H0093-T/W

0049003

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

SDG#: H0093
Laboratory Batch: 9708L796

W.O.#: 10985-001-001-9999-00
Collection Dates: 08-05-97

SAMPLE ID	LABORATORY ID
BOLC56 (solid)	9708L796-001
BOLC56 (leachate)	9708L796-002

SEP 1997
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Data
Log In

skl/m08-796.cp

RECRA
LabNet
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Virtual Laboratories Everywhere

Recra LabNet Philadelphia
Analytical Report

Client : TNU-HANFORD
RFW# : 9708L796

W.O.# : 10985-001-001-9999-00
Date Received: 08-09-97

METALS CASE NARRATIVE

1. This narrative covers the analyses of 1 solid sample and 1 TCLP leachate sample.

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

5. All Initial and Continuing Calibration Verifications (ICV/CCVs) were within control limits.

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

7. All preparation/method blanks were within method criteria. 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 laboratory control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. The matrix spike (MS) recoveries for 9 analytes and matrix spike duplicate (MSD) recoveries for 8 analytes were outside the 80-120% control limits. Refer to the Inorganics Accuracy Report.

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 020 pages.

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11. For analytes where the ICP MS is out-of-control, a post-digestion MS (PDS) and serial dilution are performed. An interference test is performed on GFAA analytes. A PDS was prepared at meaningful concentration levels, due to high concentrations of the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
BOLC56 (solid)	Chromium	1,000	114.1
	Copper	1,000	109.8
(w/2x dilution)	Silver	100	80.7
	Aluminum	20,000	87.6
	Iron	20,000	65.0
	Manganese	1,000	71.8
	Lead	1,000	63.0
	Antimony	600	74.8
	Zinc	1,000	60.1

12. The MSs and MSDs for 7 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Matrix Spike Duplicate Report.

13. The duplicate analyses for 4 analytes were outside the 20% RPD control limits. Refer to the Inorganics Precision Report.

14. The TCLP extract from sample BOLC56 was selected for the matrix spike (MS) for this analytical batch. All MS recoveries were greater than 50% as per method criteria.

15. 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.

for Mary M Tagle

J. Michael Taylor
Vice President and Laboratory Manager
Lionville Analytical Laboratory

9-2-97
Date

skl\m08-796

METALS METHODS GLOSSARY

The following methods are used as reference for the digestion and analysis of samples contained within this RFW Lot#: 9708L796

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	✓6010A		__200.7				__99
Antimony	✓6010A	__7041 [5]	__200.7	__204.2			__99
Arsenic	✓6010A	__7060A [5]	__200.7	__206.2	__3113B		__99
Barium	✓6010A		__200.7				__99
Beryllium	✓6010A		__200.7				__99
Bismuth	__6010A [1]		__200.7 [1]			__1620	__99
Boron	__6010A [1]		__200.7				__99
Cadmium	✓6010A	__7131A [5]	__200.7	__213.2			__99
Calcium	✓6010A		__200.7				__99
Chromium	✓6010A	__7191 [5]	__200.7	__218.2			__SS17
Cobalt	✓6010A		__200.7				__99
Copper	✓6010A	__7211 [5]	__200.7	__220.2			__99
Iron	✓6010A		__200.7				__99
Lead	✓6010A	__7421 [5]	__200.7	__239.2	__3113B		__99
Lithium	__6010A	__7430 [4]	__200.7			__1620	__99
Magnesium	✓6010A		__200.7				__99
Manganese	✓6010A		__200.7				__99
Mercury	✓7470A [3]	✓7471A [3]	__245.1 [2]	__245.5 [2]			__99
Molybdenum	__6010A		__200.7				__99
Nickel	✓6010A		__200.7				__99
Potassium	✓6010A	__7610 [4]	__200.7	__258.1 [4]			__99
Rare Earths	__6010A [1]		__200.7 [1]			__1620	__99
Selenium	✓6010A	__7740 [5]	__200.7	__270.2	__3113B		__99
Silicon	__6010A [1]		__200.7			__1620	__99
Silica	__6010A [1]		__200.7			__1620	__99
Silver	✓6010A	__7761 [5]	__200.7	__272.2			__99
Sodium	✓6010A	__7770 [4]	__200.7	__273.1 [4]			__99
Strontium	__6010A		__200.7				__99
Thallium	✓6010A	__7841 [5]	__200.7	__279.2__200.9			__99
Tin	__6010A [1]		__200.7				__99
Titanium	__6010A [1]		__200.7				__99
Uranium	__6010A [1]		__200.7 [1]			__1620	__99
Vanadium	✓6010A		__200.7				__99
Zinc	✓6010A		__200.7				__99
Zirconium	__6010A [1]		__200.7 [1]			__1620	__99

Other:_____ **Method:**_____

RFW 21-21-033/M-01/97

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

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INORGANICS DATA SUMMARY REPORT 08/29/97

CLIENT: TNU-HANFORD RECRA LOT #: [illegible]

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	BOLC56	Silver, Total	2.0 u	MG/KG	[illegible]	2.0
		Aluminum, Total	9040	MG/KG	[illegible]	2.0
		Arsenic, Total	10.3	MG/KG	[illegible]	2.0
		Barium, Total	253	MG/KG	[illegible]	1.0
		Beryllium, Total	0.41	MG/KG	[illegible]	2.0
		Calcium, Total	5540	MG/KG	[illegible]	1.0
		Cadmium, Total	13.6	MG/KG	[illegible]	2.0
		Cobalt, Total	13.3	MG/KG	[illegible]	1.0
		Chromium, Total	125	MG/KG	[illegible]	1.0
		Copper, Total	205	MG/KG	[illegible]	1.0
		Iron, Total	41400	MG/KG	[illegible]	2.0
		Mercury, Total	0.41	MG/KG	[illegible]	1.0
		Potassium, Total	630	MG/KG	[illegible]	1.0
		Magnesium, Total	3500	MG/KG	[illegible]	1.0
		Manganese, Total	327	MG/KG	[illegible]	2.0
		Sodium, Total	247	MG/KG	[illegible]	1.0
		Nickel, Total	22.3	MG/KG	[illegible]	1.0
		Lead, Total	1560	MG/KG	[illegible]	2.0
		Antimony, Total	12.7	MG/KG	[illegible]	2.0
		Selenium, Total	14.7	MG/KG	[illegible]	2.0
		Thallium, Total	14.5	MG/KG	[illegible]	2.0
		Vanadium, Total	52.8	MG/KG	[illegible]	2.0
		Zinc, Total	1610	MG/KG	[illegible]	2.0

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INORGANICS DATA SUMMARY REPORT 08/29/97

CLIENT: TNU-HANFORD RECRA LOT #: 97081796

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	BOLC56	Silver, TCLP Leachate	8.8 u	UG/L	[illegible]	1.0
		Arsenic, TCLP Leachate	34.4	UG/L	[illegible]	1.0
		Barium, TCLP Leachate	768	UG/L	[illegible]	1.0
		Cadmium, TCLP Leachate	43.9	UG/L	[illegible]	1.0
		Chromium, TCLP Leachate	5.5	UG/L	[illegible]	1.0
		Mercury, TCLP Leachate	0.10 u	UG/L	[illegible]	1.0
		Lead, TCLP Leachate	121	UG/L	[illegible]	1.0
		Selenium, TCLP Leachate	42.4 u	UG/L	[illegible]	1.0

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DATE RECEIVED: 08/09/97 RFW LOT # :9708L796

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
BOLC56						
TCLP	001	S		08/05/97		08/14/97
SILVER, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
SILVER, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
SILVER, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
SILVER, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
ALUMINUM, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
ALUMINUM, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
ALUMINUM, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
ALUMINUM, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
ARSENIC, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
ARSENIC, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
ARSENIC, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
ARSENIC, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
BARIUM, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
BARIUM, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
BARIUM, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
BARIUM, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
BERYLLIUM, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
BERYLLIUM, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
BERYLLIUM, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
BERYLLIUM, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
CALCIUM, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
CALCIUM, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
CALCIUM, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
CALCIUM, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
CADMIUM, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
CADMIUM, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
CADMIUM, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
CADMIUM, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
COBALT, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
COBALT, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
COBALT, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
COBALT, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
CHROMIUM, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
CHROMIUM, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97

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DATE RECEIVED: 08/09/97 RFW LOT # :9708L796

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
CHROMIUM, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
COPPER, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
COPPER, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
COPPER, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
COPPER, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
IRON, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
IRON, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
IRON, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
IRON, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
MERCURY, TOTAL	001	S	97C0636	08/05/97	08/19/97	08/20/97
POTASSIUM, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
POTASSIUM, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
POTASSIUM, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
POTASSIUM, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
MAGNESIUM, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
MAGNESIUM, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
MAGNESIUM, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
MAGNESIUM, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
MANGANESE, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
MANGANESE, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
MANGANESE, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
MANGANESE, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
SODIUM, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
SODIUM, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
SODIUM, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
SODIUM, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
NICKEL, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
NICKEL, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
NICKEL, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
NICKEL, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
LEAD, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
LEAD, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
LEAD, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
LEAD, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
ANTIMONY, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
ANTIMONY, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
ANTIMONY, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97

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ANTIMONY, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
SELENIUM, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
SELENIUM, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
SELENIUM, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
SELENIUM, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
THALLIUM, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
THALLIUM, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
THALLIUM, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
THALLIUM, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
VANADIUM, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
VANADIUM, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
VANADIUM, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
VANADIUM, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
ZINC, TOTAL	001	S	97L1658	08/05/97	08/22/97	08/25/97
ZINC, TOTAL	001 REP	S	97L1658	08/05/97	08/22/97	08/25/97
ZINC, TOTAL	001 MS	S	97L1658	08/05/97	08/22/97	08/25/97
ZINC, TOTAL	001 MSD	S	97L1658	08/05/97	08/22/97	08/25/97
SILVER, TCLP LEACHAT	002	W	97L1603	08/14/97	08/18/97	08/20/97
SILVER, TCLP LEACHAT	002 MS	W	97L1603	08/14/97	08/18/97	08/20/97
ARSENIC, TCLP LEACHA	002	W	97L1603	08/14/97	08/18/97	08/20/97
ARSENIC, TCLP LEACHA	002 MS	W	97L1603	08/14/97	08/18/97	08/20/97
BARIUM, TCLP LEACHAT	002	W	97L1603	08/14/97	08/18/97	08/20/97
BARIUM, TCLP LEACHAT	002 MS	W	97L1603	08/14/97	08/18/97	08/20/97
CADMIUM, TCLP LEACHA	002	W	97L1603	08/14/97	08/18/97	08/20/97
CADMIUM, TCLP LEACHA	002 MS	W	97L1603	08/14/97	08/18/97	08/20/97
CHROMIUM, TCLP LEACH	002	W	97L1603	08/14/97	08/18/97	08/20/97
CHROMIUM, TCLP LEACH	002 MS	W	97L1603	08/14/97	08/18/97	08/20/97
MERCURY, TCLP LEACHA	002	W	97C0648	08/14/97	08/25/97	08/25/97
MERCURY, TCLP LEACHA	002 MS	W	97C0648	08/14/97	08/25/97	08/25/97
LEAD, TCLP LEACHATE	002	W	97L1603	08/14/97	08/18/97	08/20/97
LEAD, TCLP LEACHATE	002 MS	W	97L1603	08/14/97	08/18/97	08/20/97
SELENIUM, TCLP LEACH	002	W	97L1603	08/14/97	08/18/97	08/20/97
SELENIUM, TCLP LEACH	002 MS	W	97L1603	08/14/97	08/18/97	08/20/97

LAB QC:

SILVER LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
SILVER, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97

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INORGANIC ANALYTICAL DATA PACKAGE FOR
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DATE RECEIVED: 08/09/97 RFW LOT # :9708L796

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
ALUMINUM LABORTORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
ALUMINUM, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
ARSENIC LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
ARSENIC, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
BARIUM LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
BARIUM, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
BERYLLIUM LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
BERYLLIUM, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
CALCIUM LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
CALCIUM, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
CADMIUM LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
CADMIUM, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
COBALT LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
COBALT, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
CHROMIUM LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
CHROMIUM, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
COPPER LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
COPPER, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
IRON LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
IRON, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
MERCURY LABORATORY	LC1 BS	S	97C0636	N/A	08/19/97	08/20/97
MERCURY, TOTAL	MB1	S	97C0636	N/A	08/19/97	08/20/97
POTASSIUM LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
POTASSIUM, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
MAGNESIUM LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
MAGNESIUM, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
MANGANESE LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
MANGANESE, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
SODIUM LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
SODIUM, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
NICKEL LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
NICKEL, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
LEAD LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
LEAD, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
ANTIMONY LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
ANTIMONY, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
SELENIUM LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
SELENIUM, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97

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

DATE RECEIVED: 08/09/97 RFW LOT # :9708L796

CLIENT ID /ANALYSIS	RFW #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
THALLIUM LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
THALLIUM, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
VANADIUM LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
VANADIUM, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
ZINC LABORATORY	LC1 BS	S	97L1658	N/A	08/22/97	08/25/97
ZINC, TOTAL	MB1	S	97L1658	N/A	08/22/97	08/25/97
SILVER LABORATORY	LC1 BS	W	97L1603	N/A	08/18/97	08/20/97
SILVER, TCLP LEACHAT	MB1	W	97L1603	N/A	08/18/97	08/20/97
SILVER, TCLP LEACHAT	MB2	W	97L1603	N/A	08/18/97	08/20/97
ARSENIC LABORATORY	LC1 BS	W	97L1603	N/A	08/18/97	08/20/97
ARSENIC, TCLP LEACHA	MB1	W	97L1603	N/A	08/18/97	08/20/97
ARSENIC, TCLP LEACHA	MB2	W	97L1603	N/A	08/18/97	08/20/97
BARIUM LABORATORY	LC1 BS	W	97L1603	N/A	08/18/97	08/20/97
BARIUM, TCLP LEACHAT	MB1	W	97L1603	N/A	08/18/97	08/20/97
BARIUM, TCLP LEACHAT	MB2	W	97L1603	N/A	08/18/97	08/20/97
CADMIUM LABORATORY	LC1 BS	W	97L1603	N/A	08/18/97	08/20/97
CADMIUM, TCLP LEACHA	MB1	W	97L1603	N/A	08/18/97	08/20/97
CADMIUM, TCLP LEACHA	MB2	W	97L1603	N/A	08/18/97	08/20/97
CHROMIUM LABORATORY	LC1 BS	W	97L1603	N/A	08/18/97	08/20/97
CHROMIUM, TCLP LEACH	MB1	W	97L1603	N/A	08/18/97	08/20/97
CHROMIUM, TCLP LEACH	MB2	W	97L1603	N/A	08/18/97	08/20/97
MERCURY LABORATORY	LC1 BS	W	97C0648	N/A	08/25/97	08/25/97
MERCURY, TOTAL	MB1	W	97C0648	N/A	08/25/97	08/25/97
LEAD LABORATORY	LC1 BS	W	97L1603	N/A	08/18/97	08/20/97
LEAD, TCLP LEACHATE	MB1	W	97L1603	N/A	08/18/97	08/20/97
LEAD, TCLP LEACHATE	MB2	W	97L1603	N/A	08/18/97	08/20/97
SELENIUM LABORATORY	LC1 BS	W	97L1603	N/A	08/18/97	08/20/97
SELENIUM, TCLP LEACH	MB1	W	97L1603	N/A	08/18/97	08/20/97
SELENIUM, TCLP LEACH	MB2	W	97L1603	N/A	08/18/97	08/20/97

417-1415-216

RECRA LabNet Use Only

9708L796

Custody Transfer Record/Lab Work Request

RECRA LabNet

Client TNU-HANFORD
Est. Final Proj. Sampling Date
Project # 10985-001-001-9999-00
Project Contact/Phone #
RECRA Project Manager K.B.
QC STD Del STD TAT 15 DAY
Date Rec'd 8-9-97 Date Due 8-24-97
Account # TNUHANFORD

Refrigerator #								6	6		6						
#/Type Container	Liquid																
	Solid							1GL	1AG		LEACH						
Volume	Liquid																
	Solid							500	250								
Preservatives																	
ANALYSES REQUESTED →		ORGANIC							INORG								
		VOA	BNA	Pest/PCB	Herb				Metal	CN							

RECRA LabNet Use Only

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	ITCLP	MASLTOS		SCRATCH
001	BOLC56			S	8/5/97	1050	✓	✓		
002	⊥ TCLP 68 001			L	*	—				✓

FIELD PERSONNEL: COMPLETE ONLY SHADED AREAS

Special Instructions:
RSA - CLIENT INFO
AMSC - COMP.

Temp 74°C

SDG # H0093

DATE/REVISIONS:
→ 1 * SEE LABCROA FOR LEACHATE
2 DATE COLLECT
3
4
5
6

RECRA LabNet Use Only

Samples were
1) Shipped ✓ or
Hand Delivered
Airbill # See nswe
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

Discrepancies Between Samples Lables and COC Record? Y or N
NOTES

Relinquished by	Received by	Date	Time	Relinquished by	Received by	Date	Time
FeDex	Emm221	8/9/97	10:30				

ORIGINAL REWRITTEN

020

H0093 7/6

Thermo NUtech

August 26, 1997

AUG 1997
RECEIVED
Data
Log In

Ms. Doris Ayres
Bechtel Hanford Inc.
1022 Lee Boulevard
Richland, WA 99352

Reference: P.O. #TSH-SBV-207925
Thermo NUtech N7-08-020-7446, SDG H0093

Dear Ms. Ayres

Enclosed is the data report for the single soil sample designated as SAF No. B97-149 received at Thermo NUtech on August 8, 1997. Results are given for gamma emitting nuclides.

This data package is paginated from 1 through 29.

Please call if you have any questions concerning this data.

Sincerely,

N. Joseph Verville

N. Joseph Verville
Program Manager

NJV/dss

Enclosure: Data Package

Case Narrative

1.0 GENERAL

Thermo NUtech Sample Delivery Group H0093 is comprised of the single soil sample designated as SAF B97-149 delivered under Project Designation Group 4 Waste Sites - Soil Sampling

The sample was received as stated on the Chain-of-Custody document

2.0 ANALYSIS NOTES

2.1 Gamma Scan

There was insufficient sample received to perform a duplicate analysis. No other problems were encountered during analysis.

N708020-01

THERMO NUTECH

SAMPLE DELIVERY GROUP H0093

DATA SHEET

B0LC56

SDG 7446 Client/Case no Westinghouse Hanford SDG H0093
Contact N. Joseph Verville Case no TSH-SBV-207925

Lab sample id N708020-01 Client sample id B0LC56
Dept sample id 7446-001 Location/Matrix 116-F-11 French Drain SOLID
Received 08/08/97 Collected 08/05/97 10:50
Custody/SAF No B97-149-21 B97-149

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
GAMMA SCAN ANALYTES		U					
Potassium 40	13966-00-2	U		1.8		U	GAM
Cobalt 60	10198-40-0	23	0.30		0.050		GAM
Cesium 137	10045-97-3	150	0.60		0.050		GAM
Europium 152	14683-23-9	210	1.2		0.10		GAM
Europium 154	15585-10-1	38	0.82		0.10		GAM
Europium 155	14391-16-3	3.2	0.61		0.10		GAM
Americium 241	14596-10-2	4.7	0.26				GAM
Uranium 238	U-238	U		47		U	GAM

Lab id TMANC
Protocol WHC-HASM-1
Version Ver 1.0
Form DVD-DS
Version 3.06
Report date 08/22/97

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B97-149-21	Page 1 of 1

Collector Robert Fahlberg	Company Contact Dave Blumenkranz Telephone No. 372-9568	Project Coordinator Koerner, CC	Data Turnaround 15 Days
Project Designation Group 4 Waste Sites - Soil Sampling	Sampling Location 116-F-11 French Drain	SAF No. B97-149	
Ice Chest No.	Field Logbook No. EL-1309-1	Method of Shipment Hand deliver	
Shipped To TMA NORCAL	Offsite Property No.	Bill of Lading/Air Bill No.	

POSSIBLE SAMPLE HAZARDS/REMARKS

Preservation	None	None	None	Cool 4C	None	Cool 4C	None	Cool 4C	None	None
Type of Container	aG	aG	aG	aG	G	aG	aG	G	G	P
No. of Container(s)	1	1	1	1	1	1	1	1	1	1
Volume	60ml	60ml	60ml	125ml	125ml	250ml	250ml	250ml	500ml	1000ml
SAMPLE ANALYSIS SDG # H0093	Activity Scan	Isotopic Plutonium; Isotopic Uranium	Strontium-89,90 -- Total Sr	Chromium Hex - 7196	Mercury - 7471 - (CV)	Semi-VOA - 8270A (TCL)	ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on)	VOA - 8240A (TCL)	Metals by ICP (TCLP) - 1311/6010A; Mercury (TCLP) - 1311/7470	Gamma Spectroscopy; Gamma Spec - Add-on (Uranium-238)

Sample No.	Matrix *	Sample Date	Sample Time										
~~BOLC70~~ RJN	Soil	~~8~~ RJN											
BOLC56	Soil	8/5/97	1050	X						X		X	X

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By 8.6.97	Date/Time	Received By	Date/Time
Robert Fahlberg / Robert Fahlberg	0930	Fed. Ex. Shippment	
Relinquished By	Date/Time	Received By	Date/Time
		[signature]	8-3-97 / 11:00
Relinquished By	Date/Time	Received By	Date/Time
Relinquished By	Date/Time	Received By	Date/Time

SPECIAL INSTRUCTIONS

*Close Hx Cr SDG's at Quanterra upon receipt of samples *The TCLP analysis is to be performed only upon direction from Sample Management *The ERC contractor acknowledges the hex chrom (7196) 24-hour hold time is not likely achievable at the TMA lab

Matrix *

- S = Soil
- SE = Sediment
- SO = Solid
- SL = 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

US DOE %
FLUOR DANIEL HANFORD CO. INC
2355 STEVENS DRIVE/1163 BLDG
RICHLAND WA 99352
(509)376-5098

SHIP DATE: 06AUG97
ACC# 188288189

ACTUAL WGT: 42 LBS MAN-WT
DIM WEIGHT CHECKED

TO: THA NORCAL/SAMPLE RECEIVING
THA NORCAL
2030 WRIGHT AVE

RICHMOND CA 94804-9949

4235 7950 2440

FedEx.

4235 7950 2440 Form 0201

REF: C11FX 5600C W97-001-20

PRIORITY OVERNIGHT THU

CAD# 0053292 06AUG97
TRK# 4235 7950 2440 Form 0201 Deliver by:
07AUG97

OAK

94804-CA-US

WA JEM

PART # 147923 FORMAT # 077 RIT 08/96

WHC/BHI SAMPLE CHECK-IN LIST

Date/Time Received: 8-8-97/11:00 SDG #: H0093

Work Order Number: _____ SAF#: B97-149

Shipping Container ID: ERC96-076 Chain-of-Custody #: 116-F-11

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 0°C THERMO #207

5. Vermiculite/packing maaterials is Wet [ ] Dry [✓]

6. Number of samples in shipping container: 4 BOTS

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): _____

Sample Custodian [signature] on 8-8-97/11:00

Telephoned To: _____ on _____ By _____

4/5/95 Revised

Contractor	OFF-SITE PROPERTY CONTROL	CONTROL NO. (To be obtained from PROPERTY MANAGEMENT)
BHI		W97-0001-20

PART I - TO BE COMPLETED BY ORIGINATOR

Department	Section	Unit
ERC Eng. Support	Field and Analytical Support	Field Sampling

The following items are to be shipped from ☑ Contractor ☐ Vendor

Fed Ex. Routing ☑ Prepaid ☐ Collect

Shipped to TMA NORCAL
Company 2030 Wright Ave.
Address Richmond. Ca 94804-9949
City State Zip Code
Country USA

Off-site Custodian

On-site Custodian Payroll No.

Qty.	Property No.	Description (include Manufacture Name, Model, Serial No.)	Acquisition Cost
1 (42 lbs.)		Sample # BOLC56 cooler I.D.# ERC 96-036 Packed with solid ice (and free liquid water) surrounded by vermiculite	

☐ Classified ☒ Unclassified ☐ Shipped Under DOE Contract ☐ Shipped Under Contractor's Use Permit Contract

Necessity for the off-site use of this property

☒ Required for Project Work. List Project No. Group 4 Waste site (116-F11)

☐ Business Trip

☐ Off-site Assignment

☐ Shipment to Subcontractor. List Subcontract No. _____ Bill of Lading # 4235 79502 440

☐ Other (Please specify) _____

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

RM Clearance for Public Release	RM Survey No.	Date
		8.6.97

Location of and Contact for Property (Name/Phone No./Bldg./Area)
Bob Fahlberg (509) 376-8101 | 4706 Bldg. | 400 Area

Date Ready for Shipment	Cost Code to be Charged	Approximate Date This Property will be Returned
8.6.97	C11FX5600C	

Originated By	Date	Authorized By	Date
Bob Fahlberg	8.6.97	Bob Fahlberg	8.6.97
Property Representative Signature	Date	Property Management Approval	Date
		Kathy Cathey	8/6/97

PART II - TO BE COMPLETED BY SHIPPING

Authorized Shipping Signature	Date
C.R. Nelson	8-6-97

DISTRIBUTION (AFTER FINAL SIGNATURES)

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

C

54-3000 424 (01/94)