1000 U	1000 U

U= Analyzed, not detected. J= Present below detection limit. B= Present in blank. NR= Not reported. NS= Not spiked.
%= Percent recovery. D= Diluted out. I= Interference. NA= Not Applicable. *= Outside of EPA CLP QC

RECRA LabNet Use Only
0101L787

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TMU-Hanford B01-022
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 1-18-01 Date Due: 2-8-01
Account #:

		A	B
Refrigerator #		1	6
#/Type Container	Liquid	1V	1P
	Solid		
Volume	Liquid	40	500
	Solid		
Preservatives		–	–

ANALYSES REQUESTED →

ORGANIC				INORG	
VOA	BNA	Pest/PCB	Herb	Metal	CN

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

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	8260	8270	PCB		IC①		MRCRA	ICP	IPH	ISFD	IIGN
001	B118H2			O	1-12-01	0900	✓	✓	✓		✓		✓	✓	✓	✓	✓
002	3					0917	✓	✓	✓		✓		✓	✓	✓	✓	✓
003	4					1005	✓	✓	✓		✓		✓	✓	✓	✓	✓
004	5					1032	✓	✓	✓		✓		✓	✓	✓	✓	✓
005	6						✓	✓	✓		✓		✓	✓	✓	✓	✓
~~006~~																	

RECRA LabNet Use Only

Special Instructions: Saf B01-022
Run Matrix QC
Suspect PCB ≤ 50ppm

DATE/REVISIONS:
IC① 1. Cl, F, NO3, NO2, PO4, SO4
2.
3.
4.
5.
6.

RECRA LabNet Use Only

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

COC Tape was: 1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. ← °C

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
811511013592 - 14.4°C
822162526060512 - 14.0°C

Relinquished by	Received by	Date	Time
FedEx	[signature]	1-18-01	0935

Relinquished by	Received by	Date	Time
COMPOSITE WASTE.	ORIGINAL REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-022-02	Page 1 of 21
Collector: Doug Bowers	Company Contact: Jason Adler; Telephone No.: 372-2178	Project Coordinator: TRENT, SJ	Price Code: 9L; Data Turnaround: 21 Days
Project Designation: 105-D & 105-H Rx Waste Sampling - Other Liquid	Sampling Location: 105D reactor room 113C	SAF No.: B01-022	Air Quality ☐
Ice Chest No.: 4GV Comb. Pkg	Field Logbook No.: EFL1133-8; COA: R105DG280C	Method of Shipment: Fed Ex	
Shipped To: TWA/RECRA	Offsite Property No.: HMSR # 000843	Bill of Lading/Air Bill No.: NA	

BTD 1-11-01

POSSIBLE SAMPLE HAZARDS/REMARKS

Suspect PCB in liquid. ≤ 50ppm BASED on process Knowledge

Special Handling and/or Storage

Cooling Requirements Could not be met

Preservation	Cool 4C	Cool 4C	None	Cool 4C	None
Type of Container	aGs*	P	P	P	
No. of Container(s)	1	1	1	1	
Volume	40mL	500ml	500mL	500ml	1000mL
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL); PCBs - 8082	See item (3) in Special Instructions.

Samples stored in Ref.# 1C at the 3728 Shipping Facility on 1/12/01. Collector not available to relinquish samples on 1/17/01 for shipment.

RT 1/17/01

Tie to:

Sample No.	Matrix *	Sample Date	Sample Time									
B118H2	OTHER LIQUID	1-12-01	0900	X	X	X	X				B118H7	
B118H3	OTHER LIQUID	1-12-01	0917	X	X	X	X				B118H8	
B118H4	OTHER LIQUID	1-12-01	1005	X	X	X	X				B118H9	
B118H5	OTHER LIQUID	1-12-01	1032	X	X	X	X				B118J0	
B118H6	OTHER LIQUID	1-12-01	1032	X	X	X	X				B118J0	

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-12-01/1410	Stored in Ref IC 3728	1-12-01/1410
Removed from Ref IC 3728	1/17/01 0800	R.T. Thoren	1/17/01 0800
R.T. Thoren	1/17/01 1000	FEDEX	
Fed Ex	1-18-01 0935		1-18-01 0935

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 [Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate]; Total Cyanide - 9010; pH (Soil) - 9045; Sulfides - 9030; Ignitability - 1010
(2) ICP Metals - 6010A (Supertrace) [Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver]; Mercury - 7471 - (CV)
(3) ~~Gamma Spectroscopy [Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155]; Gamma Spec - Add-on [Barium-133]; Isotopic Plutonium; Isotopic Uranium; Isotopic Thorium [Thorium-230, Thorium-232]; Americium-241; Nickel-63; Strontium-90/90 - Total S~~

ET 1-19-01

PLEASE perform analysis (1) in Special instructions, and Semi-VOA-8270A (TCL); PCBs-8082 From 500ml Poly.

Matrix *

S=Soil
SE=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)

Figure 1. Sample Check-in List

Date/Time Received: 1-18-01 / 0935

SDG#: 01016787

Work Order Number: — SAF# B01-022

Shipping Container ID: 2 boxes Chain of Custody # B01-022-02

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 14.4°C 14.0°C
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
   - [ ] hazard labels
   - [ ] custody seals
   - [✓] appropriate sample labels

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

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

Sample Custodian/Laboratory: [signature] Date: 1-18-01

Telephoned to: _____ On _____ By _____

FedEx. *Dangerous Goods Airbill* **Recipient's Copy**

3

1 From

Date 1-17-01 Sender's FedEx Account Number [redacted]

Sender's Name JOHN E. MAXWELL Phone (509) 376 [redacted] 7493

Company DURATEK FEDERAL SERVICES, INC. FOR U.S. DOE

Address 2355 STEVENS DRIVE MS H1-14 Dept./Floor/Suite/Room

City RICHLAND State WA ZIP 99352

2 Your Internal Billing Reference R1050G280C

3 To

Recipient's Name ORLETTE JOHNSON Phone (610) 280-3012

Company RECRA LAB NET

Address 208 WELSH POOL ROAD
For "HOLD" at FedEx location, print FedEx address here — Dept./Floor/Suite/Room

City LIONVILLE State PA ZIP 19341-1333

For HOLD at FedEx Location check here: ☐ Hold Weekday ☐ Hold Saturday (Available for FedEx Priority Overnight and FedEx 2Day to select locations)

For WEEKEND Delivery check here: ☐ Saturday Delivery (Available for FedEx Priority Overnight and FedEx 2Day to select ZIP codes) ☐ Sunday Delivery (Available for FedEx Priority Overnight to select ZIP codes)

4a Express Package Service *Packages up to 150 lbs.* — Delivery commitments may be later in some areas.

☒ FedEx Priority Overnight (Next business morning) ☐ FedEx Standard Overnight (Next business afternoon)

☐ FedEx 2Day (Second business day) ☐ FedEx Express Saver (Third business day)

4b Express Freight Service *Packages over 150 lbs.* — Delivery commitment may be later in some areas.

☐ FedEx 1Day Freight* (Next business day) ☐ FedEx 2Day Freight (Second business day) ☐ FedEx 3Day Freight (Third business day)

* Call for Confirmation:

81151101359 2

Questions? Call 1•800•Go•FedEx® (800-463-3339) or Visit our Web site at www.fedex.com

5 Packaging

☒ Other Packaging

Dangerous Goods cannot be shipped in FedEx packaging.

6 Special Handling

☒ Dangerous Goods as per attached Shipper's Declaration ☐ Cargo Aircraft Only

7 Payment

Bill to: ☐ Sender (Acct. No. in Section 1 will be billed) ☐ Recipient ☒ Third Party ☐ Credit Card ☐ Cash/Check

Enter FedEx Acct. No. or Credit Card No. below

[redacted]

Total Packages	Total Weight	Total Declared Value*	Total Charges
5	90	$ NVD .00	Credit Card Auth.

* When declaring a value higher than $100 per shipment, you pay an additional charge. See SERVICE CONDITIONS, DECLARED VALUE, AND LIMIT OF LIABILITY section for further information.

Signature Release Unavailable

PART #154827 • Rev. Date 11/98 ©1994-98 FedEx • PRINTED IN U.S.A.

FedEx Tracking Number 81151101359 2 0204 Form I.D. No. 374 WCSL 2/99

Page 1 of 1 Pages

Two completed and signed copies of this Declaration must be handed to the operator.

WARNING

Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent.

TRANSPORT DETAILS

This shipment is within the limitations prescribed for: (delete non-applicable) PASSENGER AND CARGO AIRCRAFT [redacted] ONLY

Airport of Departure: PASCO, WA

Airport of Destination

Shipment type: (delete non-applicable) NON-RADIOACTIVE [redacted]

NATURE AND QUANTITY OF DANGEROUS GOODS

Dangerous Goods Identification: Proper Shipping Name	Class or Division	UN or I.D. No.	Packing Group	Subsidiary Risk	Quantity and Type of Packaging	Packing Instr.	Authorization
POLYCHLORINATED BIPHENYLS, LIQUID	9	UN2315	II		2 FIBERBOARD BOXES 1 x 1 L 1 x 2 L	907	PACKAGED PER FEDEX LETTER 8503J DATED 3/16/95 ATTACHED
POLYCHLORINATED BIPHENYLS, SOLID	9	UN2315	II		5 METAL DRUMS 2 x 5 Kg EACH 1 x 1 Kg	911	PACKAGED PER FX-06

Additional Handling Information

ENERGENCY RESPONSE GUIDE # 171 ATTACHED

Prepared for AIR TRANSPORT according to: (Customer MUST check one) ☐ 49 CFR ☒ ICAO / IATA

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked, and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Name/Title of Signatory JOHN E. MAXWELL/TRAFFIC SPEC.

Place and Date RICHLAND, WA 1-17-01

Signature (see warning above) [signature]

1-888-765-0771 (Required for U.S. Origin or Destination Shipments)

IF ACCEPTABLE FOR PASSENGER AIRCRAFT, THIS SHIPMENT CONTAINS RADIOACTIVE MATERIAL INTENDED FOR USE IN, OR INCIDENT TO, RESEARCH, MEDICAL DIAGNOSIS, OR TREATMENT.

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-022 H1214

MAR 2001
RECEIVED

DATE RECEIVED: 01/18/01 RFW LOT # :01[illegible]1787

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B118H2	001	OI	01LE0072	01/12/01	01/22/01	02/03/01
B118H2	001 MS	OI	01LE0072	01/12/01	01/22/01	02/03/01
B118H2	001 MSD	OI	01LE0072	01/12/01	01/22/01	02/03/01
B118H3	002	OI	01LE0072	01/12/01	01/22/01	02/06/01
B118H4	003	OI	01LE0072	01/12/01	01/22/01	02/06/01
B118H5	004	OI	01LE0072	01/12/01	01/22/01	02/06/01
B118H6	005	OI	01LE0072	01/12/01	01/22/01	02/06/01
LAB QC:						
SBLKOQ	MB1	S	01LE0072	N/A	01/22/01	02/03/01
SBLKOQ	MB1 BS	S	01LE0072	N/A	01/22/01	02/03/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-022
LVL#: 0101L787
SDG/SAF#: H1214/B01-022

W.O.#: 10985-001-001-9999-00
Date Received: 01-18-01

SEMIVOLATILE

The set of samples consisted of five (5) oil samples collected on 01-12-01.

The samples and their associated QC samples were extracted on 01-22-00 and analyzed according to criteria set forth in Lionville Laboratory OPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 02-03,06-01.

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

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.

2. The samples were extracted and analyzed within required holding times.

3. Non-target compounds were not identified in these samples.

4. Due to the sample matrix, these samples were extracted according to Waste Dilution Protocol (1 gm to 20 mL DCM). The samples required an additional 10-fold dilution prior to analyses due to non-target compounds. All results have been reported on a wet-weight basis.

5. All surrogate recoveries were within EPA QC limits.

6. All blank spike recoveries were within acceptance criteria.

. One (1) of twenty-two (22) obtainable matrix spike recoveries was outside EPA QC limits. All %RPD were within EPA QC limits.

   Pentachlorophenol was not recovered in the matrix spike and matrix spike duplicate due to the dilution required for analyses.

7. All internal standard area and retention time criteria were met.

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

8. Manual integrations are performed according to OP L-QA-125 to produce quality data with the utmost integrity. All manual integrations are required to be technically valid and properly documented. Appropriate technical flags are defined in Section III ("Technical Flags For Manual Integration"); hard copies of the integrations have been included with the quantitation data.

9. As of January 27, 2001, Recra Labnet Philadelphia became Lionville Laboratory Incorporated. Some forms may still reference Recra Labnet Philadelphia.

10. 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 J. Michael Taylor
President
Lionville Laboratory Incorporated

02-23-01
Date

pef\gorup\data\bna\tnu-hanford-01-787.doc

GLOSSARY OF BNA 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.
A	=	Indicates that a TIC is a suspected aldol-condensation product.
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.

mmz\10-94\gloss.bna

GLOSSARY OF BNA 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.

mmz\10-94\gloss.bna

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, HSL List

Report Date: 02/08/01 12:06

RFW Batch Number: **0101L787** Client: **TNUHANFORD B01-022 H1214** Work Order: 10985001001 Page: 1a

	Cust ID:	B118H2	B118H2	B118H2	B118H3	B118H4	B118H5
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	OIL	OIL	OIL	OIL	OIL	OIL
	D.F.:	200	200	200	200	200	200
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate Recovery	Nitrobenzene-d5	80 %	83 %	93 %	86 %	88 %	82 %
	2-Fluorobiphenyl	83 %	85 %	88 %	98 %	100 %	89 %
	Terphenyl-d14	90 %	97 %	105 %	90 %	94 %	88 %
	Phenol-d5	73 %	90 %	100 %	84 %	88 %	87 %
	2-Fluorophenol	75 %	86 %	96 %	86 %	81 %	77 %
	2,4,6-Tribromophenol	55 %	62 %	67 %	67 %	77 %	71 %
Phenol		2000000 U	86 %	98 * %	1800000 U	1900000 U	1900000 U
bis(2-Chloroethyl)ether		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
2-Chlorophenol		2000000 U	86 %	97 %	1800000 U	1900000 U	1900000 U
1,3-Dichlorobenzene		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
1,4-Dichlorobenzene		2000000 U	93 %	97 %	1800000 U	1900000 U	1900000 U
1,2-Dichlorobenzene		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
2-Methylphenol		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
2,2'-oxybis(1-Chloropropane)		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
4-Methylphenol		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
N-Nitroso-di-n-propylamine		2000000 U	87 %	98 %	1800000 U	1900000 U	1900000 U
Hexachloroethane		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Nitrobenzene		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Isophorone		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
2-Nitrophenol		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
2,4-Dimethylphenol		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
bis(2-Chloroethoxy)methane		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
2,4-Dichlorophenol		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
1,2,4-Trichlorobenzene		2000000 U	88 %	89 %	1800000 U	1900000 U	1900000 U
Naphthalene		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
4-Chloroaniline		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Hexachlorobutadiene		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
4-Chloro-3-methylphenol		2000000 U	86 %	89 %	1800000 U	1900000 U	1900000 U
2-Methylnaphthalene		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Hexachlorocyclopentadiene		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
2,4,6-Trichlorophenol		2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
2,4,5-Trichlorophenol		4900000 U	5000000 U	4700000 U	4600000 U	4800000 U	4900000 U

*= Outside of EPA CLP QC limits.

Cust ID:	B118H2	B118H2	B118H2	B118H3	B118H4	B118H5
RFW#:	001	001 MS	001 MSD	002	003	004
2-Chloronaphthalene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
2-Nitroaniline	4900000 U	5000000 U	4700000 U	4600000 U	4800000 U	4900000 U
Dimethylphthalate	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Acenaphthylene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
2,6-Dinitrotoluene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
3-Nitroaniline	4900000 U	5000000 U	4700000 U	4600000 U	4800000 U	4900000 U
Acenaphthene	2000000 U	87 %	90 %	1800000 U	1900000 U	1900000 U
2,4-Dinitrophenol	4900000 U	5000000 U	4700000 U	4600000 U	4800000 U	4900000 U
4-Nitrophenol	4900000 U	62 %	68 %	4600000 U	4800000 U	4900000 U
Dibenzofuran	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
2,4-Dinitrotoluene	2000000 U	67 %	77 %	1800000 U	1900000 U	1900000 U
Diethylphthalate	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
4-Chlorophenyl-phenylether	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Fluorene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
4-Nitroaniline	4900000 U	5000000 U	4700000 U	4600000 U	4800000 U	4900000 U
4,6-Dinitro-2-methylphenol	4900000 U	5000000 U	4700000 U	4600000 U	4800000 U	4900000 U
N-Nitrosodiphenylamine (1)	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
4-Bromophenyl-phenylether	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Hexachlorobenzene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Pentachlorophenol	4900000 U	D %	D %	4600000 U	4800000 U	4900000 U
Phenanthrene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Anthracene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Carbazole	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Di-n-butylphthalate	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Fluoranthene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Pyrene	2000000 U	94 %	103 %	1800000 U	1900000 U	1900000 U
Butylbenzylphthalate	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
3,3'-Dichlorobenzidine	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Benzo(a)anthracene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Chrysene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
bis(2-Ethylhexyl)phthalate	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Di-n-octyl phthalate	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Benzo(b)fluoranthene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Benzo(k)fluoranthene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Benzo(a)pyrene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Indeno(1,2,3-cd)pyrene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Dibenz(a,h)anthracene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U
Benzo(g,h,i)perylene	2000000 U	2000000 U	1900000 U	1800000 U	1900000 U	1900000 U

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

	Cust ID:	B118H6		SBLKOQ		SBLKOQ BS	
Sample Information	RFW#:	005		01LE0072-MB1		01LE0072-MB1	
	Matrix:	OIL		SOIL		SOIL	
	D.F.:	200		20.0		20.0	
	Units:	UG/KG		UG/KG		UG/KG	
Surrogate Recovery	Nitrobenzene-d5	91	%	83	%	87	%
	2-Fluorobiphenyl	101	%	85	%	88	%
	Terphenyl-d14	91	%	93	%	94	%
	Phenol-d5	90	%	80	%	79	%
	2-Fluorophenol	81	%	80	%	80	%
	2,4,6-Tribromophenol	77	%	74	%	86	%
Phenol		2000000	U	200000	U	79	%
bis(2-Chloroethyl)ether		2000000	U	200000	U	200000	U
2-Chlorophenol		2000000	U	200000	U	82	%
1,3-Dichlorobenzene		2000000	U	200000	U	200000	U
1,4-Dichlorobenzene		2000000	U	200000	U	90	%
1,2-Dichlorobenzene		2000000	U	200000	U	200000	U
2-Methylphenol		2000000	U	200000	U	200000	U
2,2'-oxybis(1-Chloropropane)		2000000	U	200000	U	200000	U
4-Methylphenol		2000000	U	200000	U	200000	U
N-Nitroso-di-n-propylamine		2000000	U	200000	U	77	%
Hexachloroethane		2000000	U	200000	U	200000	U
Nitrobenzene		2000000	U	200000	U	200000	U
Isophorone		2000000	U	200000	U	200000	U
2-Nitrophenol		2000000	U	200000	U	200000	U
2,4-Dimethylphenol		2000000	U	200000	U	200000	U
bis(2-Chloroethoxy)methane		2000000	U	200000	U	200000	U
2,4-Dichlorophenol		2000000	U	200000	U	200000	U
1,2,4-Trichlorobenzene		2000000	U	200000	U	88	%
Naphthalene		2000000	U	200000	U	200000	U
4-Chloroaniline		2000000	U	200000	U	200000	U
Hexachlorobutadiene		2000000	U	200000	U	200000	U
4-Chloro-3-methylphenol		2000000	U	200000	U	79	%
2-Methylnaphthalene		2000000	U	200000	U	200000	U
Hexachlorocyclopentadiene		2000000	U	200000	U	200000	U
2,4,6-Trichlorophenol		2000000	U	200000	U	200000	U
2,4,5-Trichlorophenol		5000000	U	500000	U	500000	U

*= Outside of EPA CLP QC limits.

10

Cust ID:	B118H6		SBLKOQ		SBLKOQ BS	
RFW#:	005		01LE0072-MB1		01LE0072-MB1	
2-Chloronaphthalene	2000000	U	200000	U	200000	U
2-Nitroaniline	5000000	U	500000	U	500000	U
Dimethylphthalate	2000000	U	200000	U	200000	U
Acenaphthylene	2000000	U	200000	U	200000	U
2,6-Dinitrotoluene	2000000	U	200000	U	200000	U
3-Nitroaniline	5000000	U	500000	U	500000	U
Acenaphthene	2000000	U	200000	U	89	%
2,4-Dinitrophenol	5000000	U	500000	U	500000	U
4-Nitrophenol	5000000	U	500000	U	81	%
Dibenzofuran	2000000	U	200000	U	200000	U
2,4-Dinitrotoluene	2000000	U	200000	U	86	%
Diethylphthalate	2000000	U	200000	U	200000	U
4-Chlorophenyl-phenylether	2000000	U	200000	U	200000	U
Fluorene	2000000	U	200000	U	200000	U
4-Nitroaniline	5000000	U	500000	U	500000	U
4,6-Dinitro-2-methylphenol	5000000	U	500000	U	500000	U
N-Nitrosodiphenylamine (1)	2000000	U	200000	U	200000	U
4-Bromophenyl-phenylether	2000000	U	200000	U	200000	U
Hexachlorobenzene	2000000	U	200000	U	200000	U
Pentachlorophenol	5000000	U	500000	U	79	%
Phenanthrene	2000000	U	200000	U	200000	U
Anthracene	2000000	U	200000	U	200000	U
Carbazole	2000000	U	200000	U	200000	U
Di-n-butylphthalate	2000000	U	200000	U	200000	U
Fluoranthene	2000000	U	200000	U	200000	U
Pyrene	2000000	U	200000	U	91	%
Butylbenzylphthalate	2000000	U	200000	U	200000	U
3,3'-Dichlorobenzidine	2000000	U	200000	U	200000	U
Benzo(a)anthracene	2000000	U	200000	U	200000	U
Chrysene	2000000	U	200000	U	200000	U
bis(2-Ethylhexyl)phthalate	2000000	U	200000	U	200000	U
Di-n-octyl phthalate	2000000	U	200000	U	200000	U
Benzo(b)fluoranthene	2000000	U	200000	U	200000	U
Benzo(k)fluoranthene	2000000	U	200000	U	200000	U
Benzo(a)pyrene	2000000	U	200000	U	200000	U
Indeno(1,2,3-cd)pyrene	2000000	U	200000	U	200000	U
Dibenz(a,h)anthracene	2000000	U	200000	U	200000	U
Benzo(g,h,i)perylene	2000000	U	200000	U	200000	U

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

RECRA LabNet Use Only

0101L787

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TMU-Hanford B01-022

Est. Final Proj. Sampling Date:

Project #: 10985-001-001-9999-00

Project Contact/Phone #:

RECRA Project Manager: DJ

QC: Spec Del: Std TAT: 21 day

Date Rec'd: 1-18-01 Date Due: 2-8-01

Account #:

		A	B
Refrigerator #		1	6
#/Type Container	Liquid	1V	1P
	Solid		
Volume	Liquid	40	500
	Solid		
Preservatives		–	–

ANALYSES REQUESTED →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA	BNA	Pest/PCB	Herb				INORG Metal	CN						
							RECRA LabNet Use Only														
							OL24H	OL25H	OPCB		IC①			MRCRATC	ICNTO	IPH	ISFD	IIGN			
001	B118H2			O	1-12-01	0900	✓	✓	✓		✓			✓	✓	✓	✓	✓			
002	3					0917	✓	✓	✓		✓			✓	✓	✓	✓	✓			
003	4					1005	✓	✓	✓		✓			✓	✓	✓	✓	✓			
004	5					1032	✓	✓	✓		✓			✓	✓	✓	✓	✓			
005	6					↓	✓	✓	✓		✓			✓	✓	✓	✓	✓			
TK1-1B01 0000																					

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

Special Instructions: Saf B01-022
Run Matrix QC
Suspect PCB ≤ 50ppm

DATE/REVISIONS:
IC① 1. Cl, Fl, NO3, NO2, PO4, SO4
2.
3.
4.
5.
6.

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N

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

Cooler Temp. ← °C

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

NOTES:
811511013592 - 14.4°C
822625260512 - 14.0°C

Relinquished by	Received by	Date	Time
FedEx	[signature]	1-18-01	0935

Relinquished by	Received by	Date	Time
COMPOSITE WASTE	ORIGINAL REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-022-02	Page 1 of 1

Collector: Doug Bowers	Company Contact: Jason Adler; Telephone No.: 372-2178	Project Coordinator: TRENT, SJ	Price Code: 9L; Data Turnaround: 21 Days (B 1-11-01)
Project Designation: 105-D & 105-H Rx Waste Sampling - Other Liquid	Sampling Location: 105D reactor room 113C	SAF No.: B01-022	Air Quality ☐
Ice Chest No.: 4GV Comb. PKg	Field Logbook No.: EFL1133-8; COA: B105DG280C	Method of Shipment: Fed Ex	
Shipped To: TMA/RECRA (B 1-11-01)	Offsite Property No.: HMSR # 000843	Bill of Lading/Air Bill No.: NA	

POSSIBLE SAMPLE HAZARDS/REMARKS

Suspect PCB in liquid. ≤ 50ppm BASED on process Knowledge

Special Handling and/or Storage

Cooling Requirements Could not be met

Preservation	Cool 4C	Cool 4C	None (B 1-11-01)	Cool 4C	None
Type of Container	aGs*	P	P	P	P
No. of Container(s)	1	1	1	1	1
Volume	40mL	500ml	500mL	500ml	1000mL
SAMPLE ANALYSIS	VOA - 8260A (TCL)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL); PCBs - 8082	See item (3) in Special Instructions.

Samples stored in Ref.# 1C at the 3728 Shipping Facility on 1/12/01. Collector not available to relinquish samples on 1/17/01 for shipment. RT 1/17/01

Sample No.	Matrix *	Sample Date	Sample Time								Tie To:
B118H2	OTHER LIQUID	1-12-01	0900	X	X	X	X				B118H7
B118H3	OTHER LIQUID	1-12-01	0917	X	X	X	X				B118H8
B118H4	OTHER LIQUID	1-12-01	1005	X	X	X	X				B118H9
B118H5	OTHER LIQUID	1-12-01	1032	X	X	X	X				B118J0
B118H6	OTHER LIQUID	1-12-01	1032	X	X	X	X				B118J0

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By (Sign/Print Names)	Date/Time
Doug Bowers	1-12-01/1410	RT Stored in Ref IC 3728	1-12-01/1410
Removed from Ref IC 3728	1/17/01 0800	R.Thoren	1/17/01 0800
RThoren	1/17/01 1000	FED EX	
Fed Ex	1-18-01 0935		1-18-01 0935

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 [Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate]; Total Cyanide - 9010; pH (Soil) - 9045; Sulfides - 9030; Ignitability - 1010
(2) ICP Metals - 6010A (Supertrace) [Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver]; Mercury - 7471 - (CV)
(3) Gamma Spectroscopy [Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155]; ~~Gamma Spec - Add on [Barium-133]; Isotopic Plutonium; Isotopic Uranium; Isotopic Thorium [Thorium-230, Thorium-232]; Americium-241; Nickel-63; Strontium-89,90 - Total C.~~

PLEASE perform analysis (1) in Special instructions, and Semi-VOA-8270A (TCL); PCBs-8082 From 500ml Poly. RT 1-15-01

Matrix *: S=Soil; SE=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	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

HI-EE-011 (10/99)

Figure 1. Sample Check-in List

Date/Time Received: 1-18-01 / 0935

SDG#: 01016787

Work Order Number: — SAF# B01-022

Shipping Container ID: 2 boxes Chain of Custody # B01-022-02

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 14.4°C 14.0°C
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
   - [ ] hazard labels
   - [ ] custody seals
   - [✓] appropriate sample labels

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

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

Sample Custodian/Laboratory: [signature] Date: 1-18-01

Telephoned to: _____ On _____ By _____

FedEx. *Dangerous Goods Airbill* **Recipient's Copy**

1 From

Date 1-17-01 Sender's FedEx Account Number [redacted] 3

Sender's Name JOHN E. MAXWELL Phone (509) 376 [redacted] 7493

Company DURATEK FEDERAL SERVICES, INC. FOR U.S. DOE

Address 2765 STEVENS DRIVE MS [illegible] Dept/Floor/Suite/Room

City RICHLAND State WA ZIP 99352

2 Your Internal Billing Reference R105DG280C

3 To

Recipient's Name ORLETTE JOHNSON Phone (610) 280-3012

Company RECRA LAB NET

Address 208 WELSH POOL ROAD
For "HOLD" at FedEx location, print FedEx address here — Dept/Floor/Suite/Room

City LIONVILLE State PA ZIP 19341-1333

For HOLD at FedEx Location check here
- [ ] Hold Weekday
- [ ] Hold Saturday — Available for FedEx Priority Overnight and FedEx 2Day to select locations

For WEEKEND Delivery check here
- [ ] Saturday Delivery — Available for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
- [ ] Sunday Delivery — Available for FedEx Priority Overnight to select ZIP codes

4a Express Package Service *Packages up to 150 lbs.* — Delivery commitment may be later in some areas.
- [x] FedEx Priority Overnight — Next business morning
- [ ] FedEx Standard Overnight — Next business afternoon
- [ ] FedEx 2Day — Second business day
- [ ] FedEx Express Saver — Third business day

4b Express Freight Service *Packages over 150 lbs.* — Delivery commitment may be later in some areas.
- [ ] FedEx 1Day Freight* — Next business day
- [ ] FedEx 2Day Freight — Second business day
- [ ] FedEx 3Day Freight — Third business day

* Call for Confirmation:

811511013592

Questions? Call 1•800•Go•FedEx® (800-463-3339) or Visit our Web site at www.fedex.com

5 Packaging
- [x] Other Packaging

Dangerous Goods cannot be shipped in FedEx packaging.

6 Special Handling
- [x] Dangerous Goods as per attached Shipper's Declaration
- [ ] Cargo Aircraft Only

7 Payment

Bill to: [ ] Sender (Acct. No. in Section 1 will be billed) [ ] Recipient [x] Third Party [ ] Credit Card [ ] Cash Check

Enter FedEx Acct. No. or Credit Card No. below

[redacted]

Total Packages	Total Weight	Total Declared Value*	Total Charges
5	90	$ NVD .00	

* When declaring a value higher than $100 per shipment, you pay an additional charge. See SERVICE CONDITIONS, DECLARED VALUE, AND LIMIT OF LIABILITY section for further information.

Credit Card Auth.

Signature Release Unavailable

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Page 1 of 1 Pages

TRANSPORT DETAILS

This shipment is within the limitations prescribed for: (delete non-applicable)
PASSENGER AND CARGO AIRCRAFT | [redacted] ONLY

Airport of Departure: PASCO, WA

Airport of Destination

Two completed and signed copies of this Declaration must be handed to the operator.

WARNING

Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent.

Shipment type: *(delete non-applicable)* NON-RADIOACTIVE | [redacted]

NATURE AND QUANTITY OF DANGEROUS GOODS

Dangerous Goods Identification: Proper Shipping Name	Class or Division	UN or I.D. No.	Packing Group	Subsidiary Risk	Quantity and Type of Packaging	Packing Instr.	Authorization
POLYCHLORINATED BIPHENYLS, LIQUID	9	UN2315	II		2 FIBERBOARD BOXES 1 x 1 L 1 x 2 L	907	PACKAGED PER FEDEX LETTER B503J DATED 3/16/95 ATTACHED
POLYCHLORINATED BIPHENYLS, SOLID	9	UN2315	II		5 METAL DRUMS 2 x 5 Kg EACH 1 x 1 Kg	911	PACKAGED PER FX-06

Additional Handling Information

EMERGENCY RESPONSE GUIDE # 171 ATTACHED

Prepared for AIR TRANSPORT according to: (Customer MUST check one)
- [ ] 49 CFR
- [x] ICAO / IATA

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked, and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Emergency Telephone Number (Required for U.S. Origin or Destination Shipments) 1-888-765-0771

Name/Title of Signatory JOHN E. MAXWELL/TRAFFIC SPEC.

Place and Date RICHLAND, WA 1-17-01

Signature (see warning above)

IF ACCEPTABLE FOR PASSENGER AIRCRAFT, THIS SHIPMENT CONTAINS RADIOACTIVE MATERIAL INTENDED FOR USE IN, OR INCIDENT TO, RESEARCH, MEDICAL DIAGNOSIS, OR TREATMENT.

MAR 2001
RECEIVED

Lionville Laboratory Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B01-022 H1214

DATE RECEIVED: 01/18/01 RFW LOT # :0101L787

CLIENT ID	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B118H2	001 M1	OI	01LVN018	01/12/01	N/A	01/23/01
B118H3	002 M1	OI	01LVH015	01/12/01	N/A	01/19/01
B118H3	002 MS M1	OI	01LVN018	01/12/01	N/A	01/23/01
B118H3	002 MSD M1	OI	01LVN018	01/12/01	N/A	01/23/01
B118H4	003 M1	OI	01LVH015	01/12/01	N/A	01/19/01
B118H5	004 M1	OI	01LVH015	01/12/01	N/A	01/19/01
B118H6	005 M1	OI	01LVH015	01/12/01	N/A	01/19/01

LAB QC:

VBLKLM	MB1	S	01LVN018	N/A	N/A	01/23/01
VBLKLB	MB1	S	01LVH015	N/A	N/A	01/19/01
VBLKLB	MB1 BS	S	01LVH015	N/A	N/A	01/19/01

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B01-022
LVL#: 0101L787
SDG/SAF #: H1214/B01-022

W.O. #: 10985-001-001-9999-00
Date Received: 01-18-01

GC/MS VOLATILE

The set of samples consisted of five (5) oil samples collected on 01-12-01.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville laboratory OPs based on SW 846 Method 8260A for TCL Volatile target compounds on 01-19,23-01.

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

1. The cooler temperature upon receipt has been recorded on the chain-of-custody.
2. All samples were analyzed within required holding time.
3. Non-target compounds were detected in the samples.
4. All samples required medium level analysis and 4-fold dilutions due to the sample matrix.
5. All surrogate recoveries were within EPA QC limits.
6. All matrix spike recoveries were within EPA QC limits. All RPDs were within EPA QC limits.
7. All blank spike recoveries were within EPA QC limits.
8. The method blanks contained the common laboratory contaminant Methylene Chloride at levels less than 2x the CRQL, in addition method blank 01LVN018 contained Acetone at a level less than the CRQL.
9. All internal standard area and retention time criteria were met.
10. The blank spike associated with the matrix spike (MS) and matrix spike duplicate (MSD) analyzed on 01-23-01 was not analyzed due to technical error, therefore it was not reported. The MS/MSD recoveries met criteria, the data is not significantly impacted. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
11. "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."
12. As of January 27, 2001, Recra LabNet Philadelphia became Lionville Laboratory Incorporated. Some Forms may still reference Recra LabNet Philadelphia.

J. Michael Taylor
President
Lionville laboratory Incorporated

02-20-01
Date

pef\group\data\voa\tnu-hanford-01-787.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 18 pages.

RECRA Sample Discrepancy Report (SDR) SDR #: [illegible]

Initiator: M Schneider Batch: 0101L787 Parameter: OC24
Date: 1/24/01 Samples: [illegible] Matrix: Oil (Mineral)
Client: [illegible] 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: _____

c. QC Problem (Include all relevant specific results; attach data if necessary)

The Medium Blank Spike (BS) associated with this batch did not run due to technical error. MS/MSD recoveries were within limits for the sample.

2. Known or Probable Causes(s) (To be used for trend analysis)

__ Lack of Organization
__ Lack of Training
__ Lack of Discipline
__ Lack of Resources
__ Lack of Time
__ Lack of Management Support
__ Other (Please explain):

3. Discussion and Proposed Action

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

Other Description:

We would like to report MS/MSD. Note in narrative "No BS"

4. Project Manager Instructions...signature/date: [illegible] 1/24/01

✓ 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: [illegible] 1/26/01

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

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

Route/Distribution of SDR	Route	Distribution of Completed SDR
(1) Initiator MS	__	Metals: Doughty
Lab Manager: M. Taylor	__	Inorganic: Perrone
(2) Project Mgr: Stone/Carey/Johnson	__	GC/LC: Pastor
(1) Section Mgr: Wesson/Daniels	__	MS: Layman/Rycklak
X QA (file): Schrenkel	__	Log-In: Keppel
__ Data Management: Feldman	__	Admin: Soos
__ Sample Prep: Bickel/Kauffman	__	Other: _____

L-WI-006/E-08/00

Lionville Laboratory, Inc.
Volatiles by GC/MS, HSL List

Report Date: 02/02/01 13:14

RFW Batch Number: **0101L787** Client: **TNUHANFORD B01-022 H1214** Work Order: 10985001001 Page: 1a

	Cust ID:	B118H2		B118H3		B118H3		B118H3		B118H4		B118H5	
Sample Information	RFW#:	001		002		002 MS		002 MSD		003		004	
	Matrix:	OIL		OIL		OIL		OIL		OIL		OIL	
	D.F.:	8.00		8.00		8.00		8.00		8.00		8.00	
	Units:	UG/KG		UG/KG		UG/KG		UG/KG		UG/KG		UG/KG	
	Level:	MED		MED		MED		MED		MED		MED	
Surrogate Recovery	Toluene-d8	99	%	85	%	90	%	93	%	82	%	85	%
	Bromofluorobenzene	93	%	80	%	86	%	90	%	79	%	80	%
	1,2-Dichloroethane-d4	121	%	79	%	117	%	122	%	78	%	85	%
			fl		fl		fl		fl		fl		fl
Chloromethane		5000	U	5000	U	5000	U	5000	U	5000	U	5000	U
Bromomethane		5000	U	5000	U	5000	U	5000	U	5000	U	5000	U
Vinyl Chloride		5000	U	5000	U	5000	U	5000	U	5000	U	5000	U
Chloroethane		5000	U	5000	U	5000	U	5000	U	5000	U	5000	U
Methylene Chloride		3600	B	5200	B	4200	B	4300	B	4500	B	5100	B
Acetone		74000	B	4400	J	3600	JB	2200	JB	5000	U	48000	
Carbon Disulfide		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
1,1-Dichloroethene		2500	U	2500	U	98	%	108	%	2500	U	2500	U
1,1-Dichloroethane		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
1,2-Dichloroethene (total)		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
Chloroform		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
1,2-Dichloroethane		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
2-Butanone		5000	U	5000	U	5000	U	5000	U	5000	U	5000	U
1,1,1-Trichloroethane		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
Carbon Tetrachloride		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
Bromodichloromethane		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
1,2-Dichloropropane		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
cis-1,3-Dichloropropene		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
Trichloroethene		2500	U	2500	U	102	%	106	%	2500	U	2500	U
Dibromochloromethane		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
1,1,2-Trichloroethane		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
Benzene		2500	U	2500	U	102	%	107	%	2500	U	2500	U
Trans-1,3-Dichloropropene		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
Bromoform		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
4-Methyl-2-pentanone		5000	U	5000	U	5000	U	5000	U	5000	U	5000	U
2-Hexanone		5000	U	5000	U	5000	U	5000	U	5000	U	5000	U
Tetrachloroethene		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
1,1,2,2-Tetrachloroethane		2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
Toluene		2500	U	2500	U	104	%	109	%	2500	U	2500	U

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0101L787** Client: **TNUHANFORD B01-022 H1214** Work Order: 10985001001 Page: 1b

Cust ID:	**B118H2**		**B118H3**		**B118H3**		**B118H3**		**B118H4**		**B118H5**	
RFW#:	**001**		**002**		**002 MS**		**002 MSD**		**003**		**004**	
Level:	MED		MED		MED		MED		MED		MED	
Chlorobenzene	2500	U	2500	U	100	%	105	%	2500	U	2500	U
Ethylbenzene	2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
Styrene	2500	U	2500	U	2500	U	2500	U	2500	U	2500	U
Xylene (total)	2500	U	2500	U	2500	U	2500	U	2500	U	2500	U

*= Outside of EPA CLP QC limits.

Lionville Laboratory, Inc.
Volatiles by GC/MS, HSL List
Report Date: 02/02/01 13:14

RFW Batch Number: **0101L787** Client: **TNUHANFORD B01-022 H1214** Work Order: 10985001001 Page: 2a

	Cust ID:	B118H6	VBLKLM	VBLKLB	VBLKLB BS
Sample Information	RFW#:	005	01LVN018-MB1	01LVH015-MB1	01LVH015-MB1
	Matrix:	OIL	SOIL	SOIL	SOIL
	D.F.:	8.00	2.00	2.00	2.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG
	Level:	MED	MED	MED	MED

	Toluene-d8	87	%	104	%	101	%	99	%
Surrogate	Bromofluorobenzene	83	%	102	%	97	%	95	%
Recovery	1,2-Dichloroethane-d4	82	%	130	%	94	%	92	%

Chloromethane	5000	U	1200	U	1200	U	1200	U
Bromomethane	5000	U	1200	U	1200	U	1200	U
Vinyl Chloride	5000	U	1200	U	1200	U	1200	U
Chloroethane	5000	U	1200	U	1200	U	1200	U
Methylene Chloride	5200	B	1100		700		580	JB
Acetone	29000		520	J	1200	U	1200	U
Carbon Disulfide	2500	U	620	U	620	U	620	U
1,1-Dichloroethene	2500	U	620	U	620	U	82	%
1,1-Dichloroethane	2500	U	620	U	620	U	620	U
1,2-Dichloroethene (total)	2500	U	620	U	620	U	620	U
Chloroform	2500	U	620	U	620	U	620	U
1,2-Dichloroethane	2500	U	620	U	620	U	620	U
2-Butanone	5000	U	1200	U	1200	U	1200	U
1,1,1-Trichloroethane	2500	U	620	U	620	U	620	U
Carbon Tetrachloride	2500	U	620	U	620	U	620	U
Bromodichloromethane	2500	U	620	U	620	U	620	U
1,2-Dichloropropane	2500	U	620	U	620	U	620	U
cis-1,3-Dichloropropene	2500	U	620	U	620	U	620	U
Trichloroethene	2500	U	620	U	620	U	88	%
Dibromochloromethane	2500	U	620	U	620	U	620	U
1,1,2-Trichloroethane	2500	U	620	U	620	U	620	U
Benzene	2500	U	620	U	620	U	92	%
Trans-1,3-Dichloropropene	2500	U	620	U	620	U	620	U
Bromoform	2500	U	620	U	620	U	620	U
4-Methyl-2-pentanone	5000	U	1200	U	1200	U	1200	U
2-Hexanone	5000	U	1200	U	1200	U	1200	U
Tetrachloroethene	2500	U	620	U	620	U	620	U
1,1,2,2-Tetrachloroethane	2500	U	620	U	620	U	620	U
Toluene	2500	U	620	U	620	U	97	%

*= Outside of EPA CLP QC limits.

RFW Batch Number: **0101L787** Client: **TNUHANFORD B01-022 H1214** Work Order: 10985001001 Page: 2b

Cust ID:	B118H6		VBLKLM		VBLKLB		VBLKLB BS	
RFW#:	005		01LVN018-MB1		01LVH015-MB1		01LVH015-MB1	
Level:	MED		MED		MED		MED	
Chlorobenzene	2500	U	620	U	620	U	99	%
Ethylbenzene	2500	U	620	U	620	U	620	U
Styrene	2500	U	620	U	620	U	620	U
Xylene (total)	2500	U	620	U	620	U	620	U

*= Outside of EPA CLP QC limits.

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B118H2

Lab Name: Lionville Labs, Inc. Work Order: 10985001001

Client: TNUHANFORD B01-022 H1214

Matrix: OIL

Lab Sample ID: 0101L787-001

Sample wt/vol: 1.00 (g/mL) G

Lab File ID: n012310

Level: (low/med) MED

Date Received: 01/18/01

% Moisture: not dec. 0

Date Analyzed: 01/23/01

Column: (pack/cap) CAP

Dilution Factor: 8.00

Number TICs found: 6

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.651	7000	J
2.	UNKNOWN	5.290	10000	J
3.	UNKNOWN	7.916	3000	J
4.	UNKNOWN	8.329	20000	J
5.	UNKNOWN	10.139	7000	J
6.	UNKNOWN	14.821	6000	J

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B118H3

Lab Name: Lionville Labs, Inc. Work Order: 10985001001

Client: TNUHANFORD B01-022 H1214

Matrix: OIL

Lab Sample ID: 0101L787-002

Sample wt/vol: 1.00 (g/mL) G

Lab File ID: h011917

Level: (low/med) MED

Date Received: 01/18/01

% Moisture: not dec. 100

Date Analyzed: 01/19/01

Column: (pack/cap) CAP

Dilution Factor: 8.00

Number TICs found: 0

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

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

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B118H4

Lab Name: Lionville Labs, Inc. Work Order: 10985001001

Client: TNUHANFORD B01-022 H1214

Matrix: OIL

Lab Sample ID: 0101L787-003

Sample wt/vol: 1.00 (g/mL) G

Lab File ID: h011918

Level: (low/med) MED

Date Received: 01/18/01

% Moisture: not dec. 100

Date Analyzed: 01/19/01

Column: (pack/cap) CAP

Dilution Factor: 8.00

Number TICs found: 0

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

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

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1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B118H5

Lab Name: Lionville Labs, Inc. Work Order: 10985001001

Client: TNUHANFORD B01-022 H1214

Matrix: OIL

Lab Sample ID: 0101L787-004

Sample wt/vol: 1.00 (g/mL) G

Lab File ID: h011919

Level: (low/med) MED

Date Received: 01/18/01

% Moisture: not dec. 100

Date Analyzed: 01/19/01

Column: (pack/cap) CAP

Dilution Factor: 8.00

Number TICs found: 5

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.913	4000	J
2.	UNKNOWN	10.659	10000	J
3.	UNKNOWN	16.780	9000	J
4.	SILOXANE	22.288	4000	JB
5.	UNKNOWN	25.556	3000	JB

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

B118H6

Lab Name: Lionville Labs, Inc. Work Order: 10985001001

Client: TNUHANFORD B01-022 H1214

Matrix: OIL

Lab Sample ID: 0101L787-005

Sample wt/vol: 1.00 (g/mL) G

Lab File ID: h011920

Level: (low/med) MED

Date Received: 01/18/01

% Moisture: not dec. 100

Date Analyzed: 01/19/01

Column: (pack/cap) CAP

Dilution Factor: 8.00

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	16.788	6000	J
2.	SILOXANE	22.287	3000	JB

1E

VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLKLM

Lab Name: Lionville Labs, Inc. Work Order: 10985001001

Client: TNUHANFORD B01-022 H1214

Matrix: SOIL Lab Sample ID: 01LVN018-MB1

Sample wt/vol: 4.00 (g/mL) G Lab File ID: n012307

Level: (low/med) MED Date Received: 01/23/01

% Moisture: not dec. 0 Date Analyzed: 01/23/01

Column: (pack/cap) CAP Dilution Factor: 2.00

Number TICs found: 0

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

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

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VOLATILE ORGANICS ANALYSIS SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

CLIENT SAMPLE NO.

VBLKLB

Lab Name: Lionville Labs, Inc. Work Order: 10985001001

Client: TNUHANFORD B01-022 H1214

Matrix: SOIL

Lab Sample ID: 01LVH015-MB1

Sample wt/vol: 4.00 (g/mL) G

Lab File ID: h011906

Level: (low/med) MED

Date Received: 01/19/01

% Moisture: not dec. 0

Date Analyzed: 01/19/01

Column: (pack/cap) CAP

Dilution Factor: 2.00

Number TICs found: 2

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	SILOXANE	22.287	2000	J
2.	UNKNOWN	25.555	1000	J

RECRA LabNet Use Only
0101L787

Custody Transfer Record/Lab Work Request

Page 1 of 1

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

RECRA LabNet

Client: TMU-Hanford B01-022
Est. Final Proj. Sampling Date:
Project #: 10985-001-001-9999-00
Project Contact/Phone #:
RECRA Project Manager: OJ
QC: Spec Del: Std TAT: 21 day
Date Rec'd: 1-18-01 Date Due: 2-8-01
Account #:

		A	B
Refrigerator #		1	6
#/Type Container	Liquid	1V	1P
	Solid		
Volume	Liquid	40	500
	Solid		
Preservatives		–	–

ANALYSES REQUESTED →

Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	ORGANIC VOA: 8024H	BNA: 8025H	Pest/PCB: 8PCB	Herb	IC①			INORG Metal: MRCRATO	CN: ICNTO	IPH	ISFD	IIGN
001	B118H2			O	1-12-01	0900	✓	✓	✓		✓			✓	✓	✓	✓	✓
002	3					0917	✓	✓	✓		✓			✓	✓	✓	✓	✓
003	4					1005	✓	✓	✓		✓			✓	✓	✓	✓	✓
004	5					1032	✓	✓	✓		✓			✓	✓	✓	✓	✓
005	6						✓	✓	✓		✓			✓	✓	✓	✓	✓
TB 1-18-01																		

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

Special Instructions: Saf B01-022
Run Matrix QC
Suspect PCB ≤ 50ppm

DATE/REVISIONS:
IC① 1. Cl, Fl, NO3, NO2, PO4, SO4
2.
3.
4.
5.
6.

RECRA LabNet Use Only

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

COC Tape was:
1) Present on Outer Package (Y) or N
2) Unbroken on Outer Package (Y) or N
3) Present on Sample (Y) or N
4) Unbroken on Sample (Y) or N
COC Record Present Upon Sample Rec't (Y) or N
Cooler Temp. ← °C

Discrepancies Between Samples Labels and COC Record? Y or (N)
NOTES:
811511013592 - 14.4°C
822602526 0512 - 14.0°C

Relinquished by	Received by	Date	Time
FedEx	[signature]	1-18-01	0935

Relinquished by	Received by	Date	Time
COMPOSITE WASTE.	ORIGINAL REWRITTEN		

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B01-022-02	Page 1 of 21

Collector: Doug Bowers	Company Contact: Jason Adler	Telephone No.: 372-2178	Project Coordinator: TRENT, SJ
Price Code: 9L	Data Turnaround: 21 Days	Air Quality: ☐	
Project Designation: 105-D & 105-H Rx Waste Sampling - Other Liquid	Sampling Location: 105D reactor room 113C	SAF No.: B01-022	
Ice Chest No.: 4GV Comb. PKg	Field Logbook No.: EFL1133-8	COA: B105DG280C	Method of Shipment: Fed Ex
Shipped To: TMA/RECRA	Offsite Property No.: HMSR # 000843	Bill of Lading/Air Bill No.: NA	

POSSIBLE SAMPLE HAZARDS/REMARKS: Suspect PCB in liquid. ≤ 50ppm BASED on process Knowledge

Special Handling and/or Storage: Coding Requirements Could not be met

Preservation	Cool 4C	Cool 4C	None	Cool 4C	None
Type of Container	aGs*	P	P	P	
No. of Container(s)	1	0	1	0	
Volume	40mL	~~250mL~~ 500ml	500mL	~~1000mL~~ 500ml	1000mL

Samples stored in Ref.# 1C at the 3728 Shipping Facility on 1/12/01. Collector not available to relinquish samples on 1/17/01 for shipment. RT 1/17/01

SAMPLE ANALYSIS

Sample No.	Matrix *	Sample Date	Sample Time	VOA - 8260A (TCL)	See item (1) in Special Instructions.	See item (2) in Special Instructions.	Semi-VOA - 8270A (TCL); PCBs - 8082	See item (3) in Special Instructions.			Tie To:	
B118H2	OTHER LIQUID	1-12-01	0900	X	X	X	X				B118H7	
B118H3	OTHER LIQUID	1-12-01	0917	X	X	X	X				B118H8	
B118H4	OTHER LIQUID	1-12-01	1005	X	X	X	X				B118H9	
B118H5	OTHER LIQUID	1-12-01	1032	X	X	X	X				B118J0	
B118H6	OTHER LIQUID	1-12-01	1032	X	X	X	X				B118J0	

CHAIN OF POSSESSION

Relinquished By	Date/Time	Received By	Date/Time
Doug Bowers	1-12-01/1410	Stored in Ref IC 3728	1-12-01/1410
Removed from Ref IC 3728	1/17/01 0800	R.T. Thoren	1/17/01 0800
R.T. Thoren	1/17/01 1000	FED EX	
Fed Ex	1-18-01 0935		1-18-01 0935

SPECIAL INSTRUCTIONS

(1) IC Anions - 300.0 [Chloride, Fluoride, Nitrate, Nitrite, Phosphate, Sulfate]; Total Cyanide - 9010; pH (Soil) - 9045; Sulfides - 9030; Ignitability - 1010
(2) ICP Metals - 6010A (Supertrace) [Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver]; Mercury - 7471 - (CV)
(3) Gamma Spectroscopy [Cesium-137, Cobalt-60, ~~Europium-152, Europium-154, Europium-155~~]; ~~Gamma Spec - Add on [Radium-226]; Isotopic Plutonium; Isotopic Uranium; Isotopic Thorium [Thorium-230, Thorium-232]; Americium-241; Nickel-63; Strontium-89,90 - Total C~~

PLEASE perform analysis (1) in special instructions, and semi-VOA-8270A (TCL); PCBs-8082 from 500ml Poly. RT 1-15-01

Matrix *: S=Soil, SE=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	Date/Time
FINAL SAMPLE DISPOSITION	Disposal Method	Disposed By	Date/Time

BHI-EE-011 (10/99)

Figure 1. Sample Check-in List

Date/Time Received: 1-18-01 / 0935

SDG#: 01016787

Work Order Number: — SAF# B01-022

Shipping Container ID: 2 boxes Chain of Custody # B01-022-02

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 14.4°C 14.0°C
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
   - [ ] hazard labels
   - [ ] custody seals
   - [✓] appropriate sample labels

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

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

Sample Custodian/Laboratory: [signature] Date: 1-18-01

Telephoned to: _____ On _____ By _____

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FedEx. *Dangerous Goods Airbill* **Recipient's Copy**

3

1 From

Date 1-17-01 Sender's FedEx Account Number [redacted]

Sender's Name JOHN E. MAXWELL Phone (509) 376 7493

Company DURATEK FEDERAL SERVICES, INC. FOR U.S. DOE

Address 2315 STEVENS DRIVE MS H1-14 Dept./Floor/Suite/Room

City RICHLAND State WA ZIP 99352

2 Your Internal Billing Reference R105DG280C

3 To

Recipient's Name ORLETTE JOHNSON Phone (610) 280-3012

Company RECRA LAB NET

Address 208 WELSH POOL ROAD
For "HOLD" at FedEx location, print FedEx address here — Dept./Floor/Suite/Room

City LIONVILLE State PA ZIP 19341-1333

For HOLD at FedEx Location check here
- [ ] Hold Weekday
- [ ] Hold Saturday — Available for FedEx Priority Overnight and FedEx 2Day to select locations

For WEEKEND Delivery check here
- [ ] Saturday Delivery — Available for FedEx Priority Overnight and FedEx 2Day to select ZIP codes
- [ ] Sunday Delivery — Available for FedEx Priority Overnight to select ZIP codes

4a Express Package Service *Packages up to 150 lbs.* — Delivery commitment may be later in some areas.
- [X] FedEx Priority Overnight — Next business morning
- [ ] FedEx Standard Overnight — Next business afternoon
- [ ] FedEx 2Day — Second business day
- [ ] FedEx Express Saver — Third business day

4b Express Freight Service *Packages over 150 lbs.* — Delivery commitment may be later in some areas.
- [ ] FedEx 1Day Freight* — Next business day
- [ ] FedEx 2Day Freight — Second business day
- [ ] FedEx 3Day Freight — Third business day

* Call for Confirmation:

811511013592

Questions? Call 1•800•Go•FedEx® (800-463-3339) or Visit our Web site at www.fedex.com

5 Packaging
- [X] Other Packaging

Dangerous Goods cannot be shipped in FedEx packaging.

6 Special Handling
- [X] Dangerous Goods as per attached Shipper's Declaration
- [ ] Cargo Aircraft Only

7 Payment

Bill to: [ ] Sender (Acct. No. in Section 1 will be billed) [ ] Recipient [X] Third Party [ ] Credit Card [ ] Cash/Check

Enter FedEx Acct. No. or Credit Card No. below

[redacted]

Total Packages	Total Weight	Total Declared Value*	Total Charges
5	90	$ NVD .00	

* When declaring a value higher than $100 per shipment, you pay an additional charge. See SERVICE CONDITIONS, DECLARED VALUE, AND LIMIT OF LIABILITY section for further information.

Credit Card Auth.

Signature Release Unavailable

PART #154827 • Rev. Date 11/98 ©1994-98 FedEx • PRINTED IN U.S.A.

WCSL 2/99

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FedEx Tracking Number 811511013592 Form I.D. No. 0204

Page 1 of 1 Pages

Two completed and signed copies of this Declaration must be handed to the operator.

WARNING

Failure to comply in all respects with the applicable Dangerous Goods Regulations may be in breach of the applicable law, subject to legal penalties. This Declaration must not, in any circumstances, be completed and/or signed by a consolidator, a forwarder or an IATA cargo agent.

TRANSPORT DETAILS

This shipment is within the limitations prescribed for: (delete non-applicable)
PASSENGER AND CARGO AIRCRAFT | ~~CARGO AIRCRAFT ONLY~~

Airport of Departure: PASCO, WA

Airport of Destination

Shipment type: *(delete non-applicable)* NON-RADIOACTIVE | ~~RADIOACTIVE~~

NATURE AND QUANTITY OF DANGEROUS GOODS

Dangerous Goods Identification: Proper Shipping Name	Class or Division	UN or I.D. No.	Packing Group	Subsidiary Risk	Quantity and Type of Packaging	Packing Instr.	Authorization
POLYCHLORINATED BIPHENYLS, LIQUID	9	UN2315	II		2 FIBERBOARD BOXES 1 x 1 L 1 x 2 L	907	PACKAGED PER FEDEX LETTER B503J DATED 3/16/95 ATTACHED
POLYCHLORINATED BIPHENYLS, SOLID	9	UN2315	II		5 METAL DRUMS 2 x 5 Kg EACH 1 x 1 Kg	911	PACKAGED PER FX-06

Additional Handling Information

EMERGENCY RESPONSE GUIDE # 171 ATTACHED

Prepared for AIR TRANSPORT according to: (Customer MUST check one)
- [ ] 49 CFR
- [X] ICAO / IATA

I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name and are classified, packaged, marked, and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations.

Name/Title of Signatory JOHN E. MAXWELL/TRAFFIC SPEC.

Place and Date RICHLAND, WA 1-17-01

Signature (see warning above)

Emergency Telephone Number 1-888-766-0771 (Required for U.S. Origin or Destination Shipments)

IF ACCEPTABLE FOR PASSENGER AIRCRAFT. THIS SHIPMENT CONTAINS RADIOACTIVE MATERIAL INTENDED FOR USE IN, OR INCIDENT TO, RESEARCH, MEDICAL DIAGNOSIS, OR TREATMENT.