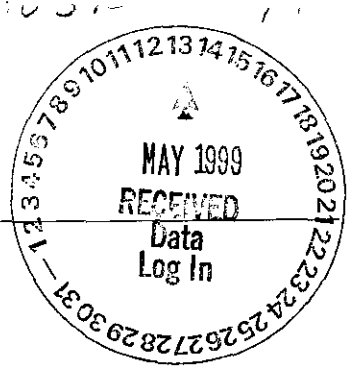
RECRA LabNet
a division of Recra Environmental, Inc.
Virtual Laboratories Everywhere

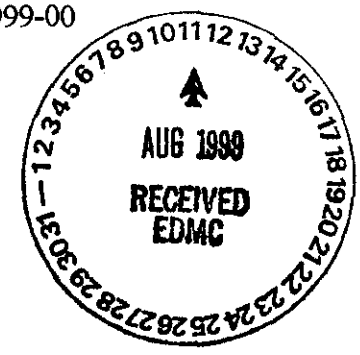
0051476



Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD B99-007
RFW# : 9904L613
SDG/SAF# : H0375/B99-007

W.O.# : 10985-001-001-9999-00
Date Received: 04-03-99



REVISION

METALS CASE NARRATIVE

This report has been revised to include the addition of Lithium.

1. This narrative covers the analyses of 1 soil sample. The original sample was internally relogged to a second sample when the Lithium analysis was requested.

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

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

4. The cooler temperature has been recorded on the Chain of Custody.

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

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

7. All preparation/method blanks (MB) were within method criteria {less than the Practical Quantitation Limit (3X the IDL) or samples greater than 20X MB value} with the exception of Barium, Calcium, and Potassium. Refer to the Inorganics Method Blank Data Summary.

   a.) The MB results for Barium, Calcium, and Potassium were greater than the Practical Quantitation Limit (PQL) {3 x the (IDL) Instrument Detection Level} and sample B0V4N7 read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample result was reported herein "uncorrected" for the levels found in the MB.

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

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

10. The matrix spike (MS) recovery for 1 analyte was outside the 75-125% control limits. Refer to the Inorganics Accuracy Report.

11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. A PDS was prepared at the following concentration:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
B0V4N7	Iron	20,000	97.9

12. The duplicate analyses for 4 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.

13. 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.

Pat E.

J. Michael Taylor
Vice President
Philadelphia Analytical Laboratory

5-1-99
Date

mld/m04-613r

METALS METHOD GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this Recra Lot#: 9904L613

Leaching Procedure: __1310 __1311 __1312 __Other:_____

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

Metals Digestion Methods: __3005A __3010A __3015 __3020A ✓3050A __3051 __200.7 __SS17
__Other: _____

Metals Analysis Methods

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

Other:_____ **Method:**_____

METHOD REFERENCES AND DATA QUALIFIERS

DATA QUALIFIERS

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

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

ABBREVIATIONS

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

ANALYTICAL METAL METHODS

1. Not included in the method element list.

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

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

4. Flame AA.

5. Graphite Furnace AA.

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 05/04/99

CLIENT: TNU-HANFORD B99-007 RECRA LOT #: 9904L613

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B0V4N7	Silver, Total	0.12 u	MG/KG	0.12	1.0
		Aluminum, Total	4.1	MG/KG	2.3	1.0
		Barium, Total	0.09	MG/KG	0.01	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Calcium, Total	11.0	MG/KG	0.89	1.0
		Cadmium, Total	0.05 u	MG/KG	0.05	1.0
		Cobalt, Total	0.08 u	MG/KG	0.08	1.0
		Chromium, Total	0.26	MG/KG	0.08	1.0
		Copper, Total	0.84	MG/KG	0.12	1.0
		Iron, Total	369	MG/KG	2.3	1.0
		Potassium, Total	6.1	MG/KG	1.5	1.0
		Magnesium, Total	13.7	MG/KG	0.81	1.0
		Manganese, Total	1.9	MG/KG	0.03	1.0
		Sodium, Total	506	MG/KG	0.43	1.0
		Nickel, Total	0.18	MG/KG	0.14	1.0
		Antimony, Total	0.30 u	MG/KG	0.30	1.0
		Vanadium, Total	0.10	MG/KG	0.08	1.0
		Zinc, Total	0.45	MG/KG	0.10	1.0

Recra LabNet - Lionville

INORGANICS DATA SUMMARY REPORT 05/04/99

CLIENT: TNU-HANFORD B99-007 RECRA LOT #: 9904L613

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	B0V4N7	Lithium, Total	0.07 u	MG/KG	0.07	1.0

Recra LabNet - Lionville

INORGANICS METHOD BLANK DATA SUMMARY PAGE 05/04/99

CLIENT: TNU-HANFORD B99-007 RECRA LOT #: 9904L613

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	99L0208-MB1	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Aluminum, Total	1.8 u	MG/KG	1.8	1.0
		Barium, Total	0.04	MG/KG	0.01	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Calcium, Total	2.9	MG/KG	0.68	1.0
		Cadmium, Total	0.04 u	MG/KG	0.04	1.0
		Cobalt, Total	0.06 u	MG/KG	0.06	1.0
		Chromium, Total	0.12	MG/KG	0.06	1.0
		Copper, Total	0.19	MG/KG	0.09	1.0
		Iron, Total	1.8 u	MG/KG	1.8	1.0
		Potassium, Total	4.2	MG/KG	1.2	1.0
		Lithium, Total	0.05 u	MG/KG	0.05	1.0
		Magnesium, Total	0.90	MG/KG	0.62	1.0
		Manganese, Total	0.05	MG/KG	0.02	1.0
		Sodium, Total	6.4	MG/KG	0.33	1.0
		Nickel, Total	0.16	MG/KG	0.11	1.0
		Antimony, Total	0.23 u	MG/KG	0.23	1.0
		Vanadium, Total	0.06 u	MG/KG	0.06	1.0
		Zinc, Total	0.14	MG/KG	0.08	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 05/04/99

CLIENT: TNU-HANFORD B99-007 RECRA LOT #: 9904L613

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	B0V4N7	Silver, Total	6.2	0.12u	6.7	92.5	1.0
		Aluminum, Total	259	4.1	269	94.9	1.0
		Barium, Total	250	0.09	269	93.2	1.0
		Beryllium, Total	6.4	0.01u	6.7	95.5	1.0
		Calcium, Total	3200	11.0	3360	95.0	1.0
		Cadmium, Total	6.3	0.05u	6.7	94.0	1.0
		Cobalt, Total	62.7	0.08u	67.2	93.3	1.0
		Chromium, Total	26.1	0.26	26.9	96.0	1.0
		Copper, Total	32.7	0.84	33.6	94.8	1.0
		Iron, Total	642	369	134	202.6	1.0
		Potassium, Total	3220	6.1	3360	95.7	1.0
		Magnesium, Total	3150	13.7	3360	93.3	1.0
		Manganese, Total	65.9	1.9	67.2	95.2	1.0
		Sodium, Total	3510	506	3360	89.3	1.0
		Nickel, Total	62.4	0.18	67.2	92.6	1.0
		Antimony, Total	62.0	0.30u	67.2	92.3	1.0
		Vanadium, Total	64.7	0.10	67.2	96.1	1.0
		Zinc, Total	61.3	0.45	67.2	90.6	1.0

Recra LabNet - Lionville

INORGANICS ACCURACY REPORT 05/04/99

CLIENT: TNU-HANFORD B99-007 RECRA LOT #: 9904L613

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-002	B0V4N7	Lithium, Total	126	0.07u	134	93.7	1.0

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 05/04/99

CLIENT: TNU-HANFORD B99-007 RECRA LOT #: 9904L613

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	B0V4N7	Silver, Total	0.12u	0.12u	NC	1.0
		Aluminum, Total	4.1	4.0	2.5	1.0
		Barium, Total	0.09	0.11	18.4	1.0
		Beryllium, Total	0.01u	0.01u	NC	1.0
		Calcium, Total	11.0	11.6	5.3	1.0
		Cadmium, Total	0.05u	0.05u	NC	1.0
		Cobalt, Total	0.08u	0.08u	NC	1.0
		Chromium, Total	0.26	0.27	2.3	1.0
		Copper, Total	0.84	0.95	12.1	1.0
		Iron, Total	369	533	36.2	1.0
		Potassium, Total	6.1	7.5	20.6	1.0
		Magnesium, Total	13.7	14.4	5.0	1.0
		Manganese, Total	1.9	2.0	5.1	1.0
		Sodium, Total	506	559	10.1	1.0
		Nickel, Total	0.18	0.27	38.3	1.0
		Antimony, Total	0.30u	0.31u	NC	1.0
		Vanadium, Total	0.10	0.08u	~~NC~~ 200	1.0
		Zinc, Total	0.45	0.40	10.9	1.0

Correction mlD 5/4/99

Recra LabNet - Lionville

INORGANICS PRECISION REPORT 05/04/99

CLIENT: TNU-HANFORD B99-007 RECRA LOT #: 9904L613

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-002REP	B0V4N7	Lithium, Total	0.07u	0.07u	NC	1.0

Recra LabNet - Lionville

INORGANICS LABORATORY CONTROL STANDARDS REPORT 05/04/99

CLIENT: TNU-HANFORD B99-007 RECRA LOT #: 9904L613

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	99L0208-LC1	Silver, LCS	49.2	50.0	MG/KG	98.4
		Aluminum, LCS	496	500	MG/KG	99.2
		Barium, LCS	488	500	MG/KG	97.5
		Beryllium, LCS	24.8	25.0	MG/KG	99.2
		Calcium, LCS	2540	2500	MG/KG	101.5
		Cadmium, LCS	24.9	25.0	MG/KG	99.6
		Cobalt, LCS	248	250	MG/KG	99.2
		Chromium, LCS	50.7	50.0	MG/KG	101.4
		Copper, LCS	122	125	MG/KG	97.4
		Iron, LCS	501	500	MG/KG	100.3
		Potassium, LCS	2480	2500	MG/KG	99.3
		Lithium, LCS	495	500	MG/KG	99.0
		Magnesium, LCS	2500	2500	MG/KG	100.0
		Manganese, LCS	75.9	75.0	MG/KG	101.2
		Sodium, LCS	2400	2500	MG/KG	96.0
		Nickel, LCS	197	200	MG/KG	98.7
		Antimony, LCS	290	300	MG/KG	96.6
		Vanadium, LCS	255	250	MG/KG	102.0
		Zinc, LCS	96.5	100	MG/KG	96.5

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-007

DATE RECEIVED: 04/03/99 RFW LOT # :9904L613

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B0V4N7						
SILVER, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
SILVER, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
SILVER, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
ALUMINUM, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
ALUMINUM, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
ALUMINUM, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
BARIUM, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
BARIUM, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
BARIUM, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
BERYLLIUM, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
BERYLLIUM, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
BERYLLIUM, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
CALCIUM, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
CALCIUM, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
CALCIUM, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
CADMIUM, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
CADMIUM, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
CADMIUM, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
COBALT, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
COBALT, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
COBALT, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
CHROMIUM, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
CHROMIUM, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
CHROMIUM, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
COPPER, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
COPPER, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
COPPER, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
IRON, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
IRON, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
IRON, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
POTASSIUM, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
POTASSIUM, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
POTASSIUM, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
MAGNESIUM, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
MAGNESIUM, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-007

DATE RECEIVED: 04/03/99 RFW LOT # :9904L613

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
MAGNESIUM, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
MANGANESE, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
MANGANESE, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
MANGANESE, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
SODIUM, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
SODIUM, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
SODIUM, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
NICKEL, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
NICKEL, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
NICKEL, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
ANTIMONY, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
ANTIMONY, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
ANTIMONY, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
VANADIUM, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
VANADIUM, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
VANADIUM, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
ZINC, TOTAL	001	S	99L0208	03/29/99	04/05/99	04/05/99
ZINC, TOTAL	001 REP	S	99L0208	03/29/99	04/05/99	04/05/99
ZINC, TOTAL	001 MS	S	99L0208	03/29/99	04/05/99	04/05/99
LITHIUM, TOTAL	002	S	99L0208	03/29/99	04/05/99	04/05/99
LITHIUM, TOTAL	002 REP	S	99L0208	03/29/99	04/05/99	04/05/99
LITHIUM, TOTAL	002 MS	S	99L0208	03/29/99	04/05/99	04/05/99

LAB QC:

SILVER LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
SILVER, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
ALUMINUM LABORTORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
ALUMINUM, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
BARIUM LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
BARIUM, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
BERYLLIUM LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
BERYLLIUM, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
CALCIUM LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
CALCIUM, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
CADMIUM LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
CADMIUM, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
COBALT LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99

Recra LabNet - Lionville Laboratory
INORGANIC ANALYTICAL DATA PACKAGE FOR
TNU-HANFORD B99-007

DATE RECEIVED: 04/03/99 RFW LOT # :9904L613

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
COBALT, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
CHROMIUM LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
CHROMIUM, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
COPPER LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
COPPER, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
IRON LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
IRON, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
POTASSIUM LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
POTASSIUM, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
MAGNESIUM LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
MAGNESIUM, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
MANGANESE LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
MANGANESE, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
SODIUM LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
SODIUM, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
NICKEL LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
NICKEL, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
ANTIMONY LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
ANTIMONY, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
VANADIUM LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
VANADIUM, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
ZINC LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
ZINC, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99
LITHIUM LABORATORY	LC1 BS	S	99L0208	N/A	04/05/99	04/05/99
LITHIUM, TOTAL	MB1	S	99L0208	N/A	04/05/99	04/05/99

RECRA LabNet Use Only

9904L613

Custody Transfer Record/Lab Work Request

Page 1 of 1

RECRA LabNet

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS (8) metals Perrone diaz wet lab

Client INEL-Hanford B99-007

Est. Final Proj. Sampling Date

Project # 10985-001-001-9999-00

Project Contact/Phone #

RECRA Project Manager OJ

QC spec Del std TAT 21 days

Date Rec'd 4/3/99 Date Due 4/24/99

Account #

Refrigerator #									3										
#/Type Container	Liquid																		
	Solid								1g										
Volume	Liquid																		
	Solid								120										
Preservatives																			
ANALYSES REQUESTED →		ORGANIC							INORG										
		VOA	BNA	Pest/PCB	Herb				Metal	CN									

MATRIX CODES:	Lab ID	Client ID/Description	Matrix QC Chosen (✓) MS	MSD	Matrix	Date Collected	Time Collected	RECRA LabNet Use Only											
								Met①		Met②									
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	001	B0V4N7	X	X	S	3/29/99	1215	✓											
	002	B0V4N7	X	X	S	3/29/99	1215			✓									

Special Instructions:

Saf # B99-007

COMPOSITE WASTE

DATE/REVISIONS:

Met① 1. ~~HSL + Li~~ per 4/15/99 Ag, Al, Ba, Be, Ca, Cd,

2. Co, Cr, Cu, Fe, K, Mg, Mn, Na, Ni,

3. Sb, V, Zn

Met② 4. = Li

4/29/99 5. 2nd sample added per PM.

6. (Same as 1st Sample)

RECRA LabNet Use Only

Samples were 1) Shipped ✓ or Hand Delivered ___

Airbill # 401960a5000

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. 18.5 °C

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

NOTES:

Relinquished by	Received by	Date	Time
Federal Express	Fedex	4/3/99	0930

Relinquished by	Received by	Date	Time

ORIGINAL REWRITTEN

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-007-09	Page 1 of 1

Collector	Company Contact	Telephone No.	Project Coordinator	Price Code	Data Turnaround
Doug Bowers	Dave Smith	376-3055	TRENT, SJ		21 Days
Project Designation	**Sampling Location**		**SAF No.**		
105F & 105DR ISS Project - Other Solid	190 DR		B99-007		
Ice Chest No.	**Field Logbook No.**		**Method of Shipment**		
CML 172	EFL 1133-7		FED EX		
Shipped To	**Offsite Property No.**		**Bill of Lading/Air Bill No.**		
~~Richland~~ RECRA RJN 4/1/99 RECRA Labnet					
			COA		

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation		None	None	None	None					
	Type of Container	aG	aG	G	aG	aG					
613	No. of Container(s)	1	1	1	1	1					
Special Handling and/or Storage	Volume	60mL	60mL	100g	120mL	1000mL					
SAMPLE ANALYSIS		Activity Scan	Gross Alpha; Gross Beta	Metals by ICP (TCLP) - 1311/6010A; Mercury (TCLP) - 1311/7470	ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) (Lithium)	See item (1) in Special Instructions					

Sample No.	Matrix *	Sample Date	Sample Time								
B0V4N7	Other Solid	3-29-99	1215	X	X		X	X			B0V4N8
					RJN 4/1/99			RJN 4/1/99			

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By Doug Bowers / Doug Bowers	Date/Time 3-29-99/1517	Received By R.Fg. IA@3728	Date/Time 3-29-99/1517
Relinquished By REF IA @ 3728	Date/Time 4199 1115	Received By S SCALE	Date/Time 4/99 1115
Relinquished By S SCALE	Date/Time 4 99 1115	Received By FED EX	Date/Time
Relinquished By	Date/Time	Received By	Date/Time
Received By		Title	Date/Time
Shipment Method		Disposed By	Date/Time

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

in 14@4°C

D Bowers not available to sign COC

Matrix *

Soil
Water
Vapor
Other Solid
Other Liquid

Thermo NUtech
2030 Wright Avenue
P.O. Box 4040
Richmond, CA 94804-0040
(510) 235-2633 • FAX (510) 235-0438

April 22, 1999

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

Reference: P.O. #TRB-SBB-207925
Thermo Nutech N9-04-025-7110, SDG H0375

Dear Ms. Kessner:

Enclosed is the data report for a single solid sample designated under SAF No. B99-007 received at Thermo Nutech on April 2, 1999. The sample was analyzed according to the accompanying chain-of-custody document.

Please call if you have any questions concerning this report.

Sincerely,

Terrie A. Higgins
Program Manager

TAH/kcj

Enclosure: Data Package

Case Narrative

1.0 GENERAL

Bechtel Hanford Inc. Sample Delivery Group H0375 is comprised of one (soil) sample designated under SAF No. B99-007 with a Project Designation of: 105F & 105DR ISS Project-Other Solid.

The sample was received as stated on the Chain-of-Custody document. Any discrepancies are noted on the TNU Sample Receipt Checklist. The complete data package for this SDG was also sent to Bechtel Hanford via fascimillie on April 22, 1999.

2.0 ANALYSIS NOTES

2.1 Nickel-63 Analyses

No problems were encountered during the processing of the samples.

2.2 Total Strontium Analyses

No problems were encountered during the processing of the samples.

2.3 Isotopic Plutonium Analyses

No problems were encountered during the processing of the samples.

2.4 Gamma Scan Analyses

No problems were encountered during the processing of the samples.

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0375

SAMPLE SUMMARY

SDG 7110
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

CLIENT SAMPLE ID	LOCATION	MATRIX	LEVEL	LAB SAMPLE ID	SAF NO	CHAIN OF CUSTODY	COLLECTED
B0V4N7	190 DR	SOLID		N904025-01	B99-007	B99-007-09	03/29/99 12:15
Method Blank		SOLID		N904025-03	B99-007		
Lab Control Sample		SOLID		N904025-02	B99-007		
Duplicate (N904025-01)	190 DR	SOLID		N904025-04	B99-007		03/29/99 12:15

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CS
Version 3.06
Report date 04/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0375

QC SUMMARY

SDG 7110
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

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
7110	B99-007-09	B0V4N7	SOLID	100.0			04/02/99	4	N904025-01	7110-001
		Method Blank	SOLID						N904025-03	7110-003
		Lab Control Sample	SOLID						N904025-02	7110-002
		Duplicate (N904025-01)	SOLID	100.0			04/02/99	4	N904025-04	7110-004

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-QS
Version 3.06
Report date 04/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0375

PREP BATCH SUMMARY

SDG 7110
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

TEST	MATRIX	METHOD	PREPARATION BATCH	ERROR 2σ %	PLANCHETS ANALYZED CLIENT	MORE	RE	BLANK	LCS	DUP/ORIG	MS/ORIG	QUALIFIERS
Gas Proportional Counting												
80A	SOLID	Gross Alpha in Soil	6880-034	20.0	1			1	1	1/1		
80B	SOLID	Gross Beta in Soil	6880-034	15.0	1			1	1	1/1		
Gamma Spectroscopy												
GAM	SOLID	Gamma Scan	6880-034	15.0	1			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 04/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0375

WORK SUMMARY

SDG 7110
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

CLIENT SAMPLE ID / LOCATION / CUSTODY	SAF No	MATRIX	LAB SAMPLE ID / COLLECTED / RECEIVED	PLANCHET	TEST	SUF-FIX	ANALYZED	REVIEWED	BY	METHOD
B0V4N7			N904025-01	7110-001	80A/80		04/21/99	04/21/99	TAH	Gross Alpha in Soil
190 DR		SOLID	03/29/99	7110-001	80B/80		04/21/99	04/21/99	TAH	Gross Beta in Soil
B99-007-09	B99-007		04/02/99	7110-001	GAM		04/19/99	04/21/99	TAH	Gamma Scan
Method Blank			N904025-03	7110-003	80A/80		04/21/99	04/21/99	TAH	Gross Alpha in Soil
		SOLID		7110-003	80B/80		04/21/99	04/21/99	TAH	Gross Beta in Soil
	B99-007			7110-003	GAM		04/19/99	04/21/99	TAH	Gamma Scan
Lab Control Sample			N904025-02	7110-002	80A/80		04/21/99	04/21/99	TAH	Gross Alpha in Soil
		SOLID		7110-002	80B/80		04/21/99	04/21/99	TAH	Gross Beta in Soil
	B99-007			7110-002	GAM		04/19/99	04/21/99	TAH	Gamma Scan
Duplicate (N904025-01)			N904025-04	7110-004	80A/80		04/21/99	04/21/99	TAH	Gross Alpha in Soil
190 DR		SOLID	03/29/99	7110-004	80B/80		04/21/99	04/21/99	TAH	Gross Beta in Soil
	B99-007		04/02/99	7110-004	GAM		04/20/99	04/21/99	TAH	Gamma Scan

COUNTS OF TESTS BY SAMPLE TYPE

TEST	SAF No	METHOD	REFERENCE	CLIENT	MORE	RE	BLANK	LCS	DUP SPIKE	TOTAL
80A/80	B99-007	Gross Alpha in Soil	EPA900.0	1			1	1	1	4
80B/80	B99-007	Gross Beta in Soil	EPA900.0	1			1	1	1	4
GAM	B99-007	Gamma Scan	GAMMAHI	1			1	1	1	4
TOTALS				3			3	3	3	12

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CWS
Version 3.06
Report date 04/21/99

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0375

N904025-03 Method Blank

METHOD BLANK

SDG 7110	Client/Case no Hanford	SDG-H0375	
Contact L.A. Johnson	Case no TRB-SBB-207925		
Lab sample id N904025-03	Client sample id Method Blank		
Dept sample id 7110-003	Material/Matrix	SOLID	
	SAF No B99-007		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Gross Alpha	12587-46-1	0.068	1.6	3.4	10	U	80A
Gross Beta	12587-47-2	-0.175	3.5	6.0	10	U	80B
Potassium 40	13966-00-2	U		0.050		U	GAM
Cobalt 60	10198-40-0	U		0.005	0.050	U	GAM
Cesium 137	10045-97-3	U		0.005	0.050	U	GAM
Europium 152	14683-23-9	U		0.010	0.10	U	GAM
Europium 154	15585-10-1	U		0.010	0.10	U	GAM
Europium 155	14391-16-3	U		0.010	0.10	U	GAM
Americium 241	14596-10-2	U		0.010		U	GAM
Uranium 238	U-238	U		0.60		U	GAM
Uranium 235	15117-96-1	U		0.020		U	GAM

105F&105DR ISS Project-Other Solid

QC-BLANK 30481

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 04/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0375

N904025-02 Lab Control Sample

LAB CONTROL SAMPLE

SDG 7110 Client/Case no Hanford SDG-H0375

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

Lab sample id N904025-02 Client sample id Lab Control Sample

Dept sample id 7110-002 Material/Matrix SOLID

SAF No B99-007

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Gross Alpha	120	13	3.8	10		80A	211	8.4	57	80-120	80-120
Gross Beta	188	10	7.5	10		80B	195	7.8	96	76-124	80-120
Cobalt 60	0.320	0.027	0.010	0.050		GAM	0.305	0.012	105	72-128	80-120
Cesium 137	0.400	0.024	0.020	0.050		GAM	0.381	0.015	105	74-126	80-120

105F&105DR ISS Project-Other Solid

QC-LCS 30480

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 04/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0375

N904025-04

B0V4N7

DUPLICATE

SDG 7110 | Client/Case no Hanford | SDG-H0375

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

DUPLICATE		ORIGINAL	
Lab sample id N904025-04	Lab sample id N904025-01	Client sample id B0V4N7	
Dept sample id 7110-004	Dept sample id 7110-001	Location/Matrix 190 DR	SOLID
	Received 04/02/99	Collected 03/29/99 12:15	
% solids 100.0	% solids 100.0	Custody/SAF No B99-007-09	B99-007

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI-FIERS	RPD %	3σ PROT TOT LIMIT
Gross Alpha	-0.500	0.82	2.2	10	U	80A	-0.266	1.3	2.7	U	-	
Gross Beta	-2.02	3.3	5.9	10	U	80B	-2.59	2.8	5.2	U	-	
Potassium 40	U		0.10		U	GAM	U		0.21	U	-	
Cobalt 60	U		0.008	0.050	U	GAM	U		0.022	U	-	
Cesium 137	U		0.007	0.050	U	GAM	U		0.015	U	-	
Europium 152	U		0.020	0.10	U	GAM	U		0.037	U	-	
Europium 154	U		0.020	0.10	U	GAM	U		0.067	U	-	
Europium 155	U		0.020	0.10	U	GAM	U		0.026	U	-	
Americium 241	U		0.020		U	GAM	U		0.014	U	-	
Uranium 238	U		1.0		U	GAM	U		2.2	U	-	
Uranium 235	U		0.030		U	GAM	U		0.041	U	-	

105F&105DR ISS Project-Other Solid

QC-DUP#1 30482

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-DUP
Version 3.06
Report date 04/21/99

TMA / RICHMOND

SAMPLE DELIVERY GROUP H0375

N904025-01 B0V4N7

DATA SHEET

SDG	7110	Client/Case no	Hanford SDG-H0375
Contact	L.A. Johnson	Case no	TRB-SBB-207925
Lab sample id	N904025-01	Client sample id	B0V4N7
Dept sample id	7110-001	Location/Matrix	190 DR SOLID
Received	04/02/99	Collected	03/29/99 12:15
% solids	100.0	Custody/SAF No	B99-007-09 B99-007

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Gross Alpha	12587-46-1	-0.266	1.3	2.7	10	U	80A
Gross Beta	12587-47-2	-2.59	2.8	5.2	10	U	80B
Potassium 40	13966-00-2	U		0.21		U	GAM
Cobalt 60	10198-40-0	U		0.022	0.050	U	GAM
Cesium 137	10045-97-3	U		0.015	0.050	U	GAM
Europium 152	14683-23-9	U		0.037	0.10	U	GAM
Europium 154	15585-10-1	U		0.067	0.10	U	GAM
Europium 155	14391-16-3	U		0.026	0.10	U	GAM
Americium 241	14596-10-2	U		0.014		U	GAM
Uranium 238	U-238	U		2.2		U	GAM
Uranium 235	15117-96-1	U		0.041		U	GAM

105F&105DR ISS Project-Other Solid

Lab id	TMANC
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	04/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0375

METHOD SUMMARY

GROSS ALPHA IN SOIL

GAS PROPORTIONAL COUNTING

Test 80A Matrix SOLID
SDG 7110
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Alpha
Preparation batch 6880-034					
B0V4N7	N904025-01	80		7110-001	U
BLK (QC ID=30481)	N904025-03	80		7110-003	U
LCS (QC ID=30480)	N904025-02	80		7110-002	LOW
Duplicate (N904025-01)	N904025-04	80		7110-004	- U
Nominal values and limits from method				RDLs (pCi/g)	10
105F&105DR ISS Project-Other Solid					

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6880-034	2σ prep error 20.0 %	Reference Lab Notebook 6880 pg.14														
B0V4N7	N904025-01	80		2.7	0.110			0		100			23	04/17/99	04/21	GRB-115
BLK (QC ID=30481)	N904025-03	80		3.4	0.100			53		100				04/17/99	04/21	GRB-113
LCS (QC ID=30480)	N904025-02	80		3.8	0.100			57		100				04/17/99	04/21	GRB-116
Duplicate (N904025-01) (QC ID=30482)	N904025-04	80		2.2	0.110			0		100			23	04/17/99	04/21	GRB-114
Nominal values and limits from method				10	0.100			5-150		100			180			

PROCEDURES	REFERENCE	
	EPA900.0	
	EP-060	Soil Preparation, rev 0
	EP-070	Soil Dissolution, rev 0
	EP-170	Preparation of Solids for Gross Alpha and Gross Beta Counting, rev 1

AVERAGES ± 2 SD FOR 4 SAMPLES	MDA	3.0 ± 1.4
	RESIDUE	28 ± 64

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 04/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0375

METHOD SUMMARY

GROSS BETA IN SOIL

GAS PROPORTIONAL COUNTING

Test 80B Matrix SOLID
SDG 7110
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Gross Beta	
Preparation batch 6880-034						
B0V4N7	N904025-01	80		7110-001	U	
BLK (QC ID=30481)	N904025-03	80		7110-003	U	
LCS (QC ID=30480)	N904025-02	80		7110-002	ok	
Duplicate (N904025-01)	N904025-04	80		7110-004	-	U
Nominal values and limits from method				RDLs (pCi/g)	10	
105F&105DR ISS Project-Other Solid						

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	RESID mg	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6880-034	2σ prep error 15.0 %	Reference Lab Notebook 6880 pg.14														
B0V4N7	N904025-01	80		5.2	0.110			0		100			23	04/17/99	04/21	GRB-115
BLK (QC ID=30481)	N904025-03	80		6.0	0.100			53		100				04/17/99	04/21	GRB-113
LCS (QC ID=30480)	N904025-02	80		7.5	0.100			57		100				04/17/99	04/21	GRB-116
Duplicate (N904025-01) (QC ID=30482)	N904025-04	80		5.9	0.110			0		100			23	04/17/99	04/21	GRB-114
Nominal values and limits from method				10	0.100			5-150		100			180			

PROCEDURES	REFERENCE	EPA900.0
	EP-060	Soil Preparation, rev 0
	EP-070	Soil Dissolution, rev 0
	EP-170	Preparation of Solids for Gross Alpha and Gross Beta Counting, rev 1

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 6.2 ± 1.9
RESIDUE 28 ± 64

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 04/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0375

METHOD SUMMARY

GAMMA SCAN

GAMMA SPECTROSCOPY

Test GAM Matrix SOLID
SDG 7110
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

RESULTS

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	PLANCHET	Cobalt 60		Cesium 137	
Preparation batch 6880-034								
B0V4N7	N904025-01			7110-001	U		U	
BLK (QC ID=30481)	N904025-03			7110-003	U		U	
LCS (QC ID=30480)	N904025-02			7110-002	ok		ok	
Duplicate (N904025-01)	N904025-04			7110-004	-	U	-	U
Nominal values and limits from method 105F&105DR ISS Project-Other Solid				RDLs (pCi/g)	0.050		0.050	

METHOD PERFORMANCE

CLIENT SAMPLE ID	LAB SAMPLE ID	RAW TEST	SUF-FIX	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU-TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	PREPARED	ANAL-YZED	DETECTOR
Preparation batch 6880-034 2σ prep error 15.0 % Reference Lab Notebook 6880 pg.14																
B0V4N7	N904025-01			0.038	478					396			21	04/07/99	04/19	02,01,00
BLK (QC ID=30481)	N904025-03			0.009	750					396				04/07/99	04/19	01,04,00
LCS (QC ID=30480)	N904025-02			0.020	750					396				04/07/99	04/19	01,03,00
Duplicate (N904025-01) (QC ID=30482)	N904025-04			0.020	478					375			22	04/07/99	04/20	02,04,00
Nominal values and limits from method				0.050	750					100			180			

PROCEDURES	REFERENCE	GAMMAHI
	EP-060	Soil Preparation, rev 0
	EP-100	Ge(Li) Preparation for Environmental Samples, rev 0

AVERAGES ± 2 SD FOR 4 SAMPLES
MDA 0.022 ± 0.024
YIELD ____ ± ____

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-CMS
Version 3.06
Report date 04/21/99

TMA/RICHMOND

SAMPLE DELIVERY GROUP H0375

REPORT GUIDE

SDG 7110
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

SAMPLE SUMMARY

The Sample and QC Summary Reports show all samples, including QC samples, reported in one Sample Delivery Group (SDG).

The Sample Summary Report fully identifies client samples and gives the corresponding lab sample identification. The QC Summary Report shows at the sample level how the lab organized the samples into batches and generated QC samples. The Preparation Batch and Method Summary Reports show this at the analysis level.

The following notes apply to these reports:

* LAB SAMPLE ID is the lab's primary identification for a sample.

* DEPARTMENT SAMPLE ID is an alternate lab id, for example one assigned by a radiochemistry department in a lab.

* CLIENT SAMPLE ID is the client's primary identification for a sample. It includes any sample preparation done by the client that is necessary to identify the sample.

* QC BATCH is a lab assigned code that groups samples to be processed and QCed together. These samples should have similar matrices.

  QC BATCH is not necessarily the same as SDG, which reflects samples received and reported together.

* All Lab Control Samples, Method Blanks, Duplicates and Matrix Spikes are shown that QC any of the samples. Due to possible reanalyses, not all results for all these QC samples may be relevant to the SDG. The Lab Control Sample, Method Blank, Duplicate, Matrix Spike and Method Summary Reports detail these relationships.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/99

SDG 7110
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

PREPARATION BATCH SUMMARY

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

The following notes apply to this report:

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

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

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

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

  These qualifiers should be reviewed as follows:

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

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

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

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/99

SDG 7110
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

WORK SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/99

SDG 7110
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

DATA SHEET

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

The following notes apply to this report:

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

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

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

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

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

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

The following qualifiers are defined by the DVD system:

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/99

SDG 7110
Contact L.A. Johnson

GUIDE, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

DATA SHEET

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

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

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

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

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

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

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

P The RESULT is 'preliminary'.

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

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

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

The following values are underlined to indicate possible problems:

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/99

SDG 7110
Contact L.A. Johnson

GUIDE, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

DATA SHEET

* An ERROR is underlined if the 1.645 sigma counting error is bigger than both the MDA and the RESULT, implying that the MDA may not be a good estimate of the 'real' minimum detectable activity.

* A negative RESULT is underlined if it is less than the negative of its 2 sigma counting ERROR.

* When reporting a Method Blank, a RESULT is underlined if greater than its MDA. If the MDA is blank, the 2 sigma counting error is used in the comparison.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/99

SDG 7110
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

LAB CONTROL SAMPLE

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

The following notes apply to this report:

* All fields in common with the Data Sheet Report have similar usage. Refer to its Report Guide for details.

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

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

* REC (Recovery) is RESULT divided by ADDED expressed as a percent.

* The first, computed limits for the recovery reflect:

  1. The error of RESULT, including that introduced by rounding the result prior to printing.

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

  2. The error of ADDED.

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

* The second limits are protocol defined upper and lower QC limits for the recovery.

* The recovery is underlined if it is outside either of these ranges.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/99

SDG 7110
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

DUPLICATE

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

The following notes apply to this report:

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

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

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

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

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

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

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

  This value reported for this limit is at most 999.

* The second limit for the RPD is the larger of:

  1. A fixed percentage specified in the protocol.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/99

SDG 7110
Contact L.A. Johnson

GUIDE, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

DUPLICATE

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

* The RPD is underlined if it is greater than either limit.

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

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

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/99

SDG 7110
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

MATRIX SPIKE

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

The following notes apply to this report:

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

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

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

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

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

* The first, computed limits for the recovery reflect:

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

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

  2. The error of ADDED.

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

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/99

SDG 7110
Contact L.A. Johnson

GUIDE, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

MATRIX SPIKE

for the recovery.

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

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/99

SDG 7110
Contact L.A. Johnson

REPORT GUIDE

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

METHOD SUMMARY

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

The following notes apply to this report:

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

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

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

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

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

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

* Non-U results for Method Blanks are underlined to indicate possible contamination of other samples in the preparation batch. The Method Blank Report has supporting data.

* Lab Control Sample and Matrix Spike results are shown as: ok, No data, LOW or HIGH, with the last two underlined. 'No data'

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/99

SDG 7110
Contact L.A. Johnson

GUIDE, cont.

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

METHOD SUMMARY

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

* Duplicate sample results are shown as: ok, No data, or OUT, with the last two underlined. 'No data' means there was no original sample data found for this duplicate. 'OUT' corresponds to when the RPD is underlined on the Duplicate Report. See this report for supporting data.

* If the MDA column is labeled 'MAX MDA', there was more than one result measured by the reported method and the MDA shown is the largest MDA. If not all these results have the same RDL, the MAX MDA reflects only those results with RDL equal to the smallest one.

  MDAs are underlined if greater than the printed RDL.

* Aliquots are underlined if less than the nominal value specified for the method.

* Prepareation factors are underlined if greater than the nominal value specified for the method.

* Dilution factors are underlined if greater than the nominal value specified for the method.

* Residues are underlined if outside the range specified for the method. Residues are not printed if yields are.

* Yields, which may be gravimetric, radiometric or some type of recovery depending on the method, are underlined if outside the range specified for the method.

* Efficiencies are underlined if outside the range specified for the method. Efficiencies are detector and geometry dependent so this test is only approximate.

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/99

SDG 7110
Contact L.A. Johnson

Client Hanford
Contract TRB-SBB-207925
Case no SDG-H0375

METHOD SUMMARY

* Count times are underlined if less than the nominal value specified for the method.

* Resolutions (as FWHM; Full Width at Half Max) are underlined if greater than the method specified limit.

* Tracer drifts are underlined if their absolute values are greater than the method specified limit. Tracer drifts are not printed if percent moistures are.

* Days Held are underlined if greater than the holding time specified in the protocol.

* Analysis dates are underlined if before their planchet's preparation date or, if a limit is specified, too far after it.

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

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

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

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

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

Lab id TMANC
Protocol Hanford
Version Ver 1.0
Form DVD-RG
Version 3.06
Report date 04/21/99

METHOD SUMMARY

results in the DVD database, whether reported or not. Results in the sum are weighted by a particles/decay value specified by the lab for each relevant analyte. Results less than their MDA are not included. No sums are computed for Lab Control, Method Blank or Matrix Spike samples since their various planchets may not be physically related.

If a ratio of total isotopic to Gross Alpha or Beta is shown, the error for the ratio reflects both the error in the Gross result and the sum, as square root of sum of squares, of the errors in the isotopic results.

For total elemental uranium or thorium results, there may be a column showing the total weight computed from associated isotopic results. Ignoring results less than their MDAs, this is a weighted sum of the isotopic results. The weights depend on the molecular weight and half-life of each isotope so as to convert activities (decays) to weight (atoms).

If a ratio of total computed to measured elemental uranium or thorium is shown, the error for the ratio reflects the errors in all the measurements.

Bechtel Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B99-007-09	Page 1 of 1

Collector	Company Contact / Telephone No.	Project Coordinator	Price Code	Data Turnaround
Doug Bowers	Dave Smith 376-3055	TRENT, SJ		21 Days
Project Designation 105F & 105DR ISS Project - Other Solid	**Sampling Location** 190 DR	**SAF No.** B99-007		
Ice Chest No. SML-248	**Field Logbook No.** EFL 1133-7	**Method of Shipment** FED EX		
Shipped To ~~TMA/RECRA~~ RJN 4/1/99 ThermoRetec	**Offsite Property No.**	**Bill of Lading/Air Bill No.**		
		COA		

POSSIBLE SAMPLE HAZARDS/REMARKS	Preservation		None	None	None	None					
	Type of Container	aG	aG	G	aG	aG					
Special Handling and/or Storage	No. of Container(s) / Volume	1 60mL	1 60mL	1 100g	1 120mL	1 1000mL					
SAMPLE ANALYSIS		Activity Scan	Gross Alpha; Gross Beta	Metals by ICP (TCLP) - 1311/6010A; Mercury (TCLP) - 1311/7470	ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) (Lithium)	See item (1) in Special Instructions.					

Sample No.	Matrix *	Sample Date	Sample Time									
B0V4N7	Other Solid	3-29-99	1215	X	X		X	X			B0V4N8	
							RJN 4/1/99					

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By	Doug Bowers	3-29-99/1517
Received By	R.Fg. IA@3728	3-29-99/1517
Relinquished By	REF IA @ 3728	4/99 1045
Received By	SIGALE	4/99 1045
Relinquished By	SIGALE	4/99 1045
Received By	FED EX	4-1-99
Relinquished By	Fed Ex	4-2-99 10:30
Received By	AP Conno JR Corso	4-2-99 10:30

SPECIAL INSTRUCTIONS

(1) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155)

in 14@4°C

D BOWERS NOT AVAILABLE TO SIGN COC

Matrix *
Soil
Water
Vapor
Other Solid
Other Liquid

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

HAZARDOUS MATERIAL SHIPMENT RECORD (HMSR)

SHIPPING INST.

SHIP TO:
THERMO RETEC
Company
2030 WRIGHT AVE.
Address
RICHMOND, CA. 94804-0040
City, State, Zip
LARRY JOHNSON
Attention: 510-235-2633

Originating Facility: Building 3728, Area 300
Originator Signature: Stuart Dah
Date: 4-1-99
FROM: ☐ WHC ☐ KEH ☐ PNL ☒ OTHER BHI

OFFSITE ONLY: SHIP: ☒ PREPAID ☐ COLLECT
VIA: ☐ Parcel Post ☐ Air Parcel Post ☐ Freight (Rail/Truck) ☒ Air (Passenger) ☐ Air (Cargo)
Cost Code: R105D029WC

SHIPMENT DESCRIPTION

CONTAINERS / PACKAGING						CONTENT DESCRIPTION
Number of Containers	Type	DOT Spec	Package Dimensions	Quantity Pkg	Gross Wt Each Pkg	See 49 CFR 172.101(c) Hazardous Material Table
1	METAL CAN INNER, POLY COOLER OUTER	IP3 INNER, STRONG TIGHT OUTER	70cm x 40cm x 40cm	2-60ml 1-1L 1.12L TOTAL	20LBS 9Kg	Proper Ship Name: Flammable solids, organic, n.o.s. LTD. QTY. Hazard Class: 4.1 UN/NA No.: 1325 PG III List Secondary Hazards: NONE PI Y 419 List Labels Req'd/Applied CLASS 4
SAMPLE #: BOV4N7 ICE CHEST #: SML 248 ERG # 133 EMERGENCY RESPONSE #						Proper Ship Name: ONE IP3 INNER CONTAINER Hazard Class: HAS 2 EA 60ml JAR UN/NA No.: ONE IP3 INNER CONTAINER List Secondary Hazards: HAS 1 EA 1 LITER JAR List Labels Req'd/Applied
509-373-3800 1-888-766-0771				OR		Proper Ship Name: 1 LITER JAR = 500 G Hazard Class: 60ML JAR = 30 G UN/NA No.: 560 G TOTAL List Secondary Hazards: shipped per List Labels Req'd/Applied USG-14

Total No. Containers	Gross Wt of Shipment	Identify Placards Required:	Identify Property Control or Return Order No.: (if applicable)
1	20LBS 9Kg	1. N/A 2. — 3. — 4. —	

Material in manufacturers original container: ☐ Yes ☒ No
Container free of deterioration or damage: ☒ Yes
Container acceptability documented: ☒ Yes
Material is packaged, sealed, marked and labelled to meet DOT requirements: ☒ Yes

Describe Internal Packaging: GLASS JARS BUBBLE WRAPPED, DOUBLE BAGGED AND PACKED IN VERMICULITE IN IP3, IP3 IS PACKED WITH PACKING PEANUTS IN STRONG TIGHT.

RADIATION RELEASE	Survey No.	Date	RM Signature	Print Name
			SEE ATTACHED ACTIVITY REPORT.	

CERTIFICATION

CONTRACTORS CERTIFICATION

This is to certify that the above named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transport according to the applicable regulations of the Department of Transportation:

This shipment is within the Limitations prescribed for: ☒ Passenger Aircraft ☐ Cargo Aircraft ☐ NA

Authorizing Signature: M A Sams Print Name M. A. SAMS Date: 4-1-99

FOR OFFSITE SHIPMENTS – ADDITIONAL APPROVAL REQUIRED

WHC TRAFFIC

B.L. No.	Date Shipped	ETA	Routing	Special Considerations
	4/1/99	4/2/99	FED-X	

WHC Traffic: Gregg C. Brown WHC Shipping:

Thermo NUtech - Richmond

SAMPLE RECEIPT CHECKLIST

SAMPLE RECEIPT

Client: Bechtel Hanford Date/Time received 4-2-99 10:30

CoC No. B99-006-11 & 13, B99-007-09

Container I.D. No. SML-579, SML-248, SML-220 Requested TAT (Days) 21+45 P.O. Received Yes [ ] No [✓]

INSPECTION

1.	Custody seals on shipping container intact?	Yes [✓]	No [ ]	N/A [ ]
2.	Custody seals on shipping container dated & signed?	Yes [✓]	No [ ]	N/A [ ]
3.	Custody seals on sample containers intact?	Yes [✓]	No [ ]	N/A [ ]
4.	Custody seals on sample containers dated & signed?	Yes [✓]	No [ ]	N/A [ ]
5.	Cooler Temperature: _____	Packing material is:	Wet [ ]	Dry [✓]
6.	Number of samples in shipping container: 3			
7.	Number of containers per sample: 3 (Or see CoC ✓)			
8.	Paperwork agrees with samples?	Yes [✓]	No [ ]	
9.	Samples have: Tape [✓] Hazard labels [ ] Rad labels [✓] Appropriate sample labels [✓]			
10.	Samples are: In good condition [✓] Leaking [ ] Broken Container [ ] Missing [ ]			
11.	Describe any anomalies: _____			
13.	Was P.M. notified of any anomalies? Yes [ ] No [ ] Date _____			
14.	Received by [signature] Date: 4-2-99 Time: 10:30			

LOGIN

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

PROGRAM MANAGER

Sample holding times exceeded? Yes [ ] No [ ]

Client Notified: Name _____ Date/time _____