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SAF-B04-002
100 BC Burial Grounds – Soil Full Protocol
FINAL VALIDATION PACKAGE

COMPLETE COPY OF VALIDATION PACKAGE TO:

Jeanette Duncan (2) MJP 08-26-05
INITIAL/DATE

SDG **H3203** **SAF-B04-002**

Sample Location/Waste Site: 128-B-2

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SEP 21 2005
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Date: 8 August 2005
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100BC Burial Grounds - Soil Full Protocol - Waste Site 128-B-2
Subject: Inorganics - Data Package No. H3203-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. H3203-LLI prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
J03CC9	6/8/05	Soil	C	See note 1
J03CD0	6/8/05	Soil	C	See note 1
J03CD1	6/8/05	Soil	C	See note 1
J03CD2	6/8/05	Soil	C	See note 1
J03CD3	6/8/05	Soil	C	See note 1
J03CD4	6/8/05	Soil	C	See note 1
J03CD5	6/8/05	Soil	C	See note 1
J03CD6	6/8/05	Soil	C	See note 1
J03CD7	6/8/05	Soil	C	See note 1
J03CD8	6/8/05	Soil	C	See note 1
J03CD9	6/8/05	Soil	C	See note 1
J03CF0	6/8/05	Soil	C	See note 1
J03CF1	6/8/05	Soil	C	See note 1
J03CF2	6/8/05	Soil	C	See note 1
J03CF3	6/8/05	Soil	C	See note 1
J03CF4	6/8/05	Soil	C	See note 1
J03CF5	6/8/05	Soil	C	See note 1
J03CF6	6/8/05	Soil	C	See note 1
J03CF7	6/8/05	Soil	C	See note 1
J03CF8	6/8/05	Soil	C	See note 1
J03CF9	6/8/05	Soil	C	See note 1
J03CH0	6/8/05	Soil	C	See note 1
J03CH1	6/8/05	Soil	C	See note 1
J03CH2	6/8/05	Soil	C	See note 1

Sample ID	Sample Date	Media	Validation	Analysis
J03CC8	6/8/05	Soil	C	See note 1

1 - ICP metals (6010B) and mercury (7471A).

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

- **Holding Times**

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 28 days for mercury and 6 months for ICP metals.

All holding times were acceptable.

- **Preparation (Method) Blanks**

Preparation Blanks

At least one preparation blank, consisting of deionized distilled water processed through each sample preparation and analysis procedure, must be prepared and analyzed with every sample delivery group. In the case of positive blank results, samples with digestate concentrations less than five times the preparation blank value have had their associated values qualified as non-detected and flagged "U". Samples with concentrations of greater than five times the highest blank concentration do not require qualification.

In the case of negative blank results, if the absolute value exceeds the contract required detection limit (CRDL), all nondetects are rejected and flagged "UR" and all detects that are less than ten times the absolute value of the associated preparation blank result are qualified as estimates and flagged "J". If the absolute value of the

negative preparation blank is greater than the instrument detection limit (IDL) and less than or equal to the CRDL, all nondetects are qualified as estimates and flagged "UJ" and all detects less than ten times the absolute value of the blank are qualified as estimates and flagged "J". If the sample results are greater than ten times the absolute value of the preparation blank, no qualification is necessary.

Due to method blank contamination, the boron, copper, lead and zinc results in samples J033C8 were qualified as estimates and flagged "UJ".

All other preparation blank results were acceptable.

Field (Equipment) Blank

One field blank (J03CC8) was submitted for analysis. Barium, beryllium, cobalt, chromium, manganese and vanadium were detected in the equipment blank. Under the BHI statement of work, no qualification is required.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data . The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 130% and a sample result less than the IDL, no qualification is required.

Due to a matrix spike recovery outside QC limits (39.4% & 38.1%), all antimony results were qualified as estimates and flagged "J".

Due to a matrix spike recovery outside QC limits, all chromium (66.1%), vanadium (52.7%) and zinc (67.8%) results in samples J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6, J03CD7, J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7 and J03CF8 were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

- **Precision**

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

Due to an RPD outside QC limits (52.8%), all boron results in samples J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6, J03CD7, J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7 and J03CF8 were qualified as estimates and flagged "J".

Due to an RPD outside QC limits (31.5%), all chromium results in samples J03CF9, J03CH0, J01CH1, J03CH2 and J03CC8 were qualified as estimates and flagged "J".

Due to an RPD outside QC limits (55.6%), all molybdenum results in samples J03CF9, J03CH0, J01CH1, J03CH2 and J03CC8 were qualified as estimates and flagged "J".

Due to an RPD outside QC limits (30.4%), all lead results in samples J03CF9, J03CH0, J01CH1, J03CH2 and J03CC8 were qualified as estimates and flagged "J".

All other laboratory duplicate results were acceptable.

Field Duplicate

Two sets of field duplicate samples (J03CD4/J03CH1 and J03CF0/J03CH2) were submitted for analysis. Field duplicate results are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the remaining waste sites RQLs to ensure that laboratory detection levels meet the required criteria. All undetected silver, antimony and selenium results (except J03CC8) were reported above the RQL. Under the BHI statement of work, no qualification is required.

- **Completeness**

Data package No. H3203-LLI was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

Due to method blank contamination, the boron, copper, lead and zinc results in samples J033C8 were qualified as estimates and flagged "UJ".

Due to a matrix spike recovery outside QC limits (39.4% & 38.1%), all antimony results were qualified as estimates and flagged "J".

Due to a matrix spike recovery outside QC limits, all chromium (66.1%), vanadium (52.7%) and zinc (67.8%) results in samples J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6, J03CD7, J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7 and J03CF8 were qualified as estimates and flagged "J".

Due to an RPD outside QC limits (52.8%), all boron results in samples J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6, J03CD7, J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7 and J03CF8 were qualified as estimates and flagged "J".

Due to an RPD outside QC limits (31.5%), all chromium results in samples J03CF9, J03CH0, J01CH1, J03CH2 and J03CC8 were qualified as estimates and flagged "J".

Due to an RPD outside QC limits (55.6%), all molybdenum results in samples J03CF9, J03CH0, J01CH1, J03CH2 and J03CC8 were qualified as estimates and flagged "J".

Due to an RPD outside QC limits (30.4%), all lead results in samples J03CF9, J03CH0, J01CH1, J03CH2 and J03CC8 were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the BHI statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

All undetected silver, antimony and selenium results (except J03CC8) were reported above the RQL. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-96-22, Rev. 4, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, February 2005.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with BHI validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.

BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

INORGANIC DATA QUALIFICATION SUMMARY*

SDG: H3203	REVIEWER: TLI	Project: 128-B-2	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Boron, Copper, Lead, Zinc	UJ	J03CC8	Method blank contamination
Antimony	J	All	MS recovery
Chromium, Vanadium, Zinc	J	J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6, J03CD7, J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7, J03CF8	MS recovery
Lead, Molybdenum, Chromium	J	J03CF9, J03CH0, J01CH1, J03CH2, J03CC8	RPD
Boron	J	J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6, J03CD7, J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7, J03CF8	RPD

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Project: BECHTEL-HANFORD																					
Laboratory: LLI																					
Case	SDG: H3203																				
Sample Number		J03CC9		J03CD0		J03CD1		J03CD2		J03CD3		J03CD4		J03CD5		J03CD6		J03CD7		J03CD8	
Remarks																					
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05	
Inorganics	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Silver	0.2	0.49	U	0.50	U	0.50	U	0.51	U	0.50	U	0.50	U	0.48	U	0.49	U	0.50	U	0.48	U
Arsenic	10	3.4		2.5		2.5	U	2.5	U	2.5	U	2.5	U	3.5		2.7		2.5	U	2.4	U
Boron		6.7	J	2.3	J	1.7	J	2.2	J	1.3	UJ	2.7	J	1.2	UJ	2.4	J	1.3	UJ	1.2	UJ
Barium	2	83.4		72.9		79.1		83.5		78.8		77.1		77.8		80.0		78.2		79.4	
Beryllium		0.74		0.68		0.74		0.66		0.72		0.69		0.71		0.74		0.51		0.81	
Cadmium	0.2	0.19		0.17	U	0.17		0.17	U	0.17	U	0.18		0.16	U	0.16	U	0.17	U	0.16	U
Cobalt		8.0		7.2		7.5		6.7		8.0		6.7		7.2		7.7		6.2		7.8	
Chromium	1	12.2	J	10.4	J	15.9	J	25.5	J	10.8	J	10.0	J	10.3	J	35.8	J	12.8	J	9.7	J
Copper		12.3		10.8		12.0		12.4		10.6		9.3		9.9		13.9		9.4		9.3	
Mercury	0.2	0.02	U	0.02	U	0.02	U	0.02		0.01	U	0.02	U	0.02	U	0.03		0.01	U	0.02	U
Manganese		397		342		361		329		390		339		348		343		335		375	
Molybdenum		0.88	U	0.88	U	1.0		0.90	U	0.89	U	1.2		0.86	U	1.3		0.88	U	0.85	U
Nickel		11.9		9.6		10.4		10.6		10.6		10.5		10.3		11.2		8.8		10.6	
Lead	5	7.0		7.1		22.9		63.2		6.7		7.3		5.3		77.7		20.6		6.0	
Antimony	0.6	2.2	UJ	2.2	UJ	2.2	UJ	2.2	UJ	2.2	UJ	2.2	UJ	2.2	UJ	2.2	UJ	2.2	UJ	2.1	UJ
Selenium	1	2.7	U	2.7	U	2.7	U	2.8	U	2.7	U	2.7	U	2.6	U	2.7	U	2.7	U	2.6	U
Vanadium		43.4	J	36.4	J	41.0	J	35.0	J	36.8	J	36.8	J	37.0	J	36.4	J	18.8	J	40.2	J
Zinc	1	44.8	J	37.1	J	41.3	J	46.5	J	40.0	J	40.3	J	45.3	J	44.8	J	35.5	J	46.2	J

Sample Number		J03CD9		J03CF0		J03CF1		J03CF2		J03CF3		J03CF4		J03CF5		J03CF6		J03CF7		J03CF8	
Remarks				H2 Original																	
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05	
Inorganics	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Silver	0.2	0.47	U	0.49	U	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U	0.48	U	0.49	U	0.48	U
Arsenic	10	2.4	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.5	U	2.4	U	2.5	U	2.4	U
Boron		1.2	UJ	1.3	UJ	1.3	J	1.3	UJ	1.3	UJ	1.3	UJ	1.3	UJ	1.2	UJ	1.3	J	1.2	UJ
Barium	2	74.2		50.3		80.3		36.8		71.2		36.5		38.6		54.7		43.8		51.5	
Beryllium		0.73		1.0		0.84		0.67		0.88		1.2		1.2		1.2		1.3		1.2	
Cadmium	0.2	0.16	U	0.16	U	0.17	U	0.17	U	0.17	U	0.17	U	0.17	U	0.16	U	0.16	U	0.16	U
Cobalt		6.8		8.0		8.0		7.3		8.6		8.5		8.9		9.1		8.8		9.1	
Chromium	1	9.3	J	7.5	J	10.4	J	11.2	J	10.2	J	5.4	J	6.3	J	9.5	J	7.3	J	7.3	J
Copper		8.4		13.5		9.8		15.5		10.3		12.5		13.6		14.7		18.1		13.3	
Mercury	0.2	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.01	U	0.02	U	0.01	U	0.01	U	0.01	U
Manganese		374		333		398		288		376		332		312		370		326		334	
Molybdenum		0.84	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.88	U	0.85	U	1.1		0.85	U
Nickel		10.0		12.0		11.2		12.5		10.5		9.9		11.9		12.7		14.4		10.7	
Lead	5	6.0		5.6		5.2		4.9		5.8		6.5		4.1		13.9		5.6		5.7	
Antimony	0.6	2.1	UJ	2.2	UJ	2.2	UJ	2.2	UJ	2.2	UJ	2.2	UJ	2.2	UJ	2.1	UJ	2.2	UJ	2.1	UJ
Selenium	1	2.6	U	2.7	U	2.7	U	2.7	U	2.7	U	2.7	U	2.7	U	2.6	U	2.7	U	2.6	U
Vanadium		34.6	J	46.6	J	38.6	J	30.9	J	40.2	J	48.0	J	54.4	J	49.8	J	54.4	J	49.9	J
Zinc	1	41.5	J	42.6	J	41.8	J	33.2	J	39.5	J	44.1	J	44.5	J	44.6	J	61.9	J	43.1	J

000011A

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation.

Project: BECHTEL-HANFORD											
Laboratory: LLI											
Case	SDG: H3203										
Sample Number		J03CF9		J03CH0		J03CH1		J03CH2		J03CC8	
Remarks						Duplicate		Duplicate		E. Blank	
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05	
Inorganics	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Silver	0.2	0.48	U	0.48	U	0.49	U	0.50	U	0.08	U
Arsenic	10	3.1		2.4	U	4.3		2.7		0.41	U
Boron		4.9		3.2		3.6		3.0		1.1	UJ
Barium	2	55.0		44.1		83.5		51.2		0.98	
Beryllium		0.76		0.89		0.57		0.77		0.01	
Cadmium	0.2	0.16	U	0.16	U	0.16	U	0.17	U	0.03	U
Cobalt		8.6		9.2		6.9		8.4		0.11	
Chromium	1	15.5	J	6.4	J	9.8	J	7.3	J	0.14	J
Copper		19.3		17.9		12.2		16.9		0.12	UJ
Mercury	0.2	0.02	U	0.01	U	0.02	U	0.01	U	0.02	U
Manganese		327		320		349		334		4.0	
Molybdenum		1.7	J	0.86	UJ	1.2	J	1.0	J	0.15	UJ
Nickel		11.1		10.0		10.3		10.1		0.20	U
Lead	5	25.8	J	6.6	J	7.0	J	6.7	J	0.41	UJ
Antimony	0.6	2.1	UJ	2.1	UJ	2.2	UJ	2.2	UJ	0.37	UJ
Selenium	1	2.6	U	2.6	U	2.7	U	2.7	U	0.45	U
Vanadium		45.7		60.7		35.8		48.3		0.06	
Zinc	1	42.3		46.7		44.4		41.9		1.5	UJ

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation.

000011B

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J03CC9	Silver, Total	0.49	u	MG/KG	0.49	6.0
		Arsenic, Total	3.4		MG/KG	2.5	6.0
		Boron, Total	6.7	J	MG/KG	1.3	6.0
		Barium, Total	83.4		MG/KG	0.11	6.0
		Beryllium, Total	0.74		MG/KG	0.05	6.0
		Cadmium, Total	0.19		MG/KG	0.16	6.0
		Cobalt, Total	8.0		MG/KG	0.49	6.0
		Chromium, Total	12.2	J	MG/KG	0.38	6.0
		Copper, Total	12.3		MG/KG	0.44	6.0
		Mercury, Total	0.02	u	MG/KG	0.02	1.0
		Manganese, Total	397		MG/KG	0.11	6.0
		Molybdenum, Total	0.88	u	MG/KG	0.88	6.0
		Nickel, Total	11.9		MG/KG	1.2	6.0
		Lead, Total	7.0		MG/KG	1.4	6.0
		Antimony, Total	2.2	u J	MG/KG	2.2	6.0
		Selenium, Total	2.7	u	MG/KG	2.7	6.0
		Vanadium, Total	43.4	J	MG/KG	0.33	6.0
		Zinc, Total	44.8	J	MG/KG	0.27	6.0

K 8/6/05

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT · 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J03CD0	Silver, Total	0.50	u	MG/KG	0.50	6.0
		Arsenic, Total	2.5	u	MG/KG	2.5	6.0
		Boron, Total	2.3	J	MG/KG	1.3	6.0
		Barium, Total	72.9		MG/KG	0.11	6.0
		Beryllium, Total	0.68		MG/KG	0.06	6.0
		Cadmium, Total	0.17	u	MG/KG	0.17	6.0
		Cobalt, Total	7.2		MG/KG	0.50	6.0
		Chromium, Total	10.4	J	MG/KG	0.39	6.0
		Copper, Total	10.8		MG/KG	0.44	6.0
		Mercury, Total	0.02	u	MG/KG	0.02	1.0
		Manganese, Total	342		MG/KG	0.11	6.0
		Molybdenum, Total	0.88	u	MG/KG	0.88	6.0
		Nickel, Total	9.6		MG/KG	1.2	6.0
		Lead, Total	7.1		MG/KG	1.4	6.0
		Antimony, Total	2.2	u J	MG/KG	2.2	6.0
		Selenium, Total	2.7	u	MG/KG	2.7	6.0
		Vanadium, Total	36.4	J	MG/KG	0.33	6.0
		Zinc, Total	37.1	J	MG/KG	0.28	6.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

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

LVL LOT #: 0506L720

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J03CD1	Silver, Total	0.50 u	MG/KG	0.50	6.0
		Arsenic, Total	2.5 u	MG/KG	2.5	6.0
		Boron, Total	1.7 J	MG/KG	1.3	6.0
		Barium, Total	79.1	MG/KG	0.11	6.0
		Beryllium, Total	0.74	MG/KG	0.06	6.0
		Cadmium, Total	0.17	MG/KG	0.17	6.0
		Cobalt, Total	7.5	MG/KG	0.50	6.0
		Chromium, Total	15.9 J	MG/KG	0.39	6.0
		Copper, Total	12.0	MG/KG	0.44	6.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Manganese, Total	361	MG/KG	0.11	6.0
		Molybdenum, Total	1.0	MG/KG	0.88	6.0
		Nickel, Total	10.4	MG/KG	1.2	6.0
		Lead, Total	22.9	MG/KG	1.4	6.0
		Antimony, Total	2.2 u J	MG/KG	2.2	6.0
		Selenium, Total	2.7 u	MG/KG	2.7	6.0
		Vanadium, Total	41.0 J	MG/KG	0.33	6.0
		Zinc, Total	41.3 J	MG/KG	0.28	6.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

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

LVL LOT #: 0506L720

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J03CD2	Silver, Total	0.51 u	MG/KG	0.51	6.0
		Arsenic, Total	2.5 u	MG/KG	2.5	6.0
		Boron, Total	2.2 J	MG/KG	1.3	6.0
		Barium, Total	83.5	MG/KG	0.11	6.0
		Beryllium, Total	0.66	MG/KG	0.06	6.0
		Cadmium, Total	0.17 u	MG/KG	0.17	6.0
		Cobalt, Total	6.7	MG/KG	0.51	6.0
		Chromium, Total	25.5 J	MG/KG	0.39	6.0
		Copper, Total	12.4	MG/KG	0.45	6.0
		Mercury, Total	0.02	MG/KG	0.02	1.0
		Manganese, Total	329	MG/KG	0.11	6.0
		Molybdenum, Total	0.90 u	MG/KG	0.90	6.0
		Nickel, Total	10.6	MG/KG	1.2	6.0
		Lead, Total	63.2	MG/KG	1.4	6.0
		Antimony, Total	2.2 u J	MG/KG	2.2	6.0
		Selenium, Total	2.8 u	MG/KG	2.8	6.0
		Vanadium, Total	35.0 J	MG/KG	0.34	6.0
		Zinc, Total	46.5 J	MG/KG	0.28	6.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	J03CD3	Silver, Total	0.50 u	MG/KG	0.50	6.0
		Arsenic, Total	2.5 u	MG/KG	2.5	6.0
		Boron, Total	1.3 u J	MG/KG	1.3	6.0
		Barium, Total				
		Barium, Total	78.8	MG/KG	0.11	6.0
		Beryllium, Total	0.72	MG/KG	0.06	6.0
		Cadmium, Total	0.17 u	MG/KG	0.17	6.0
		Cobalt, Total	8.0	MG/KG	0.50	6.0
		Chromium, Total	10.8 J	MG/KG	0.39	6.0
		Copper, Total	10.6	MG/KG	0.44	6.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Manganese, Total	390	MG/KG	0.11	6.0
		Molybdenum, Total	0.89 u	MG/KG	0.89	6.0
		Nickel, Total	10.6	MG/KG	1.2	6.0
		Lead, Total	6.7	MG/KG	1.4	6.0
		Antimony, Total	2.2 u J	MG/KG	2.2	6.0
		Selenium, Total	2.7 u	MG/KG	2.7	6.0
		Vanadium, Total	36.8 J	MG/KG	0.33	6.0
		Zinc, Total	40.0 J	MG/KG	0.28	6.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203 LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-006	J03CD4	Silver, Total	0.50	u	MG/KG	0.50	6.0
		Arsenic, Total	2.5	u	MG/KG	2.5	6.0
		Boron, Total	2.7	J	MG/KG	1.3	6.0
		Barium, Total	77.1		MG/KG	0.11	6.0
		Beryllium, Total	0.69		MG/KG	0.06	6.0
		Cadmium, Total	0.18		MG/KG	0.17	6.0
		Cobalt, Total	6.7		MG/KG	0.50	6.0
		Chromium, Total	10.0	J	MG/KG	0.39	6.0
		Copper, Total	9.3		MG/KG	0.44	6.0
		Mercury, Total	0.02	u	MG/KG	0.02	1.0
		Manganese, Total	339		MG/KG	0.11	6.0
		Molybdenum, Total	1.2		MG/KG	0.89	6.0
		Nickel, Total	10.5		MG/KG	1.2	6.0
		Lead, Total	7.3		MG/KG	1.4	6.0
		Antimony, Total	2.2	u J	MG/KG	2.2	6.0
		Selenium, Total	2.7	u	MG/KG	2.7	6.0
		Vanadium, Total	36.8	J	MG/KG	0.33	6.0
		Zinc, Total	40.3	J	MG/KG	0.28	6.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-007	J03CD5	Silver, Total	0.48 u	MG/KG	0.48	6.0
		Arsenic, Total	3.5	MG/KG	2.4	6.0
		Boron, Total	1.2 u J	MG/KG	1.2	6.0
		Barium, Total	77.8	MG/KG	0.11	6.0
		Beryllium, Total	0.71	MG/KG	0.05	6.0
		Cadmium, Total	0.16 u	MG/KG	0.16	6.0
		Cobalt, Total	7.2	MG/KG	0.48	6.0
		Chromium, Total	10.3 J	MG/KG	0.38	6.0
		Copper, Total	9.9	MG/KG	0.43	6.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Manganese, Total	348	MG/KG	0.11	6.0
		Molybdenum, Total	0.86 u	MG/KG	0.86	6.0
		Nickel, Total	10.3	MG/KG	1.2	6.0
		Lead, Total	5.3	MG/KG	1.3	6.0
		Antimony, Total	2.2 u J	MG/KG	2.2	6.0
		Selenium, Total	2.6 u	MG/KG	2.6	6.0
		Vanadium, Total	37.0 J	MG/KG	0.32	6.0
		Zinc, Total	45.3 J	MG/KG	0.27	6.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-008	J03CD6	Silver, Total	0.49	u	MG/KG	0.49	6.0
		Arsenic, Total	2.7		MG/KG	2.5	6.0
		Boron, Total	2.4	J	MG/KG	1.3	6.0
		Barium, Total	80.0		MG/KG	0.11	6.0
		Beryllium, Total	0.74		MG/KG	0.05	6.0
		Cadmium, Total	0.16	u	MG/KG	0.16	6.0
		Cobalt, Total	7.7		MG/KG	0.49	6.0
		Chromium, Total	35.8	J	MG/KG	0.38	6.0
		Copper, Total	13.9		MG/KG	0.44	6.0
		Mercury, Total	0.03		MG/KG	0.02	1.0
		Manganese, Total	343		MG/KG	0.11	6.0
		Molybdenum, Total	1.3		MG/KG	0.87	6.0
		Nickel, Total	11.2		MG/KG	1.2	6.0
		Lead, Total	77.7		MG/KG	1.4	6.0
		Antimony, Total	2.2	u J	MG/KG	2.2	6.0
		Selenium, Total	2.7	u	MG/KG	2.7	6.0
		Vanadium, Total	36.4	J	MG/KG	0.33	6.0
		Zinc, Total	44.8	J	MG/KG	0.27	6.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-009	J03CD7	Silver, Total	0.50	u	MG/KG	0.50	6.0
		Arsenic, Total	2.5	u	MG/KG	2.5	6.0
		Boron, Total	1.3	u J	MG/KG	1.3	6.0
		Barium, Total	78.2		MG/KG	0.11	6.0
		Beryllium, Total	0.51		MG/KG	0.06	6.0
		Cadmium, Total	0.17	u	MG/KG	0.17	6.0
		Cobalt, Total	6.2		MG/KG	0.50	6.0
		Chromium, Total	12.8	J	MG/KG	0.39	6.0
		Copper, Total	9.4		MG/KG	0.44	6.0
		Mercury, Total	0.01	u	MG/KG	0.01	1.0
		Manganese, Total	335		MG/KG	0.11	6.0
		Molybdenum, Total	0.88	u	MG/KG	0.88	6.0
		Nickel, Total	8.8		MG/KG	1.2	6.0
		Lead, Total	20.6		MG/KG	1.4	6.0
		Antimony, Total	2.2	u J	MG/KG	2.2	6.0
		Selenium, Total	2.7	u	MG/KG	2.7	6.0
		Vanadium, Total	18.8	J	MG/KG	0.33	6.0
		Zinc, Total	35.5	J	MG/KG	0.28	6.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-010	J03CD8	Silver, Total	0.48	u	MG/KG	0.48	6.0
		Arsenic, Total	2.4	u	MG/KG	2.4	6.0
		Boron, Total	1.2	uJ	MG/KG	1.2	6.0
		Barium, Total	79.4		MG/KG	0.11	6.0
		Beryllium, Total	0.81		MG/KG	0.05	6.0
		Cadmium, Total	0.16	u	MG/KG	0.16	6.0
		Cobalt, Total	7.8		MG/KG	0.48	6.0
		Chromium, Total	9.7	J	MG/KG	0.37	6.0
		Copper, Total	9.3		MG/KG	0.43	6.0
		Mercury, Total	0.02	u	MG/KG	0.02	1.0
		Manganese, Total	375		MG/KG	0.11	6.0
		Molybdenum, Total	0.85	u	MG/KG	0.85	6.0
		Nickel, Total	10.6		MG/KG	1.2	6.0
		Lead, Total	6.0		MG/KG	1.3	6.0
		Antimony, Total	2.1	uJ	MG/KG	2.1	6.0
		Selenium, Total	2.6	u	MG/KG	2.6	6.0
		Vanadium, Total	40.2	J	MG/KG	0.32	6.0
		Zinc, Total	46.2	J	MG/KG	0.27	6.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	J03CD9	Silver, Total	0.47	u	MG/KG	0.47	6.0
		Arsenic, Total	2.4	u	MG/KG	2.4	6.0
		Boron, Total	1.2	u J	MG/KG	1.2	6.0
		Barium, Total	74.2		MG/KG	0.11	6.0
		Beryllium, Total	0.73		MG/KG	0.05	6.0
		Cadmium, Total	0.16	u	MG/KG	0.16	6.0
		Cobalt, Total	6.8		MG/KG	0.47	6.0
		Chromium, Total	9.3	J	MG/KG	0.37	6.0
		Copper, Total	8.4		MG/KG	0.42	6.0
		Mercury, Total	0.01	u	MG/KG	0.01	1.0
		Manganese, Total	347		MG/KG	0.11	6.0
		Molybdenum, Total	0.84	u	MG/KG	0.84	6.0
		Nickel, Total	10.0		MG/KG	1.2	6.0
		Lead, Total	6.0		MG/KG	1.3	6.0
		Antimony, Total	2.1	u J	MG/KG	2.1	6.0
		Selenium, Total	2.6	u	MG/KG	2.6	6.0
		Vanadium, Total	34.6	J	MG/KG	0.32	6.0
		Zinc, Total	41.5	J	MG/KG	0.26	6.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203 LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-012	J03CF0	Silver, Total	0.49	u	MG/KG	0.49	6.0
		Arsenic, Total	2.5	u	MG/KG	2.5	6.0
		Boron, Total	1.3	u J	MG/KG	1.3	6.0
		Barium, Total	50.3		MG/KG	0.11	6.0
		Beryllium, Total	1.0		MG/KG	0.05	6.0
		Cadmium, Total	0.16	u	MG/KG	0.16	6.0
		Cobalt, Total	8.0		MG/KG	0.49	6.0
		Chromium, Total	7.5	J	MG/KG	0.38	6.0
		Copper, Total	13.5		MG/KG	0.44	6.0
		Mercury, Total	0.01	u	MG/KG	0.01	1.0
		Manganese, Total	333		MG/KG	0.11	6.0
		Molybdenum, Total	0.88	u	MG/KG	0.88	6.0
		Nickel, Total	12.0		MG/KG	1.2	6.0
		Lead, Total	5.6		MG/KG	1.4	6.0
		Antimony, Total	2.2	u J	MG/KG	2.2	6.0
		Selenium, Total	2.7	u	MG/KG	2.7	6.0
		Vanadium, Total	46.6	J	MG/KG	0.33	6.0
		Zinc, Total	42.6	J	MG/KG	0.27	6.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203 LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-013	J03CF1	Silver, Total	0.50	u	MG/KG	0.50	6.0
		Arsenic, Total	2.5	u	MG/KG	2.5	6.0
		Boron, Total	1.3	J	MG/KG	1.3	6.0
		Barium, Total	80.3		MG/KG	0.11	6.0
		Beryllium, Total	0.84		MG/KG	0.06	6.0
		Cadmium, Total	0.17	u	MG/KG	0.17	6.0
		Cobalt, Total	8.0		MG/KG	0.50	6.0
		Chromium, Total	10.4	J	MG/KG	0.39	6.0
		Copper, Total	9.8		MG/KG	0.44	6.0
		Mercury, Total	0.01	u	MG/KG	0.01	1.0
		Manganese, Total	398		MG/KG	0.11	6.0
		Molybdenum, Total	0.88	u	MG/KG	0.88	6.0
		Nickel, Total	11.2		MG/KG	1.2	6.0
		Lead, Total	5.2		MG/KG	1.4	6.0
		Antimony, Total	2.2	u J	MG/KG	2.2	6.0
		Selenium, Total	2.7	u	MG/KG	2.7	6.0
		Vanadium, Total	38.6	J	MG/KG	0.33	6.0
		Zinc, Total	41.8	J	MG/KG	0.28	6.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

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

LVL LOT #: 0506L720

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-014	J03CF2	Silver, Total	0.50 u	MG/KG	0.50	6.0
		Arsenic, Total	2.5 u	MG/KG	2.5	6.0
		Boron, Total	1.3 u J	MG/KG	1.3	6.0
		Barium, Total	36.8	MG/KG	0.11	6.0
		Beryllium, Total	0.67	MG/KG	0.06	6.0
		Cadmium, Total	0.17 u	MG/KG	0.17	6.0
		Cobalt, Total	7.3	MG/KG	0.50	6.0
		Chromium, Total	11.2 J	MG/KG	0.39	6.0
		Copper, Total	15.5	MG/KG	0.44	6.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Manganese, Total	288	MG/KG	0.11	6.0
		Molybdenum, Total	0.88 u	MG/KG	0.88	6.0
		Nickel, Total	12.5	MG/KG	1.2	6.0
		Lead, Total	4.9	MG/KG	1.4	6.0
		Antimony, Total	2.2 u J	MG/KG	2.2	6.0
		Selenium, Total	2.7 u	MG/KG	2.7	6.0
		Vanadium, Total	30.9 J	MG/KG	0.33	6.0
		Zinc, Total	33.2 J	MG/KG	0.28	6.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203 LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-015	J03CF3	Silver, Total	0.50	u	MG/KG	0.50	6.0
		Arsenic, Total	2.5	u	MG/KG	2.5	6.0
		Boron, Total	1.3	u J	MG/KG	1.3	6.0
		Barium, Total	71.2		MG/KG	0.11	6.0
		Beryllium, Total	0.88		MG/KG	0.06	6.0
		Cadmium, Total	0.17	u	MG/KG	0.17	6.0
		Cobalt, Total	8.6		MG/KG	0.50	6.0
		Chromium, Total	10.2	J	MG/KG	0.39	6.0
		Copper, Total	10.3		MG/KG	0.44	6.0
		Mercury, Total	0.01	u	MG/KG	0.01	1.0
		Manganese, Total	376		MG/KG	0.11	6.0
		Molybdenum, Total	0.88	u	MG/KG	0.88	6.0
		Nickel, Total	10.5		MG/KG	1.2	6.0
		Lead, Total	5.8		MG/KG	1.4	6.0
		Antimony, Total	2.2	u J	MG/KG	2.2	6.0
		Selenium, Total	2.7	u	MG/KG	2.7	6.0
		Vanadium, Total	40.2	J	MG/KG	0.33	6.0
		Zinc, Total	39.5	J	MG/KG	0.28	6.0

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203 LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-016	J03CP4	Silver, Total	0.50	u	MG/KG	0.50	6.0
		Arsenic, Total	2.5	u	MG/KG	2.5	6.0
		Boron, Total	1.3	u J	MG/KG	1.3	6.0
		Barium, Total	36.5		MG/KG	0.11	6.0
		Beryllium, Total	1.2		MG/KG	0.06	6.0
		Cadmium, Total	0.17	u	MG/KG	0.17	6.0
		Cobalt, Total	8.5		MG/KG	0.50	6.0
		Chromium, Total	5.4	J	MG/KG	0.39	6.0
		Copper, Total	12.5		MG/KG	0.44	6.0
		Mercury, Total	0.01	u	MG/KG	0.01	1.0
		Manganese, Total	332		MG/KG	0.11	6.0
		Molybdenum, Total	0.88	u	MG/KG	0.88	6.0
		Nickel, Total	9.9		MG/KG	1.2	6.0
		Lead, Total	6.5		MG/KG	1.4	6.0
		Antimony, Total	2.2	u J	MG/KG	2.2	6.0
		Selenium, Total	2.7	u	MG/KG	2.7	6.0
		Vanadium, Total	48.0	J	MG/KG	0.33	6.0
		Zinc, Total	44.1	J	MG/KG	0.28	6.0

8/6/05

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203 LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-017	J03CF5	Silver, Total	0.50	u	MG/KG	0.50	6.0
		Arsenic, Total	2.5	u	MG/KG	2.5	6.0
		Boron, Total	1.3	u J	MG/KG	1.3	6.0
		Barium, Total	38.6		MG/KG	0.11	6.0
		Beryllium, Total	1.2		MG/KG	0.06	6.0
		Cadmium, Total	0.17	u	MG/KG	0.17	6.0
		Cobalt, Total	8.9		MG/KG	0.50	6.0
		Chromium, Total	6.3	J	MG/KG	0.39	6.0
		Copper, Total	13.6		MG/KG	0.44	6.0
		Mercury, Total	0.02	u	MG/KG	0.02	1.0
		Manganese, Total	312		MG/KG	0.11	6.0
		Molybdenum, Total	0.88	u	MG/KG	0.88	6.0
		Nickel, Total	11.9		MG/KG	1.2	6.0
		Lead, Total	4.1		MG/KG	1.4	6.0
		Antimony, Total	2.2	u J	MG/KG	2.2	6.0
		Selenium, Total	2.7	u	MG/KG	2.7	6.0
		Vanadium, Total	54.4	J	MG/KG	0.33	6.0
		Zinc, Total	44.5	J	MG/KG	0.28	6.0

8/6/05

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203 LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-018	J03CF6	Silver, Total	0.48	u	MG/KG	0.48	6.0
		Arsenic, Total	2.4	u	MG/KG	2.4	6.0
		Boron, Total	1.2	u J	MG/KG	1.2	6.0
		Barium, Total	54.7		MG/KG	0.11	6.0
		Beryllium, Total	1.2		MG/KG	0.05	6.0
		Cadmium, Total	0.16	u	MG/KG	0.16	6.0
		Cobalt, Total	9.1		MG/KG	0.48	6.0
		Chromium, Total	9.5	J	MG/KG	0.37	6.0
		Copper, Total	14.7		MG/KG	0.43	6.0
		Mercury, Total	0.01	u	MG/KG	0.01	1.0
		Manganese, Total	370		MG/KG	0.11	6.0
		Molybdenum, Total	0.85	u	MG/KG	0.85	6.0
		Nickel, Total	12.7		MG/KG	1.2	6.0
		Lead, Total	13.9		MG/KG	1.3	6.0
		Antimony, Total	2.1	u J	MG/KG	2.1	6.0
		Selenium, Total	2.6	u	MG/KG	2.6	6.0
		Vanadium, Total	49.8	J	MG/KG	0.32	6.0
		Zinc, Total	44.6	J	MG/KG	0.27	6.0

8/6/05

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203 LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-019	J03CF7	Silver, Total	0.49	u	MG/KG	0.49	6.0
		Arsenic, Total	2.5	u	MG/KG	2.5	6.0
		Boron, Total	1.3	J	MG/KG	1.3	6.0
		Barium, Total	43.8		MG/KG	0.11	6.0
		Beryllium, Total	1.3		MG/KG	0.05	6.0
		Cadmium, Total	0.16	u	MG/KG	0.16	6.0
		Cobalt, Total	8.8		MG/KG	0.49	6.0
		Chromium, Total	7.3	J	MG/KG	0.38	6.0
		Copper, Total	18.1		MG/KG	0.44	6.0
		Mercury, Total	0.01	u	MG/KG	0.01	1.0
		Manganese, Total	326		MG/KG	0.11	6.0
		Molybdenum, Total	1.1		MG/KG	0.87	6.0
		Nickel, Total	14.4		MG/KG	1.2	6.0
		Lead, Total	5.6		MG/KG	1.4	6.0
		Antimony, Total	2.2	u J	MG/KG	2.2	6.0
		Selenium, Total	2.7	u	MG/KG	2.7	6.0
		Vanadium, Total	54.4	J	MG/KG	0.33	6.0
		Zinc, Total	61.9	J	MG/KG	0.27	6.0

8/6/05

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203 LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-020	J03CF8	Silver, Total	0.48	u	MG/KG	0.48	6.0
		Arsenic, Total	2.4	u	MG/KG	2.4	6.0
		Boron, Total	1.2	u J	MG/KG	1.2	6.0
		Barium, Total	51.5		MG/KG	0.11	6.0
		Beryllium, Total	1.2		MG/KG	0.05	6.0
		Cadmium, Total	0.16	u	MG/KG	0.16	6.0
		Cobalt, Total	9.1		MG/KG	0.48	6.0
		Chromium, Total	7.3	J	MG/KG	0.37	6.0
		Copper, Total	13.3		MG/KG	0.43	6.0
		Mercury, Total	0.01	u	MG/KG	0.01	1.0
		Manganese, Total	334		MG/KG	0.11	6.0
		Molybdenum, Total	0.85	u	MG/KG	0.85	6.0
		Nickel, Total	10.7		MG/KG	1.2	6.0
		Lead, Total	5.7		MG/KG	1.3	6.0
		Antimony, Total	2.1	u J	MG/KG	2.1	6.0
		Selenium, Total	2.6	u	MG/KG	2.6	6.0
		Vanadium, Total	49.9	J	MG/KG	0.32	6.0
		Zinc, Total	43.1	J	MG/KG	0.27	6.0

8/6/05

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L736

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J03CF9	Silver, Total	0.48 u	MG/KG	0.48	6.0
		Arsenic, Total	3.1	MG/KG	2.4	6.0
		Boron, Total	4.9	MG/KG	1.2	6.0
		Barium, Total	55.0	MG/KG	0.11	6.0
		Beryllium, Total	0.76	MG/KG	0.05	6.0
		Cadmium, Total	0.16 u	MG/KG	0.16	6.0
		Cobalt, Total	8.6	MG/KG	0.48	6.0
		Chromium, Total	15.5 J	MG/KG	0.38	6.0
		Copper, Total	19.3	MG/KG	0.43	6.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Manganese, Total	327	MG/KG	0.11	6.0
		Molybdenum, Total	1.7 J	MG/KG	0.86	6.0
		Nickel, Total	11.1	MG/KG	1.2	6.0
		Lead, Total	25.8 J	MG/KG	1.3	6.0
		Antimony, Total	2.1 u J	MG/KG	2.1	6.0
		Selenium, Total	2.6 u	MG/KG	2.6	6.0
		Vanadium, Total	45.7	MG/KG	0.32	6.0
		Zinc, Total	42.3	MG/KG	0.27	6.0

8/6/05

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203 LVL LOT #: 0506L736

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-002	J03CH0	Silver, Total	0.48	u	MG/KG	0.48	6.0
		Arsenic, Total	2.4	u	MG/KG	2.4	6.0
		Boron, Total	3.2		MG/KG	1.2	6.0
		Barium, Total	44.1		MG/KG	0.11	6.0
		Beryllium, Total	0.89		MG/KG	0.05	6.0
		Cadmium, Total	0.16	u	MG/KG	0.16	6.0
		Cobalt, Total	9.2		MG/KG	0.48	6.0
		Chromium, Total	6.4	J	MG/KG	0.38	6.0
		Copper, Total	17.9		MG/KG	0.43	6.0
		Mercury, Total	0.01	u	MG/KG	0.01	1.0
		Manganese, Total	320		MG/KG	0.11	6.0
		Molybdenum, Total	0.86	u J	MG/KG	0.86	6.0
		Nickel, Total	10.0		MG/KG	1.2	6.0
		Lead, Total	6.6	J	MG/KG	1.3	6.0
		Antimony, Total	2.1	u J	MG/KG	2.1	6.0
		Selenium, Total	2.6	u	MG/KG	2.6	6.0
		Vanadium, Total	60.7		MG/KG	0.32	6.0
		Zinc, Total	46.7		MG/KG	0.27	6.0

8/6/05

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203 LVL LOT #: 0506L736

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-003	J03CH1	Silver, Total	0.49	u	MG/KG	0.49	6.0
		Arsenic, Total	4.3		MG/KG	2.4	6.0
		Boron, Total	3.6		MG/KG	1.2	6.0
		Barium, Total	83.5		MG/KG	0.11	6.0
		Beryllium, Total	0.57		MG/KG	0.05	6.0
		Cadmium, Total	0.16	u	MG/KG	0.16	6.0
		Cobalt, Total	6.9		MG/KG	0.49	6.0
		Chromium, Total	9.8	J	MG/KG	0.38	6.0
		Copper, Total	12.2		MG/KG	0.43	6.0
		Mercury, Total	0.02	u	MG/KG	0.02	1.0
		Manganese, Total	349		MG/KG	0.11	6.0
		Molybdenum, Total	1.2	J	MG/KG	0.87	6.0
		Nickel, Total	10.3		MG/KG	1.2	6.0
		Lead, Total	7.0	J	MG/KG	1.4	6.0
		Antimony, Total	2.2	u J	MG/KG	2.2	6.0
		Selenium, Total	2.7	u	MG/KG	2.7	6.0
		Vanadium, Total	35.8		MG/KG	0.33	6.0
		Zinc, Total	44.4		MG/KG	0.27	6.0

8/6/05

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L736

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	J03CH2	Silver, Total	0.50 u	MG/KG	0.50	6.0
		Arsenic, Total	2.7	MG/KG	2.5	6.0
		Boron, Total	3.0	MG/KG	1.3	6.0
		Barium, Total	51.2	MG/KG	0.11	6.0
		Beryllium, Total	0.77	MG/KG	0.06	6.0
		Cadmium, Total	0.17 u	MG/KG	0.17	6.0
		Cobalt, Total	8.4	MG/KG	0.50	6.0
		Chromium, Total	7.3 J	MG/KG	0.39	6.0
		Copper, Total	16.9	MG/KG	0.44	6.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Manganese, Total	334	MG/KG	0.11	6.0
		Molybdenum, Total	1.0 J	MG/KG	0.89	6.0
		Nickel, Total	10.1	MG/KG	1.2	6.0
		Lead, Total	6.7 J	MG/KG	1.4	6.0
		Antimony, Total	2.2 u J	MG/KG	2.2	6.0
		Selenium, Total	2.7 u	MG/KG	2.7	6.0
		Vanadium, Total	48.3	MG/KG	0.33	6.0
		Zinc, Total	41.9	MG/KG	0.28	6.0

8/6/05

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L736

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-005	J03CC8	Silver, Total	0.08 u	MG/KG	0.08	1.0
		Arsenic, Total	0.41 u	MG/KG	0.41	1.0
		Boron, Total	1.1 UJ	MG/KG	0.21	1.0
		Barium, Total	0.98	MG/KG	0.02	1.0
		Beryllium, Total	0.01	MG/KG	0.009	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Cobalt, Total	0.11	MG/KG	0.08	1.0
		Chromium, Total	0.14 J	MG/KG	0.06	1.0
		Copper, Total	0.12 UJ	MG/KG	0.07	1.0
		Mercury, Total	0.02 u	MG/KG	0.02	1.0
		Manganese, Total	4.0	MG/KG	0.02	1.0
		Molybdenum, Total	0.15 u J	MG/KG	0.15	1.0
		Nickel, Total	0.20 u	MG/KG	0.20	1.0
		Lead, Total	0.41 UJ	MG/KG	0.23	1.0
		Antimony, Total	0.37 u J	MG/KG	0.37	1.0
		Selenium, Total	0.45 u	MG/KG	0.45	1.0
		Vanadium, Total	0.06	MG/KG	0.06	1.0
		Zinc, Total	1.5 UJ	MG/KG	0.05	1.0

8/6/05

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B04-002
LVL#: 0506L720
SDG/SAF#: H3203/B04-002

W.O.#: 11343-606-001-9999-00
Date Received: 06-10-05

METALS CASE NARRATIVE

1. This narrative covers the analyses of 20 soil samples.

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. All samples were analyzed with 6-fold dilutions for ICP metals due to sample matrix.

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

4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.

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), 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 with the exception of 05C0150-LC1 for Mercury at 121.6%. Refer to the Inorganics Laboratory Control Standards Report. The result for Mercury of 7.54 mg/kg is within the manufacturer's performance acceptance limits of 4.19-8.23 mg/kg.

10. The matrix spike (MS) recoveries for 7 analytes were 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 meaningful concentration level for the

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 50 pages.

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following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J03CC9	Boron	600	98.6
	Chromium	600	105.4
	Copper	600	92.8
	Manganese	6,000	107.4
	Antimony	600	113.3
	Vanadium	6,000	98.8
	Zinc	600	114.5

12. The duplicate analyses for 2 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.

14. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

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

for Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

7.14.05
Date

jjw/m06-720

LVLI
LIONVILLE LABORATORY INC.

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B04-002
LVL#: 0506L736
SDG/SAF#: H3203/B04-002

W.O.#: 11343-606-001-9999-00
Date Received: 06-10-05

METALS CASE NARRATIVE

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

2. The samples were prepared and analyzed in accordance with methods checked on the attached glossary. All samples except J03CC8 were analyzed with 6-fold dilutions for ICP metals due to sample matrix.

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

4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.

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. The preparation/method blank for 1 analyte was outside method criteria. {less than the Practical Quantitation Limit (3X the IDL), or samples greater than 20X MB value}. Refer to the Inorganics Method Blank Data Summary.

   a). The MB result for Zinc was greater than the Practical Quantitation Limit (PQL) {3 x the IDL) Instrument Detection Level} and sample J03CC8 read less than 20 times the MB concentration. However, no corrective action criteria for MBs were provided in SW846 method 6010B. The sample results were 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 80-120% control limits. Refer to the Inorganics Laboratory Control Standards Report.

10. The matrix spike (MS) recoveries for 2 analytes were outside the 75-125% control limits.

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 19 pages.

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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 meaningful concentration level for the following analytes:

Sample ID	Element	PDS Concentration (ppb)	PDS % Recovery
J03CF9	Silver	600	101.8
	Antimony	600	107.9

12. The duplicate analyses for 5 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.

14. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

15. 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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

7.14.05
Date

jjw/m06-736

LVLI
LIONVILLE LABORATORY INC.

05D6L 720

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 1 of 5

Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers — Telephone No.: 531-0701	Project Coordinator: KESSNER, JH	Price Code: Many — Data Turnaround: Air Quality 21 days
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC	SAF No.: B04-002	
Ice Chest No.: ERC 02 506,96 002, 02 501, 03105, 02 101, TNV052	Field Logbook No.: EL 1173-5 — COA: R128B22600	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A050 239/240	Bill of Lading/Air Bill No.: S GE 05PC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None (E)	Cool 4C (C)	Cool 4C (B)	Cool 4C (A)	None	Cool 4C (D)	Cool 4C (F)			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			

	Sample No.	Matrix *	Sample Date	Sample Time										
1.	J03CC9	SOIL	6/8/05	0817	✓	✓	✓	✓	✓	✓	✓			
2.	J03CD0	SOIL	6/8/05	0821	✓	✓	✓	✓	✓	✓	✓			
3.	J03CD1	SOIL	6/8/05	0832	✓	✓	✓	✓	✓	✓	✓			
4.	J03CD2	SOIL	6/8/05	0840	✓	✓	✓	✓	✓	✓	✓			
5.	J03CD3	SOIL	6/8/05	0900	✓	✓	✓	✓	✓	✓	✓			

000042

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Doug Bowers Bowers	6-8-05/1741	Ref 2B 3728	6-8-05/1741
Ref 2B 3728 6905	0900	SJGALE 6905	0900
SJGALE ERC 6905	0900	FEDEX	
FedEx	6/10/05 0920	6/10/05	0920

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7470 - (CV) 6/10/05
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to Relinquish samples from 3728 Ref # 2B on 6/9/05

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquid
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 (03/01/2002)

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B04-002-040

Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER. JH
Price Code: Many	Data Turnaround: Air Quality 21 days		
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC		SAF No.: B04-002
Ice Chest No.: ERC 02 506, 96002, 02 501, 03 105, 02 101, TNO 052	Field Logbook No.: EL 1173-5	COA: R128B22600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A050239/240		Bill of Lading/Air Bill No.: SEE OSP

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			
Sample No.	Matrix *	Sample Date	Sample Time								
6. J03CD4	SOIL	6/8/05	0900	X	X	X	X	6-8-05	X	X	
7. J03CD5	SOIL	6/8/05	0950	X	X	X	X		X	X	
8 J03CD6	SOIL	6/8/05	0955	X	X	X	X		X	X	
9 J03CD7	SOIL	6/8/05	1001	X	X	X	X		X	X	
10 J03CD8	SOIL	6/8/05	1025	X	X	X	X		X	X	

000043

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Doug Bowers	6-8-05/1545	Ref 2B 3728	6-8-05/1545
Ref 2B 3728	6905 0900	SJ Gale	6905 0900
SJ Gale ERC	6905 0900	FED EX	
FED EX	6-9-05 0920		6-9-05 0920

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

DS 6/9/05

Personnel not available to relinquish samples from 3728 Ref # 2B on 6/9/05

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solid
DL=Drum Liquid
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

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B04-002-040	Page 3 of 5
Collector D Bowersw/C Martinez/J Kiesler	Company Contact Doug Bowers	Telephone No. 531-0701	Project Coordinator KESSNER, JH	Price Code Many Data Turnaround
Project Designation 100 BC Burial Grounds - Soil Full Protocol	Sampling Location 128-B-2 @ 100 BC		SAF No. B04-002	Air Quality 21 days
Ice Chest No. ERC 02 506, 96 002, 02501, 03105, 02 101, THU 052	Field Logbook No. EL 1173-5	COA R128B22600	Method of Shipment Fed Ex	
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A050 239/240		Bill of Lading/Air Bill No. SEE 03PC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C				
Type of Container	aG	aG	aG	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1	1				
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1				
Sample No. / Matrix * / Sample Date / Sample Time											
11. J03CD9 / SOIL / 6/8/05 / 1030	✓	✓	✓	✓	✓	✓	X				
12. J03CF0 / SOIL / 6/8/05 / 1041	✓	✓	✓	✓	✓	✓	X				
13. J03CF1 / SOIL / 6/8/05 / 1055	✓	✓	✓	✓	✓	✓	X				
14. J03CF2 / SOIL / 6/8/05 / 1110	✓	✓	✓	✓	✓	✓	X				
15. J03CF3 / SOIL / 6/8/05 / 1117	✓	✓	✓	✓	✓	✓	X				

00004

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From Doug Bowers Doug Bowers	Date/Time 6-9-05/1545	Received By/Stored In REF 2B 3728	Date/Time 6-9-05/1545
Relinquished By/Removed From REF 2B 3728	Date/Time 6905 0900	Received By/Stored In SUGALE	Date/Time 6905 0900
Relinquished By/Removed From SUGALE ERC	Date/Time 6905 0900	Received By/Stored In FED EX	Date/Time
Relinquished By/Removed From Fed Ex	Date/Time 6-10-05 0770	Received By/Stored In 6-10-05	Date/Time 0900
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}, Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to relinquish samples from 3728 Ref #2B on 6/9/05

Matrix *
S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquid
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 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 4 of 5

Collector D Bowers/C Martinez/J Kiesler	Company Contact Doug Bowers	Telephone No. 531-0701	Project Coordinator KESSNER, JH
Price Code Many	Data Turnaround Air Quality 21 days		
Project Designation 100 BC Burial Grounds - Soil Full Protocol	Sampling Location 128-B-2 @ 100 BC		SAF No. B04-002
Ice Chest No. GRC 02 506, 96 002, 02 501, 03 105, 02 101, TNU052	Field Logbook No. EL 1173-5	COA R128B22600	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. AQ50 239/240		Bill of Lading/Air Bill No. SCE 05PC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418 1			
Sample No.	Matrix *	Sample Date	Sample Time								
16. J03CF4	SOIL	~~6/8/05~~ 6/8/05	1230	✓	✓	✓	✓	✓	✓	✓	
17. J03CF5	SOIL	6/8/05	1235	✓	✓	✓	✓	✓	✓	✓	
18. J03CF6	SOIL	6/8/05	1250	✓	✓	✓	✓	✓	✓	✓	
19. J03CF7	SOIL	6/8/05	1330	✓	✓	✓	✓	✓	✓	✓	
20. J03CF8	SOIL	6/8/05	1333	✓	✓	✓	✓	✓	✓	✓	

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From Doug Bowers	Date/Time Bowers 6-8-05/1545	Received By/Stored In REF 2B 3728	Date/Time 6-8-05/1545
Relinquished By/Removed From REF 2B 3728	Date/Time 6905 0900	Received By/Stored In SIGALE	Date/Time 6905 0900
Relinquished By/Removed From SIGALE	Date/Time 6905 GRC 0900	Received By/Stored In FED EX	Date/Time
Relinquished By/Removed From Fed Ex	Date/Time 6/10/05 0920	Received By/Stored In	Date/Time 6-10-05 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}: Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}: Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to Relinquish samples from 3728 Ref # 2B on 6/9/05

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solid
DL=Drum Liquid
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 (03/01/2002)

000045

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 2 of 2

Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER, JH
Price Code: Many	Data Turnaround: Air Quality 21 days		
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC		SAF No.: B04-002
Ice Chest No.: ERC 02 506, 96 002, 02 501, 03 105, 02 101, TNV 052	Field Logbook No.: EL 1173-5	COA: R128B22600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A050 239/240		Bill of Lading/Air Bill No.: SEZ 05PC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			

	Sample No.	Matrix *	Sample Date	Sample Time										
21.	J03CF9	SOIL	6/8/05	1335	✓	✓	✓	✓	✓	✓	✓			
22.	J03CH0	SOIL	6/8/05	1400	✓	✓	✓	✓	✓	✓	✓			
23.	J03CH1	SOIL	6/8/05	0910	✓	✓	✓	✓	✓	✓	✓			
24.	J03CH2	SOIL	6/8/05	1044	✓	✓	✓	✓	✓	✓	✓			
25.	J03CC8	soil	6/8/05	0803	✓	✓	✓	✓	✓	✓	✓		FCP semi VOA	only

000046

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Doug Bowers	6-8-05/1545	R. F. 2B 3728	6-8-05/1545
Relinquished By/Removed From	REF 2B 3728	6905 0900	S. GALE	6905 0900
Relinquished By/Removed From	S. GALE	6905 0900	FED EX (ERC)	
Relinquished By/Removed From	Fed Ex	6/10/05 0920		6-10-05 0920
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to relinquish samples from 3728 Ref # 2B on 6 18 105

Matrix *
S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solid
DL=Drum Liquid
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 (03/01/2002)

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 100BC 128-B-2		DATA PACKAGE: H3203	
VALIDATOR: TLT	LAB:		DATE: 8/3/05
		SDG: H3203	

ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		

SAMPLES/MATRIX					
J03CC9	J03CD0	J03CD1	J03CD2	J03CD3	J03CD4
J03CD5	J03CD6	J03CD7	J03CD8	~~J0C3D9~~	J03CD9 J03CF0
J03CF1	J0C3F2	J03CF3	J03CF4	J03CF5	J03CF6 J03CF7
J03CF8	J03CF9	J03CH0	J03CH1	J03CH2	J03CC8
					Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes (No) N/A

Comments:

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments? ..... Yes No (N/A)

Initial calibrations acceptable? ..... Yes No (N/A)

ICP interference checks acceptable? ..... Yes No (N/A)

ICV and CCV checks performed on all instruments? ..... Yes No (N/A)

ICV and CCV checks acceptable? ..... Yes No (N/A)

Standards traceable? ..... Yes No (N/A)

Standards expired? ..... Yes No (N/A)

Calculation check acceptable? ..... Yes No (N/A)

Comments:

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E) ..... Yes No N/A

ICB and CCB results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: Boron UJ CC8

Copper UJ CC8 Barium, beryllium, cobalt, chromium

lead - UJ C8 manganese, vanadium - in FB

zinc - UJ C8

4. ACCURACY (Levels C, D, and E)

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments: MS/MSD Chromium 66.1 - J all associated

Antimony - 38.1 - J all associated 39.4 J all

~~selenium~~

zinc - 67.8 J all assoc

vanadium - 52.7 J all assoc

no PAS

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable? ..... Yes **No** N/A

Duplicate results acceptable? ..... Yes **No** N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No **N/A**

MS/MSD standards expired? (Levels D, E) ..... Yes No **N/A**

Field duplicate RPD values acceptable? ..... **Yes** No N/A

Field split RPD values acceptable? ..... Yes No **N/A**

Transcription/calculation errors? (Levels D, E) ..... Yes No **N/A**

Comments: Boron 527% – J all assoc 155
Chromium 31.5 J all 55
molybdenum – 53.6 J all 55
lead – 30.4 J all 55

6. ICP QUALITY CONTROL (Levels D and E)

ICP serial dilution samples analyzed? ..... Yes No **N/A**

ICP serial dilution %D values acceptable? ..... Yes No **N/A**

ICP post digestion spike required? ..... Yes No **N/A**

ICP post digestion spike values acceptable? ..... Yes No **N/A**

Standards traceable? ..... Yes No **N/A**

Standards expired? ..... Yes No **N/A**

Transcription/calculation errors? ..... Yes No **N/A**

Comments:

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

7. FURNACE AA QUALITY CONTROL (Levels D and E)

Duplicate injections performed as required? ..... Yes No N/A

Duplicate injection %RSD values acceptable? ..... Yes No N/A

Analytical spikes performed as required? ..... Yes No N/A

Analytical spike recoveries acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

MSA performed as required? ..... Yes No N/A

MSA results acceptable? ..... Yes No N/A

Transcription/calculation errors? ..... Yes No N/A

Comments: _____

8. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments: _____

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

9. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

Results reported for all requested analyses? ..... Yes No N/A

Rresults supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: Silver antimony Selenium - all undetects are (except cs)

Appendix 6

Additional Documentation Requested by Client

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	05L0354-MB1	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Arsenic, Total	0.45 u	MG/KG	0.45	1.0
		Boron, Total	0.23 u	MG/KG	0.23	1.0
		Barium, Total	0.02	MG/KG	0.02	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Cobalt, Total	0.09 u	MG/KG	0.09	1.0
		Chromium, Total	0.16	MG/KG	0.07	1.0
		Copper, Total	0.08 u	MG/KG	0.08	1.0
		Manganese, Total	0.02 u	MG/KG	0.02	1.0
		Molybdenum, Total	0.16 u	MG/KG	0.16	1.0
		Nickel, Total	0.22 u	MG/KG	0.22	1.0
		Lead, Total	0.25 u	MG/KG	0.25	1.0
		Antimony, Total	0.40 u	MG/KG	0.40	1.0
		Selenium, Total	0.49 u	MG/KG	0.49	1.0
		Vanadium, Total	0.06 u	MG/KG	0.06	1.0
		Zinc, Total	0.67	MG/KG	0.05	1.0
BLANK1	05C0150-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J03CC9	Silver, Total	3.7	0.49u	4.6	80.4	6.0
		Arsenic, Total	142	3.4	183	75.9	6.0
		Boron, Total	72.9	6.7	91.4	72.4	6.0
		Barium, Total	222	83.4	183	75.7	6.0
		Beryllium, Total	4.3	0.74	4.6	77.4	6.0
		Cadmium, Total	3.9	0.19	4.6	80.7	6.0
		Cobalt, Total	43.8	8.0	45.7	78.3	6.0
		Chromium, Total	24.3	12.2	18.3	66.1	6.0
		Copper, Total	28.6	12.3	22.9	71.2	6.0
		Mercury, Total	0.17	0.02u	0.15	113.5	1.0
		Manganese, Total	394	397	45.7	-6.3*	6.0
		Molybdenum, Total	78.0	0.88u	91.4	85.3	6.0
		Nickel, Total	46.4	11.9	45.7	75.5	6.0
		Lead, Total	42.7	7.0	45.7	78.1	6.0
		Antimony, Total	17.4	2.2 u	45.7	38.1	6.0
		Selenium, Total	140	2.7 u	183	76.5	6.0
		Vanadium, Total	67.5	43.4	45.7	52.7	6.0
		Zinc, Total	75.8	44.8	45.7	67.8	6.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

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

LVL LOT #: 0506L720

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J03CC9	Silver, Total	0.49u	0.49u	NC	6.0
		Arsenic, Total	3.4	3.2	6.1	6.0
		Boron, Total	6.7	3.9	52.8	6.0
		Barium, Total	83.4	81.2	2.7	6.0
		Beryllium, Total	0.74	0.71	4.5	6.0
		Cadmium, Total	0.19	0.18	3.0	6.0
		Cobalt, Total	8.0	7.4	7.8	6.0
		Chromium, Total	12.2	10.8	12.2	6.0
		Copper, Total	12.3	11.8	4.1	6.0
		Mercury, Total	0.02u	0.02u	NC	1.0
		Manganese, Total	397	374	6.0	6.0
		Molybdenum, Total	0.88u	0.88u	NC	6.0
		Nickel, Total	11.9	10.4	13.5	6.0
		Lead, Total	7.0	9.3	28.2	6.0
		Antimony, Total	2.2 u	2.2 u	NC	6.0
		Selenium, Total	2.7 u	2.7 u	NC	6.0
		Vanadium, Total	43.4	39.4	9.7	6.0
		Zinc, Total	44.8	46.8	4.4	6.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	05L0354-LC1	Silver, LCS	45.7	50.0	MG/KG	91.4
		Arsenic, LCS	869	1000	MG/KG	86.9
		Boron, LCS	433	500	MG/KG	86.5
		Barium, LCS	454	500	MG/KG	90.7
		Beryllium, LCS	22.9	25.0	MG/KG	91.6
		Cadmium, LCS	22.9	25.0	MG/KG	91.6
		Cobalt, LCS	230	250	MG/KG	92.1
		Chromium, LCS	46.3	50.0	MG/KG	92.6
		Copper, LCS	114	125	MG/KG	91.0
		Manganese, LCS	69.5	75.0	MG/KG	92.7
		Molybdenum, LCS	454	500	MG/KG	90.8
		Nickel, LCS	185	200	MG/KG	92.4
		Lead, LCS	230	250	MG/KG	91.9
		Antimony, LCS	271	300	MG/KG	90.3
		Selenium, LCS	870	1000	MG/KG	87.0
		Vanadium, LCS	225	250	MG/KG	90.0
		Zinc, LCS	92.1	100	MG/KG	92.1
LCS1	05C0150-LC1	Mercury, LCS	7.5	6.2	MG/KG	121.6

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L736

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

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	05L0357-MB1	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Arsenic, Total	0.45 u	MG/KG	0.45	1.0
		Boron, Total	0.40	MG/KG	0.23	1.0
		Barium, Total	0.04	MG/KG	0.02	1.0
		Beryllium, Total	0.01 u	MG/KG	0.01	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Cobalt, Total	0.09 u	MG/KG	0.09	1.0
		Chromium, Total	0.07 u	MG/KG	0.07	1.0
		Copper, Total	0.10	MG/KG	0.08	1.0
		Manganese, Total	0.02 u	MG/KG	0.02	1.0
		Molybdenum, Total	0.16 u	MG/KG	0.16	1.0
		Nickel, Total	0.22 u	MG/KG	0.22	1.0
		Lead, Total	0.31	MG/KG	0.25	1.0
		Antimony, Total	0.40 u	MG/KG	0.40	1.0
		Selenium, Total	0.49 u	MG/KG	0.49	1.0
		Vanadium, Total	0.06 u	MG/KG	0.06	1.0
		Zinc, Total	1.5	MG/KG	0.05	1.0
BLANK1	05C0149-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

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

LVL LOT #: 0506L736

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-001	J03CF9	Silver, Total	3.2	0.48u	4.5	71.1	6.0
		Arsenic, Total	171	3.1	179	93.7	6.0
		Boron, Total	77.2	4.9	89.4	80.9	6.0
		Barium, Total	197	55.0	179	79.5	6.0
		Beryllium, Total	4.3	0.76	4.5	78.6	6.0
		Cadmium, Total	4.3	0.16u	4.5	95.6	6.0
		Cobalt, Total	44.2	8.6	44.7	79.6	6.0
		Chromium, Total	29.9	15.5	17.9	80.4	6.0
		Copper, Total	37.5	19.3	22.3	81.6	6.0
		Mercury, Total	0.18	0.02u	0.15	119.7	1.0
		Manganese, Total	369	327	44.7	94.2*	6.0
		Molybdenum, Total	80.9	1.7	89.4	88.6	6.0
		Nickel, Total	46.7	11.1	44.7	79.6	6.0
		Lead, Total	65.6	25.8	44.7	89.0	6.0
		Antimony, Total	17.6	2.1 u	44.7	39.4	6.0
		Selenium, Total	168	2.6 u	179	93.7	6.0
		Vanadium, Total	85.0	45.7	44.7	87.9	6.0
		Zinc, Total	78.8	42.3	44.7	81.7	6.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203 LVL LOT #: 0506L736

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-001REP	J03CF9	Silver, Total	0.48u	0.48u	NC	6.0
		Arsenic, Total	3.1	5.0	46.9	6.0
		Boron, Total	4.9	3.7	27.9	6.0
		Barium, Total	55.0	54.7	0.55	6.0
		Beryllium, Total	0.76	0.65	16.0	6.0
		Cadmium, Total	0.16u	0.16u	NC	6.0
		Cobalt, Total	8.6	8.9	3.4	6.0
		Chromium, Total	15.5	21.3	31.5	6.0
		Copper, Total	19.3	18.8	2.6	6.0
		Mercury, Total	0.02u	0.01u	NC	1.0
		Manganese, Total	327	314	4.2	6.0
		Molybdenum, Total	1.7	0.96	55.6	6.0
		Nickel, Total	11.1	10.7	3.7	6.0
		Lead, Total	25.8	19.0	30.4	6.0
		Antimony, Total	2.1 u	2.1 u	NC	6.0
		Selenium, Total	2.6 u	2.6 u	NC	6.0
		Vanadium, Total	45.7	40.3	12.6	6.0
		Zinc, Total	42.3	38.9	8.4	6.0

Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 06/30/05

CLIENT: TNUHANFORD B04-002 H3203

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

LVL LOT #: 0506L736

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	05L0357-LC1	Silver, LCS	45.5	50.0	MG/KG	91.0
		Arsenic, LCS	872	1000	MG/KG	87.2
		Boron, LCS	440	500	MG/KG	88.0
		Barium, LCS	459	500	MG/KG	91.8
		Beryllium, LCS	23.2	25.0	MG/KG	92.8
		Cadmium, LCS	22.9	25.0	MG/KG	91.6
		Cobalt, LCS	232	250	MG/KG	92.8
		Chromium, LCS	46.6	50.0	MG/KG	93.2
		Copper, LCS	117	125	MG/KG	93.4
		Manganese, LCS	70.5	75.0	MG/KG	94.0
		Molybdenum, LCS	455	500	MG/KG	91.1
		Nickel, LCS	185	200	MG/KG	92.4
		Lead, LCS	231	250	MG/KG	92.5
		Antimony, LCS	266	300	MG/KG	88.6
		Selenium, LCS	879	1000	MG/KG	87.9
		Vanadium, LCS	229	250	MG/KG	91.8
		Zinc, LCS	93.8	100	MG/KG	93.8
LCS1	05C0149-LC1	Mercury, LCS	6.5	6.2	MG/KG	105.3

Date: 8 August 2005
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100BC Burial Grounds - Soil Full Protocol - Waste Site 128-B-2
Subject: Semivolatile - Data Package No. H3203-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. H3203-LLI prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Date
J03CC9	6/8/05	Soil	C	8270C
J03CD0	6/8/05	Soil	C	8270C
J03CD1	6/8/05	Soil	C	8270C
J03CD2	6/8/05	Soil	C	8270C
J03CD3	6/8/05	Soil	C	8270C
J03CD4	6/8/05	Soil	C	8270C
J03CD5	6/8/05	Soil	C	8270C
J03CD6	6/8/05	Soil	C	8270C
J03CD7	6/8/05	Soil	C	8270C
J03CD8	6/8/05	Soil	C	8270C
J03CD9	6/8/05	Soil	C	8270C
J03CF0	6/8/05	Soil	C	8270C
J03CF1	6/8/05	Soil	C	8270C
J03CF2	6/8/05	Soil	C	8270C
J03CF3	6/8/05	Soil	C	8270C
J03CF4	6/8/05	Soil	C	8270C
J03CF5	6/8/05	Soil	C	8270C
J03CF6	6/8/05	Soil	C	8270C
J03CF7	6/8/05	Soil	C	8270C
J03CF8	6/8/05	Soil	C	8270C
J03CF9	6/8/05	Soil	C	8270C
J03CH0	6/8/05	Soil	C	8270C
J03CH1	6/8/05	Soil	C	8270C
J03CH2	6/8/05	Soil	C	8270C
J03CC8	6/8/05	Soil	C	8270C

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 5 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

· Holding Times

Analytical holding times were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction.

If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were met.

· Method Blanks

Method blank analyses are conducted to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. Analytical results for analytes present in any sample at less than five times the concentration of that analyte found in the associated blank are qualified as non-detects and flagged "U". Common laboratory contaminants present in samples at less than ten times the concentration of that analyte found in the associated blank are qualified as non-detects. If a sample result is less than the CRQL and is less than five times (or less than ten times for lab contaminants) the highest associated blank result, the sample result value is raised to the CRQL level and qualified as undetected "U".

Due to method blank contamination, the bis(2-ethylhexyl)phthalate result in all samples except J03CH2 were qualified as undetected, raised to the RDL and flagged "U".

Due to method blank contamination, the di-n-butylphthalate results in samples J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6 and J03CD7 were raised to the RQL, qualified as undetected and flagged "U".

All other method blank results were acceptable.

Field Blanks

One field blank (J03CC8) was submitted for analysis. Diethylphthalate and di-n-butylphthalate were detected in the field blank. Under the BHI statement of work, no qualification is required.

- **Accuracy**

Matrix Spike/Matrix Spike Duplicate & Blank Spike Recoveries

Matrix spike/matrix spike duplicate analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike/matrix spike duplicate analyses are performed in duplicate using five compounds for which percent recoveries must be within a range of 50-150% or within laboratory control limits. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Undetected sample results with spike recoveries below control limits are qualified as estimates and flagged "UJ". Undetected sample results are not qualified if the spike recovery is above control limits. Sample results greater than five times the spike concentration require no qualification.

Due to matrix spike and/or matrix spike duplicates outside QC limits, all hexachloroethane, nitrobenzene, isophorone, 2-nitrophenol, 1,2,4-trichlorobenzene, 2-methylnaphthalene and 2,4-dinitrophenol results in samples J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6 and J03CD7 were qualified as estimates and flagged "J".

Due to a matrix spike duplicate recovery outside QC limits (18%), all hexachlorocyclopentadiene results in samples J03CF9, J03CH0, J03CH1, J03CH2 and J03CC8 were qualified as estimates and flagged "J".

Due to LCS recoveries outside QC limits, all nitrobenzene, isophorone, 2-nitrophenol, 2,4-dimethylphenol, 2,4-dichlorophenol, 1,2,4-trichlorobenzene, 4-chloro-3-methylphenol, 2-methylnaphthlene, acenaphthylene, 4-nitroanaline, n-nitrosodiphenylamine, carbazole and ideno(1,2,3-cd)pyrene results in samples J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6 and J03CD7 were qualified as estimates and flagged "J".

Due to LCS recoveries outside QC limits, all isophorone, 2,4-dimethylphenol, 1,2,4-trichlorobenzene, 4-chloro-3-methylphenol, 2-methylnaphthlene and 2,4-dinitrophenol results in samples J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7, J03CF8, J03CF9, J03CH0, J03CH1, J03CH2 and J03CC8 were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Surrogate Recovery

The analyses of surrogate compounds provide a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. If two surrogates of the same class of compounds (base/neutral or acid) are out of control limits, all associated sample results greater than the contract required quantitation limit (CRQL) are qualified as estimates and flagged "J". Sample results less than the CRQL and below the lower control limit are qualified as estimates and flagged "UJ". Sample results less than the CRQL with recoveries above the upper control limit require no qualification. If a surrogate recovery is less than 10%, detects are qualified as estimates and flagged "J" and nondetects are rejected and flagged "UR".

All surrogate results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike (MS)/matrix spike duplicate (MSD) results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed by the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. Samples results must be within RPD limits of +/-30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

Due to RPDs outside QC limits (31% & 81%), all hexachlorocyclopentadiene results in samples J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7, J03CF8, J03CF9, J03CH0, J03CH1, J03CH2 and J03CC8 were qualified as estimates and flagged "J".

Due to an RPD outside QC limits (111%), all 2,4-dinitrophenol results in samples J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6 and J03CD7 were qualified as estimates and flagged "J".

All other precision results were acceptable.

Field Duplicate Samples

Two sets of field duplicate samples (J03CD4/J03CH1 and J03CF0/J03CH2) were submitted for analysis. Field duplicate results are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the required quantitation limits (RQL's) to ensure that laboratory detection levels meet the required criteria. Two-hundred analytes exceeded the RQL. Under the BHI statement of work, no qualification is required. All other analytes met the RQL.

- **Completeness**

Data package No. H3203-LLI was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

The following minor deficiencies were noted:

Due to method blank contamination, the bis(2-ethylhexyl)phthalate result in all samples except J03CH2 were qualified as undetected, raised to the RDL and flagged "U".

Due to method blank contamination, the di-n-butylphthalate results in samples J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6 and J03CD7 were raised to the RQL, qualified as undetected and flagged "U".

Due to matrix spike and/or matrix spike duplicates outside QC limits, all hexachloroethane, nitrobenzene, isophorone, 2-nitrophenol, 1,2,4-trichlorobenzene, 2-methylnaphthalene and 2,4-dinitrophenol results in samples J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6 and J03CD7 were qualified as estimates and flagged "J".

Due to a matrix spike duplicate recovery outside QC limits (18%), all hexachlorocyclopentadiene results in samples J03CF9, J03CH0, J03CH1, J03CH2 and J03CC8 were qualified as estimates and flagged "J".

Due to LCS recoveries outside QC limits, all nitrobenzene, isophorone, 2-nitrophenol, 2,4-dimethylphenol, 2,4-dichlorophenol, 1,2,4-trichlorobenzene, 4-chloro-3-methylphenol, 2-methylnaphthlene, acenaphthylene, 4-nitroanaline, n-nitrosodiphenylamine, carbazole and ideno(1,2,3-cd)pyrene results in samples J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6 and J03CD7 were qualified as estimates and flagged "J".

Due to LCS recoveries outside QC limits, all isophorone, 2,4-dimethylphenol, 1,2,4-trichlorobenzene, 4-chloro-3-methylphenol, 2-methylnaphthlene and 2,4-dinitrophenol results in samples J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7, J03CF8, J03CF9, J03CH0, J03CH1, J03CH2 and J03CC8 were qualified as estimates and flagged "J".

Due to RPDs outside QC limits (31% & 81%), all hexachlorocyclopentadiene results in samples J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7, J03CF8, J03CF9, J03CH0, J03CH1, J03CH2 and J03CC8 were qualified as estimates and flagged "J".

Due to an RPD outside QC limits (111%), all 2,4-dinitrophenol results in samples J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6 and J03CD7 were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the BHI statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

Two-hundred analytes exceeded the RQL. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-96-22, Rev. 4, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, February 2005.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the BHI validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the same quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

SEMIVOLATILE ORGANIC DATA QUALIFICATION SUMMARY*

SDG: H3203	REVIEWER: TLI	Project: 128-B-2	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
bis(2-Ethylhexyl)phthalate	U at the RQL	All samples except J03CH2	Blank contamination
di-n-Butylphthalate	U at the RQL	J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6, J03CD7	Blank contamination
Hexachloroethane, Nitrobenzene, Isophorone, 2-Nitrophenol, 1,2,4-Trichlorobenzene, 2-Methylnaphthalene, 2,4-Dinitrophenol	J	J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6, J03CD7	Matrix spike and/or matrix spike duplicate
Hexachlorocyclopentadiene	J	J03CF9, J03CH0, J03CH1, J03CH2, J03CC8	Matrix spike duplicate
Nitrobenzene, Isophorone, 2-Nitrophenol, 2,4-Dimethylphenol, 2,4-Dichlorophenol, 1,2,4-Trichlorobenzene, 4-Chloro-3-methylphenol, 2-Methylnaphthlene, Acenaphthylene, 4-Nitroanaline, n-Nitrosodiphenylamine, Carbazole Ideno(1,2,3-cd)pyrene	J	J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6 J03CD7	LCS recovery
Isophorone, 2,4-Dimethylphenol, 1,2,4-Trichlorobenzene, 4-Chloro-3-methylphenol, 2-Methylnaphthlene, 2,4-Dinitrophenol	J	J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7, J03CF8, J03CF9, J03CH0, J03CH1, J03CH2, J03CC8	LCS Recovery

SEMIVOLATILE ORGANIC DATA QUALIFICATION SUMMARY*

SDG: H3203	REVIEWER: TLI	Project: 128-B-2	PAGE 1 OF 1
Hexachlorocyclopentadiene	J	J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7, J03CF8, J03CF9, J03CH0, J03CH1, J03CH2, J03CC8	RPD
2,4-Dinitrophenol		J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6, J03CD7	RPD

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

SEMIVOLATILE ANALYSIS, SOIL MATRIX, (UG/KG)

Project: BECHTEL-HANFORD																					
Laboratory: LLI	SDG: H3203																				
Sample Number		J03CC9		J03CD0		J03CD1		J03CD2		J03CD3		J03CD4		J03CD5		J03CD6		J03CD7		J03CD8	
Remarks																					
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05	
Extraction Date		6/13/05		6/13/05		6/13/05		6/13/05		6/13/05		6/13/05		6/13/05		6/13/05		6/13/05		620/05	
Analysis Date		6/16/05		6/15/05		6/15/05		6/16/05		6/16/05		6/16/05		6/16/05		6/16/05		6/16/05		6/24/05	
Semivolatile (8270C)	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	660	23		21		340	U	340	U	340	U	340	U	17		18		340	U	330	U
bis(2-Chloroethyl)ether	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
2-Chlorophenol	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
1,3-Dichlorobenzene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
1,4-Dichlorobenzene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
1,2-Dichlorobenzene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
2-Methylphenol	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
2,2'-oxybis(1-chloropropane)	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
3 and/or 4-Methylphenol	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
N-Nitroso-di-n-propylamine	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Hexachloroethane	660	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	330	U
Nitrobenzene	660	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	330	U
Isophorone	660	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	330	UJ
2-Nitrophenol	660	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	330	U
2,4-Dimethylphenol	660	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	330	UJ
bis(2-Chloroethoxy)methane	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
2,4-Dichlorophenol	660	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	330	U
1,2,4-Trichlorobenzene	660	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	330	UJ
Naphthalene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
4-Chloroaniline	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Hexachlorobutadiene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
4-Chloro-3-methylphenol	660	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	330	UJ
2-Methylnaphthalene	660	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	330	UJ
Hexachlorocyclopentadiene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	UJ
2,4,6-Trichlorophenol	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
2,4,5-Trichlorophenol*	660	840	U	840	U	840	U	850	U	840	U	840	U	840	U	840	U	840	U	830	U
2-Chloronaphthalene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
2-Nitroaniline*	660	840	U	840	U	840	U	850	U	840	U	840	U	840	U	840	U	840	U	830	U
Dimethylphthalate	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Acenaphthylene	660	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	330	U
2,6-Dinitrotoluene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results.

All other qualifiers shown were applied during validation.

* - RQL exceeded

SEMIVOLATILE ANALYSIS, SOIL MATRIX, (UG/KG)

Project: BECHTEL-HANFORD																					
Laboratory: LLI	SDG: H3203																				
Sample Number		J03CC9		J03CD0		J03CD1		J03CD2		J03CD3		J03CD4		J03CD5		J03CD6		J03CD7		J03CD8	
Remarks																					
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05	
Extraction Date		6/13/05		6/13/05		6/13/05		6/13/05		6/13/05		6/13/05		6/13/05		6/13/05		6/13/05		620/05	
Analysis Date		6/16/05		6/15/05		6/15/05		6/16/05		6/16/05		6/16/05		6/16/05		6/16/05		6/16/05		6/24/05	
Semivolatile (8270C)/8015B	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline*	660	840	U	840	U	840	U	850	U	840	U	840	U	840	U	840	U	840	U	830	U
Acenaphthene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
2,4-Dinitrophenol*	660	840	UJ	840	UJ	840	UJ	850	UJ	840	UJ	840	UJ	840	UJ	840	UJ	840	UJ	830	UJ
4-Nitrophenol*	660	840	U	840	U	840	U	850	U	840	U	840	U	840	U	840	U	840	U	830	U
Dibenzofuran	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
2,4-Dinitrotoluene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Diethylphthalate	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
4-Chlorophenyl-phenyl ether	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Fluorene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
4-Nitroaniline*	660	840	UJ	840	UJ	840	UJ	850	UJ	840	UJ	840	UJ	840	UJ	840	UJ	840	UJ	830	U
4,6-Dinitro-2-methylphenol*	660	840	U	840	U	840	U	850	U	840	U	840	U	840	U	840	U	840	U	830	U
N-Nitrosodiphenylamine	660	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	330	U
4-Bromophenyl-phenyl ether	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Hexachlorobenzene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Pentachlorophenol*	660	840	U	840	U	840	U	850	U	840	U	840	U	840	U	840	U	840	U	830	U
Phenanthrene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Anthracene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Carbazole	660	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	330	U
Di-n-butylphthalate	660	660	U	660	U	660	U	660	U	660	U	660	U	660	U	660	U	660	U	330	U
Fluoranthene	660	22		340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Pyrene	660	31		340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Butylbenzylphthalate	660	340	U	340	U	340	U	340	U	340	U	340	U	17		340	U	340	U	330	U
3,3'-Dichlorobenzidine	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Benzo(a)anthracene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Chrysene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
bis(2-Ethylhexyl)phthalate	660	660	U	660	U	660	U	660	U	660	U	660	U	660	U	660	U	660	U	660	U
Di-n-octylphthalate	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Benzo(b)fluoranthene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Benzo(k)fluoranthene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Benzo(a)pyrene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Indeno(1,2,3-cd)pyrene	660	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	340	UJ	330	U
Dibenz(a,h)anthracene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U
Benzo(g,h,i)perylene	660	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	340	U	330	U

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results.

All other qualifiers shown were applied during validation.

* - RQL exceeded

SEMIVOLATILE ANALYSIS, SOIL MATRIX, (UG/KG)

Project: BECHTEL-HANFORD																					
Laboratory: LLI	SDG: H3203																				
Sample Number		J03CD9		J03CF0		J03CF1		J03CF2		J03CF3		J03CF4		J03CF5		J03CF6		J03CF7		J03CF8	
Remarks																					
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05	
Extraction Date		6/20/04		6/20/04		6/20/04		6/20/04		6/20/04		6/20/04		6/20/04		6/20/04		6/20/04		6/20/04	
Analysis Date		6/24/05		6/26/05		6/26/05		6/26/05		6/26/05		6/26/05		6/26/05		6/26/05		6/26/05		6/27/05	
Semivolatile (8270C)/8015B	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
bis(2-Chloroethyl)ether	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
2-Chlorophenol	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
1,3-Dichlorobenzene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
1,4-Dichlorobenzene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
1,2-Dichlorobenzene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
2-Methylphenol	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
2,2'-oxybis(1-chloropropane)	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
3 and/or 4-Methylphenol	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
N-Nitroso-di-n-propylamine	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Hexachloroethane	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Nitrobenzene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Isophorone	660	330	UJ	340	UJ	330	UJ	330	UJ	330	UJ	330	UJ	340	UJ	330	UJ	340	UJ	330	UJ
2-Nitrophenol	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
2,4-Dimethylphenol	660	330	UJ	340	UJ	330	UJ	330	UJ	330	UJ	330	UJ	340	UJ	330	UJ	340	UJ	330	UJ
bis(2-Chloroethoxy)methane	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
2,4-Dichlorophenol	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
1,2,4-Trichlorobenzene	660	330	UJ	340	UJ	330	UJ	330	UJ	330	UJ	330	UJ	340	UJ	330	UJ	340	UJ	330	UJ
Naphthalene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
4-Chloroaniline	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Hexachlorobutadiene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
4-Chloro-3-methylphenol	660	330	UJ	340	UJ	330	UJ	330	UJ	330	UJ	330	UJ	340	UJ	330	UJ	340	UJ	330	UJ
2-Methylnaphthalene	660	330	UJ	340	UJ	330	UJ	330	UJ	330	UJ	330	UJ	340	UJ	330	UJ	340	UJ	330	UJ
Hexachlorocyclopentadiene	660	330	UJ	340	UJ	330	UJ	330	UJ	330	UJ	330	UJ	340	UJ	330	UJ	340	UJ	330	UJ
2,4,6-Trichlorophenol	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
2,4,5-Trichlorophenol*	660	830	U	840	U	830	U	830	U	840	U	830	U	840	U	840	U	840	U	840	U
2-Chloronaphthalene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
2-Nitroaniline*	660	830	U	840	U	830	U	830	U	840	U	830	U	840	U	840	U	840	U	840	U
Dimethylphthalate	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Acenaphthylene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
2,6-Dinitrotoluene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results.

All other qualifiers shown were applied during validation.

* - RQL exceeded

SEMIVOLATILE ANALYSIS, SOIL MATRIX, (UG/KG)

Project: BECHTEL-HANFORD																					
Laboratory: LLI	SDG: H3203																				
Sample Number		J03CD9		J03CF0		J03CF1		J03CF2		J03CF3		J03CF4		J03CF5		J03CF6		J03CF7		J03CF8	
Remarks																					
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05	
Extraction Date		6/20/04		6/20/04		6/20/04		6/20/04		6/20/04		6/20/04		6/20/04		6/20/04		6/20/04		6/20/04	
Analysis Date		6/24/05		6/26/05		6/26/05		6/26/05		6/26/05		6/26/05		6/26/05		6/26/05		6/26/05		6/27/05	
Semivolatile (8270C)/8015B	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline*	660	830	U	840	U	830	U	830	U	840	U	830	U	840	U	840	U	840	U	840	U
Acenaphthene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
2,4-Dinitrophenol*	660	830	UJ	840	UJ	830	UJ	830	UJ	840	UJ	830	UJ	840	UJ	840	UJ	840	UJ	840	UJ
4-Nitrophenol*	660	830	U	840	U	830	U	830	U	840	U	830	U	840	U	840	U	840	U	840	U
Dibenzofuran	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
2,4-Dinitrotoluene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Diethylphthalate	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
4-Chlorophenyl-phenyl ether	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Fluorene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
4-Nitroaniline*	660	830	U	840	U	830	U	830	U	840	U	830	U	840	U	840	U	840	U	840	U
4,6-Dinitro-2-methylphenol*	660	830	U	840	U	830	U	830	U	840	U	830	U	840	U	840	U	840	U	840	U
N-Nitrosodiphenylamine	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
4-Bromophenyl-phenyl ether	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Hexachlorobenzene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Pentachlorophenol*	660	830	U	840	U	830	U	830	U	840	U	830	U	840	U	840	U	840	U	840	U
Phenanthrene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Anthracene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Carbazole	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Di-n-butylphthalate	660	330	U	18		330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Fluoranthene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Pyrene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Butylbenzylphthalate	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
3,3'-Dichlorobenzidine	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Benzo(a)anthracene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Chrysene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
bis(2-Ethylhexyl)phthalate	660	660	U	660	U	660	U	660	U	660	U	660	U	660	U	660	U	660	U	660	U
Di-n-octylphthalate	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Benzo(b)fluoranthene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Benzo(k)fluoranthene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Benzo(a)pyrene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Indeno(1,2,3-cd)pyrene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Dibenz(a,h)anthracene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U
Benzo(g,h,i)perylene	660	330	U	340	U	330	U	330	U	330	U	330	U	340	U	330	U	340	U	330	U

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results.

All other qualifiers shown were applied during validation.

* - RQL exceeded

SEMIVOLATILE ANALYSIS, SOIL MATRIX, (UG/KG)

Project: BECHTEL-HANFORD																					
Laboratory: LLI	SDG: H3203																				
Sample Number		J03CF9		J03CH0		J03CH1		J03CH2		J03CC8											
Remarks																					
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05											
Extraction Date		6/20/05		6/20/05		6/20/05		6/20/05		6/20/05											
Analysis Date		6/24/05		6/24/05		6/24/05		6/24/05		6/24/05											
Semivolatile (8270C)/8015B	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Phenol	660	330	U	330	U	340	U	340	U	330	U										
bis(2-Chloroethyl)ether	660	330	U	330	U	340	U	340	U	330	U										
2-Chlorophenol	660	330	U	330	U	340	U	340	U	330	U										
1,3-Dichlorobenzene	660	330	U	330	U	340	U	340	U	330	U										
1,4-Dichlorobenzene	660	330	U	330	U	340	U	340	U	330	U										
1,2-Dichlorobenzene	660	330	U	330	U	340	U	340	U	330	U										
2-Methylphenol	660	330	U	330	U	340	U	340	U	330	U										
2,2'-oxybis(1-chloropropane)	660	330	U	330	U	340	U	340	U	330	U										
3 and/or 4-Methylphenol	660	330	U	330	U	340	U	340	U	330	U										
N-Nitroso-di-n-propylamine	660	330	U	330	U	340	U	340	U	330	U										
Hexachloroethane	660	330	U	330	U	340	U	340	U	330	U										
Nitrobenzene	660	330	U	330	U	340	U	340	U	330	U										
Isophorone	660	330	UJ	330	UJ	340	UJ	340	UJ	330	UJ										
2-Nitrophenol	660	330	U	330	U	340	U	340	U	330	U										
2,4-Dimethylphenol	660	330	UJ	330	UJ	340	UJ	340	UJ	330	UJ										
bis(2-Chloroethoxy)methane	660	330	U	330	U	340	U	340	U	330	U										
2,4-Dichlorophenol	660	330	U	330	U	340	U	340	U	330	U										
1,2,4-Trichlorobenzene	660	330	UJ	330	UJ	340	UJ	340	UJ	330	UJ										
Naphthalene	660	330	U	330	U	340	U	340	U	330	U										
4-Chloroaniline	660	330	U	330	U	340	U	340	U	330	U										
Hexachlorobutadiene	660	330	U	330	U	340	U	340	U	330	U										
4-Chloro-3-methylphenol	660	330	UJ	330	UJ	340	UJ	340	UJ	330	UJ										
2-Methylnaphthalene	660	330	UJ	330	UJ	340	UJ	340	UJ	330	UJ										
Hexachlorocyclopentadiene	660	330	UJ	330	UJ	340	UJ	340	UJ	330	UJ										
2,4,6-Trichlorophenol	660	330	U	330	U	340	U	340	U	330	U										
2,4,5-Trichlorophenol*	660	830	U	840	U	840	U	840	U	830	U										
2-Chloronaphthalene	660	330	U	330	U	340	U	340	U	330	U										
2-Nitroaniline*	660	830	U	840	U	840	U	840	U	830	U										
Dimethylphthalate	660	330	U	330	U	340	U	340	U	330	U										
Acenaphthylene	660	330	U	330	U	340	U	340	U	330	U										
2,6-Dinitrotoluene	660	330	U	330	U	340	U	340	U	330	U										

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results.

All other qualifiers shown were applied during validation.

* - RQL exceeded

000018

SEMIVOLATILE ANALYSIS, SOIL MATRIX, (UG/KG)

Project: BECHTEL-HANFORD																					
Laboratory: LLI	SDG: H3203																				
Sample Number		J03CF9		J03CH0		J03CH1		J03CH2		J03CC8											
Remarks																					
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05											
Extraction Date		6/20/05		6/20/05		6/20/05		6/20/05		6/20/05											
Analysis Date		6/24/05		6/24/05		6/24/05		6/24/05		6/24/05											
Semivolatile (8270C)/8015B	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
3-Nitroaniline*	660	830	U	840	U	840	U	840	U	830	U										
Acenaphthene	660	330	U	330	U	340	U	340	U	330	U										
2,4-Dinitrophenol*	660	830	UJ	840	UJ	840	UJ	840	UJ	830	UJ										
4-Nitrophenol*	660	830	U	840	U	840	U	840	U	830	U										
Dibenzofuran	660	330	U	330	U	340	U	340	U	330	U										
2,4-Dinitrotoluene	660	330	U	330	U	340	U	340	U	330	U										
Diethylphthalate	660	330	U	330	U	340	U	340	U	75											
4-Chlorophenyl-phenyl ether	660	330	U	330	U	340	U	340	U	330	U										
Fluorene	660	330	U	330	U	340	U	340	U	330	U										
4-Nitroaniline*	660	830	U	840	U	840	U	840	U	830	U										
4,6-Dinitro-2-methylphenol*	660	830	U	840	U	840	U	840	U	830	U										
N-Nitrosodiphenylamine	660	330	U	330	U	340	U	340	U	330	U										
4-Bromophenyl-phenyl ether	660	330	U	330	U	340	U	340	U	330	U										
Hexachlorobenzene	660	330	U	330	U	340	U	340	U	330	U										
Pentachlorophenol*	660	830	U	840	U	840	U	840	U	830	U										
Phenanthrene	660	330	U	330	U	340	U	340	U	330	U										
Anthracene	660	330	U	330	U	340	U	340	U	330	U										
Carbazole	660	330	U	330	U	340	U	340	U	330	U										
Di-n-butylphthalate	660	330	U	330	U	340	U	340	U	520											
Fluoranthene	660	330	U	330	U	340	U	340	U	330	U										
Pyrene	660	330	U	330	U	340	U	340	U	330	U										
Butylbenzylphthalate	660	330	U	330	U	340	U	340	U	330	U										
3,3'-Dichlorobenzidine	660	330	U	330	U	340	U	340	U	330	U										
Benzo(a)anthracene	660	330	U	330	U	340	U	340	U	330	U										
Chrysene	660	330	U	330	U	340	U	340	U	330	U										
bis(2-Ethylhexyl)phthalate	660	660	U	660	U	660	U	620		660	U										
Di-n-octylphthalate	660	330	U	330	U	340	U	340	U	330	U										
Benzo(b)fluoranthene	660	330	U	330	U	340	U	340	U	330	U										
Benzo(k)fluoranthene	660	330	U	330	U	340	U	340	U	330	U										
Benzo(a)pyrene	660	330	U	330	U	340	U	340	U	330	U										
Indeno(1,2,3-cd)pyrene	660	330	U	330	U	340	U	340	U	330	U										
Dibenz(a,h)anthracene	660	330	U	330	U	340	U	340	U	330	U										
Benzo(g,h,i)perylene	660	330	U	330	U	340	U	340	U	330	U										

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results.

All other qualifiers shown were applied during validation.

* - RQL exceeded

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 07/01/05 10:10

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 1a

	Cust ID:	J03CC9	J03CC9	J03CC9	J03CD0	J03CD1	J03CD2
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	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 Recovery	Nitrobenzene-d5	60 %	47 %	50 %	51 %	56 %	48 %
	2-Fluorobiphenyl	68 %	70 %	76 %	59 %	60 %	53 %
	Terphenyl-d14	82 %	82 %	91 %	87 %	89 %	67 %
	Phenol-d5	74 %	67 %	73 %	59 %	63 %	56 %
	2-Fluorophenol	65 %	59 %	62 %	54 %	61 %	50 %
	2,4,6-Tribromophenol	88 %	89 %	97 %	80 %	76 %	68 %
		fl	fl	fl	fl	fl	fl
Phenol		23 J	67 %	77 %	21 J	340 U	340 U
bis(2-Chloroethyl)ether		340 U	59 %	65 %	340 U	340 U	340 U
2-Chlorophenol		340 U	58 %	65 %	340 U	340 U	340 U
1,3-Dichlorobenzene		340 U	53 %	58 %	340 U	340 U	340 U
1,4-Dichlorobenzene		340 U	52 %	57 %	340 U	340 U	340 U
1,2-Dichlorobenzene		340 U	55 %	61 %	340 U	340 U	340 U
2-Methylphenol		340 U	68 %	75 %	340 U	340 U	340 U
2,2'-oxybis(1-Chloropropane)		340 U	59 %	65 %	340 U	340 U	340 U
4-Methylphenol		340 U	74 %	83 %	340 U	340 U	340 U
N-Nitroso-di-n-propylamine		340 U	62 %	67 %	340 U	340 U	340 U
Hexachloroethane		340 U J	49 * %	54 %	340 U J	340 U J	340 U J
Nitrobenzene		340 U J	45 * %	48 * %	340 U J	340 U J	340 U J
Isophorone		340 U J	52 * %	56 * %	340 U J	340 U J	340 U J
2-Nitrophenol		340 U J	49 * %	52 %	340 U J	340 U J	340 U J
2,4-Dimethylphenol		340 U J	54 %	57 %	340 U J	340 U J	340 U J
bis(2-Chloroethoxy)methane		340 U	49 %	53 %	340 U	340 U	340 U
2,4-Dichlorophenol		340 U J	51 %	55 %	340 U J	340 U J	340 U J
1,2,4-Trichlorobenzene		340 U J	44 * %	47 * %	340 U J	340 U J	340 U J
Naphthalene		340 U	45 %	48 %	340 U	340 U	340 U
4-Chloroaniline		340 U	61 %	67 %	340 U	340 U	340 U
Hexachlorobutadiene		340 U	47 %	50 %	340 U	340 U	340 U
4-Chloro-3-methylphenol		340 U J	62 %	69 %	340 U J	340 U J	340 U J
2-Methylnaphthalene		340 U J	50 * %	53 * %	340 U J	340 U J	340 U J
Hexachlorocyclopentadiene		340 U	41 %	43 %	340 U	340 U	340 U
2,4,6-Trichlorophenol		340 U	77 %	88 %	340 U	340 U	340 U
2,4,5-Trichlorophenol		840 U	77 %	91 %	840 U	840 U	850 U

*= Outside of EPA CLP QC limits.

000020

1/8/05

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 1b

Cust ID:	J03CC9		J03CC9		J03CC9		J03CD0		J03CD1		J03CD2	
RFW#:	001		001 MS		001 MSD		002		003		004	
2-Chloronaphthalene	340	U	67	%	75	%	340	U	340	U	340	U
2-Nitroaniline	840	U	73	%	87	%	840	U	840	U	850	U
Dimethylphthalate	340	U	75	%	88	%	340	U	340	U	340	U
Acenaphthylene	340	U J	66	%	76	%	340	U J	340	U J	340	U J
2,6-Dinitrotoluene	340	U	77	%	90	%	340	U	340	U	340	U
3-Nitroaniline	840	U	85	%	104	%	840	U	840	U	850	U
Acenaphthene	340	U	69	%	79	%	340	U	340	U	340	U
2,4-Dinitrophenol	840	U J	49	%	14 *	%	840	U J	840	U J	850	U J
4-Nitrophenol	840	U	78	%	72	%	840	U	840	U	850	U
Dibenzofuran	340	U	72	%	82	%	340	U	340	U	340	U
2,4-Dinitrotoluene	340	U	81	%	95	%	340	U	340	U	340	U
Diethylphthalate	340	U	77	%	92	%	340	U	340	U	340	U
4-Chlorophenyl-phenylether	340	U	71	%	82	%	340	U	340	U	340	U
Fluorene	340	U	72	%	83	%	340	U	340	U	340	U
4-Nitroaniline	840	U J	61	%	77	%	840	U J	840	U J	850	U J
4,6-Dinitro-2-methylphenol	840	U	84	%	77	%	840	U	840	U	850	U
N-Nitrosodiphenylamine (1)	340	U J	53	%	62	%	340	U J	340	U J	340	U J
4-Bromophenyl-phenylether	340	U	64	%	73	%	340	U	340	U	340	U
Hexachlorobenzene	340	U	73	%	83	%	340	U	340	U	340	U
Pentachlorophenol	840	U	95	%	108	%	840	U	840	U	850	U
Phenanthrene	340	U	73	%	83	%	340	U	340	U	340	U
Anthracene	340	U	74	%	84	%	340	U	340	U	340	U
Carbazole	340	U J	85	%	98	%	340	U J	340	U J	340	U J
Di-n-butylphthalate	660 ~~50~~ JB	U	78	%	88	%	660 ~~45~~ JB	U	660 ~~27~~ JB	U	660 ~~29~~ JB	U
Fluoranthene	22	J	77	%	88	%	340	U	340	U	340	U
Pyrene	31	J	74	%	85	%	340	U	340	U	340	U
Butylbenzylphthalate	340	U	83	%	98	%	340	U	340	U	340	U
3,3'-Dichlorobenzidine	340	U	51	%	61	%	340	U	340	U	340	U
Benzo(a)anthracene	340	U	73	%	85	%	340	U	340	U	340	U
Chrysene	340	U	75	%	87	%	340	U	340	U	340	U
bis(2-Ethylhexyl)phthalate	660 ~~63~~ JB	U	83	%	101	%	660 ~~43~~ JB	U	660 ~~33~~ JB	U	660 ~~34~~ JB	U
Di-n-octyl phthalate	340	U	81	%	95	%	340	U	340	U	340	U
Benzo(b)fluoranthene	340	U	69	%	85	%	340	U	340	U	340	U
Benzo(k)fluoranthene	340	U	78	%	84	%	340	U	340	U	340	U
Benzo(a)pyrene	340	U	73	%	83	%	340	U	340	U	340	U
Indeno(1,2,3-cd)pyrene	340	U J	76	%	86	%	340	U J	340	U J	340	U J
Dibenz(a,h)anthracene	340	U	75	%	86	%	340	U	340	U	340	U
Benzo(g,h,i)perylene	340	U	77	%	88	%	340	U	340	U	340	U

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

0000021

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 07/01/05 10:10

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 2a

	Cust ID:	J03CD3		J03CD4		J03CD5		J03CD6		J03CD7		J03CD8	
Sample Information	RFW#:	005		006		007		008		009		010	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	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 Recovery	Nitrobenzene-d5	58	%	54	%	60	%	60	%	56	%	61	%
	2-Fluorobiphenyl	62	%	58	%	65	%	66	%	62	%	64	%
	Terphenyl-d14	75	%	68	%	86	%	83	%	74	%	84	%
	Phenol-d5	66	%	63	%	72	%	69	%	65	%	64	%
	2-Fluorophenol	62	%	60	%	64	%	64	%	60	%	62	%
	2,4,6-Tribromophenol	76	%	71	%	86	%	84	%	73	%	73	%
			fl		fl		fl		fl		fl		fl
Phenol		340	U	340	U	17	J	18	J	340	U	330	U
bis(2-Chloroethyl)ether		340	U	340	U	340	U	340	U	340	U	330	U
2-Chlorophenol		340	U	340	U	340	U	340	U	340	U	330	U
1,3-Dichlorobenzene		340	U	340	U	340	U	340	U	340	U	330	U
1,4-Dichlorobenzene		340	U	340	U	340	U	340	U	340	U	330	U
1,2-Dichlorobenzene		340	U	340	U	340	U	340	U	340	U	330	U
2-Methylphenol		340	U	340	U	340	U	340	U	340	U	330	U
2,2'-oxybis(1-Chloropropane)		340	U	340	U	340	U	340	U	340	U	330	U
4-Methylphenol		340	U	340	U	340	U	340	U	340	U	330	U
N-Nitroso-di-n-propylamine		340	U	340	U	340	U	340	U	340	U	330	U
Hexachloroethane		340	U J	340	U J	340	U J	340	U J	340	U J	330	U
Nitrobenzene		340	U J	340	U J	340	U J	340	U J	340	U J	330	U
Isophorone		340	U J	340	U J	340	U J	340	U J	340	U J	330 J	U
2-Nitrophenol		340	U J	340	U J	340	U J	340	U J	340	U J	330	U
2,4-Dimethylphenol		340	U J	340	U	340	U	340	U	340	U	330	U J
bis(2-Chloroethoxy)methane		340	U	340	U	340	U	340	U	340	U	330	U
2,4-Dichlorophenol		340	U J	340	U	340	U	340	U	340	U	330	U
1,2,4-Trichlorobenzene		340	U J	340	U J	340	U J	340	U J	340	U J	330	U J
Naphthalene		340	U	340	U	340	U	340	U	340	U	330	U
4-Chloroaniline		340	U	340	U	340	U	340	U	340	U	330	U
Hexachlorobutadiene		340	U	340	U	340	U	340	U	340	U	330	U
4-Chloro-3-methylphenol		340	U J	340	U J	340	U J	340	U J	340	U J	330	U J
2-Methylnaphthalene		340	U J	340	U J	340	U J	340	U J	340	U J	330	U J
Hexachlorocyclopentadiene		340	U	340	U	340	U	340	U	340	U	330	U J
2,4,6-Trichlorophenol		340	U	340	U	340	U	340	U	340	U	330	U
2,4,5-Trichlorophenol		840	U	840	U	840	U	840	U	840	U	830	U

*= Outside of EPA CLP QC limits.

000022

Cust ID:	J03CD3	J03CD4	J03CD5	J03CD6	J03CD7	J03CD8
RFW#:	005	006	007	008	009	010
2-Chloronaphthalene	340 U	340 U	340 U	340 U	340 U	330 U
2-Nitroaniline	840 U	840 U	840 U	840 U	840 U	830 U
Dimethylphthalate	340 U	340 U	340 U	340 U	340 U	330 U
Acenaphthylene	340 U J	340 U J	340 U J	340 U J	340 U J	330 U
2,6-Dinitrotoluene	340 U	340 U	340 U	340 U	340 U	330 U
3-Nitroaniline	840 U	840 U	840 U	840 U	840 U	830 U
Acenaphthene	340 U	340 U	340 U	340 U	340 U	330 U
2,4-Dinitrophenol	840 U J	840 U J	840 U J	840 U J	840 U J	830 U J
4-Nitrophenol	840 U	840 U	840 U	840 U	840 U	830 U
Dibenzofuran	340 U	340 U	340 U	340 U	340 U	330 U
2,4-Dinitrotoluene	340 U	340 U	340 U	340 U	340 U	330 U
Diethylphthalate	340 U	340 U	340 U	340 U	340 U	330 U
4-Chlorophenyl-phenylether	340 U	340 U	340 U	340 U	340 U	330 U
Fluorene	340 U	340 U	340 U	340 U	340 U	330 U
4-Nitroaniline	840 U J	840 U J	840 U J	840 U J	840 U J	830 U
4,6-Dinitro-2-methylphenol	840 U	840 U	840 U	840 U	840 U	830 U
N-Nitrosodiphenylamine (1)	340 U J	340 U J	340 U J	340 U J	340 U J	330 U
4-Bromophenyl-phenylether	340 U	340 U	340 U	340 U	340 U	330 U
Hexachlorobenzene	340 U	340 U	340 U	340 U	340 U	330 U
Pentachlorophenol	840 U	840 U	840 U	840 U	840 U	830 U
Phenanthrene	340 U	340 U	340 U	340 U	340 U	330 U
Anthracene	340 U	340 U	340 U	340 U	340 U	330 U
Carbazole	340 U J	340 U J	340 U J	340 U J	340 U J	330 U
Di-n-butylphthalate	660 ~~21~~ JB U	660 ~~21~~ JB U	660 ~~43~~ JB U	660 ~~23~~ JB U	660 ~~23~~ JB U	330 U
Fluoranthene	340 U	340 U	340 U	340 U	340 U	330 U
Pyrene	340 U	340 U	340 U	340 U	340 U	330 U
Butylbenzylphthalate	340 U	340 U	17 J	340 U	340 U	330 U
3,3'-Dichlorobenzidine	340 U	340 U	340 U	340 U	340 U	330 U
Benzo(a)anthracene	340 U	340 U	340 U	340 U	340 U	330 U
Chrysene	340 U	340 U	340 U	340 U	340 U	330 U
bis(2-Ethylhexyl)phthalate	660 ~~23~~ JB U	660 ~~300~~ JB U	660 ~~40~~ JB U	660 ~~47~~ JB U	660 ~~106~~ JB U	660 ~~27~~ JB U
Di-n-octyl phthalate	340 U	340 U	340 U	340 U	340 U	330 U
Benzo(b)fluoranthene	340 U	340 U	340 U	340 U	340 U	330 U
Benzo(k)fluoranthene	340 U	340 U	340 U	340 U	340 U	330 U
Benzo(a)pyrene	340 U	340 U	340 U	340 U	340 U	330 U
Indeno(1,2,3-cd)pyrene	340 U J	340 U J	340 U J	340 U J	340 U J	330 U
Dibenz(a,h)anthracene	340 U	340 U	340 U	340 U	340 U	330 U
Benzo(g,h,i)perylene	340 U	340 U	340 U	340 U	340 U	330 U

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

000023

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 07/01/05 10:10

RFW Batch Number: **0506L720** Client: **TNUHANFORD B04-002 H3203** Work Order: 11343606001 Page: 3a

	Cust ID:	J03CD8	J03CD8	J03CD9	J03CF0	J03CF1	J03CF2
Sample Information	RFW#:	010 MS	010 MSD	011	012	013	014
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	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 Recovery	Nitrobenzene-d5	72 %	63 %	64 %	68 %	64 %	63 %
	2-Fluorobiphenyl	76 %	69 %	69 %	76 %	65 %	68 %
	Terphenyl-d14	85 %	75 %	81 %	80 %	69 %	80 %
	Phenol-d5	80 %	69 %	70 %	75 %	68 %	67 %
	2-Fluorophenol	77 %	64 %	68 %	70 %	67 %	65 %
	2,4,6-Tribromophenol	87 %	81 %	85 %	92 %	67 %	83 %
		fl	fl	fl	fl	fl	fl
Phenol		75 %	76 %	330 U	340 U	330 U	330 U
bis(2-Chloroethyl)ether		74 %	72 %	330 U	340 U	330 U	330 U
2-Chlorophenol		72 %	71 %	330 U	340 U	330 U	330 U
1,3-Dichlorobenzene		67 %	66 %	330 U	340 U	330 U	330 U
1,4-Dichlorobenzene		65 %	66 %	330 U	340 U	330 U	330 U
1,2-Dichlorobenzene		70 %	69 %	330 U	340 U	330 U	330 U
2-Methylphenol		74 %	75 %	330 U	340 U	330 U	330 U
2,2'-oxybis(1-Chloropropane)		72 %	70 %	330 U	340 U	330 U	330 U
4-Methylphenol		76 %	79 %	330 U	340 U	330 U	330 U
N-Nitroso-di-n-propylamine		77 %	80 %	330 U	340 U	330 U	330 U
Hexachloroethane		58 %	62 %	330 U	340 U	330 U	330 U
Nitrobenzene		68 %	71 %	330 U	340 U	330 U	330 U
Isophorone		77 %	82 %	330 UJ	340 UJ	330 UJ	330 UJ
2-Nitrophenol		68 %	73 %	330 U	340 U	330 U	330 U
2,4-Dimethylphenol		62 %	64 %	330 UJ	340 UJ	330 UJ	330 UJ
bis(2-Chloroethoxy)methane		70 %	73 %	330 U	340 U	330 U	330 U
2,4-Dichlorophenol		70 %	74 %	330 U	340 U	330 U	330 U
1,2,4-Trichlorobenzene		66 %	67 %	330 UJ	340 UJ	330 UJ	330 UJ
Naphthalene		67 %	68 %	330 U	340 U	330 U	330 U
4-Chloroaniline		173 * %	188 * %	330 U	340 U	330 U	330 U
Hexachlorobutadiene		72 %	72 %	330 U	340 U	330 U	330 U
4-Chloro-3-methylphenol		75 %	82 %	330 UJ	340 UJ	330 UJ	330 UJ
2-Methylnaphthalene		69 %	73 %	330 UJ	340 UJ	330 UJ	330 UJ
Hexachlorocyclopentadiene		24 %	33 %	330 UJ	340 UJ	330 UJ	330 UJ
2,4,6-Trichlorophenol		76 %	83 %	330 U	340 U	330 U	330 U
2,4,5-Trichlorophenol		74 %	82 %	830 U	840 U	830 U	830 U

*= Outside of EPA CLP QC limits.

8/1/05

170000

11343606011

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 3b

Cust ID:	J03CD8	J03CD8	J03CD9	J03CF0	J03CF1	J03CF2
RFW#:	010 MS	010 MSD	011	012	013	014
2-Chloronaphthalene	72 %	77 %	330 U	340 U	330 U	330 U
2-Nitroaniline	73 %	87 %	830 U	840 U	830 U	830 U
Dimethylphthalate	68 %	81 %	330 U	340 U	330 U	330 U
Acenaphthylene	73 %	79 %	330 U	340 U	330 U	330 U
2,6-Dinitrotoluene	70 %	85 %	330 U	340 U	330 U	330 U
3-Nitroaniline	191 * %	251 * %	830 U	840 U	830 U	830 U
Acenaphthene	74 %	80 %	330 U	340 U	330 U	330 U
2,4-Dinitrophenol	60 %	50 %	830 U J	840 U J	830 U J	830 U J
4-Nitrophenol	75 %	93 %	830 U	840 U	830 U	830 U
Dibenzofuran	73 %	80 %	330 U	340 U	330 U	330 U
2,4-Dinitrotoluene	73 %	87 %	330 U	340 U	330 U	330 U
Diethylphthalate	71 %	83 %	330 U	340 U	330 U	330 U
4-Chlorophenyl-phenylether	68 %	79 %	330 U	340 U	330 U	330 U
Fluorene	70 %	82 %	330 U	340 U	330 U	330 U
4-Nitroaniline	77 %	106 %	830 U	840 U	830 U	830 U
4,6-Dinitro-2-methylphenol	75 %	86 %	830 U	840 U	830 U	830 U
N-Nitrosodiphenylamine (1)	59 %	68 %	330 U	340 U	330 U	330 U
4-Bromophenyl-phenylether	70 %	72 %	330 U	340 U	330 U	330 U
Hexachlorobenzene	81 %	81 %	330 U	340 U	330 U	330 U
Pentachlorophenol	94 %	97 %	830 U	840 U	830 U	830 U
Phenanthrene	88 %	82 %	330 U	340 U	330 U	330 U
Anthracene	75 %	82 %	330 U	340 U	330 U	330 U
Carbazole	89 %	115 %	330 U	340 U	330 U	330 U
Di-n-butylphthalate	77 %	81 %	330 U	18 J	330 U	330 U
Fluoranthene	79 %	87 %	330 U	340 U	330 U	330 U
Pyrene	78 %	82 %	330 U	340 U	330 U	330 U
Butylbenzylphthalate	82 %	85 %	330 U	340 U	330 U	330 U
3,3'-Dichlorobenzidine	77 %	77 %	330 U	340 U	330 U	330 U
Benzo(a)anthracene	75 %	83 %	330 U	340 U	330 U	330 U
Chrysene	74 %	81 %	330 U	340 U	330 U	330 U
bis(2-Ethylhexyl)phthalate	80 %	82 %	CLO ~~60~~ 8/4/05 ~~JB~~ U	660 ~~41~~ 8/4/05 ~~JB~~ U	CLO ~~50~~ 8/4/05 ~~JB~~ U	CLO ~~35~~ 8/4/05 ~~JB~~ U
Di-n-octyl phthalate	75 %	76 %	330 U	340 U	330 U	330 U
Benzo(b)fluoranthene	75 %	84 %	330 U	340 U	330 U	330 U
Benzo(k)fluoranthene	72 %	78 %	330 U	340 U	330 U	330 U
Benzo(a)pyrene	73 %	83 %	330 U	340 U	330 U	330 U
Indeno(1,2,3-cd)pyrene	81 %	97 %	330 U	340 U	330 U	330 U
Dibenz(a,h)anthracene	81 %	99 %	330 U	340 U	330 U	330 U
Benzo(g,h,i)perylene	80 %	97 %	330 U	340 U	330 U	330 U

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

8/4/05

000025

2105000012

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 07/01/05 10:10

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 4a

	Cust ID:	J03CF3	J03CF4	J03CF5	J03CF6	J03CF7	J03CF8
Sample Information	RFW#:	015	016	017	018	019	020
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	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 Recovery	Nitrobenzene-d5	62 %	58 %	63 %	67 %	65 %	74 %
	2-Fluorobiphenyl	65 %	58 %	63 %	70 %	68 %	78 %
	Terphenyl-d14	71 %	65 %	74 %	74 %	78 %	92 %
	Phenol-d5	63 %	62 %	63 %	72 %	70 %	75 %
	2-Fluorophenol	64 %	63 %	65 %	68 %	68 %	77 %
	2,4,6-Tribromophenol	67 %	58 %	67 %	81 %	81 %	87 %
		fl	fl	fl	fl	fl	fl
Phenol		330 U	330 U	340 U	330 U	340 U	330 U
bis(2-Chloroethyl)ether		330 U	330 U	340 U	330 U	340 U	330 U
2-Chlorophenol		330 U	330 U	340 U	330 U	340 U	330 U
1,3-Dichlorobenzene		330 U	330 U	340 U	330 U	340 U	330 U
1,4-Dichlorobenzene		330 U	330 U	340 U	330 U	340 U	330 U
1,2-Dichlorobenzene		330 U	330 U	340 U	330 U	340 U	330 U
2-Methylphenol		330 U	330 U	340 U	330 U	340 U	330 U
2,2'-oxybis(1-Chloropropane)		330 U	330 U	340 U	330 U	340 U	330 U
4-Methylphenol		330 U	330 U	340 U	330 U	340 U	330 U
N-Nitroso-di-n-propylamine		330 U	330 U	340 U	330 U	340 U	330 U
Hexachloroethane		330 U	330 U	340 U	330 U	340 U	330 U
Nitrobenzene		330 U	330 U	340 U	330 U	340 U	330 U
Isophorone		330 U J	330 U J	340 U J	330 U J	340 U J	330 U J
2-Nitrophenol		330 U	330 U	340 U	330 U	340 U	330 U
2,4-Dimethylphenol		330 U J	330 U J	340 U J	330 U J	340 U J	330 U J
bis(2-Chloroethoxy)methane		330 U	330 U	340 U	330 U	340 U	330 U
2,4-Dichlorophenol		330 U	330 U	340 U	330 U	340 U	330 U
1,2,4-Trichlorobenzene		330 U J	330 U J	340 U J	330 U J	340 U J	330 U J
Naphthalene		330 U	330 U	340 U	330 U	340 U	330 U
4-Chloroaniline		330 U	330 U	340 U	330 U	340 U	330 U
Hexachlorobutadiene		330 U	330 U	340 U	330 U	340 U	330 U
4-Chloro-3-methylphenol		330 U J	330 U J	340 U J	330 U J	340 U J	330 U J
2-Methylnaphthalene		330 U J	330 U J	340 U J	330 U J	340 U J	330 U J
Hexachlorocyclopentadiene		330 U J	330 U J	340 U J	330 U J	340 U J	330 U J
2,4,6-Trichlorophenol		330 U	330 U	340 U	330 U	340 U	330 U
2,4,5-Trichlorophenol		840 U	830 U	840 U	840 U	840 U	840 U

*= Outside of EPA CLP QC limits.

8/2/05

000026

000000013

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 4b

Cust ID:	J03CF3	J03CF4	J03CF5	J03CF6	J03CF7	J03CF8
RFW#:	015	016	017	018	019	020
2-Chloronaphthalene	330 U	330 U	340 U	330 U	340 U	330 U
2-Nitroaniline	840 U	830 U	840 U	840 U	840 U	840 U
Dimethylphthalate	330 U	330 U	340 U	330 U	340 U	330 U
Acenaphthylene	330 U	330 U	340 U	330 U	340 U	330 U
2,6-Dinitrotoluene	330 U	330 U	340 U	330 U	340 U	330 U
3-Nitroaniline	840 U	830 U	840 U	840 U	840 U	840 U
Acenaphthene	330 U	330 U	340 U	330 U	340 U	330 U
2,4-Dinitrophenol	840 U J	830 U J	840 U J	840 U J	840 U J	840 U J
4-Nitrophenol	840 U	830 U	840 U	840 U	840 U	840 U
Dibenzofuran	330 U	330 U	340 U	330 U	340 U	330 U
2,4-Dinitrotoluene	330 U	330 U	340 U	330 U	340 U	330 U
Diethylphthalate	330 U	330 U	340 U	330 U	340 U	330 U
4-Chlorophenyl-phenylether	330 U	330 U	340 U	330 U	340 U	330 U
Fluorene	330 U	330 U	340 U	330 U	340 U	330 U
4-Nitroaniline	840 U	830 U	840 U	840 U	840 U	840 U
4,6-Dinitro-2-methylphenol	840 U	830 U	840 U	840 U	840 U	840 U
N-Nitrosodiphenylamine (1)	330 U	330 U	340 U	330 U	340 U	330 U
4-Bromophenyl-phenylether	330 U	330 U	340 U	330 U	340 U	330 U
Hexachlorobenzene	330 U	330 U	340 U	330 U	340 U	330 U
Pentachlorophenol	840 U	830 U	840 U	840 U	840 U	840 U
Phenanthrene	330 U	330 U	340 U	330 U	340 U	330 U
Anthracene	330 U	330 U	340 U	330 U	340 U	330 U
Carbazole	330 U	330 U	340 U	330 U	340 U	330 U
Di-n-butylphthalate	330 U	330 U	340 U	330 U	340 U	17 J
Fluoranthene	330 U	330 U	340 U	330 U	340 U	330 U
Pyrene	330 U	330 U	340 U	330 U	340 U	330 U
Butylbenzylphthalate	330 U	330 U	340 U	330 U	340 U	330 U
3,3'-Dichlorobenzidine	330 U	330 U	340 U	330 U	340 U	330 U
Benzo(a)anthracene	330 U	330 U	340 U	330 U	340 U	330 U
Chrysene	330 U	330 U	340 U	330 U	340 U	330 U
bis(2-Ethylhexyl)phthalate	660 ~~65~~ 3/4/05 ~~JB~~ U	660 ~~29~~ 3/4/05 ~~JB~~ U	660 ~~30~~ 3/4/05 ~~JB~~ U	660 ~~32~~ 3/4/05 ~~JB~~ U	660 ~~34~~ 3/4/05 ~~JB~~ U	660 ~~34~~ 3/4/05 ~~JB~~ U
Di-n-octyl phthalate	330 U	330 U	340 U	330 U	340 U	330 U
Benzo(b)fluoranthene	330 U	330 U	340 U	330 U	340 U	330 U
Benzo(k)fluoranthene	330 U	330 U	340 U	330 U	340 U	330 U
Benzo(a)pyrene	330 U	330 U	340 U	330 U	340 U	330 U
Indeno(1,2,3-cd)pyrene	330 U	330 U	340 U	330 U	340 U	330 U
Dibenz(a,h)anthracene	330 U	330 U	340 U	330 U	340 U	330 U
Benzo(g,h,i)perylene	330 U	330 U	340 U	330 U	340 U	330 U

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

3/4/05

0000027

00000014

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 07/01/05 10:10

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 5a

	Cust ID:	SBLKLC	SBLKLC BS	SBLKLL	SBLKLL BS
Sample Information	RFW#:	05LE0493-MB1	05LE0493-MB1	05LE0508-MB1	05LE0508-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	50 %	47 %	65 %	2 * %
	2-Fluorobiphenyl	56 %	60 %	69 %	3 * %
	Terphenyl-d14	92 %	69 %	88 %	4 * %
	Phenol-d5	57 %	64 %	71 %	3 * %
	2-Fluorophenol	53 %	64 %	72 %	3 * %
	2,4,6-Tribromophenol	78 %	75 %	60 %	2 * %
Phenol		330 U	71 %	330 U	66 %
bis(2-Chloroethyl)ether		330 U	61 %	330 U	64 %
2-Chlorophenol		330 U	62 %	330 U	64 %
1,3-Dichlorobenzene		330 U	60 %	330 U	63 %
1,4-Dichlorobenzene		330 U	59 %	330 U	61 %
1,2-Dichlorobenzene		330 U	62 %	330 U	64 %
2-Methylphenol		330 U	65 %	330 U	62 %
2,2'-oxybis(1-Chloropropane)		330 U	58 %	330 U	63 %
4-Methylphenol		330 U	69 %	330 U	65 %
N-Nitroso-di-n-propylamine		330 U	57 %	330 U	65 %
Hexachloroethane		330 U	60 %	330 U	60 %
Nitrobenzene		330 U	47 * %	330 U	50 %
Isophorone		330 U	49 * %	330 U	55 * %
2-Nitrophenol		330 U	49 * %	330 U	50 %
2,4-Dimethylphenol		330 U	49 * %	330 U	40 * %
bis(2-Chloroethoxy)methane		330 U	49 %	330 U	52 %
2,4-Dichlorophenol		330 U	49 * %	330 U	50 %
1,2,4-Trichlorobenzene		330 U	47 * %	330 U	50 * %
Naphthalene		330 U	46 %	330 U	50 %
4-Chloroaniline		330 U	65 %	330 U	150 * %
Hexachlorobutadiene		330 U	53 %	330 U	55 %
4-Chloro-3-methylphenol		330 U	53 * %	330 U	53 * %
2-Methylnaphthalene		330 U	48 * %	330 U	51 * %
Hexachlorocyclopentadiene		330 U	44 %	330 U	33 %
2,4,6-Trichlorophenol		330 U	67 %	330 U	65 %
2,4,5-Trichlorophenol		830 U	66 %	830 U	62 %

*= Outside of EPA CLP QC limits.

8/6/05

000028

NHS3S015

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 5b

Cust ID:	SBLKLC		SBLKLC BS		SBLKLL		SBLKLL BS	
RFW#:	05LE0493-MB1		05LE0493-MB1		05LE0508-MB1		05LE0508-MB1	
2-Chloronaphthalene	330	U	60	%	330	U	64	%
2-Nitroaniline	830	U	62	%	830	U	68	%
Dimethylphthalate	330	U	62	%	330	U	63	%
Acenaphthylene	330	U	58 *	%	330	U	65	%
2,6-Dinitrotoluene	330	U	66	%	330	U	65	%
3-Nitroaniline	830	U	77	%	830	U	199 *	%
Acenaphthene	330	U	59	%	330	U	66	%
2,4-Dinitrophenol	830	U	34	%	830	U	19 *	%
4-Nitrophenol	830	U	67	%	830	U	64	%
Dibenzofuran	330	U	61	%	330	U	65	%
2,4-Dinitrotoluene	330	U	68	%	330	U	71	%
Diethylphthalate	17	J	63	%	330	U	64	%
4-Chlorophenyl-phenylether	330	U	62	%	330	U	65	%
Fluorene	330	U	62	%	330	U	67	%
4-Nitroaniline	830	U	41 *	%	830	U	95	%
4,6-Dinitro-2-methylphenol	830	U	69	%	830	U	61	%
N-Nitrosodiphenylamine (1)	330	U	47 *	%	330	U	57	%
4-Bromophenyl-phenylether	330	U	57	%	330	U	60	%
Hexachlorobenzene	330	U	64	%	330	U	69	%
Pentachlorophenol	830	U	71	%	830	U	54	%
Phenanthrene	330	U	63	%	330	U	69	%
Anthracene	330	U	63	%	330	U	67	%
Carbazole	330	U	40 *	%	330	U	70	%
Di-n-butylphthalate	54	J	63	%	330	U	68	%
Fluoranthene	330	U	65	%	330	U	71	%
Pyrene	330	U	65	%	330	U	64	%
Butylbenzylphthalate	330	U	69	%	330	U	68	%
3,3'-Dichlorobenzidine	330	U	34	%	330	U	86	%
Benzo(a)anthracene	330	U	63	%	330	U	67	%
Chrysene	330	U	64	%	330	U	67	%
bis(2-Ethylhexyl)phthalate	58	J	69	%	51	J	68	%
Di-n-octyl phthalate	330	U	69	%	330	U	66	%
Benzo(b)fluoranthene	330	U	61	%	330	U	70	%
Benzo(k)fluoranthene	330	U	67	%	330	U	63	%
Benzo(a)pyrene	330	U	61	%	330	U	67	%
Indeno(1,2,3-cd)pyrene	330	U	59 *	%	330	U	72	%
Dibenz(a,h)anthracene	330	U	57	%	330	U	72	%
Benzo(g,h,i)perylene	330	U	62	%	330	U	73	%

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

8/16/05

000029

000000316

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 07/05/05 09:32

RFW Batch Number: **0506L736** Client: **TNUHANFORD B04-002 H3203** Work Order: 11343606001 Page: 1a

	Cust ID:	J03CF9	J03CH0	J03CH0	J03CH0	J03CH1	J03CH2
Sample Information	RFW#:	001	002	002 MS	002 MSD	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	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 Recovery	Nitrobenzene-d5	59 %	68 %	72 %	71 %	61 %	65 %
	2-Fluorobiphenyl	70 %	72 %	84 %	78 %	69 %	71 %
	Terphenyl-d14	92 %	88 %	90 %	94 %	85 %	92 %
	Phenol-d5	65 %	71 %	84 %	78 %	69 %	63 %
	2-Fluorophenol	64 %	71 %	83 %	79 %	67 %	59 %
	2,4,6-Tribromophenol	69 %	66 %	96 %	91 %	77 %	81 %
		fl	fl	fl	fl	fl	fl
Phenol		330 U	330 U	81 %	79 %	340 U	340 U
bis(2-Chloroethyl)ether		330 U	330 U	79 %	77 %	340 U	340 U
2-Chlorophenol		330 U	330 U	78 %	76 %	340 U	340 U
1,3-Dichlorobenzene		330 U	330 U	75 %	73 %	340 U	340 U
1,4-Dichlorobenzene		330 U	330 U	74 %	71 %	340 U	340 U
1,2-Dichlorobenzene		330 U	330 U	78 %	75 %	340 U	340 U
2-Methylphenol		330 U	330 U	79 %	75 %	340 U	340 U
2,2'-oxybis(1-Chloropropane)		330 U	330 U	77 %	74 %	340 U	340 U
4-Methylphenol		330 U	330 U	83 %	78 %	340 U	340 U
N-Nitroso-di-n-propylamine		330 U	330 U	81 %	79 %	340 U	340 U
Hexachloroethane		330 U	330 U	73 %	70 %	340 U	340 U
Nitrobenzene		330 U	330 U	71 %	71 %	340 U	340 U
Isophorone		330 UJ	330 UJ	79 %	80 %	340 UJ	340 UJ
2-Nitrophenol		330 U	330 U	72 %	70 %	340 U	340 U
2,4-Dimethylphenol		330 UJ	330 UJ	63 %	55 %	340 UJ	340 UJ
bis(2-Chloroethoxy)methane		330 U	330 U	73 %	74 %	340 U	340 U
2,4-Dichlorophenol		330 U	330 U	75 %	75 %	340 U	340 U
1,2,4-Trichlorobenzene		330 UJ	330 UJ	69 %	70 %	340 UJ	340 UJ
Naphthalene		330 U	330 U	69 %	69 %	340 U	340 U
4-Chloroaniline		330 U	330 U	204 * %	202 * %	340 U	340 U
Hexachlorobutadiene		330 U	330 U	76 %	77 %	340 U	340 U
4-Chloro-3-methylphenol		330 UJ	330 UJ	80 %	79 %	340 UJ	340 UJ
2-Methylnaphthalene		330 UJ	330 UJ	72 %	72 %	340 UJ	340 UJ
Hexachlorocyclopentadiene		330 UJ	330 UJ	46 %	18 * %	340 UJ	340 UJ
2,4,6-Trichlorophenol		330 U	330 U	86 %	83 %	340 U	340 U
2,4,5-Trichlorophenol		830 U	840 U	86 %	82 %	840 U	840 U

*= Outside of EPA CLP QC limits.

000030

1SS5SSSSSS7

RFW Batch Number: 0506L736 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 1b

Cust ID:	J03CF9		J03CH0		J03CH0		J03CH0		J03CH1		J03CH2	
RFW#:	001		002		002 MS		002 MSD		003		004	
2-Chloronaphthalene	330	U	330	U	81	%	78	%	340	U	340	U
2-Nitroaniline	830	U	840	U	91	%	86	%	840	U	840	U
Dimethylphthalate	330	U	330	U	78	%	77	%	340	U	340	U
Acenaphthylene	330	U	330	U	84	%	80	%	340	U	340	U
2,6-Dinitrotoluene	330	U	330	U	82	%	79	%	340	U	340	U
3-Nitroaniline	830	U	840	U	251 *	%	256 *	%	840	U	840	U
Acenaphthene	330	U	330	U	84	%	81	%	340	U	340	U
2,4-Dinitrophenol	830	U J	840	U J	55	%	57	%	840	U J	840	U J
4-Nitrophenol	830	U	840	U	85	%	80	%	840	U	840	U
Dibenzofuran	330	U	330	U	83	%	80	%	340	U	340	U
2,4-Dinitrotoluene	330	U	330	U	83	%	88	%	340	U	340	U
Diethylphthalate	330	U	330	U	81	%	85	%	340	U	340	U
4-Chlorophenyl-phenylether	330	U	330	U	78	%	80	%	340	U	340	U
Fluorene	330	U	330	U	79	%	82	%	340	U	340	U
4-Nitroaniline	830	U	840	U	113	%	103	%	840	U	840	U
4,6-Dinitro-2-methylphenol	830	U	840	U	94	%	79	%	840	U	840	U
N-Nitrosodiphenylamine (1)	330	U	330	U	80	%	72	%	340	U	340	U
4-Bromophenyl-phenylether	330	U	330	U	80	%	73	%	340	U	340	U
Hexachlorobenzene	330	U	330	U	87	%	84	%	340	U	340	U
Pentachlorophenol	830	U	840	U	93	%	92	%	840	U	840	U
Phenanthrene	330	U	330	U	98	%	88	%	340	U	340	U
Anthracene	330	U	330	U	86	%	78	%	340	U	340	U
Carbazole	330	U	330	U	102	%	108	%	340	U	340	U
Di-n-butylphthalate	330	U	330	U	88	%	81	%	340	U	340	U
Fluoranthene	330	U	330	U	92	%	82	%	340	U	340	U
Pyrene	330	U	330	U	83	%	87	%	340	U	340	U
Butylbenzylphthalate	330	U	330	U	89	%	94	%	340	U	340	U
3,3'-Dichlorobenzidine	330	U	330	U	104	%	96	%	340	U	340	U
Benzo(a)anthracene	330	U	330	U	87	%	91	%	340	U	340	U
Chrysene	330	U	330	U	85	%	82	%	340	U	340	U
bis(2-Ethylhexyl)phthalate	LLO ~~43~~ 8/4/06 JB U		LLO ~~55~~ 8/4/06 JB U		81	%	85	%	LLO ~~20~~ 8/4/06 JB U		620	B
Di-n-octyl phthalate	330	U	330	U	84	%	85	%	340	U	340	U
Benzo(b)fluoranthene	330	U	330	U	89	%	83	%	340	U	340	U
Benzo(k)fluoranthene	330	U	330	U	82	%	82	%	340	U	340	U
Benzo(a)pyrene	330	U	330	U	85	%	81	%	340	U	340	U
Indeno(1,2,3-cd)pyrene	330	U	330	U	95	%	86	%	340	U	340	U
Dibenz(a,h)anthracene	330	U	330	U	96	%	87	%	340	U	340	U
Benzo(g,h,i)perylene	330	U	330	U	95	%	87	%	340	U	340	U

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

8/4/06

0000031

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, HSL List

Report Date: 07/05/05 09:32

RFW Batch Number: **0506L736** Client: **TNUHANFORD B04-002 H3203** Work Order: 11343606001 Page: 2a

	Cust ID:	J03CC8	SBLKLL	SBLKLL BS
Sample Information	RFW#:	005	05LE0508-MB1	05LE0508-MB1
	Matrix:	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Nitrobenzene-d5	78 %	65 %	2 * %
	2-Fluorobiphenyl	77 %	69 %	3 * %
	Terphenyl-d14	88 %	88 %	4 * %
	Phenol-d5	85 %	71 %	3 * %
	2-Fluorophenol	87 %	72 %	3 * %
	2,4,6-Tribromophenol	79 %	60 %	2 * %
Phenol		330 U	330 U	66 %
bis(2-Chloroethyl)ether		330 U	330 U	64 %
2-Chlorophenol		330 U	330 U	64 %
1,3-Dichlorobenzene		330 U	330 U	63 %
1,4-Dichlorobenzene		330 U	330 U	61 %
1,2-Dichlorobenzene		330 U	330 U	64 %
2-Methylphenol		330 U	330 U	62 %
2,2'-oxybis(1-Chloropropane)		330 U	330 U	63 %
4-Methylphenol		330 U	330 U	65 %
N-Nitroso-di-n-propylamine		330 U	330 U	65 %
Hexachloroethane		330 U	330 U	60 %
Nitrobenzene		330 U	330 U	50 %
Isophorone		330 U J	330 U	55 * %
2-Nitrophenol		330 U	330 U	50 %
2,4-Dimethylphenol		330 U J	330 U	40 * %
bis(2-Chloroethoxy)methane		330 U	330 U	52 %
2,4-Dichlorophenol		330 U	330 U	50 %
1,2,4-Trichlorobenzene		330 U J	330 U	50 * %
Naphthalene		330 U	330 U	50 %
4-Chloroaniline		330 U	330 U	150 * %
Hexachlorobutadiene		330 U	330 U	55 %
4-Chloro-3-methylphenol		330 U J	330 U	53 * %
2-Methylnaphthalene		330 U J	330 U	51 * %
Hexachlorocyclopentadiene		330 U J	330 U	33 %
2,4,6-Trichlorophenol		330 U	330 U	65 %
2,4,5-Trichlorophenol		830 U	830 U	62 %

*= Outside of EPA CLP QC limits.

8/6/05

000032

RFW Batch Number: 0506L736 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 2b

Cust ID:	J03CC8		SBLKLL		SBLKLL BS	
RFW#:	005		05LE0508-MB1		05LE0508-MB1	
2-Chloronaphthalene	330	U	330	U	64	%
2-Nitroaniline	830	U	830	U	68	%
Dimethylphthalate	330	U	330	U	63	%
Acenaphthylene	330	U	330	U	65	%
2,6-Dinitrotoluene	330	U	330	U	65	%
3-Nitroaniline	830	U	830	U	199 *	%
Acenaphthene	330	U	330	U	66	%
2,4-Dinitrophenol	830	U J	830	U	19 *	%
4-Nitrophenol	830	U	830	U	64	%
Dibenzofuran	330	U	330	U	65	%
2,4-Dinitrotoluene	330	U	330	U	71	%
Diethylphthalate	75	J	330	U	64	%
4-Chlorophenyl-phenylether	330	U	330	U	65	%
Fluorene	330	U	330	U	67	%
4-Nitroaniline	830	U	830	U	95	%
4,6-Dinitro-2-methylphenol	830	U	830	U	61	%
N-Nitrosodiphenylamine (1)	330	U	330	U	57	%
4-Bromophenyl-phenylether	330	U	330	U	60	%
Hexachlorobenzene	330	U	330	U	69	%
Pentachlorophenol	830	U	830	U	54	%
Phenanthrene	330	U	330	U	69	%
Anthracene	330	U	330	U	67	%
Carbazole	330	U	330	U	70	%
Di-n-butylphthalate	520		330	U	68	%
Fluoranthene	330	U	330	U	71	%
Pyrene	330	U	330	U	64	%
Butylbenzylphthalate	330	U	330	U	68	%
3,3'-Dichlorobenzidine	330	U	330	U	86	%
Benzo(a)anthracene	330	U	330	U	67	%
Chrysene	330	U	330	U	67	%
bis(2-Ethylhexyl)phthalate	600 ~~50~~ ~~UB~~ C		51	J	68	%
Di-n-octyl phthalate	330	U	330	U	66	%
Benzo(b)fluoranthene	330	U	330	U	70	%
Benzo(k)fluoranthene	330	U	330	U	63	%
Benzo(a)pyrene	330	U	330	U	67	%
Indeno(1,2,3-cd)pyrene	330	U	330	U	72	%
Dibenz(a,h)anthracene	330	U	330	U	72	%
Benzo(g,h,i)perylene	330	U	330	U	73	%

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

8/2/05

0000033

0000000018

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD B04-002
LVL #: 0506L720
SDG/SAF # H3203/B04-002

W.O. #: 11343-606-001-9999-00
Date Received: 06-10-2005

SEMIVOLATILE

Twenty (20) soil samples were collected on 06-08-2005.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 06-13,20-2005 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 06-15,16,24,26,27-2005.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. Non-target compounds were detected in these samples.
4. Six (6) of one hundred sixty-eight (168) surrogate recoveries were outside acceptance criteria. The surrogate recovery criteria were not met for the blank spike 05LE0508-MB1 BS. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
5. Fifteen (15) of two hundred fifty-six (256) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. Twenty-one (21) of one hundred twenty-eight (128) blank spike recoveries were outside acceptance criteria. A copy of he Sample Discrepancy Report (SDR) has been enclosed.
7. The method blank 05LE0493-MB1 contained the common laboratory contaminants Diethylphthalate, Bis (2-Ethylhexy) phthalate, Di-n-butylphthalate and 05LE0508-MB1 contained the common laboratory contaminant Bis (2-Ethylhexyl) phthalate at levels less than the CRQL.
8. Internal standard area and retention time criteria were met.
9. Manual integrations are performed according to SOP 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 the Glossary ("Technical Flags For Manual Integration").
10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

7-14-05
Date

som\gorup\data\bna\tnu-hanford\0506-720.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 4 7 pages.

000035

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 05MS217

Initiator: SS
Date: 6-29-05
Client: TNU - Hanford

Batch: 05OGL720
Samples: all
Method: SW846/MCAWW/CLP/

Parameter: 8270
Matrix: ~~Tcp~~ Soil SSL-29-05
Prep Batch: 05LE0493
05LE0508

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)

low surrogate recovery for 05LE0508-MB1S, + several low analyte recoveries
low analyte recoveries of spikes in 05LE0493-MB1S
low recoveries of several analytes in J03CC9-001ms + msd

2. Known or Probable Causes(s)

Spike and surrogate limits were lowered + loss during extraction

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)

narrate

6/29/05

4. Project Manager Instructions...signature/date: _____

__ 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: Sam 7/14/05 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: Beegle
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
1	X Project Mgr: Stone/Johnson/Haslett	__	__ GC/LC: Kiger
__	X Technical Mgr: Wesson/Daniels	2	X MS: Rychlak/Layman
__	X QA (file): Alberts	__	__ Log-in: Melnic
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Beegle/Kiger	__	__ Other: _____

000036

QA-105-A-0801

RECEIVED
JUL 2005

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B04-002 H3203

DATE RECEIVED: 06/10/05

LVL LOT # :0506L720

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J03CC9	001	S	05LE0493	06/08/05	06/13/05	06/16/05
J03CC9	001 MS	S	05LE0493	06/08/05	06/13/05	06/16/05
J03CC9	001 MSD	S	05LE0493	06/08/05	06/13/05	06/16/05
J03CD0	002	S	05LE0493	06/08/05	06/13/05	06/15/05
J03CD1	003	S	05LE0493	06/08/05	06/13/05	06/15/05
J03CD2	004	S	05LE0493	06/08/05	06/13/05	06/16/05
J03CD3	005	S	05LE0493	06/08/05	06/13/05	06/16/05
J03CD4	006	S	05LE0493	06/08/05	06/13/05	06/16/05
J03CD5	007	S	05LE0493	06/08/05	06/13/05	06/16/05
J03CD6	008	S	05LE0493	06/08/05	06/13/05	06/16/05
J03CD7	009	S	05LE0493	06/08/05	06/13/05	06/16/05
J03CD8	010	S	05LE0508	06/08/05	06/20/05	06/24/05
J03CD8	010 MS	S	05LE0508	06/08/05	06/20/05	06/24/05
J03CD8	010 MSD	S	05LE0508	06/08/05	06/20/05	06/24/05
J03CD9	011	S	05LE0508	06/08/05	06/20/05	06/26/05
J03CF0	012	S	05LE0508	06/08/05	06/20/05	06/26/05
J03CF1	013	S	05LE0508	06/08/05	06/20/05	06/26/05
J03CF2	014	S	05LE0508	06/08/05	06/20/05	06/26/05
J03CF3	015	S	05LE0508	06/08/05	06/20/05	06/26/05
J03CF4	016	S	05LE0508	06/08/05	06/20/05	06/26/05
J03CF5	017	S	05LE0508	06/08/05	06/20/05	06/26/05
J03CF6	018	S	05LE0508	06/08/05	06/20/05	06/26/05
J03CF7	019	S	05LE0508	06/08/05	06/20/05	06/26/05
J03CF8	020	S	05LE0508	06/08/05	06/20/05	06/27/05
LAB QC:						
SBLKLC	MB1	S	05LE0493	N/A	06/13/05	06/15/05
SBLKLC	MB1 BS	S	05LE0493	N/A	06/13/05	06/15/05
SBLKLL	MB1	S	05LE0508	N/A	06/20/05	06/24/05
SBLKLL	MB1 BS	S	05LE0508	N/A	06/20/05	06/24/05

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD B04-002
LVL #: 0506L736
SDG/SAF # H3203/B04-002

W.O. #: 11343-606-001-9999-00
Date Received: 06-10-2005

SEMIVOLATILE

Five (5) soil samples were collected on 06-08-2005. These samples were re-logged from LVL # 0506L720.

The samples and their associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3540C on 06-20-2005 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for TCL Semivolatile target compounds on 06-24-2005.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. Non-target compounds were detected in these samples.
4. Six (6) of fifty-four (54) surrogate recoveries were outside acceptance criteria. The surrogate recovery criteria were not met for the blank spike 05LE0508-MB1 BS. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
5. Five (5) of one hundred twenty-eight (128) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. Eight (8) of sixty-four (64) blank spike recoveries were outside acceptance criteria. A copy of he Sample Discrepancy Report (SDR) has been enclosed.
7. The method blank contained the common laboratory contaminant Bis (2-Ethylhexy) phthalate at a level less than the CRQL.
8. Internal standard area and retention time criteria were met.
9. Manual integrations are performed according to SOP 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 the Glossary ("Technical Flags For Manual Integration").
10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

7-14-05
Date

som\gorup\data\bna\tnu-hanford\0506-736.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 2 3 pages.

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 05MS 214

Initiator: SS
Date: 6-28-05
Client: TNU Hanford

Batch: 05061736
Samples: BS MS, MSD
Method: SW846/MCAWW/CLP/ 8270/6/05 TE

Parameter: 8270
Matrix: Soil
Prep Batch: 05LE0508

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)

low surrogate recovery in method blank spike and low recovery of several spike compounds but matrix spike*spiked dup are ok

2. Known or Probable Causes(s)

loss during extraction

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:
narrate

4. Project Manager Instructions...signature/date: 6/28/05
✓ 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: 7/14/05
✓ Verified re-[log][leach][extract][digest][analysis] (circle)
✓ Included in Case Narrative
__ Hard Copy COC Revised
__ Electronic COC Revised
__ EDD Corrections Completed

Other Explanation:

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: Beegle
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
1	X Project Mgr: Stone/Johnson/Haslett	__	__ GC/LC: Kiger
__	X Technical Mgr: Wesson/Daniels	1	X MS: Rychlak/Layman
__	X QA (file): Alberts	__	__ Log-in: Melnic
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Beegle/Kiger	__	__ Other: _____

QA-105-A-0801

RECEIVED
JUL 2005

Lionville Laboratory, Inc.
BNA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B04-002 H3203

DATE RECEIVED: 06/10/05

LVL LOT # :0506L736

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J03CF9	001	S	05LE0508	06/08/05	06/20/05	06/24/05
J03CH0	002	S	05LE0508	06/08/05	06/20/05	06/24/05
J03CH0	002 MS	S	05LE0508	06/08/05	06/20/05	06/24/05
J03CH0	002 MSD	S	05LE0508	06/08/05	06/20/05	06/24/05
J03CH1	003	S	05LE0508	06/08/05	06/20/05	06/24/05
J03CH2	004	S	05LE0508	06/08/05	06/20/05	06/24/05
J03CC8	005	S	05LE0508	06/08/05	06/20/05	06/24/05
LAB QC:						
SBLKLL	MB1	S	05LE0508	N/A	06/20/05	06/24/05
SBLKLL	MB1 BS	S	05LE0508	N/A	06/20/05	06/24/05

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 1 of 5

Collector D Bowersw/C Martinez/J Kiesler	Company Contact Doug Bowers	Telephone No. 531-0701	Project Coordinator KESSNER, JH
Price Code Many	Data Turnaround Air Quality 21 days		
Project Designation 100 BC Burial Grounds - Soil Full Protocol	Sampling Location 128-B-2 @ 100 BC		SAF No. B04-002
Ice Chest No. ERC 02 506, 96 002, 02 501, 03105, 02 101, TWV 052	Field Logbook No. EL 1173-5	COA R128B22600	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A050 239/240		Bill of Lading/Air Bill No. S GE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	E None	C Cool 4C	B Cool 4C	A Cool 4C	None	D Cool 4C	F Cool 4C				
Type of Container	aG	aG	aG	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1	1				
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1				
Sample No. / Matrix * / Sample Date / Sample Time											
1. J03CC9 / SOIL / 6/8/05 / 0817	✓	✓	✓	✓	✓ 6-6-05	✓	✓				
2. J03CD0 / SOIL / 6/8/05 / 0821	✓	✓	✓	✓		✓	✓				
3. J03CD1 / SOIL / 6/8/05 / 0832	✓	✓	✓	✓		✓	✓				
4. J03CD2 / SOIL / 6/8/05 / 0840	✓	✓	✓	✓		✓	✓				
5. J03CD3 / SOIL / 6/8/05 / 0900	✓	✓	✓	✓		✓	✓				

CHAIN OF POSSESSION	Sign/Print Names	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time		
Doug Bowers	6-8-05 / 1745	Ref 2B 3728	6-8-05 / 1745
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
REF 2B 3728 6905	0900	SJGALE 6905	0900
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
SJGALE ERC 6905	0900	FEDEX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Fed Ex	6/10/05 0920		6/10/05 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7470 - (CV) AD 6/9/05

(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to Relinquish samples from 3728 Ref # 2B on 6/9/05

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 2 of 5

Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER, JH
Price Code: Many	Data Turnaround: Air Quality 21 days		
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC		SAF No.: B04-002
Ice Chest No.: ERC 02 506, 96 002, 02 501, 03 105, 02 101, TNW 052	Field Logbook No.: EL 1173-5	COA: R128B22600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A050239/240		Bill of Lading/Air Bill No.: SEE OSP

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C				
Type of Container	aG	aG	aG	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1	1				
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1				
Sample No. / Matrix * / Sample Date / Sample Time											
J03CD4 / SOIL / 6/8/05 / 0900	X	X	X	X	X 6-8-05	X	X				
J03CD5 / SOIL / 6/8/05 / 0950	X	X	X	X		X	X				
J03CD6 / SOIL / 6/8/05 / 0955	X	X	X	X		X	X				
J03CD7 / SOIL / 6/8/05 / 1001	X	X	X	X		X	X				
J03CD8 / SOIL / 6/8/05 / 1025	X	X	X	X		X	X				

CHAIN OF POSSESSION	Sign/Print Names	Date/Time
Relinquished By/Removed From: Doug Bowers	Received By/Stored In: Ref 2B 3728	6-8-05 / 1545
Relinquished By/Removed From: Ref 2B 3728	Received By/Stored In: SJ Gale	6905 0900
Relinquished By/Removed From: SJ Gale ERC	Received By/Stored In: FED EX	6905 0900
Relinquished By/Removed From: FedEx	Received By/Stored In:	6-10-05 0920
Relinquished By/Removed From:	Received By/Stored In:	
Relinquished By/Removed From:	Received By/Stored In:	

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}: Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}: Gamma Spec - Add-on {Silver-108 metastable}

SJG 6905

Personnel not available to relinquish samples from 3728 Ref # ZB on 6/9/05

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

BHI-EE-011 (03/01/2002)

000041

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 3 of 5

Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER. JH
Price Code: Many	Data Turnaround: Air Quality 21 days		
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC		SAF No.: B04-002
Ice Chest No.: ERC 02 506, 96 002, 02501, 03105, 02 101, THU 052	Field Logbook No.: EL 1173-5	COA: R128B22600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A050 239/240		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			
Sample No.	Matrix *	Sample Date	Sample Time								
12. J03CD9	SOIL	6/8/05	1030	✓	✓	✓	✓		✓	X	
12. J03CF0	SOIL	6/8/05	1041	✓	✓	✓	✓		✓	X	
13. J03CF1	SOIL	6/8/05	1055	✓	✓	✓	✓		✓	X	
14. J03CF2	SOIL	6/8/05	1110	✓	✓	✓	✓		✓	X	
15. J03CF3	SOIL	6/8/05	1117	✓	✓	✓	✓		✓	X	

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Doug Bowers	6-8-05/1545	Ref 2B 3728	6-8-05/1545
Relinquished By/Removed From	REF 2B 3728	6905 0900	SUGALE	6905 0900
Relinquished By/Removed From	SUGALE ERC	6905 0900	FEDEX	
Relinquished By/Removed From	FedEx	6-10-05 0720		6-10-05 0920
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}, Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}: Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to relinquish samples from 3728 Ref #2B on 6/9/05

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
A=Other

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 1 of 2

Collector D Bowersw/C Martinez/J Kiesler	Company Contact Doug Bowers	Telephone No. 531-0701	Project Coordinator KESSNER, JH
Price Code Many	Data Turnaround Air Quality 21 days		
Project Designation 100 BC Burial Grounds - Soil Full Protocol	Sampling Location 128-B-2 @ 100 BC		SAF No. B04-002
Ice Chest No. GRC 02 506, 96 002, 02 501, 03 105, 02 101, TNV052	Field Logbook No. EL 1173-5	COA R128B22600	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES / (JONVILLE)	Offsite Property No. A050 239/240		Bill of Lading/Air Bill No. SCE 05PC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			

	Sample No.	Matrix *	Sample Date	Sample Time										
16	J03CF4	SOIL	6/8/05	1230	✓	✓	✓	✓	✓	✓	✓			
17	J03CF5	SOIL	6/8/05	1235	✓	✓	✓	✓	✓	✓	✓			
18	J03CF6	SOIL	6/8/05	1250	✓	✓	✓	✓	✓	✓	✓			
19	J03CF7	SOIL	6/8/05	1330	✓	✓	✓	✓	✓	✓	✓			
20	J03CF8	SOIL	6/8/05	1333	✓	✓	✓	✓	✓	✓	✓			

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Doug Bowers	6-8-05/1545	REF 2B 3728	6-8-05/1545
REF 2B 3728	6905 0900	S. GALE	6905 0900
S. GALE	6905 0900	FED EX	
Fed Ex	6/10/05 0920		6-10-05 0920

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}: Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}: Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to Relinquish samples from 3728 Ref # 2B on 6/9/05

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=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 (03/01/2002)

00043

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 2 of 2

Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER, JH
Price Code: Many	Data Turnaround: Air Quality 21 days		
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC		SAF No.: B04-002
Ice Chest No.: ERC 02 506, 96 002, 02 501, 03 105, 02 101, TNU 052	Field Logbook No.: EL 1173-5	COA: R128B22600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A050 239/240		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C				
Type of Container	aG	aG	aG	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1	1				
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1				
Sample No. / Matrix * / Sample Date / Sample Time											
21. J03CF9 / SOIL / 6/8/05 / 1335	✓	✓	✓	✓	✓	✓	✓				
22. J03CH0 / SOIL / 6/8/05 / 1400	✓	✓	✓	✓	✓	✓	✓				
23. J03CH1 / SOIL / 6/8/05 / 0910	✓	✓	✓	✓	✓	✓	✓				
24. J03CH2 / SOIL / 6/8/05 / 1044	✓	✓	✓	✓	✓	✓	✓				
25. J03CC8 / soil / 6/8/05 / 0803	✓	✓	✓	✓	✓	✓	✓			FCP semi VOA	only

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

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Doug Bowers	6-8-05/1545	R F 2B 3728	6-8-05/1545
R F 2B 3728	6905 0900	S J Gale	6905 0900
S J Gale	6905 0900	FED EX	
FED EX	6/10/05 0920		6-10-05 0920

Sign/Print Names

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to relinquish samples from 3728 Ref # 2B on 6 19 105

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

BHI-EE-011 (03/01/2002)

0000044

Appendix 5

Data Validation Supporting Documentation

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100BC 128-B-2			DATA PACKAGE: H3203		
VALIDATOR: TLI		LAB: LLI		DATE: 8/4/05	
			SDG: H3203		

ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)

SAMPLES/MATRIX						
J03CC9	J03CD0	J03CD1	J03CD2	J03CD3	J03CD4	J03CD5
J03CD6	J03CD7	J03CD8	J03CD9	J03CF0	J03CF1	J03CF2
J03CF3	J03CF4	J03CF5	J03CF6	J03CF7	J03CF8	J03CF9
J03CH0	J03CH1	J03CH2	J03CC8			
						soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes (No) N/A

Comments:

2. INSTRUMENT TUNING AND CALIBRATION (Levels D and E)

GC/MS tuning/performance check acceptable? ..... Yes No (N/A)

Initial calibrations acceptable? ..... Yes No (N/A)

Continuing calibrations acceptable? ..... Yes No (N/A)

Standards traceable? ..... Yes No (N/A)

Standards expired? ..... Yes No (N/A)

Calculation check acceptable? ..... Yes No (N/A)

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

Calibration blanks analyzed? (Levels D, E) ..... Yes No N/A
Calibration blank results acceptable? (Levels D, E) ..... Yes No N/A
Laboratory blanks analyzed? ..... Yes No N/A
Laboratory blank results acceptable? ..... Yes No N/A
Field/trip blanks analyzed? (Levels C, D, E) ..... Yes No N/A
Field/trip blank results acceptable? (Levels C, D, E) ..... Yes No N/A
Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: mb thr D7 ~~diethylphthalate~~ 8/4/07
" di-n-butylphthalate - to RQL + U
" bis(2-ethylhexyl)phthalate - to RQL + U
D8-F8 " " " " "
F9-C8 " " " " "
F8 - diethylphthalate, di-n-butylphthalate + ~~bis(2-ethylhexyl) phthalate~~ 8/4/07

4. ACCURACY (Levels C, D, and E)

Surrogates/system monitoring compounds analyzed? ..... Yes No N/A
Surrogate/system monitoring compound recoveries acceptable? ..... Yes No N/A
Surrogates traceable? (Levels D, E) ..... Yes No N/A
Surrogates expired? (Levels D, E) ..... Yes No N/A
MS/MSD samples analyzed? ..... Yes No N/A
MS/MSD results acceptable? ..... Yes No N/A
MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A
MS/MSD standards? (Levels D, E) ..... Yes No N/A
LCS/BSS samples analyzed? ..... Yes No N/A
LCS/BSS results acceptable? ..... Yes No N/A
Standards traceable? (Levels D, E) ..... Yes No N/A
Standards expired? (Levels D, E) ..... Yes No N/A
Transcription/calculation errors? (Levels D, E) ..... Yes No N/A
Performance audit sample(s) analyzed? ..... Yes No N/A
Performance audit sample results acceptable? ..... Yes No N/A

Comments: MS MSD C9-D7 nitrobenzene hexachloroethane isophorone 2-nitrophenol no PA
1,2,4-trichlorobenzene, 2-methylnaphthalene, 2,4-dinitrophenol - J all
MS/MSD F9-C8 hexachlorocyclopentadiene
LCS C9-D7 nitrobenzene, isophorone, 2-nitrophenol, 2,4-dimethylphenol, 4-chloro-3-methylphenol
2-methylnaphthalene, acenaphthylene, 4-nitroaniline, n-nitrosodiphenylamine, Carbazole + 2,4 dichlorophenol
Ideno (1,2,3-cd) pyrene - J all
LCS D8-F8 isophorone, 2,4-dimethylphenol, 1,2,4-trichlorobenzene, 4-chloro-3-methylphenol,
2-methylaniline, 2,4 dinitrophenol - J all
F9-C8 isophorone, 2,4 dimethylphenol, 1,2,4 trichlorobenzene, 4-chloro-3-methylphenol, 2-methylnaphthalene,
2,4 dinitrophenol

GC/MS ORGANIC DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

MS/MSD samples analyzed? ..... Yes No N/A
MS/MSD RPD values acceptable? ..... Yes No N/A
MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A
MS/MSD standards expired? (Levels D, E) ..... Yes No N/A
Field duplicate RPD values acceptable? ..... Yes No N/A
Field split RPD values acceptable? ..... Yes No N/A
Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: C9-D7 - 2,4-dinitrophenol 11170 J all
D8-F8 - hexachlorocyclopentadiene - 3170 J all
F9-C8 - hexachlorocyclopentadiene - 8170 J all

6. SYSTEM PERFORMANCE (Levels D and E)

Internal standards analyzed? ..... Yes No N/A
Iinternal standard areas acceptable? ..... Yes No N/A
Internal standard retention times acceptable? ..... Yes No N/A
Standards traceable? ..... Yes No N/A
Standards expired? ..... Yes No N/A
Transcription/calculation errors? ..... Yes No N/A

Comments:

7. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A
Sample holding times acceptable? ..... Yes No N/A

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION LIMITS (all levels)

Compound identification acceptable? (Levels D, E) ..... Yes No N/A
Compound quantitation acceptable? (Levels D, E) ..... Yes No N/A
Results reported for all requested analyses? ..... Yes No N/A
Results supported in the raw data? (Levels D, E) ..... Yes No N/A
Samples properly prepared? (Levels D, E) ..... Yes No N/A
Laboratory properly identified and coded all TIC? (Levels D, E) ..... Yes No N/A
Detection limits meet RDL? ..... Yes No N/A
Transcription/calculation errors? (Levels D, E) ..... Yes No N/A
Comments: 200 over

9. SAMPLE CLEANUP (Levels D and E)

GPC cleanup performed? ..... Yes No N/A
GPC check performed? ..... Yes No N/A
GPC check recoveries acceptable? ..... Yes No N/A
GPC calibration performed? ..... Yes No N/A
GPC calibration check performed? ..... Yes No N/A
GPC calibration check retention times acceptable? ..... Yes No N/A
Check/calibration materials traceable? ..... Yes No N/A
Check/calibration materials Expired? ..... Yes No N/A
Analytical batch QC given similar cleanup? ..... Yes No N/A
Transcription/Calculation Errors? ..... Yes No N/A
Comments:

Date: 8 August 2005
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100BC Burial Grounds - Soil Full Protocol - Waste Site 128-B-2
Subject: Radiochemistry - Data Package No. H3203-EB

INTRODUCTION

This memo presents the results of data validation on Data Package No. H3203-EB prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
J03CC9	6/8/05	Soil	C	See note 1
J03CD0	6/8/05	Soil	C	See note 1
J03CD1	6/8/05	Soil	C	See note 1
J03CD2	6/8/05	Soil	C	See note 1
J03CD3	6/8/05	Soil	C	See note 1
J03CD4	6/8/05	Soil	C	See note 1
J03CD5	6/8/05	Soil	C	See note 1
J03CD6	6/8/05	Soil	C	See note 1
J03CD7	6/8/05	Soil	C	See note 1
J03CD8	6/8/05	Soil	C	See note 1
J03CD9	6/8/05	Soil	C	See note 1
J03CF0	6/8/05	Soil	C	See note 1
J03CF1	6/8/05	Soil	C	See note 1
J03CF2	6/8/05	Soil	C	See note 1
J03CF3	6/8/05	Soil	C	See note 1
J03CF4	6/8/05	Soil	C	See note 1
J03CF5	6/8/05	Soil	C	See note 1
J03CF6	6/8/05	Soil	C	See note 1
J03CF7	6/8/05	Soil	C	See note 1
J03CF8	6/8/05	Soil	C	See note 1
J03CF9	6/8/05	Soil	C	See note 1
J03CH0	6/8/05	Soil	C	See note 1

Sample ID	Sample Date	Media	Validation	Analysis
J03CH1	6/8/05	Soil	C	See note 1
J03CH2	6/8/05	Soil	C	See note 1

1 – Alpha spectroscopy (isotopic uranium) and gamma spectroscopy.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Data Requested by Client

DATA QUALITY PARAMETERS

- **Holding Times**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for radiochemical analysis is 6 months.

All holding times were acceptable.

- **Preparation (Method) Blanks**

Laboratory Blanks

Blank samples are analyzed to determine if positive results are due to laboratory reagent, sample container, or detector contamination. If blank analysis results indicate the presence of an analyte above the minimum detectable activity (MDA), the following qualifiers are applied: All positive sample results less than five times the highest blank concentration are qualified as estimates and flagged "J"; sample results below the MDA are qualified as undetected and flagged "U"; sample results above the MDA and greater than five times the highest blank concentration are not qualified.

All blank results were acceptable.

Field (Equipment) Blank

No equipment blanks were submitted for analysis.

- **Accuracy**

Accuracy is evaluated from laboratory control sample (LCS) or blank spike sample (BSS) batch samples and spiked samples from the analytical batch. Measured activities are compared to the known added amounts. The acceptable LCS or BSS and matrix spike (MS) recovery range is 70-130%. In addition, samples may be spiked with a radiochemical tracer to assist in isolating the radioisotope of interest with the yield of the tracer being used in calculating sample activity. The acceptable range for tracer recovery is 20% to 105%. Spike sample results outside the above ranges result in associated sample results being qualified as estimates, or not qualified, depending on the activity of the individual sample. Results are rejected for LCS/BSS recoveries of less than 30% and tracer recoveries of less than 20%, and tracer recoveries of greater than 115% for detected results.

All accuracy results were acceptable.

- **Laboratory Duplicates**

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the contract required detection limit (CRDL) and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All duplicate results were acceptable.

Field Duplicates

Two sets of field duplicate samples (J03CD4/J03CH1 and J03CF0/J03CH2) were submitted for analysis. Field duplicate results are compared using the same criteria as for laboratory duplicates. The RPD for thorium-228 was outside QC limits (42%) in sample duplicate pair J03CD4/J03CH1. Under the BHI statement of work, no qualification is required. All other field duplicate results were acceptable.

- **Detection Levels**

Reported analytical detection levels for undetected analytes are compared against the remaining waste sites RQLs to ensure that laboratory detection levels meet the required criteria. One-hundred eighteen analytes exceeded the RQL. Under the BHI statement of work, no qualification is required. All other reported results met the analyte specific RQL.

- **Completeness**

Data package No. H3203 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

One-hundred eighteen analytes exceeded the RQL. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-96-22, Rev. 4, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, February 2005.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the BHI statement of work are as follows:

U - Indicates the compound or analyte was analyzed for and not detected above the minimum detectable activity (MDA) in the sample. The value reported is the sample result corrected for sample dilution and moisture content by the laboratory. The data is usable for decision making purposes.

UJ - Indicates the compound or analyte was analyzed for and not detected at concentrations above the minimum detectable activity (MDA) in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate, but is usable for decision making purposes.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

Appendix 2

Summary of Data Qualification

RADIOCHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: H3203	REVIEWER: TLI	Project: 128-B-2	PAGE 1 OF 1
Comments: No qualifiers assigned			

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

RADIOCHEMISTRY ANALYSIS, SOIL MATRIX, (PCi/G)

Project: BECHTEL-HANFORD																							
Laboratory: EB																							
Case	SDG: H3203																						
Sample Number		J03CC9		J03CD0		J03CD1		J03CD2		J03CD3		J03CD4		J03CD5		J03CD6		J03CD7		J03CD8			
Remarks																							
Sample Date		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05			
Radiochemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q		
Uranium-233/234	1	0.891		0.656		0.534		0.638		0.712		0.850		0.772		0.852		0.585		0.606			
Uranium-235	1	0.040	U	0	U	0.076	U	0	U	0	U	0	U	0.208	U	0.054	U	0.039	U	0	U		
Uranium-238	1	0.660		0.438		0.44		0.478		0.791		0.598		0.343		0.314	U	0.390		0.444			
Potassium-40		10.7		13.6		8.55		11.7		12.8		10.8		11.6		10.2		12.0		13.2			
Cobalt 60	0.05	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*		
Silver-108m		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Cesium 137	0.05	0.190		U	U*	U	U*	0.306		U	U*	U	U*	U	U*	U	U*	U	U*	U	U*		
Radium-226		0.438		0.500		0.506		0.542		0.638		0.424		0.674		0.528		0.504		0.451			
Radium-228		U	U	0.797		0.763		0.958		0.845		U	U	0.805		0.808		U	U	0.892			
Europium 152	0.1	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*		
Europium 154	0.1	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*		
Europium 155	0.1	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*		
Thorium-228		0.624		0.868		0.766		0.680		0.735		1.02		0.886		0.651		0.745		0.651			
Thorium-232		U	U	0.797		0.763		0.958		0.845		U	U	0.805		0.808		U	U	0.892			
Uranium-235(gea)		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Uranium-238(gea)		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Americium-241(gea)		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Sample Number		J03CD9		J03CF0		J03CF1		J03CF2		J03CF3		J03CF4		J03CF5		J03CF6		J03CF7		J03CF8			
Remarks																							
Sample Date		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05			
Radiochemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q		
Uranium-233/234	1	0.604		0.645		0.718		0.574		0.720		0.631		0.648		0.577		0.475		0.738			
Uranium-235	1	0.037	U	0.041	U	0.038	U	0		0	U	0.040	U	0	U	0	U	0.036	U	0.117	U		
Uranium-238	1	0.544		0.883		0.749		0.638		0.644		0.498		0.953		0.951		0.564		0.642			
Potassium-40		9.37		9.36		13.8		10.2		11.9		8.47		8.78		8.28		7.12		8.76			
Cobalt 60	0.05	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*		
Silver-108m		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Cesium 137	0.05	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*		
Radium-226		0.544		0.324		0.598		0.385		0.554		0.377		0.345		0.346		0.354		0.389			
Radium-228		0.739		0.820		0.762		0.666		0.701		0.776		U	U	U	U	U	U	0.497			
Europium 152	0.1	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*		
Europium 154	0.1	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*		
Europium 155	0.1	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*	U	U*		
Thorium-228		0.685		0.509		0.717		0.599		0.713		0.465		0.542		0.597		0.529		0.423			
Thorium-232		0.739		0.820		0.762		0.666		0.701		0.776		U	U	U	U	U	U	0.497			
Uranium-235(gea)		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Uranium-238(gea)		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U		
Americium-241(gea)		U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U		

000010

* - RQL exceeded

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize potential miss-interpretation of results. All other qualifiers shown were applied during validation.

Project: BECHTEL-HANFORD																					
Laboratory: EB																					
Case	SDG: H3203																				
Sample Number		J03CF9		J03CH0		J03CH1		J03CH2													
Remarks																					
Sample Date		6/10/05		6/10/05		6/10/05		6/10/05													
Radiochemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Uranium-233/234	1	0.615		0.495		0.740		0.494													
Uranium-235	1	0	U	0.176	U	0.039	U	0.085	U												
Uranium-238	1	0.692		0.728		0.547		0.812													
Potassium-40		9.37		6.23		11.5		9.16													
Cobalt 60	0.05	U	U*	U	U*	U	U*	U	U*												
Silver-108m		U	U	U	U	U	U	U	U												
Cesium 137	0.05	U	U*	U	U*	U	U*	U	U*												
Radium-226		0.515		0.309		0.596		0.419													
Radium-228		0.833		U	U	0.634		0.610													
Europium 152	0.1	U	U*	U	U*	U	U*	U	U*												
Europium 154	0.1	U	U*	U	U*	U	U*	U	U*												
Europium 155	0.1	U	U*	U	U*	U	U*	U	U*												
Thorium-228		0.692		0.504		0.664		0.498													
Thorium-232		0.833		U	U	0.634		0.610													
Uranium-235(gea)		U	U	U	U	U	U	U	U												
Uranium-238(gea)		U	U	U	U	U	U	U	U												
Americium-241(gea)		U	U	U	U	U	U	U	U												

000011

* - RQL exceeded

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize potential miss-interpretation of results. All other qualifiers shown were applied during validation.

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-001 **J03CC9**

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-01	Client sample id	J03CC9		
Dept sample id	7274-001	Location/Matrix	128-B-2 @ 100 BC	SOLID	
Received	06/10/05	Collected/Weight	06/08/05 08:17	615.8 g	
% solids	98.8	Custody/SAF No	B04-002-040	B04-002	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.891	0.34	0.25	1.0		U
Uranium 235	15117-96-1	0.040	0.080	0.31	1.0	U	U
Uranium 238	U-238	0.660	0.27	0.25	1.0		U
Potassium 40	13966-00-2	10.7	1.7	0.91			GAM
Cobalt 60	10198-40-0	U		0.092	0.050	U	GAM
Silver 108m	14391-65-2	U		0.067		U	GAM
Cesium 137	10045-97-3	0.190	0.11	0.13	0.10		GAM
Radium 226	13982-63-3	0.438	0.21	0.20	0.10		GAM
Radium 228	15262-20-1	U		0.82	0.20	U	GAM
Europium 152	14683-23-9	U		0.25	0.10	U	GAM
Europium 154	15585-10-1	U		0.33	0.10	U	GAM
Europium 155	14391-16-3	U		0.21	0.10	U	GAM
Thorium 228	14274-82-9	0.624	0.096	0.10			GAM
Thorium 232	TH-232	U		0.82		U	GAM
Uranium 235	15117-96-1	U		0.31		U	GAM
Uranium 238	U-238	U		13		U	GAM
Americium 241	14596-10-2	U		0.25		U	GAM

100 BC Burial Grounds - Soil

8/6/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-002 J03CD0

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203
Contact	Melissa C. Mannion	Contract	No. 630	
Lab sample id	R506093-02	Client sample id	J03CD0	
Dept sample id	7274-002	Location/Matrix	128-B-2 @ 100 BC	SOLID
Received	06/10/05	Collected/Weight	06/08/05 08:21	771.5 g
% solids	99.0	Custody/SAF No	B04-002-040	B04-002

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.656	0.30	0.28	1.0		U
Uranium 235	15117-96-1	0	0.088	0.34	1.0	U	U
Uranium 238	U-238	0.438	0.22	0.28	1.0		U
Potassium 40	13966-00-2	13.6	1.5	0.54			GAM
Cobalt 60	10198-40-0	U		0.080	0.050	U	GAM
Silver 108m	14391-65-2	U		0.062		U	GAM
Cesium 137	10045-97-3	U		0.083	0.10	U	GAM
Radium 226	13982-63-3	0.500	0.13	0.13	0.10		GAM
Radium 228	15262-20-1	0.797	0.34	0.36	0.20		GAM
Europium 152	14683-23-9	U		0.19	0.10	U	GAM
Europium 154	15585-10-1	U		0.30	0.10	U	GAM
Europium 155	14391-16-3	U		0.19	0.10	U	GAM
Thorium 228	14274-82-9	0.868	0.12	0.12			GAM
Thorium 232	TH-232	0.797	0.34	0.36			GAM
Uranium 235	15117-96-1	U		0.28		U	GAM
Uranium 238	U-238	U		7.9		U	GAM
Americium 241	14596-10-2	U		0.35		U	GAM

100 BC Burial Grounds - Soil

8/4/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-003 J03CD1

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-03	Client sample id	J03CD1		
Dept sample id	7274-003	Location/Matrix	128-B-2 @ 100 BC	SOLID	
Received	06/10/05	Collected/Weight	06/08/05 08:32	776.0 g	
% solids	99.0	Custody/SAF No	B04-002-040	B04-002	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.534	0.26	0.24	1.0		U
Uranium 235	15117-96-1	0.076	0.076	0.29	1.0	U	U
Uranium 238	U-238	0.440	0.25	0.24	1.0		U
Potassium 40	13966-00-2	8.55	1.7	0.88			GAM
Cobalt 60	10198-40-0	U		0.12	0.050	U	GAM
Silver 108m	14391-65-2	U		0.078		U	GAM
Cesium 137	10045-97-3	U		0.10	0.10	U	GAM
Radium 226	13982-63-3	0.506	0.17	0.17	0.10		GAM
Radium 228	15262-20-1	0.763	0.34	0.42	0.20		GAM
Europium 152	14683-23-9	U		0.33	0.10	U	GAM
Europium 154	15585-10-1	U		0.37	0.10	U	GAM
Europium 155	14391-16-3	U		0.18	0.10	U	GAM
Thorium 228	14274-82-9	0.766	0.14	0.13			GAM
Thorium 232	TH-232	0.763	0.34	0.42			GAM
Uranium 235	15117-96-1	U		0.31		U	GAM
Uranium 238	U-238	U		13		U	GAM
Americium 241	14596-10-2	U		0.10		U	GAM

100 BC Burial Grounds - Soil

8/6/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-004 J03CD2

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG_H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-04	Client sample id	J03CD2		
Dept sample id	7274-004	Location/Matrix	128-B-2 @ 100 BC	SOLID	
Received	06/10/05	Collected/Weight	06/08/05 08:40	633.6 g	
% solids	97.8	Custody/SAF No	B04-002-040	B04-002	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.638	0.26	0.24	1.0		U
Uranium 235	15117-96-1	0	0.077	0.30	1.0	U	U
Uranium 238	U-238	0.478	0.26	0.24	1.0		U
Potassium 40	13966-00-2	11.7	1.7	0.72			GAM
Cobalt 60	10198-40-0	U		0.12	0.050	U	GAM
Silver 108m	14391-65-2	U		0.073		U	GAM
Cesium 137	10045-97-3	0.306	0.10	0.11	0.10		GAM
Radium 226	13982-63-3	0.542	0.20	0.22	0.10		GAM
Radium 228	15262-20-1	0.958	0.48	0.48	0.20		GAM
Europium 152	14683-23-9	U		0.28	0.10	U	GAM
Europium 154	15585-10-1	U		0.29	0.10	U	GAM
Europium 155	14391-16-3	U		0.23	0.10	U	GAM
Thorium 228	14274-82-9	0.680	0.14	0.16			GAM
Thorium 232	TH-232	0.958	0.48	0.48			GAM
Uranium 235	15117-96-1	U		0.36		U	GAM
Uranium 238	U-238	U		14		U	GAM
Americium 241	14596-10-2	U		0.26		U	GAM

100 BC Burial Grounds - Soil

6/6/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-005 J03CD3

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-05	Client sample id	J03CD3		
Dept sample id	7274-005	Location/Matrix	128-B-2 @ 100 BC	SOLID	
Received	06/10/05	Collected/Weight	06/08/05 09:05	810.7 g	
% solids	98.6	Custody/SAF No	B04-002-040	B04-002	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.712	0.32	0.30	1.0		U
Uranium 235	15117-96-1	0	0.096	0.37	1.0	U	U
Uranium 238	U-238	0.791	0.32	0.30	1.0		U
Potassium 40	13966-00-2	12.8	1.6	0.89			GAM
Cobalt 60	10198-40-0	U		0.096	0.050	U	GAM
Silver 108m	14391-65-2	U		0.063		U	GAM
Cesium 137	10045-97-3	U		0.087	0.10	U	GAM
Radium 226	13982-63-3	0.638	0.16	0.16	0.10		GAM
Radium 228	15262-20-1	0.845	0.28	0.26	0.20		GAM
Europium 152	14683-23-9	U		0.19	0.10	U	GAM
Europium 154	15585-10-1	U		0.30	0.10	U	GAM
Europium 155	14391-16-3	U		0.20	0.10	U	GAM
Thorium 228	14274-82-9	0.735	0.088	0.086			GAM
Thorium 232	TH-232	0.845	0.28	0.26			GAM
Uranium 235	15117-96-1	U		0.27		U	GAM
Uranium 238	U-238	U		9.6		U	GAM
Americium 241	14596-10-2	U		0.38		U	GAM

100 BC Burial Grounds - Soil

6/6/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-006

J03CD4

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-06	Client sample id	J03CD4		
Dept sample id	7274-006	Location/Matrix	128-B-2 @ 100 BC	SOLID	
Received	06/10/05	Collected/Weight	06/08/05 09:00	684.0 g	
% solids	98.7	Custody/SAF No	B04-002-040	B04-002	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.850	0.32	0.24	1.0		U
Uranium 235	15117-96-1	0	0.076	0.29	1.0	U	U
Uranium 238	U-238	0.598	0.26	0.24	1.0		U
Potassium 40	13966-00-2	10.8	1.5	1.2			GAM
Cobalt 60	10198-40-0	U		0.14	0.050	U	GAM
Silver 108m	14391-65-2	U		0.085		U	GAM
Cesium 137	10045-97-3	U		0.13	0.10	U	GAM
Radium 226	13982-63-3	0.424	0.15	0.18	0.10		GAM
Radium 228	15262-20-1	U		0.61	0.20	U	GAM
Europium 152	14683-23-9	U		0.36	0.10	U	GAM
Europium 154	15585-10-1	U		0.43	0.10	U	GAM
Europium 155	14391-16-3	U		0.21	0.10	U	GAM
Thorium 228	14274-82-9	1.02	0.15	0.13			GAM
Thorium 232	TH-232	U		0.61		U	GAM
Uranium 235	15117-96-1	U		0.35		U	GAM
Uranium 238	U-238	U		15		U	GAM
Americium 241	14596-10-2	U		0.12		U	GAM

100 BC Burial Grounds - Soil

8/6/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-007

J03CD5

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-07	Client sample id	J03CD5		
Dept sample id	7274-007	Location/Matrix	128-B-2 @ 100 BC	SOLID	
Received	06/10/05	Collected/Weight	06/08/05 09:50	786.2 g	
% solids	98.9	Custody/SAF No	B04-002-040	B04-002	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.772	0.35	0.33	1.0		U
Uranium 235	15117-96-1	0.208	0.21	0.40	1.0	U	U
Uranium 238	U-238	0.343	0.26	0.33	1.0		U
Potassium 40	13966-00-2	11.6	1.5	0.72			GAM
Cobalt 60	10198-40-0	U		0.098	0.050	U	GAM
Silver 108m	14391-65-2	U		0.062		U	GAM
Cesium 137	10045-97-3	U		0.21	0.10	U	GAM
Radium 226	13982-63-3	0.674	0.15	0.14	0.10		GAM
Radium 228	15262-20-1	0.805	0.32	0.34	0.20		GAM
Europium 152	14683-23-9	U		0.19	0.10	U	GAM
Europium 154	15585-10-1	U		0.33	0.10	U	GAM
Europium 155	14391-16-3	U		0.22	0.10	U	GAM
Thorium 228	14274-82-9	0.886	0.13	0.15			GAM
Thorium 232	TH-232	0.805	0.32	0.34			GAM
Uranium 235	15117-96-1	U		0.31		U	GAM
Uranium 238	U-238	U		10		U	GAM
Americium 241	14596-10-2	U		0.42		U	GAM

100 BC Burial Grounds - Soil

8/4/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-008 J03CD6

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-08	Client sample id	J03CD6		
Dept sample id	7274-008	Location/Matrix	128-B-2 @ 100 BC	SOLID	
Received	06/10/05	Collected/Weight	06/08/05 09:55	744.3 g	
% solids	98.9	Custody/SAF No	B04-002-040	B04-002	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.852	0.37	0.34	1.0		U
Uranium 235	15117-96-1	0.054	0.11	0.42	1.0	U	U
Uranium 238	U-238	0.314	0.27	0.34	1.0	U	U
Potassium 40	13966-00-2	10.2	1.4	0.86			GAM
Cobalt 60	10198-40-0	U		0.079	0.050	U	GAM
Silver 108m	14391-65-2	U		0.056		U	GAM
Cesium 137	10045-97-3	U		0.15	0.10	U	GAM
Radium 226	13982-63-3	0.528	0.13	0.13	0.10		GAM
Radium 228	15262-20-1	0.808	0.34	0.34	0.20		GAM
Europium 152	14683-23-9	U		0.20	0.10	U	GAM
Europium 154	15585-10-1	U		0.22	0.10	U	GAM
Europium 155	14391-16-3	U		0.20	0.10	U	GAM
Thorium 228	14274-82-9	0.651	0.085	0.087			GAM
Thorium 232	TH-232	0.808	0.34	0.34			GAM
Uranium 235	15117-96-1	U		0.26		U	GAM
Uranium 238	U-238	U		10		U	GAM
Americium 241	14596-10-2	U		0.37		U	GAM

100 BC Burial Grounds - Soil

8/1/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-009 J03CD7

DATA SHEET

SDG	7274	Client/Case no	Hanford SDG H3203
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R506093-09	Client sample id	J03CD7
Dept sample id	7274-009	Location/Matrix	128-B-2 @ 100 BC SOLID
Received	06/10/05	Collected/Weight	06/08/05 10:01 756.5 g
% solids	99.0	Custody/SAF No	B04-002-040 B04-002

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.585	0.26	0.25	1.0		U
Uranium 235	15117-96-1	0.039	0.079	0.30	1.0	U	U
Uranium 238	U-238	0.390	0.20	0.25	1.0		U
Potassium 40	13966-00-2	12.0	1.5	0.68			GAM
Cobalt 60	10198-40-0	U		0.083	0.050	U	GAM
Silver 108m	14391-65-2	U		0.067		U	GAM
Cesium 137	10045-97-3	U		0.22	0.10	U	GAM
Radium 226	13982-63-3	0.504	0.16	0.16	0.10		GAM
Radium 228	15262-20-1	U		0.76	0.20	U	GAM
Europium 152	14683-23-9	U		0.20	0.10	U	GAM
Europium 154	15585-10-1	U		0.31	0.10	U	GAM
Europium 155	14391-16-3	U		0.22	0.10	U	GAM
Thorium 228	14274-82-9	0.745	0.14	0.15			GAM
Thorium 232	TH-232	U		0.76		U	GAM
Uranium 235	15117-96-1	U		0.32		U	GAM
Uranium 238	U-238	U		9.6		U	GAM
Americium 241	14596-10-2	U		0.41		U	GAM

100 BC Burial Grounds - Soil

8/6/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-010 J03CD8

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-10	Client sample id	J03CD8		
Dept sample id	7274-010	Location/Matrix	128-B-2 @ 100 BC	SOLID	
Received	06/10/05	Collected/Weight	06/08/05 10:25	790.9 g	
% solids	98.8	Custody/SAF No	B04-002-040	B04-002	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.606	0.33	0.31	1.0		U
Uranium 235	15117-96-1	0	0.098	0.37	1.0	U	U
Uranium 238	U-238	0.444	0.25	0.31	1.0		U
Potassium 40	13966-00-2	13.2	1.6	0.46			GAM
Cobalt 60	10198-40-0	U		0.098	0.050	U	GAM
Silver 108m	14391-65-2	U		0.068		U	GAM
Cesium 137	10045-97-3	U		0.15	0.10	U	GAM
Radium 226	13982-63-3	0.451	0.14	0.15	0.10		GAM
Radium 228	15262-20-1	0.892	0.38	0.40	0.20		GAM
Europium 152	14683-23-9	U		0.20	0.10	U	GAM
Europium 154	15585-10-1	U		0.31	0.10	U	GAM
Europium 155	14391-16-3	U		0.21	0.10	U	GAM
Thorium 228	14274-82-9	0.651	0.090	0.094			GAM
Thorium 232	TH-232	0.892	0.38	0.40			GAM
Uranium 235	15117-96-1	U		0.32		U	GAM
Uranium 238	U-238	U		11		U	GAM
Americium 241	14596-10-2	U		0.40		U	GAM

100 BC Burial Grounds - Soil

V 6/16/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-011 J03CD9

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-11	Client sample id	J03CD9		
Dept sample id	7274-011	Location/Matrix	128-B-2 @ 100 BC	SOLID	
Received	06/10/05	Collected/Weight	06/08/05 10:30	658.1 g	
% solids	99.0	Custody/SAF No	B04-002-040	B04-002	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.604	0.25	0.23	1.0		U
Uranium 235	15117-96-1	0.037	0.073	0.28	1.0	U	U
Uranium 238	U-238	0.544	0.25	0.23	1.0		U
Potassium 40	13966-00-2	9.37	1.6	1.3			GAM
Cobalt 60	10198-40-0	U		0.13	0.050	U	GAM
Silver 108m	14391-65-2	U		0.089		U	GAM
Cesium 137	10045-97-3	U		0.14	0.10	U	GAM
Radium 226	13982-63-3	0.544	0.17	0.19	0.10		GAM
Radium 228	15262-20-1	0.739	0.39	0.43	0.20		GAM
Europium 152	14683-23-9	U		0.36	0.10	U	GAM
Europium 154	15585-10-1	U		0.39	0.10	U	GAM
Europium 155	14391-16-3	U		0.20	0.10	U	GAM
Thorium 228	14274-82-9	0.685	0.22	0.18			GAM
Thorium 232	TH-232	0.739	0.39	0.43			GAM
Uranium 235	15117-96-1	U		0.36		U	GAM
Uranium 238	U-238	U		15		U	GAM
Americium 241	14596-10-2	U		0.12		U	GAM

100 BC Burial Grounds - Soil

8/4/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-012 **J03CF0**

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-12	Client sample id	J03CF0		
Dept sample id	7274-012	Location/Matrix	128-B-2 @ 100 BC	SOLID	
Received	06/10/05	Collected/Weight	06/08/05 10:41	942.3 g	
% solids	98.9	Custody/SAF No	B04-002-040	B04-002	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.645	0.28	0.26	1.0		U
Uranium 235	15117-96-1	0.041	0.082	0.31	1.0	U	U
Uranium 238	U-238	0.883	0.35	0.26	1.0		U
Potassium 40	13966-00-2	9.36	1.6	1.2			GAM
Cobalt 60	10198-40-0	U		0.096	0.050	U	GAM
Silver 108m	14391-65-2	U		0.060		U	GAM
Cesium 137	10045-97-3	U		0.085	0.10	U	GAM
Radium 226	13982-63-3	0.324	0.15	0.16	0.10		GAM
Radium 228	15262-20-1	0.820	0.31	0.30	0.20		GAM
Europium 152	14683-23-9	U		0.22	0.10	U	GAM
Europium 154	15585-10-1	U		0.30	0.10	U	GAM
Europium 155	14391-16-3	U		0.19	0.10	U	GAM
Thorium 228	14274-82-9	0.509	0.081	0.084			GAM
Thorium 232	TH-232	0.820	0.31	0.30			GAM
Uranium 235	15117-96-1	U		0.29		U	GAM
Uranium 238	U-238	U		11		U	GAM
Americium 241	14596-10-2	U		0.21		U	GAM

100 BC Burial Grounds - Soil

8/2/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-013 J03CF1

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-13	Client sample id	J03CF1		
Dept sample id	7274-013	Location/Matrix	128-B-2 @ 100 BC	SOLID	
Received	06/10/05	Collected/Weight	06/08/05 10:55	767.0 g	
% solids	98.9	Custody/SAF No	B04-002-040	B04-002	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.718	0.32	0.24	1.0		U
Uranium 235	15117-96-1	0.038	0.076	0.29	1.0	U	U
Uranium 238	U-238	0.749	0.32	0.24	1.0		U
Potassium 40	13966-00-2	13.8	1.7	0.68			GAM
Cobalt 60	10198-40-0	U		0.095	0.050	U	GAM
Silver 108m	14391-65-2	U		0.060		U	GAM
Cesium 137	10045-97-3	U		0.083	0.10	U	GAM
Radium 226	13982-63-3	0.598	0.17	0.16	0.10		GAM
Radium 228	15262-20-1	0.762	0.31	0.34	0.20		GAM
Europium 152	14683-23-9	U		0.21	0.10	U	GAM
Europium 154	15585-10-1	U		0.26	0.10	U	GAM
Europium 155	14391-16-3	U		0.21	0.10	U	GAM
Thorium 228	14274-82-9	0.717	0.090	0.086			GAM
Thorium 232	TH-232	0.762	0.31	0.34			GAM
Uranium 235	15117-96-1	U		0.30		U	GAM
Uranium 238	U-238	U		10		U	GAM
Americium 241	14596-10-2	U		0.39		U	GAM

100 BC Burial Grounds - Soil

V 7/6/05

Lab id	EBRLNE
Protocol	Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-014 J03CF2

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203
Contact	Melissa C. Mannion	Contract	No. 630	
Lab sample id	R506093-14	Client sample id	J03CF2	
Dept sample id	7274-014	Location/Matrix	128-B-2 @ 100 BC	SOLID
Received	06/10/05	Collected/Weight	06/08/05 11:10	895.0 g
% solids	98.5	Custody/SAF No	B04-002-040	B04-002

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.574	0.26	0.24	1.0		U
Uranium 235	15117-96-1	0	0.077	0.30	1.0	U	U
Uranium 238	U-238	0.638	0.26	0.24	1.0		U
Potassium 40	13966-00-2	10.2	1.5	0.69			GAM
Cobalt 60	10198-40-0	U		0.10	0.050	U	GAM
Silver 108m	14391-65-2	U		0.061		U	GAM
Cesium 137	10045-97-3	U		0.098	0.10	U	GAM
Radium 226	13982-63-3	0.385	0.16	0.17	0.10		GAM
Radium 228	15262-20-1	0.666	0.33	0.37	0.20		GAM
Europium 152	14683-23-9	U		0.21	0.10	U	GAM
Europium 154	15585-10-1	U		0.30	0.10	U	GAM
Europium 155	14391-16-3	U		0.20	0.10	U	GAM
Thorium 228	14274-82-9	0.599	0.13	0.15			GAM
Thorium 232	TH-232	0.666	0.33	0.37			GAM
Uranium 235	15117-96-1	U		0.29		U	GAM
Uranium 238	U-238	U		11		U	GAM
Americium 241	14596-10-2	U		0.22		U	GAM

100 BC Burial Grounds - Soil

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Lab id	EBRLNE
Protocol	Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-015 J03CF3

DATA SHEET

SDG	7274	Client/Case no	Hanford SDG H3203
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R506093-15	Client sample id	J03CF3
Dept sample id	7274-015	Location/Matrix	128-B-2 @ 100 BC SOLID
Received	06/10/05	Collected/Weight	06/08/05 11:17 847.1 g
% solids	98.8	Custody/SAF No	B04-002-040 B04-002

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.720	0.31	0.29	1.0		U
Uranium 235	15117-96-1	0	0.092	0.35	1.0	U	U
Uranium 238	U-238	0.644	0.31	0.29	1.0		U
Potassium 40	13966-00-2	11.9	1.4	0.66			GAM
Cobalt 60	10198-40-0	U		0.081	0.050	U	GAM
Silver 108m	14391-65-2	U		0.062		U	GAM
Cesium 137	10045-97-3	U		0.076	0.10	U	GAM
Radium 226	13982-63-3	0.554	0.14	0.15	0.10		GAM
Radium 228	15262-20-1	0.701	0.35	0.35	0.20		GAM
Europium 152	14683-23-9	U		0.18	0.10	U	GAM
Europium 154	15585-10-1	U		0.27	0.10	U	GAM
Europium 155	14391-16-3	U		0.21	0.10	U	GAM
Thorium 228	14274-82-9	0.713	0.12	0.14			GAM
Thorium 232	TH-232	0.701	0.35	0.35			GAM
Uranium 235	15117-96-1	U		0.31		U	GAM
Uranium 238	U-238	U		9.8		U	GAM
Americium 241	14596-10-2	U		0.35		U	GAM

100 BC Burial Grounds - Soil

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Lab id	EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-016

J03CF4

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-16	Client sample id	J03CF4		
Dept sample id	7274-016	Location/Matrix	128-B-2 @ 100 BC	SOLID	
Received	06/10/05	Collected/Weight	06/08/05 12:30	917.4 g	
% solids	98.6	Custody/SAF No	B04-002-040	B04-002	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.631	0.27	0.25	1.0		U
Uranium 235	15117-96-1	0.040	0.080	0.31	1.0	U	U
Uranium 238	U-238	0.498	0.27	0.25	1.0		U
Potassium 40	13966-00-2	8.47	1.5	0.85			GAM
Cobalt 60	10198-40-0	U		0.066	0.050	U	GAM
Silver 108m	14391-65-2	U		0.052		U	GAM
Cesium 137	10045-97-3	U		0.076	0.10	U	GAM
Radium 226	13982-63-3	0.377	0.12	0.11	0.10		GAM
Radium 228	15262-20-1	0.776	0.37	0.36	0.20		GAM
Europium 152	14683-23-9	U		0.21	0.10	U	GAM
Europium 154	15585-10-1	U		0.28	0.10	U	GAM
Europium 155	14391-16-3	U		0.17	0.10	U	GAM
Thorium 228	14274-82-9	0.465	0.10	0.12			GAM
Thorium 232	TH-232	0.776	0.37	0.36			GAM
Uranium 235	15117-96-1	U		0.27		U	GAM
Uranium 238	U-238	U		9.8		U	GAM
Americium 241	14596-10-2	U		0.19		U	GAM

100 BC Burial Grounds - Soil

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Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-017 J03CF5

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-17	Client sample id	J03CF5		
Dept sample id	7274-017	Location/Matrix	128-B-2 @ 100 BC	SOLID	
Received	06/10/05	Collected/Weight	06/08/05 12:35	870.5 g	
% solids	98.4	Custody/SAF No	B04-002-040	B04-002	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.648	0.31	0.29	1.0		U
Uranium 235	15117-96-1	0	0.092	0.35	1.0	U	U
Uranium 238	U-238	0.953	0.39	0.29	1.0		U
Potassium 40	13966-00-2	8.78	1.1	0.46			GAM
Cobalt 60	10198-40-0	U		0.068	0.050	U	GAM
Silver 108m	14391-65-2	U		0.045		U	GAM
Cesium 137	10045-97-3	U		0.058	0.10	U	GAM
Radium 226	13982-63-3	0.345	0.099	0.098	0.10		GAM
Radium 228	15262-20-1	U		0.66	0.20	U	GAM
Europium 152	14683-23-9	U		0.15	0.10	U	GAM
Europium 154	15585-10-1	U		0.25	0.10	U	GAM
Europium 155	14391-16-3	U		0.16	0.10	U	GAM
Thorium 228	14274-82-9	0.542	0.099	0.11			GAM
Thorium 232	TH-232	U		0.66		U	GAM
Uranium 235	15117-96-1	U		0.22		U	GAM
Uranium 238	U-238	U		6.8		U	GAM
Americium 241	14596-10-2	U		0.29		U	GAM

100 BC Burial Grounds - Soil

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Lab id	EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-018 **J03CF6**

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-18	Client sample id	J03CF6		
Dept sample id	7274-018	Location/Matrix	128-B-2 @ 100 BC	SOLID	
Received	06/10/05	Collected/Weight	06/08/05 12:50	968.0 g	
% solids	98.8	Custody/SAF No	B04-002-040	B04-002	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.577	0.28	0.26	1.0		U
Uranium 235	15117-96-1	0	0.082	0.31	1.0	U	U
Uranium 238	U-238	0.951	0.35	0.26	1.0		U
Potassium 40	13966-00-2	8.28	1.1	0.56			GAM
Cobalt 60	10198-40-0	U		0.061	0.050	U	GAM
Silver 108m	14391-65-2	U		0.048		U	GAM
Cesium 137	10045-97-3	U		0.060	0.10	U	GAM
Radium 226	13982-63-3	0.346	0.10	0.11	0.10		GAM
Radium 228	15262-20-1	U		0.71	0.20	U	GAM
Europium 152	14683-23-9	U		0.13	0.10	U	GAM
Europium 154	15585-10-1	U		0.18	0.10	U	GAM
Europium 155	14391-16-3	U		0.15	0.10	U	GAM
Thorium 228	14274-82-9	0.597	0.10	0.10			GAM
Thorium 232	TH-232	U		0.71		U	GAM
Uranium 235	15117-96-1	U		0.21		U	GAM
Uranium 238	U-238	U		7.1		U	GAM
Americium 241	14596-10-2	U		0.26		U	GAM

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-019 J03CF7

DATA SHEET

SDG	7274	Client/Case no	Hanford SDG H3203
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R506093-19	Client sample id	J03CF7
Dept sample id	7274-019	Location/Matrix	128-B-2 @ 100 BC SOLID
Received	06/10/05	Collected/Weight	06/08/05 13:30 876.0 g
% solids	98.2	Custody/SAF No	B04-002-040 B04-002

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.475	0.24	0.23	1.0		U
Uranium 235	15117-96-1	0.036	0.072	0.27	1.0	U	U
Uranium 238	U-238	0.564	0.24	0.23	1.0		U
Potassium 40	13966-00-2	7.12	0.95	0.67			GAM
Cobalt 60	10198-40-0	U		0.089	0.050	U	GAM
Silver 108m	14391-65-2	U		0.061		U	GAM
Cesium 137	10045-97-3	U		0.070	0.10	U	GAM
Radium 226	13982-63-3	0.354	0.13	0.13	0.10		GAM
Radium 228	15262-20-1	U		0.38	0.20	U	GAM
Europium 152	14683-23-9	U		0.24	0.10	U	GAM
Europium 154	15585-10-1	U		0.28	0.10	U	GAM
Europium 155	14391-16-3	U		0.14	0.10	U	GAM
Thorium 228	14274-82-9	0.529	0.11	0.096			GAM
Thorium 232	TH-232	U		0.38		U	GAM
Uranium 235	15117-96-1	U		0.24		U	GAM
Uranium 238	U-238	U		9.9		U	GAM
Americium 241	14596-10-2	U		0.079		U	GAM

100 BC Burial Grounds - Soil

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Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-020 J03CF8

DATA SHEET

SDG	7274	Client/Case no	Hanford SDG H3203
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R506093-20	Client sample id	J03CF8
Dept sample id	7274-020	Location/Matrix	128-B-2 @ 100 BC SOLID
Received	06/10/05	Collected/Weight	06/08/05 13:33 891.4 g
% solids	99.0	Custody/SAF No	B04-002-040 B04-002

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.738	0.33	0.25	1.0		U
Uranium 235	15117-96-1	0.117	0.16	0.30	1.0	U	U
Uranium 238	U-238	0.642	0.26	0.25	1.0		U
Potassium 40	13966-00-2	8.76	1.0	0.51			GAM
Cobalt 60	10198-40-0	U		0.054	0.050	U	GAM
Silver 108m	14391-65-2	U		0.039		U	GAM
Cesium 137	10045-97-3	U		0.054	0.10	U	GAM
Radium 226	13982-63-3	0.389	0.097	0.097	0.10		GAM
Radium 228	15262-20-1	0.497	0.23	0.24	0.20		GAM
Europium 152	14683-23-9	U		0.12	0.10	U	GAM
Europium 154	15585-10-1	U		0.17	0.10	U	GAM
Europium 155	14391-16-3	U		0.14	0.10	U	GAM
Thorium 228	14274-82-9	0.423	0.057	0.060			GAM
Thorium 232	TH-232	0.497	0.23	0.24			GAM
Uranium 235	15117-96-1	U		0.20		U	GAM
Uranium 238	U-238	U		6.4		U	GAM
Americium 241	14596-10-2	U		0.21		U	GAM

100 BC Burial Grounds - Soil

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Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-021 J03CF9

DATA SHEET

SDG	7274	Client/Case no	Hanford SDG H3203
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R506093-21	Client sample id	J03CF9
Dept sample id	7274-021	Location/Matrix	128-B-2 @ 100 BC SOLID
Received	06/10/05	Collected/Weight	06/08/05 13:35 915.8 g
% solids	99.0	Custody/SAF No	B04-002-040 B04-002

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.615	0.31	0.29	1.0		U
Uranium 235	15117-96-1	0	0.093	0.36	1.0	U	U
Uranium 238	U-238	0.692	0.31	0.29	1.0		U
Potassium 40	13966-00-2	9.37	1.6	1.1			GAM
Cobalt 60	10198-40-0	U		0.092	0.050	U	GAM
Silver 108m	14391-65-2	U		0.046		U	GAM
Cesium 137	10045-97-3	U		0.079	0.10	U	GAM
Radium 226	13982-63-3	0.515	0.15	0.13	0.10		GAM
Radium 228	15262-20-1	0.833	0.34	0.40	0.20		GAM
Europium 152	14683-23-9	U		0.21	0.10	U	GAM
Europium 154	15585-10-1	U		0.25	0.10	U	GAM
Europium 155	14391-16-3	U		0.19	0.10	U	GAM
Thorium 228	14274-82-9	0.692	0.12	0.13			GAM
Thorium 232	TH-232	0.833	0.34	0.40			GAM
Uranium 235	15117-96-1	U		0.27		U	GAM
Uranium 238	U-238	U		10		U	GAM
Americium 241	14596-10-2	U		0.20		U	GAM

100 BC Burial Grounds - Soil

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-022 J03CH0

DATA SHEET

SDG	7274	Client/Case no	Hanford SDG H3203
Contact	Melissa C. Mannion	Contract	No. 630
Lab sample id	R506093-22	Client sample id	J03CH0
Dept sample id	7274-022	Location/Matrix	128-B-2 @ 100 BC SOLID
Received	06/10/05	Collected/Weight	06/08/05 14:00 956.2 g
% solids	99.1	Custody/SAF No	B04-002-040 B04-002

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.495	0.24	0.22	1.0		U
Uranium 235	15117-96-1	0.176	0.14	0.27	1.0	U	U
Uranium 238	U-238	0.728	0.30	0.22	1.0		U
Potassium 40	13966-00-2	6.23	0.82	0.59			GAM
Cobalt 60	10198-40-0	U		0.078	0.050	U	GAM
Silver 108m	14391-65-2	U		0.051		U	GAM
Cesium 137	10045-97-3	U		0.070	0.10	U	GAM
Radium 226	13982-63-3	0.309	0.14	0.13	0.10		GAM
Radium 228	15262-20-1	U		0.33	0.20	U	GAM
Europium 152	14683-23-9	U		0.20	0.10	U	GAM
Europium 154	15585-10-1	U		0.23	0.10	U	GAM
Europium 155	14391-16-3	U		0.12	0.10	U	GAM
Thorium 228	14274-82-9	0.504	0.077	0.072			GAM
Thorium 232	TH-232	U		0.33		U	GAM
Uranium 235	15117-96-1	U		0.20		U	GAM
Uranium 238	U-238	U		8.4		U	GAM
Americium 241	14596-10-2	U		0.066		U	GAM

100 BC Burial Grounds - Soil

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Lab id	EBRLNE
Protocol	Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-023 J03CH1

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-23	Client sample id	J03CH1		
Dept sample id	7274-023	Location/Matrix	128-B-2 @ 100 BC	SOLID	
Received	06/10/05	Collected/Weight	06/08/05 09:10	717.0 g	
% solids	98.8	Custody/SAF No	B04-002-040	B04-002	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.740	0.33	0.25	1.0		U
Uranium 235	15117-96-1	0.039	0.078	0.30	1.0	U	U
Uranium 238	U-238	0.547	0.26	0.25	1.0		U
Potassium 40	13966-00-2	11.5	1.5	0.64			GAM
Cobalt 60	10198-40-0	U		0.10	0.050	U	GAM
Silver 108m	14391-65-2	U		0.061		U	GAM
Cesium 137	10045-97-3	U		0.10	0.10	U	GAM
Radium 226	13982-63-3	0.596	0.17	0.17	0.10		GAM
Radium 228	15262-20-1	0.634	0.25	0.27	0.20		GAM
Europium 152	14683-23-9	U		0.22	0.10	U	GAM
Europium 154	15585-10-1	U		0.27	0.10	U	GAM
Europium 155	14391-16-3	U		0.21	0.10	U	GAM
Thorium 228	14274-82-9	0.664	0.090	0.095			GAM
Thorium 232	TH-232	0.634	0.25	0.27			GAM
Uranium 235	15117-96-1	U		0.31		U	GAM
Uranium 238	U-238	U		10		U	GAM
Americium 241	14596-10-2	U		0.36		U	GAM

100 BC Burial Grounds - Soil

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Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-024 J03CH2

DATA SHEET

SDG	7274	Client/Case no	Hanford	SDG H3203
Contact	Melissa C. Mannion	Contract	No. 630	
Lab sample id	R506093-24	Client sample id	J03CH2	
Dept sample id	7274-024	Location/Matrix	128-B-2 @ 100 BC	SOLID
Received	06/10/05	Collected/Weight	06/08/05 10:44	926.0 g
% solids	98.9	Custody/SAF No	B04-002-040	B04-002

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.494	0.29	0.27	1.0		U
Uranium 235	15117-96-1	0.085	0.086	0.33	1.0	U	U
Uranium 238	U-238	0.812	0.36	0.27	1.0		U
Potassium 40	13966-00-2	9.16	1.7	1.3			GAM
Cobalt 60	10198-40-0	U		0.079	0.050	U	GAM
Silver 108m	14391-65-2	U		0.071		U	GAM
Cesium 137	10045-97-3	U		0.098	0.10	U	GAM
Radium 226	13982-63-3	0.419	0.15	0.15	0.10		GAM
Radium 228	15262-20-1	0.610	0.27	0.30	0.20		GAM
Europium 152	14683-23-9	U		0.26	0.10	U	GAM
Europium 154	15585-10-1	U		0.33	0.10	U	GAM
Europium 155	14391-16-3	U		0.23	0.10	U	GAM
Thorium 228	14274-82-9	0.498	0.12	0.14			GAM
Thorium 232	TH-232	0.610	0.27	0.30			GAM
Uranium 235	15117-96-1	U		0.32		U	GAM
Uranium 238	U-238	U		12		U	GAM
Americium 241	14596-10-2	U		0.22		U	GAM

100 BC Burial Grounds - Soil

8/6/05

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/29/05

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

1.0 GENERAL

Bechtel Hanford Inc. (BHI) Sample Delivery Group H3203 was composed of twenty-four soil samples designated under SAF No. B04-002 with a Project Designation of: 100 BC Burial Grounds – Soil Full Protocol.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The results were transmitted to BHI via e-mail on June 29, 2005.

2.0 ANALYSIS NOTES

2.1 Isotopic Uranium

No problems were encountered during the course of the analyses.

2.2 Gamma Spectroscopy

No problems were encountered during the course of the analyses.

Case Narrative Certification Statement

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

Melissa Mannion

Melissa C. Mannion
Senior Program Manager

6/29/5

Date

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B04-002-040

Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER, JH
Price Code: Many	Data Turnaround: 21 days		
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC H3203 (7274)	SAF No.: B04-002	Air Quality
Ice Chest No.: ERC 96 069, 99063	Field Logbook No.: EL 1173-5	COA: R128B22600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES/ LIONVILLE	Offsite Property No.: A050 203		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

000038

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C				
Type of Container	aG	aG	aG	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1	1				
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1				
Sample No. / Matrix * / Sample Date / Sample Time											
J03CF9 / SOIL / 06/08/05 / 1335											
J03CH0 / SOIL / 06/08/05 / 1400											
J03CH1 / SOIL / 06/08/05 / 0910											
J03CH2 / SOIL / 06/08/05 / 1044											
J03CC8 / SOIL / 06/08/05 / 0803											

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Doug Bowers (Bowers)	6-8-05/1545	A.F. ZB 3728	6-8-05/1745
REF ZB 3728 6905	0900	SJGALE 6905	0900
SJGALE 6905 GRC	0900	FED EX	
FED EX	06/10/05	TFM	06/10/05 9:15

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {Aluminum. Antimony. Arsenic. Barium. Beryllium. Boron. Cadmium. Calcium. Chromium. Cobalt. Copper. Iron. Lead. Magnesium. Manganese. Molybdenum. Nickel. Potassium. Selenium. Silicon. Silver. Sodium. Vanadium. Zinc}: Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137. Cobalt-60. Europium-152. Europium-154. Europium-155}: Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to Relinquish samples from 3728 Ref # ZB on 6/9/05

Matrix *

S=Soil
SE=Sediment
SO=Solid
Sl=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
Wt=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 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 1 of 5

Collector D Bowersw/C Martinez/J Kiesler	Company Contact Doug Bowers	Telephone No. 531-0701	Project Coordinator KESSNER, JH	Price Code **Many**	Data Turnaround
Project Designation 100 BC Burial Grounds - Soil Full Protocol	Sampling Location 128-B-2 @ 100 BC H3203 (7274)		SAF No. B04-002	Air Quality	21 days
Ice Chest No. ERC 96 069, 99063	Field Logbook No. EL 1173-5	COA R128B22600	Method of Shipment Fed Ex		
Shipped To EBERLINE SERVICES / LIONVILLE	Offsite Property No. A050 203		Bill of Lading/Air Bill No. SBE 05PC		

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

000039

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			

Sample No.	Matrix *	Sample Date	Sample Time										
J03CC9	SOIL	06/08/05	0817					✓					
J03CD0	SOIL	06/08/05	0821					✓					
J03CD1	SOIL	06/08/05	0832					✓					
J03CD2	SOIL	06/08/05	0840					✓					
J03CD3	SOIL	06/08/05	0905					✓					

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Doug Bowers	6-8-05/1545	Ref 2B 3728	6-8-05/1545
Ref 2B 3728	6905 0900	SCALE	6905 0900
SCALE	6905 ERC 0900	FED EX	
FED EX	06/10/05	RFM	06/10/05 9:15

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}; Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to relinquish samples from 3728 Ref # 2B on 6/9/05

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 2 of 5
Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers; Telephone No.: 531-0701	Project Coordinator: KESSNER, JH	Price Code: Many; Data Turnaround
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC H3203 (7274)	SAF No.: B04-002	Air Quality; 21 days
Ice Chest No.: ERC 96 069, 99063	Field Logbook No.: EL 1173-5; COA: R128B22600	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A050 203	Bill of Lading/Air Bill No.: SEE OSPC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

000040

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C				
Type of Container	aG	aG	aG	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1	1				
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1				
Sample No. / Matrix * / Sample Date / Sample Time											
J03CD4 / SOIL / 06/08/05 / 0900					↘						
J03CD5 / SOIL / 06/08/05 / 0950					↘						
J03CD6 / SOIL / 06/08/05 / 0955					↘						
J03CD7 / SOIL / 06/08/05 / 1001					↘						
J03CD8 / SOIL / 06/08/05 / 1025					↘						

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Doug Bowers Bowers	6-8-05 1747	Ref 2B 3728	6-8-05 1747
Ref 2B 3728	6905 0900	SJGALE	6905 0900
SJGALE ERC	6905 0900	FED EX	
FED EX	06/10/05	FEM	06/10/05 9:15

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {Aluminum. Antimony. Arsenic. Barium. Beryllium. Boron. Cadmium. Calcium. Chromium. Cobalt. Copper. Iron. Lead. Magnesium. Manganese. Molybdenum. Nickel. Potassium. Selenium. Silicon. Silver. Sodium. Vanadium. Zinc}: Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137. Cobalt-60. Europium-152. Europium-154. Europium-155}: Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to Relinquish samples from 3728 Ref # 2B on 6/9/05

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 3 of 5

Collector D Bowersw/C Martinez/J Kiesler	Company Contact Doug Bowers	Telephone No. 531-0701	Project Coordinator KESSNER, JH
Price Code Many	Data Turnaround Air Quality 21 days		
Project Designation 100 BC Burial Grounds - Soil Full Protocol	Sampling Location 128-B-2 @ 100 BC H3203 (7274)		SAF No. B04-002
Ice Chest No. ERC 96069, 99063	Field Logbook No. EL 1173-5	COA R128B22600	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES LIONVILLE	Offsite Property No. A050 203		Bill of Lading/Air Bill No. SEE OSP C

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

000041

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			

Sample No.	Matrix *	Sample Date	Sample Time										
J03CD9	SOIL	06/08/05	1030					✓					
J03CF0	SOIL	06/08/05	1041					✓					
J03CF1	SOIL	06/08/05	1055					✓					
J03CF2	SOIL	06/08/05	1110					✓					
J03CF3	SOIL	06/08/05	1117					✓					

6-6-05

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From Doug Bowers	Date/Time Bowers 6-8-05 1545	Received By/Stored In R.P. 2B 3728	Date/Time 6-8-05 1545
Relinquished By/Removed From REF 2B 3728	Date/Time 6105 0900	Received By/Stored In S. Gale	Date/Time 6905 0900
Relinquished By/Removed From S. Gale ERC	Date/Time 6905 0900	Received By/Stored In FED EX	Date/Time
Relinquished By/Removed From FED EX	Date/Time 06/10/05	Received By/Stored In MFW	Date/Time 06/10/05 9:15
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Molybdenum, Nickel, Potassium, Selenium, Silicon, Silver, Sodium, Vanadium, Zinc}: Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}: Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to relinquish samples from 3728 Ref # 28 on 6/9/05

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=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 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 4 of 5

Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER, JH
Price Code: Many	Data Turnaround: 21 days		
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC H3203 (7274)	SAF No.: B04-002	Air Quality
Ice Chest No.: ERC 96069, 99063	Field Logbook No.: EL 1173-5	COA: R128B22600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES/ LIONVILLE	Offsite Property No.: A050 203	Bill of Lading/Air Bill No.: 5 GE 08PC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			
Sample No. / Matrix * / Sample Date / Sample Time										
J03CF4 / SOIL / 06/08/05 / 1230					✓					
J03CF5 / SOIL / 06/08/05 / 1235					✓					
J03CF6 / SOIL / 06/08/05 / 1250					✓					
J03CF7 / SOIL / 06/08/05 / 1330					✓					
J03CF8 / SOIL / 06/08/05 / 1333					✓					

000042

CHAIN OF POSSESSION	Sign/Print Names	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Doug Bowers Bowers	6-8-05/1545	Received By/Stored In: REF 2B 3728	6-8-05/1545
Relinquished By/Removed From: REF 2B 3728		6905 0900	Received By/Stored In: S GALE	6905 0900
Relinquished By/Removed From: S GALE		0905 0900	Received By/Stored In: FEDEX	
Relinquished By/Removed From: FED EX		06/10/05	Received By/Stored In:	06/10/05 9:15
Relinquished By/Removed From			Received By/Stored In	
Relinquished By/Removed From			Received By/Stored In	

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {Aluminum. Antimony. Arsenic. Barium. Beryllium. Boron. Cadmium. Calcium. Chromium. Cobalt. Copper. Iron. Lead. Magnesium. Manganese. Molybdenum. Nickel. Potassium. Selenium. Silicon. Silver. Sodium. Vanadium. Zinc}: Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137. Cobalt-60. Europium-152. Europium-154. Europium-155}: Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to relinquish samples from 3728 Ref #2B on 6/9/05

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
Ve=Vegetation
X=Other

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

BHI-EE-011 (03/01/2002)

Appendix 5

Data Validation Supporting Documentation

APPENDIX A

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100BC 128-B-2			DATA PACKAGE: H3203		
VALIDATOR: TCE		LAB: EB		DATE: 8/2/05	
			SDG: H3203		

ANALYSES PERFORMED					
Gross Alpha/Beta	Strontium-90	Technetium-99	Alpha Spectroscopy	Gamma Spectroscopy	
Total Uranium	Radium-22	Tritium			

SAMPLES/MATRIX							
J03CC9	J03CD0	J03CD1	J03CD2	J03CD3	J03CD4	J03CD5	J03CD6
J03CD7	J03CD8	J03CD9	J03CF0	J03CF1	J03CF2	J03CF3	J03CF4
J03CF5	J03CF6	J03CF8	J03CF7	J03CF9	J03CH0	J03CH1	J03CH2

1. Completeness ..... ☐ N/A

Technical verification forms present? ..... Yes (No) N/A

Comments: _____

2. Initial Calibration (Levels D, E) ..... ☒ N/A

Instruments/detectors calibrated? ..... Yes No N/A

Initial calibration acceptable? ..... Yes No N/A

Standards NIST traceable? ..... Yes No N/A

Standards Expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments: _____

3. Continuing Calibration (Levels D, E) ☒ N/A

Calibration checked within required frequency? ..... Yes No N/A

Calibration check acceptable? ..... Yes No N/A

Calibration check standards traceable? ..... Yes No N/A

Calibration check standards expired? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments: _____

_____

_____

_____

_____

4. Background Counts (Levels D, E) ..... ☒ N/A

Background Counts checked within required frequency? ..... Yes No N/A

Background Counts acceptable? ..... Yes No N/A

Calculation check acceptable? ..... Yes No N/A

Comments: _____

_____

_____

_____

_____

5. Blanks (Levels B, C, D, E) ..... ☐ N/A

Method blank analyzed within required frequency? ..... Yes No N/A

Method blank results acceptable? ..... Yes No N/A

Analytes detected in method blank? ..... Yes No N/A

Field blank(s) analyzed? ..... Yes No N/A

Field blank results acceptable? ..... Yes No N/A

Analytes detected in field blank(s)? ..... Yes No N/A

Transcription/Calculation Errors? (Levels D, E) ..... Yes No N/A

Comments: no FB

6. Laboratory Control Samples or Blank Spike Samples (Levels C, D, E) ..... ☐ N/A

LCS /BSS analyzed within required frequency? ..... Yes No N/A

LCS/BSS recoveries acceptable? ..... Yes No N/A

LCS/BSS traceable? (Levels D,E) ..... Yes No N/A

LCS/BSS expired? (Levels D,E) ..... Yes No N/A

LCS/BSS levels correct? (Levels D,E) ..... Yes No N/A

Transcription/Calculation Errors? (Levels D, E) ..... Yes No N/A

Comments:

7. Chemical Carrier Recovery (Levels C, D, E) ..... ☐ N/A

Chemical carrier added? ..... Yes No N/A

Chemical recovery acceptable? ..... Yes No N/A

Chemical carrier traceable? (Levels D, E) ..... Yes No N/A

Chemical carrier expired? (Levels D, E) ..... Yes No N/A

Transcription/Calculation errors? (Levels D, E) ..... Yes No N/A

Comments: _____

8. Tracer Recovery (Levels C, D, E) ..... ☐ N/A

Tracer added? ..... Yes No N/A

Tracer recovery acceptable? ..... Yes No N/A

Tracer traceable? (Levels D, E) ..... Yes No N/A

Tracer expired? (Levels D, E) ..... Yes No N/A

Transcription/Calculation errors? (Levels D, E) ..... Yes No N/A

Comments: _____

9. Matrix Spikes (Levels C, D, E) ..... ☐ N/A

Matrix spike analyzed? ..... Yes No N/A

Spike recoveries acceptable? ..... Yes No N/A

Spike source traceable? (Levels D, E) ..... Yes No N/A

Spike source expired? Levels D, E) ..... Yes No N/A

Transcription/Calculation Errors? (Levels D, E) ..... Yes No N/A

Comments: _____

10. Duplicates (Levels C, D, E) ..... ☐ N/A

Duplicates Analyzed at required frequency? ..... Yes No N/A

RPD Values Acceptable? ..... Yes No N/A

Transcription/Calculation Errors? (Levels D, E) ..... Yes No N/A

Comments:

11. Field QC Samples (Levels C, D E) ..... ☐ N/A

Field duplicate sample(s) analyzed? ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split sample(s) analyzed? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments: No SS or PT

D4/H1 – Th 228 4/20

12. Holding Times (All levels)

Are sample holding times acceptable? ..... Yes No N/A

Comments:

13. Results and Detection Limits (All Levels) ..... ☐ N/A

Results reported for all required sample analyses? ..... Yes No N/A

Results supported in raw data?(Levels D, E) ..... Yes No N/A

Results Acceptable? (Levels D, E) ..... Yes No N/A

Transcription/Calculation errors? (Levels D, E) ..... Yes No N/A

MDA's meet required detection limits? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: 118 ~~+~~ over

Appendix 6

Additional Documentation Requested by Client

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-026

Method Blank

METHOD BLANK

SDG	7274	Client/Case no	Hanford	SDG_H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-26	Client sample id	Method Blank		
Dept sample id	7274-026	Material/Matrix		SOLID	
		SAF No	B04-002		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.037	0.074	0.28	1.0	U	U
Uranium 235	15117-96-1	0	0.090	0.34	1.0	U	U
Uranium 238	U-238	0	0.074	0.28	1.0	U	U
Potassium 40	13966-00-2	U		0.96		U	GAM
Cobalt 60	10198-40-0	U		0.083	0.050	U	GAM
Silver 108m	14391-65-2	U		0.065		U	GAM
Cesium 137	10045-97-3	U		0.084	0.10	U	GAM
Radium 226	13982-63-3	U		0.15	0.10	U	GAM
Radium 228	15262-20-1	U		0.33	0.20	U	GAM
Europium 152	14683-23-9	U		0.21	0.10	U	GAM
Europium 154	15585-10-1	U		0.26	0.10	U	GAM
Europium 155	14391-16-3	U		0.12	0.10	U	GAM
Thorium 228	14274-82-9	U		0.087		U	GAM
Thorium 232	TH-232	U		0.33		U	GAM
Uranium 235	15117-96-1	U		0.22		U	GAM
Uranium 238	U-238	U		9.4		U	GAM
Americium 241	14596-10-2	U		0.066		U	GAM

100 BC Burial Grounds - Soil

QC-BLANK #53269

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DS
Version	3.06
Report date	06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-029 **Method Blank**

METHOD BLANK

SDG	7274	Client/Case no	Hanford	SDG_H3203	
Contact	Melissa C. Mannion	Contract	No. 630		
Lab sample id	R506093-29	Client sample id	Method Blank		
Dept sample id	7274-029	Material/Matrix		SOLID	
		SAF No	B04-002		

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI-FIERS	TEST
Uranium 233/234	U-233/234	0.144	0.14	0.27	1.0	U	U
Uranium 235	15117-96-1	0.043	0.087	0.33	1.0	U	U
Uranium 238	U-238	0	0.072	0.27	1.0	U	U
Potassium 40	13966-00-2	U		0.95		U	GAM
Cobalt 60	10198-40-0	U		0.095	0.050	U	GAM
Silver 108m	14391-65-2	U		0.058		U	GAM
Cesium 137	10045-97-3	U		0.074	0.10	U	GAM
Radium 226	13982-63-3	U		0.14	0.10	U	GAM
Radium 228	15262-20-1	U		0.33	0.20	U	GAM
Europium 152	14683-23-9	U		0.20	0.10	U	GAM
Europium 154	15585-10-1	U		0.22	0.10	U	GAM
Europium 155	14391-16-3	U		0.12	0.10	U	GAM
Thorium 228	14274-82-9	U		0.093		U	GAM
Thorium 232	TH-232	U		0.33		U	GAM
Uranium 235	15117-96-1	U		0.20		U	GAM
Uranium 238	U-238	U		10		U	GAM
Americium 241	14596-10-2	U		0.065		U	GAM

100 BC Burial Grounds - Soil

QC-BLANK #53272

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-025

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7274
Contact Melissa C. Mannion

Client/Case no Hanford SDG H3203
Contract No. 630

Lab sample id R506093-25
Dept sample id 7274-025

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B04-002

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
Uranium 233/234	18.1	2.5	1.2	1.0		U	18.6	0.74	97	78-122	80-120
Uranium 235	14.8	2.2	0.36	1.0		U	15.1	0.60	98	76-124	80-120
Uranium 238	19.8	2.6	1.1	1.0		U	20.2	0.81	98	78-122	80-120
Cobalt 60	2.45	0.22	0.091	0.050		GAM	2.51	0.10	98	74-126	80-120
Cesium 137	2.86	0.20	0.13	0.10		GAM	2.55	0.10	112	72-128	80-120

100 BC Burial Grounds - Soil

QC-LCS #53268

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-028

Lab Control Sample

LAB CONTROL SAMPLE

SDG 7274
Contact Melissa C. Mannion

Client/Case no Hanford SDG H3203
Contract No. 630

Lab sample id R506093-28
Dept sample id 7274-028

Client sample id Lab Control Sample
Material/Matrix SOLID
SAF No B04-002

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
Uranium 233/234	18.0	2.2	1.1	1.0		U	19.3	0.77	93	81-119	80-120
Uranium 235	15.1	2.0	0.30	1.0		U	15.7	0.63	96	79-121	80-120
Uranium 238	22.4	2.6	1.0	1.0		U	21.0	0.84	107	79-121	80-120
Cobalt 60	2.85	0.24	0.10	0.050		GAM	2.93	0.12	97	74-126	80-120
Cesium 137	3.33	0.22	0.13	0.10		GAM	3.07	0.12	108	73-127	80-120

100 BC Burial Grounds - Soil

QC-LCS #53271

Lab id EBRLNE
Protocol Hanford
Version Ver 1.0
Form DVD-LCS
Version 3.06
Report date 06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-027

J03CD5

DUPLICATE

SDG	7274			Client/Case no	Hanford SDG H3203
Contact	Melissa C. Mannion			Contract	No. 630
DUPLICATE		ORIGINAL			
Lab sample id	R506093-27	Lab sample id	R506093-07	Client sample id	J03CD5
Dept sample id	7274-027	Dept sample id	7274-007	Location/Matrix	128-B-2 @ 100 BC SOLID
		Received	06/10/05	Collected/Weight	06/08/05 09:50 786.2 g
% solids	98.9	% solids	98.9	Custody/SAF No	B04-002-040 B04-002

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 TOT	PROT LIMIT
Uranium 233/234	0.751	0.31	0.29	1.0		U	0.772	0.35	0.33		3	93	
Uranium 235	0	0.091	0.35	1.0	U	U	0.208	0.21	0.40	U	-		
Uranium 238	0.451	0.23	0.29	1.0		U	0.343	0.26	0.33		27	132	
Potassium 40	11.2	1.8	1.2			GAM	11.6	1.5	0.72		4	44	
Cobalt 60	U		0.11	0.050	U	GAM	U		0.098	U	-		
Silver 108m	U		0.073		U	GAM	U		0.062	U	-		
Cesium 137	U		0.12	0.10	U	GAM	U		0.21	U	-		
Radium 226	0.593	0.17	0.16	0.10		GAM	0.674	0.15	0.14		13	62	
Radium 228	0.768	0.42	0.49	0.20		GAM	0.805	0.32	0.34		5	106	
Europium 152	U		0.24	0.10	U	GAM	U		0.19	U	-		
Europium 154	U		0.31	0.10	U	GAM	U		0.33	U	-		
Europium 155	U		0.23	0.10	U	GAM	U		0.22	U	-		
Thorium 228	0.944	0.17	0.17			GAM	0.886	0.13	0.15		6	47	
Thorium 232	0.768	0.42	0.49			GAM	0.805	0.32	0.34		5	106	
Uranium 235	U		0.35		U	GAM	U		0.31	U	-		
Uranium 238	U		13		U	GAM	U		10	U	-		
Americium 241	U		0.25		U	GAM	U		0.42	U	-		

100 BC Burial Grounds - Soil

QC-DUP#7 53270

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	06/29/05

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3203

7274-030

J03CF9

DUPLICATE

SDG	7274			Client/Case no	Hanford SDG H3203
Contact	Melissa C. Mannion			Contract	No. 630
	DUPLICATE		ORIGINAL		
Lab sample id	R506093-30	Lab sample id	R506093-21	Client sample id	J03CF9
Dept sample id	7274-030	Dept sample id	7274-021	Location/Matrix	128-B-2 @ 100 BC SOLID
		Received	06/10/05	Collected/Weight	06/08/05 13:35 915.8 g
% solids	99.0	% solids	99.0	Custody/SAF No	B04-002-040 B04-002

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 TOT	PROT LIMIT
Uranium 233/234	0.895	0.31	0.23	1.0		U	0.615	0.31	0.29		37	88	
Uranium 235	0	0.072	0.28	1.0	U	U	0	0.093	0.36	U	-		
Uranium 238	1.07	0.37	0.23	1.0		U	0.692	0.31	0.29		43	83	
Potassium 40	9.04	1.5	1.1			GAM	9.37	1.6	1.1		4	48	
Cobalt 60	U		0.096	0.050	U	GAM	U		0.092	U	-		
Silver 108m	U		0.057		U	GAM	U		0.046	U	-		
Cesium 137	U		0.086	0.10	U	GAM	U		0.079	U	-		
Radium 226	0.358	0.16	0.18	0.10		GAM	0.515	0.15	0.13		36	82	
Radium 228	0.874	0.38	0.39	0.20		GAM	0.833	0.34	0.40		5	95	
Europium 152	U		0.19	0.10	U	GAM	U		0.21	U	-		
Europium 154	U		0.33	0.10	U	GAM	U		0.25	U	-		
Europium 155	U		0.19	0.10	U	GAM	U		0.19	U	-		
Thorium 228	0.516	0.11	0.13			GAM	0.692	0.12	0.13		29	52	
Thorium 232	0.874	0.38	0.39			GAM	0.833	0.34	0.40		5	95	
Uranium 235	U		0.29		U	GAM	U		0.27	U	-		
Uranium 238	U		8.2		U	GAM	U		10	U	-		
Americium 241	U		0.21		U	GAM	U		0.20	U	-		

100 BC Burial Grounds - Soil

QC-DUP#21 53273

Lab id	EBRLNE
Protocol	Hanford
Version	Ver 1.0
Form	DVD-DUP
Version	3.06
Report date	06/29/05

Date: 8 August 2005
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100BC Burial Grounds - Soil Full Protocol - Waste Site 128-B-2
Subject: Pesticide/PCB - Data Package No. H3203-LLI (SDG No. H3203)

INTRODUCTION

This memo presents the results of data validation on Data Package No. H3203-LLI prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
J03CC9	6/8/05	Soil	C	See note 1
J03CD0	6/8/05	Soil	C	See note 1
J03CD1	6/8/05	Soil	C	See note 1
J03CD2	6/8/05	Soil	C	See note 1
J03CD3	6/8/05	Soil	C	See note 1
J03CD4	6/8/05	Soil	C	See note 1
J03CD5	6/8/05	Soil	C	See note 1
J03CD6	6/8/05	Soil	C	See note 1
J03CD7	6/8/05	Soil	C	See note 1
J03CD8	6/8/05	Soil	C	See note 1
J03CD9	6/8/05	Soil	C	See note 1
J03CF0	6/8/05	Soil	C	See note 1
J03CF1	6/8/05	Soil	C	See note 1
J03CF2	6/8/05	Soil	C	See note 1
J03CF3	6/8/05	Soil	C	See note 1
J03CF4	6/8/05	Soil	C	See note 1
J03CF5	6/8/05	Soil	C	See note 1
J03CF6	6/8/05	Soil	C	See note 1
J03CF7	6/8/05	Soil	C	See note 1
J03CF8	6/8/05	Soil	C	See note 1
J03CF9	6/8/05	Soil	C	See note 1
J03CH0	6/8/05	Soil	C	See note 1

Sample ID	Sample Date	Media	Validation	Analysis
J03CH1	6/8/05	Soil	C	See note 1
J03CH2	6/8/05	Soil	C	See note 1

1 - PCBs by 8082 and pesticides by 8081A.

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 5 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

- **Holding Times**

Sample data were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be extracted within 14 days of the date of sample collection and analyzed within 40 days from the date of extraction.

If holding times are exceeded by less than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detected sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were acceptable.

- **Method Blank**

Method blank analyses are performed to determine the extent of laboratory contamination introduced through sampling, sample preparation or analysis. At least one method blank analysis must be conducted for every 20 samples. Method blanks should not contain target compounds at a concentration greater than required quantitation limit (RQL). If target compounds are present, sample results less than five times the blank concentration are qualified as undetected and flagged

"U". If the sample result is less than five times the blank concentration and less than RQL, the result is qualified as undetected and elevated to the RQL.

All method blank target compound results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike & Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data . The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Non-detected sample results with spike recoveries outside control limits are qualified as estimates and flagged "UJ". Sample results greater than five times the spike concentration require no qualification.

Due to the lack of an LCS, matrix spike and matrix spike duplicate analysis, all toxaphene results were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Surrogate Recovery

The analysis of surrogate compounds provides a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the laboratory. When a surrogate compound recovery is outside the control window, all positively identified target compounds associated with the unacceptable surrogate recoveries are qualified as estimates and flagged "J". Non-detected compounds with surrogate recoveries less than the lower control limit are qualified as having an estimated detection limit and flagged "UJ". Non-detected compounds with surrogate recoveries above the upper control limit require no qualification.

Due to a surrogate recovery outside QC limits, all detected aroclor-1254 results in samples J03CD1 and J03CD2 were qualified as estimates and flagged "J".

All other surrogate results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike/matrix spike duplicate results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed as the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. For soil samples, results must be within RPD limits of plus/minus 30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

Due to the lack of a matrix spike and matrix spike duplicate analysis, all toxaphene results were qualified as estimates and flagged "J".

Field Duplicate Samples

Two sets of field duplicate samples (J03CD4/J03CH1 and J03CF0/J03CH2) were submitted for analysis. Field duplicate results are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the Remaining Waste Sites RQLs to ensure that laboratory detection levels meet the required criteria. All methoxychlor and toxaphene results exceeded the RQL. All pesticide results in samples J03CD2 and J03CD6 exceeded the RQL. Under the BHI statement of work, no qualification is required.

- **Completeness**

Data Package No. H3132-LLI was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to a surrogate recovery outside QC limits, all detected aroclor-1254 results in samples J03CD1 and J03CD2 were qualified as estimates and flagged "J". Due to the lack of an LCS, matrix spike and matrix spike duplicate analysis, all toxaphene results were qualified as estimates and flagged "J". Data flagged "J" indicates that the associated concentration is an estimate, but under the BHI statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

All methoxychlor and toxaphene results exceeded the RQL. All pesticide results in samples J03CD2 and J03CD6 exceeded the RQL. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-96-22, Rev. 4, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, February 2005.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the procedures herein are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

PESTICIDE/PCB DATA QUALIFICATION SUMMARY*

SDG: H3203	REVIEWER: TLI	Project: 128-B-2	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Toxaphene	J	All	No MS, MSD or LCS analysis
Aroclor-1254	J	J03CD1, J03CD2	Surrogate recovery

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

PESTICIDE/PCB ANALYSIS, SOIL MATRIX, (UG/KG)

Project: BECHTEL-HANFORD																					
Laboratory: LLI	SDG: H3203																				
Sample Number		J03CC9		J03CD0		J03CD1		J03CD2		J03CD3		J03CD4		J03CD5		J03CD6		J03CD7		J03CD8	
Remarks																					
Sample Date		6/8/05		6/8/05		6/8/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05	
Extraction Date		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05	
Analysis Date		6/23/04		6/23/04		6/23/04		6/23/05		6/24/05		6/24/05		6/24/05		6/24/05		6/24/05		6/24/05	
PCB/Pesticide	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Aroclor-1016	20	13	U	13	U	13	U	14	U	13	U	13	U	13	U	13	U	13	U	13	U
Aroclor-1221	20	13	U	13	U	13	U	14	U	13	U	13	U	13	U	13	U	13	U	13	U
Aroclor-1232	20	13	U	13	U	13	U	14	U	13	U	13	U	13	U	13	U	13	U	13	U
Aroclor-1242	20	13	U	13	U	13	U	14	U	13	U	13	U	13	U	13	U	13	U	13	U
Aroclor-1248	20	13	U	13	U	13	U	14	U	13	U	13	U	13	U	13	U	13	U	13	U
Aroclor-1254	20	13	U	89		98	J	110	J	13	U	13	U	13	U	360		22		13	U
Aroclor-1260	20	13	U	13	U	13	U	14	U	13	U	13	U	13	U	13	U	13	U	13	U
Sample Date		6/8/05		6/8/05		6/8/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05		6/10/05	
Extraction Date		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05	
Analysis Date		6/24/04		6/23/04		6/23/04		6/24/05		6/23/04		6/23/04		6/23/04		6/23/04		6/23/04		6/23/04	
Alpha-BHC	5	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U
Beta-BHC	5	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U
Delta-BHC	5	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U
Gamma-BHC (Lindane)	5	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U
Heptachlor	5	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U
Aldrin	5	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U
Heptachlor Epoxide	5	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U
Endosulfan I	5	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U
Dieldrin	5	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U	1.7	U	16		1.7	U	1.7	U
4,4'-DDE	5	3.3	U	3.3	U	3.3	U	34	U	3.4	U	3.4	U	3.3	U	33	U	3.3	U	3.3	U
Endrin	5	3.3	U	3.3	U	3.3	U	34	U	3.4	U	3.4	U	3.3	U	33	U	3.3	U	3.3	U
Endosulfan II	5	3.3	U	3.3	U	3.3	U	34	U	3.4	U	3.4	U	3.3	U	33	U	3.3	U	3.3	U
4,4'-DDD	5	3.3	U	3.3	U	3.3	U	34	U	3.4	U	3.4	U	3.3	U	33	U	3.3	U	3.3	U
Endosulfan Sulfate	5	3.3	U	3.3	U	3.3	U	34	U	3.4	U	3.4	U	3.3	U	33	U	3.3	U	3.3	U
4,4'-DDT	5	3.3	U	3.3	U	3.3	U	34	U	3.4	U	3.4	U	3.3	U	33	U	3.3	U	3.3	U
Methoxychlor	5	17	U	17	U	17	U	170	U	17	U	17	U	17	U	170	U	17	U	17	U
Endrin Ketone	5	3.3	U	3.3	U	3.3	U	34	U	3.4	U	3.4	U	3.3	U	33	U	3.3	U	3.3	U
Endrin Aldehyde	5	3.3	U	3.3	U	3.3	U	34	U	3.4	U	3.4	U	3.3	U	7.0		3.3	U	3.3	U
alpha-Chlordane	5	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U
gamma-Chlordane	5	1.7	U	1.7	U	1.7	U	17	U	1.7	U	1.7	U	1.7	U	24		1.7	U	1.7	U
Toxaphene	5	170	UJ	170	UJ	170	UJ	1700	UJ	170	UJ	170	UJ	170	UJ	1700	UJ	170	UJ	170	UJ

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation.

000011

PESTICIDE/PCB ANALYSIS, SOIL MATRIX, (UG/KG)

Project: BECHTEL-HANFORD																					
Laboratory: Lionville Laboratory Inc.																					
Case:	**SDG: H3203**																				
Sample Number		J03CD9		J03CF0		J03CF1		J03CF2		J03CF3		J03CF4		J03CF5		J03CF6		J03CF7		J03CF8	
Remarks																					
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05	
Extraction Date		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05	
Analysis Date		6/24/04		6/24/04		6/24/04		6/24/04		6/24/04		6/24/04		6/24/04		6/24/04		6/24/04		6/24/04	
PCB/Pesticide	**RQL**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**	**Result**	**Q**
Aroclor-1016	**20**	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U
Aroclor-1221	**20**	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U
Aroclor-1232	**20**	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U
Aroclor-1242	**20**	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U
Aroclor-1248	**20**	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U
Aroclor-1254	**20**	13	U	13	U	13	U	13	U	13	U	8.5		13	U	14		13	U	13	U
Aroclor-1260	**20**	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U	13	U
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05	
Extraction Date		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05		6/17/05	
Analysis Date		6/23/04		6/23/04		6/23/04		6/23/04		6/24/05		6/24/05		6/24/05		6/24/05		6/24/05		6/24/05	
Alpha-BHC	**5**	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Beta-BHC	**5**	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Delta-BHC	**5**	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Gamma-BHC (Lindane)	**5**	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Heptachlor	**5**	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Aldrin	**5**	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Heptachlor Epoxide	**5**	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Endosulfan I	**5**	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Dieldrin	**5**	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
4,4'-DDE	**5**	3.3	U	3.4	U	3.3	U	3.3	U	3.3	U	3.3	U	3.4	U	3.3	U	3.4	U	3.3	U
Endrin	**5**	3.3	U	3.4	U	3.3	U	3.3	U	3.3	U	3.3	U	3.4	U	3.3	U	3.4	U	3.3	U
Endosulfan II	**5**	3.3	U	3.4	U	3.3	U	3.3	U	3.3	U	3.3	U	3.4	U	3.3	U	3.4	U	3.3	U
4,4'-DDD	**5**	3.3	U	3.4	U	3.3	U	3.3	U	3.3	U	3.3	U	3.4	U	3.3	U	3.4	U	3.3	U
Endosulfan Sulfate	**5**	3.3	U	3.4	U	3.3	U	3.3	U	3.3	U	3.3	U	3.4	U	3.3	U	3.4	U	3.3	U
4,4'-DDT	**5**	3.3	U	3.4	U	3.3	U	3.3	U	3.3	U	3.3	U	3.4	U	3.3	U	3.4	U	3.3	U
Methoxychlor	**5**	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U	17	U
Endrin Ketone	**5**	3.3	U	3.4	U	3.3	U	3.3	U	3.3	U	3.3	U	3.4	U	3.3	U	3.4	U	3.3	U
Endrin Aldehyde	**5**	3.3	U	3.4	U	3.3	U	3.3	U	3.3	U	3.3	U	3.4	U	3.3	U	3.4	U	3.3	U
alpha-Chlordane	**5**	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
gamma-Chlordane	**5**	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U	1.7	U
Toxaphene	**5**	170	UJ	170	UJ	170	UJ	170	UJ	170	UJ	170	UJ	170	UJ	170	UJ	170	UJ	170	UJ

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation.

000012

PESTICIDE/PCB ANALYSIS, SOIL MATRIX, (UG/KG)

Project: BECHTEL-HANFORD																					
Laboratory: Lionville Laboratory Inc.																					
Case:	SDG: H3203																				
Sample Number		J03CF9		J03CH0		J03CH1		J03CH2													
Remarks																					
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05													
Extraction Date		6/20/05		6/20/05		6/20/05		6/20/05													
Analysis Date		6/28/05		6/29/05		6/29/05		6/29/05													
PCB/Pesticide	RQL	Result	Q	Result	Q	Result	Q	Result	Q												
Aroclor-1016	20	13	U	13	U	13	U	13	U												
Aroclor-1221	20	13	U	13	U	13	U	13	U												
Aroclor-1232	20	13	U	13	U	13	U	13	U												
Aroclor-1242	20	13	U	13	U	13	U	13	U												
Aroclor-1248	20	13	U	13	U	13	U	13	U												
Aroclor-1254	20	22		13	U	13	U	14													
Aroclor-1260	20	13	U	13	U	13	U	13	U												
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05													
Extraction Date		6/17/05		6/17/05		6/17/05		6/17/05													
Analysis Date		6/24/04		6/23/04		6/23/04		6/24/04													
Alpha-BHC	5	1.7	U	1.7	U	1.7	U	1.7	U												
Beta-BHC	5	1.7	U	1.7	U	1.7	U	1.7	U												
Delta-BHC	5	1.7	U	1.7	U	1.7	U	1.7	U												
Gamma-BHC (Lindane)	5	1.7	U	1.7	U	1.7	U	1.7	U												
Heptachlor	5	1.7	U	1.7	U	1.7	U	1.7	U												
Aldrin	5	1.7	U	1.7	U	1.7	U	1.7	U												
Heptachlor Epoxide	5	1.7	U	1.7	U	1.7	U	1.7	U												
Endosulfan I	5	1.7	U	1.7	U	1.7	U	1.7	U												
Dieldrin	5	1.7	U	1.7	U	1.7	U	1.7	U												
4,4'-DDE	5	3.3	U	3.3	U	3.3	U	3.4	U												
Endrin	5	3.3	U	3.3	U	3.3	U	3.4	U												
Endosulfan II	5	3.3	U	3.3	U	3.3	U	3.4	U												
4,4'-DDD	5	3.3	U	3.3	U	3.3	U	3.4	U												
Endosulfan Sulfate	5	3.3	U	3.3	U	3.3	U	3.4	U												
4,4'-DDT	5	3.3	U	3.3	U	3.3	U	3.4	U												
Methoxychlor	5	17	U	17	U	17	U	17	U												
Endrin Ketone	5	3.3	U	3.3	U	3.3	U	3.4	U												
Endrin Aldehyde	5	3.3	U	3.3	U	3.3	U	3.4	U												
alpha-Chlordane	5	1.7	U	1.7	U	1.7	U	1.7	U												
gamma-Chlordane	5	1.7	U	1.7	U	1.7	U	1.7	U												
Toxaphene	5	170	UJ	170	UJ	170	UJ	170	UJ												

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation.

Lionville Laboratory, Inc.
PCBs by GC

Report Date: 06/30/05 13:43

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 1

	Cust ID:	J03CC9	J03CC9	J03CC9	J03CD0	J03CD1	J03CD2
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	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	107 %	104 %	106 %	104 %	103 %	106 %
	Decachlorobiphenyl	131 * %	122 %	128 * %	120 %	125 * %	134 * %
Aroclor-1016		13 U	107 %	110 %	13 U	13 U	14 U
Aroclor-1221		13 U	13 U	13 U	13 U	13 U	14 U
Aroclor-1232		13 U	13 U	13 U	13 U	13 U	14 U
Aroclor-1242		13 U	13 U	13 U	13 U	13 U	14 U
Aroclor-1248		13 U	13 U	13 U	13 U	13 U	14 U
Aroclor-1254		13 U	13 U	13 U	89	98 J	110 J
Aroclor-1260		13 U	116 %	123 %	13 U	13 U	14 U

	Cust ID:	J03CD3	J03CD4	J03CD5	J03CD6	J03CD7	J03CD8
Sample Information	RFW#:	005	006	007	008	009	010
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	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	103 %	94 %	104 %	91 %	100 %	105 %
	Decachlorobiphenyl	124 * %	115 %	117 %	107 %	117 %	118 %
Aroclor-1016		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1221		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1232		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1242		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1248		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1254		13 U	13 U	13 U	360	22	13 U
Aroclor-1260		13 U	13 U	13 U	13 U	13 U	13 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

JC 8/6/05

000014

Lionville Laboratory, Inc.
PCBs by GC

Report Date: 06/30/05 13:43

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 2

	Cust ID:	J03CD9	J03CF0	J03CF1	J03CF2	J03CF3	J03CF4
Sample Information	RFW#:	011	012	013	014	015	016
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	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	103 %	97 %	97 %	98 %	98 %	98 %
	Decachlorobiphenyl	118 %	112 %	113 %	113 %	112 %	112 %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1221		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1232		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1242		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1248		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1254		13 U	13 U	13 U	13 U	13 U	8.5 J
Aroclor-1260		13 U	13 U	13 U	13 U	13 U	13 U

	Cust ID:	J03CF5	J03CF6	J03CF7	J03CF8	PBLKNM	PBLKNM BS
Sample Information	RFW#:	017	018	019	020	05LE0507-MB1	05LE0507-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	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	94 %	92 %	94 %	96 %	94 %	112 %
	Decachlorobiphenyl	109 %	107 %	108 %	110 %	112 %	136 * %
		fl	fl	fl	fl	fl	fl
Aroclor-1016		13 U	13 U	13 U	13 U	13 U	103 %
Aroclor-1221		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1232		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1242		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1248		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1254		13 U	14	13 U	13 U	13 U	13 U
Aroclor-1260		13 U	13 U	13 U	13 U	13 U	106 %

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

8/6/05

000015

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 06/30/05 14:23

RFW Batch Number: 0506L736 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 1

	Cust ID:	J03CF9	J03CF9	J03CF9	J03CH0	J03CH1	J03CH2
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	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	98 %	94 %	94 %	97 %	93 %	100 %
	Decachlorobiphenyl	86 %	87 %	84 %	91 %	91 %	97 %
Aroclor-1016		13 U	98 %	92 %	13 U	13 U	13 U
Aroclor-1221		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1232		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1242		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1248		13 U	13 U	13 U	13 U	13 U	13 U
Aroclor-1254		22	140 .I	270 .I	13 U	13 U	14
Aroclor-1260		13 U	95 %	89 %	13 U	13 U	13 U

	Cust ID:	PBLKNV	PBLKNV BS
Sample Information	RFW#:	05LE0511-MB1	05LE0511-MB1
	Matrix:	SOIL	SOIL
	D.F.:	1.00	1.00
	Units:	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	84 %	90 %
	Decachlorobiphenyl	84 %	86 %
Aroclor-1016		13 U	96 %
Aroclor-1221		13 U	13 U
Aroclor-1232		13 U	13 U
Aroclor-1242		13 U	13 U
Aroclor-1248		13 U	13 U
Aroclor-1254		13 U	13 U
Aroclor-1260		13 U	87 %

8/4/05

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

000016

Lionville Laboratory, Inc.
Pesticide/PCBs by GC, CLP List

Report Date: 06/24/05 14:34

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 1

	Cust ID:	J03CC9	J03CC9	J03CC9	J03CD0	J03CD1	J03CD2
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00	10.0
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Decachlorobiphenyl	112 %	92 %	105 %	107 %	105 %	137 * %
	Tetrachloro-m-xylene	106 %	82 %	104 %	107 %	96 %	124 * %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		1.7 U	94 %	100 %	1.7 U	1.7 U	17 U
Beta-BHC		1.7 U	91 %	97 %	1.7 U	1.7 U	17 U
Delta-BHC		1.7 U	98 %	100 %	1.7 U	1.7 U	17 U
gamma-BHC (Lindane)		1.7 U	93 %	98 %	1.7 U	1.7 U	17 U
Heptachlor		1.7 U	98 %	102 %	1.7 U	1.7 U	17 U
Aldrin		1.7 U	95 %	97 %	1.7 U	1.7 U	17 U
Heptachlor epoxide		1.7 U	92 %	94 %	1.7 U	1.7 U	17 U
Endosulfan I		1.7 U	94 %	81 %	1.7 U	1.7 U	17 U
Dieldrin		1.7 U	99 %	100 %	1.7 U	1.7 U	17 U
4,4'-DDE		3.3 U	95 %	97 %	3.3 U	3.3 U	34 U
Endrin		3.3 U	100 %	102 %	3.3 U	3.3 U	34 U
Endosulfan II		3.3 U	93 %	92 %	3.3 U	3.3 U	34 U
4,4'-DDD		3.3 U	94 %	94 %	3.3 U	3.3 U	34 U
Endosulfan sulfate		3.3 U	99 %	100 %	3.3 U	3.3 U	34 U
4,4'-DDT		3.3 U	78 %	80 %	3.3 U	3.3 U	34 U
Methoxychlor		17 U	114 %	110 %	17 U	17 U	170 U
Endrin ketone		3.3 U	96 %	96 %	3.3 U	3.3 U	34 U
Endrin aldehyde		3.3 U	89 %	88 %	3.3 U	3.3 U	34 U
alpha-Chlordane		1.7 U	89 %	81 %	1.7 U	1.7 U	17 U
gamma-Chlordane		1.7 U	91 %	92 %	1.7 U	1.7 U	17 U
Toxaphene		170 U J	170 U	170 U	170 U J	170 U J	1700 U J

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

8/6/05

000017

Lionville Laboratory, Inc.
Pesticide/PCBs by GC, CLP List

Report Date: 06/24/05 14:34

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 2

	Cust ID:	J03CD3	J03CD4	J03CD5	J03CD6	J03CD7	J03CD8
Sample Information	RFW#:	005	006	007	008	009	010
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	10.0	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Decachlorobiphenyl	104 %	101 %	108 %	119 %	104 %	99 %
	Tetrachloro-m-xylene	92 %	95 %	101 %	104 %	96 %	93 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		1.7 U	1.7 U	1.7 U	17 U	1.7 U	1.7 U
Beta-BHC		1.7 U	1.7 U	1.7 U	17 U	1.7 U	1.7 U
Delta-BHC		1.7 U	1.7 U	1.7 U	17 U	1.7 U	1.7 U
gamma-BHC (Lindane)		1.7 U	1.7 U	1.7 U	17 U	1.7 U	1.7 U
Heptachlor		1.7 U	1.7 U	1.7 U	17 U	1.7 U	1.7 U
Aldrin		1.7 U	1.7 U	1.7 U	17 U	1.7 U	1.7 U
Heptachlor epoxide		1.7 U	1.7 U	1.7 U	17 U	1.7 U	1.7 U
Endosulfan I		1.7 U	1.7 U	1.7 U	17 U	1.7 U	1.7 U
Dieldrin		1.7 U	1.7 U	1.7 U	17 U	1.7 U	1.7 U
4,4'-DDE		3.4 U	3.4 U	3.3 U	16 J	3.3 U	3.3 U
Endrin		3.4 U	3.4 U	3.3 U	33 U	3.3 U	3.3 U
Endosulfan II		3.4 U	3.4 U	3.3 U	33 U	3.3 U	3.3 U
4,4'-DDD		3.4 U	3.4 U	3.3 U	33 U	3.3 U	3.3 U
Endosulfan sulfate		3.4 U	3.4 U	3.3 U	33 U	3.3 U	3.3 U
4,4'-DDT		3.4 U	3.4 U	3.3 U	33 U	3.3 U	3.3 U
Methoxychlor		17 U	17 U	17 U	170 U	17 U	17 U
Endrin ketone		3.4 U	3.4 U	3.3 U	33 U	3.3 U	3.3 U
Endrin aldehyde		3.4 U	3.4 U	3.3 U	7.0 J	3.3 U	3.3 U
alpha-Chlordane		1.7 U	1.7 U	1.7 U	17 U	1.7 U	1.7 U
gamma-Chlordane		1.7 U	1.7 U	1.7 U	24 .I	1.7 U	1.7 U
Toxaphene		170 U J	170 U J	170 U J	1700 U J	170 U J	170 U J

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

8/6/05

000018

Lionville Laboratory, Inc.

Pesticide/PCBs by GC, CLP List

Report Date: 06/24/05 14:34

RFW Batch Number: **0506L720** Client: **TNUHANFORD B04-002 H3203** Work Order: 11343606001 Page: 3

	Cust ID:	J03CD9	J03CF0	J03CF1	J03CF2	J03CF3	J03CF4
Sample Information	RFW#:	011	012	013	014	015	016
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	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:	Decachlorobiphenyl	106 %	100 %	100 %	104 %	102 %	102 %
	Tetrachloro-m-xylene	100 %	94 %	91 %	98 %	97 %	93 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Beta-BHC		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Delta-BHC		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
gamma-BHC (Lindane)		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Heptachlor		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Aldrin		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Heptachlor epoxide		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Endosulfan I		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Dieldrin		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
4,4'-DDE		3.3 U	3.4 U	3.3 U	3.3 U	3.3 U	3.3 U
Endrin		3.3 U	3.4 U	3.3 U	3.3 U	3.3 U	3.3 U
Endosulfan II		3.3 U	3.4 U	3.3 U	3.3 U	3.3 U	3.3 U
4,4'-DDD		3.3 U	3.4 U	3.3 U	3.3 U	3.3 U	3.3 U
Endosulfan sulfate		3.3 U	3.4 U	3.3 U	3.3 U	3.3 U	3.3 U
4,4'-DDT		3.3 U	3.4 U	3.3 U	3.3 U	3.3 U	3.3 U
Methoxychlor		17 U	17 U	17 U	17 U	17 U	17 U
Endrin ketone		3.3 U	3.4 U	3.3 U	3.3 U	3.3 U	3.3 U
Endrin aldehyde		3.3 U	3.4 U	3.3 U	3.3 U	3.3 U	3.3 U
alpha-Chlordane		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
gamma-Chlordane		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	1.7 U
Toxaphene		170 U J	170 U J	170 U J	170 U J	170 U J	170 U J

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

000019

8/6/05

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Lionville Laboratory, Inc.
Pesticide/PCBs by GC, CLP List
Report Date: 06/24/05 14:34

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 4

	Cust ID:	J03CF5	J03CF6	J03CF7	J03CF8	PBLKNM	PBLKNM BS
Sample Information	RFW#:	017	018	019	020	05LE0507-MB1	05LE0507-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	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:	Decachlorobiphenyl	104 %	99 %	101 %	103 %	98 %	113 %
	Tetrachloro-m-xylene	99 %	90 %	94 %	101 %	91 %	103 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	106 %
Beta-BHC		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	106 %
Delta-BHC		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	102 %
gamma-BHC (Lindane)		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	105 %
Heptachlor		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	105 %
Aldrin		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	102 %
Heptachlor epoxide		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	104 %
Endosulfan I		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	96 %
Dieldrin		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	106 %
4,4'-DDE		3.4 U	3.3 U	3.4 U	3.3 U	3.3 U	103 %
Endrin		3.4 U	3.3 U	3.4 U	3.3 U	3.3 U	116 %
Endosulfan II		3.4 U	3.3 U	3.4 U	3.3 U	3.3 U	85 %
4,4'-DDD		3.4 U	3.3 U	3.4 U	3.3 U	3.3 U	82 %
Endosulfan sulfate		3.4 U	3.3 U	3.4 U	3.3 U	3.3 U	114 %
4,4'-DDT		3.4 U	3.3 U	3.4 U	3.3 U	3.3 U	114 %
Methoxychlor		17 U	17 U	17 U	17 U	17 U	100 %
Endrin ketone		3.4 U	3.3 U	3.4 U	3.3 U	3.3 U	110 %
Endrin aldehyde		3.4 U	3.3 U	3.4 U	3.3 U	3.3 U	104 %
alpha-Chlordane		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	92 %
gamma-Chlordane		1.7 U	1.7 U	1.7 U	1.7 U	1.7 U	102 %
Toxaphene		170 U J	170 U J	170 U J	170 U J	170 U	170 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

8/6/05

000020

Lionville Laboratory, Inc.
Pesticide/PCBs by GC, CLP List

Report Date: 06/30/05 15:08

RFW Batch Number: 0506L736 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 1

	Cust ID:	J03CF9	J03CF9	J03CF9	J03CH0	J03CH1	J03CH2
Sample Information	RFW#:	001	001 MS	001 MSD	002	003	004
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	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:	Decachlorobiphenyl	100 %	96 %	107 %	97 %	94 %	99 %
	Tetrachloro-m-xylene	86 %	83 %	93 %	85 %	72 %	75 %
		fl	fl	fl	fl	fl	fl
Alpha-BHC		1.7 U	100 %	120 %	1.7 U	1.7 U	1.7 U
Beta-BHC		1.7 U	95 %	112 %	1.7 U	1.7 U	1.7 U
Delta-BHC		1.7 U	108 %	129 * %	1.7 U	1.7 U	1.7 U
gamma-BHC (Lindane)		1.7 U	101 %	120 %	1.7 U	1.7 U	1.7 U
Heptachlor		1.7 U	106 %	126 %	1.7 U	1.7 U	1.7 U
Aldrin		1.7 U	103 %	124 * %	1.7 U	1.7 U	1.7 U
Heptachlor epoxide		1.7 U	106 %	126 %	1.7 U	1.7 U	1.7 U
Endosulfan I		1.7 U	105 %	126 * %	1.7 U	1.7 U	1.7 U
Dieldrin		1.7 U	110 %	132 * %	1.7 U	1.7 U	1.7 U
4,4'-DDE		3.3 U	98 %	114 %	3.3 U	3.3 U	3.4 U
Endrin		3.3 U	118 %	143 %	3.3 U	3.3 U	3.4 U
Endosulfan II		3.3 U	108 %	129 * %	3.3 U	3.3 U	3.4 U
4,4'-DDD		3.3 U	108 %	130 * %	3.3 U	3.3 U	3.4 U
Endosulfan sulfate		3.3 U	108 %	131 * %	3.3 U	3.3 U	3.4 U
4,4'-DDT		3.3 U	105 %	123 %	3.3 U	3.3 U	3.4 U
Methoxychlor		17 U	112 %	134 %	17 U	17 U	17 U
Endrin ketone		3.3 U	103 %	122 %	3.3 U	3.3 U	3.4 U
Endrin aldehyde		3.3 U	94 %	108 %	3.3 U	3.3 U	3.4 U
alpha-Chlordane		1.7 U	108 %	128 %	1.7 U	1.7 U	1.7 U
gamma-Chlordane		1.7 U	105 %	126 %	1.7 U	1.7 U	1.7 U
Toxaphene		170 UJ	170 U	170 U	170 UJ	170 UJ	170 UJ

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

8/6/05

000021

Lionville Laboratory, Inc.
Pesticide/PCBs by GC, CLP List

Report Date: 06/30/05 15:08

RFW Batch Number: 0506L736 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 2

	Cust ID:	PBLKNV		PBLKNV BS	
Sample Information	RFW#:	05LE0511-MB1		05LE0511-MB1	
	Matrix:	SOIL		SOIL	
	D.F.:	1.00		1.00	
	Units:	UG/KG		UG/KG	
Surrogate: Decachlorobiphenyl		95	%	95	%
Tetrachloro-m-xylene		75	%	82	%
Alpha-BHC		1.7	U	99	%
Beta-BHC		1.7	U	97	%
Delta-BHC		1.7	U	101	%
gamma-BHC (Lindane)		1.7	U	98	%
Heptachlor		1.7	U	103	%
Aldrin		1.7	U	87	%
Heptachlor epoxide		1.7	U	102	%
Endosulfan I		1.7	U	100	%
Dieldrin		1.7	U	103	%
4,4'-DDE		3.3	U	105	%
Endrin		3.3	U	112	%
Endosulfan II		3.3	U	102	%
4,4'-DDD		3.3	U	103	%
Endosulfan sulfate		3.3	U	102	%
4,4'-DDT		3.3	U	105	%
Methoxychlor		17	U	114	%
Endrin ketone		3.3	U	101	%
Endrin aldehyde		3.3	U	101	%
alpha-Chlordane		1.7	U	103	%
gamma-Chlordane		1.7	U	101	%
Toxaphene		170	U	170	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

8/6/05

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD B04-002
LVL #: 0506L720
SDG/SAF # H3203/B04-002

W.O. #: 11343-606-001-9999-00
Date Received: 06-10-2005

PCB

Twenty (20) soil samples were collected on 06-08-2005.

The samples and their associated QC samples were extracted on 06-17-2005 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 06-23,24,25-2005. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. The samples and their associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.
4. The method blank was below the reporting limits for all target compounds.
5. Six (6) of forty-eight (48) surrogate recoveries were outside acceptance criteria. However, the surrogate recovery criteria were met (i.e., no more than one outlier per sample).
6. The blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. The initial calibrations associated with this data set were within acceptance criteria.
9. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria with the exception of elevated CCVs on RTX-CLP2 column. The sample results were quantitated using RTX-35 column. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
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.
11. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

7/12/05
Date

som\r:\group\data\pest\tnu hanford\0506-720.pcb

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 5 pages.

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: ~~050C255~~ 050C287

Initiator: M. Mcnally
Date: 6/30/05
Client: TNU Hanford

Batch: 0506L720
Samples: All
Method: SW846/MCAWW/CLP/

Parameter: OPCB
Matrix: Soil
Prep Batch: 0026C007

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)

- CCVs high on RTX-CLP2. Quantitate hits from RTX-35.

2. Known or Probable Causes(s)

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:
report

4. Project Manager Instructions...signature/date: _____ 6/30/05
✓ 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: _____ 7/18/05

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: Beegle
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
✓	X Project Mgr: Stone/Johnson/Haslett	__	__ GC/LC: Kiger
__	X Technical Mgr: Wesson/Daniels	__	__ MS: Rychlak/Layman
__	X QA (file): Alberts	__	__ Log-in: Melnic
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Beegle/Kiger	__	__ Other: _____

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD B04-002
LVL #: 0506L736
SDG/SAF # H3203/B04-002

W.O. #: 11343-606-001-9999-00
Date Received: 06-10-2005

PCB

Four (4) soil samples were collected on 06-08-2005.

The samples and their associated QC samples were extracted on 06-20-2005 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 06-28,29-2005. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8082.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. The samples and their associated QC samples received Copper-Sulfur and Sulfuric Acid cleanups according to Lionville Laboratory SOPs based on SW846 methods 3660A and 3665A respectively.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. The blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. The initial calibrations associated with this data set were within acceptance criteria.
9. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria with the exception of elevated CCVs on RTX-CLP column. The sample results were quantitated using RTX-CLP2 column. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
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.
11. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

7/12/05
Date

som\r:\group\data\pest\tnu hanford\0506-736.pcb

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 5 pages.

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 0506L786

Initiator: M Manally
Date: 6/30/05
Client: TMU

Batch: 0506L736
Samples: ALL
Method: SW846/MCAWW/CLP/

Parameter: OPCs
Matrix: Soil
Prep Batch: 0375051

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)

- CCVs High on MT-CLP, quantitate hits from MT-CCP2

2. Known or Probable Causes(s)

3. Discussion and Proposed Action

Other Description: Report

__ 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: [signature] 6/30/05

✓ 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: [signature] 7/1/05

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: Beegle
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
✓	X Project Mgr: Stone/Johnson/Haslett	__	__ GC/LC: Kiger
__	X Technical Mgr: Wesson/Daniels	__	__ MS: Rychlak/Layman
__	X QA (file): Alberts	__	__ Log-in: Melnic
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Beegle/Kiger	__	__ Other: _____

QA-105-A-0801

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD B04-002
LVL #: 0506L720
SDG/SAF # H3203/B04-002

W.O. #: 11343-606-001-9999-00
Date Received: 06-10-2005

CHLORINATED PESTICIDES

Twenty (20) soil samples were collected on 06-08-2005.

The samples and their associated QC samples were extracted on 06-17-2005 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 06-23,24-2005. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8081A.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. Samples and their associated QC samples received a Copper-Sulfur cleanup according to Lionville Laboratory SOPs based on SW846 method 3660A.
4. The method blank was below the reporting limits for all target compounds.
5. Two (2) of forty-eight (48) surrogate recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
6. All blank spike recoveries were within acceptance criteria.
7. All matrix spike recoveries were within acceptance criteria.
8. Samples J03CD2 and J03CD6 required a 10-fold dilution due to the matrix interference. The reporting limits were adjusted to reflect the necessary dilution.
9. The initial calibrations associated with this data set were within acceptance criteria.
10. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
11. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

7/12/05
Date

som\r:\group\data\pest\tnu hanford\0506-720.pes

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 7 pages.

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AAAAAAAA?

Lionville Laboratory Sample Discrepancy Report (SDR)

SDR #: 050C275

Initiator: M McAnelly
Date: 6/24/05
Client: TMU Hanford

Batch: 050CL720
Samples: 004
Method: SW846/MCAWW/CLP/

Parameter: 060914
Matrix: Soil
Prep Batch: 05LC0507

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)

- Surrogate recoveries high for -004: TCX @ 124% (range: 28-118).
  DCB @ 137% (range: 38-122).

- no hits in sample. all other surrogates and spikes were ok.

2. Known or Probable Causes(s)

3. Discussion and Proposed Action Other Description:

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

report + narrative

4. Project Manager Instructions...signature/date: 6/24/05

✓ 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: 6/28/05 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: Beegle
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
✓	X Project Mgr: Stone/Johnson/Haslett	__	__ GC/LC: Kiger
__	X Technical Mgr: Wesson/Daniels	__	__ MS: Rychlak/Layman
__	X QA (file): Alberts	__	__ Log-in: Melnic
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Beegle/Kiger	__	__ Other: _____

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD B04-002
LVL #: 0506L736
SDG/SAF # H3203/B04-002

W.O. #: 11343-606-001-9999-00
Date Received: 06-10-2005

CHLORINATED PESTICIDES

Four (4) soil samples were collected on 06-08-2005.

The samples and their associated QC samples were extracted on 06-20-2005 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 06-28,29-2005. The extraction procedure was based on method 3540C and the extracts were analyzed based on method 8081A.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were extracted and analyzed within required holding time.
3. Samples and their associated QC samples received a Copper-Sulfur cleanup according to Lionville Laboratory SOPs based on SW846 method 3660A.
4. The method blank was below the reporting limits for all target compounds.
5. All surrogate recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. Seven (7) of forty (40) matrix spike recoveries were outside acceptance criteria. A copy of the Sample Discrepancy Report (SDR) has been enclosed.
8. The initial calibrations associated with this data set were within acceptance criteria.
9. The continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
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.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

7/12/06
Date

som\r:\group\data\pest\tnu hanford\0506-736.pes

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 1 6 pages.

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Lionville Laboratory Sample Discrepancy Report (SDR)

SDR#: 0526288

Initiator: M. McAnally
Date: 6/30/05
Client: TMU Hanford

Batch: 0506L736
Samples: M3D
Method: SW846/MCAWW/CLP/

Parameter: 08081A
Matrix: Soil
Prep Batch: 0526071

1. Reason for SDR

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

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

Note*: Verified by [Log-In] or [Prep Group] (circle)...signature/date: _____

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

- MS/MSD recoveries high for Delta-BHC, Aldrin, Endosulfan I, Dieldrin, Endrin, Endo II, DDD.
- MS & MSD were ok. no hits in 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)

report

4. Project Manager Instructions...signature/date: _____ 6/30/05

√ 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: _____ 7/18/05

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: Beegle
__	X Lab General Manager: M. Taylor	__	__ Inorganic: Perrone
7	X Project Mgr: Stone/Johnson/Haslett	__	__ GC/LC: Kiger
__	X Technical Mgr: Wesson/Daniels	__	__ MS: Rychlak/Layman
__	X QA (file): Alberts	__	__ Log-in: Melnic
__	__ Data Management: Feldman	__	__ Admin: Soos
__	__ Sample Prep: Beegle/Kiger	__	__ Other: _____

QA-105-A-0801

UJUWL 1/20

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B04-002-040 | Page 1 of 2

Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER, JH
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC		SAF No.: B04-002
Ice Chest No.: ERC 02 506, 96 002, 02 501, 03105, 02 101, TNV052	Field Logbook No.: EL 1173-5	COA: R128B22600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A050 239/240		Bill of Lading/Air Bill No.: S GE OSPC

Price Code: Many

Data Turnaround: Air Quality 21 days

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None E	Cool 4C C	Cool 4C B	Cool 4C A	None	Cool 4C D	Cool 4C F				
Type of Container	aG	aG	aG	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1	1				
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1				

	Sample No.	Matrix *	Sample Date	Sample Time										
1.	J03CC9	SOIL	6/8/05	0817	✓	✓	✓	✓	6-8-05	✓	✓			
2.	J03CD0	SOIL	6/8/05	0821	✓	✓	✓	✓		✓	✓			
3.	J03CD1	SOIL	6/8/05	0832	✓	✓	✓	✓		✓	✓			
4.	J03CD2	SOIL	6/8/05	0840	✓	✓	✓	✓		✓	✓			
5.	J03CD3	SOIL	6/8/05	0900	✓	✓	✓	✓		✓	✓			

0000032

CHAIN OF POSSESSION

Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Doug Bowers Bowers	6-8-05 / 1745	Ref 2B 3728	6-8-05 / 1745
Ref 2B 3728	6905 0900	S GALE	6905 0900
S GALE ERC	6905 0900	FEDEX	
FedEx	6/10/05 0930		6/10/05 0930

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7470 - (CV)

(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to Relinquish samples from 3728 Ref # 2B on 6/9/05

Matrix: S=Soil, SE=Sediment, SO=Solid, SL=Sludge, W=Water, O=Oil, A=Air, DS=Drum S, DL=Drum L, 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 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 2 of 2

Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER, JH
Price Code: Many	Data Turnaroun		
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC	SAF No.: B04-002	Air Quality: 21 days
Ice Chest No.: ERC 02 506, 96 002, 02 501, 03 105, 02 101, TAW 052	Field Logbook No.: EL 1173-5	COA: R128B22600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A050239/240		Bill of Lading/Air Bill No.: SEE OSP

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			
Sample No. / Matrix * / Sample Date / Sample Time										
6. J03CD4 / SOIL / 6/8/05 / 0900	X	X	X	X	6-8-05	X	X			
7 J03CD5 / SOIL / 6/8/05 / 0950	X	X	X	X		X	X			
8 J03CD6 / SOIL / 6/8/05 / 0955	X	X	X	X		X	X			
9 J03CD7 / SOIL / 6/8/05 / 1001	X	X	X	X		X	X			
10 J03CD8 / SOIL / 6/8/05 / 1025	X	X	X	X		X	X			

000033

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Doug Bowers Bowers	6-8-05/1545	Ref ZB 3728	6-8-05/1545
Ref ZB 3728	6905 0900	SJ Gale	6905 0900
SJ Gale ERC	6905 0900	FED EX	
FedEx	6-10-05 0920		6-10-05 0920

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

SJG 6905

Personnel not available to relinquish samples from 3728 Ref # ZB on 6/9/05

Matrix: S=Soil, SE=Sediment, SO=Solid, Sl=Sludge, W=Water, O=Oil, A=Air, DS=Drum S, DL=Drum L, 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 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 3 of 5

Collector D Bowersw/C Martinez/J Kiesler	Company Contact Doug Bowers	Telephone No. 531-0701	Project Coordinator KESSNER. JH
Price Code Many	Data Turnaround Air Quality 21 days		
Project Designation 100 BC Burial Grounds - Soil Full Protocol	Sampling Location 128-B-2 @ 100 BC		SAF No. B04-002
Ice Chest No. ERC 02 506, 96 002, 02501, 03105, 02 101, HU 052	Field Logbook No. EL 1173-5	COA R128B22600	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A050 239/240		Bill of Lading/Air Bill No. SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			
Sample No.	Matrix *	Sample Date	Sample Time								
11. J03CD9	SOIL	6/8/05	1030	✓	✓	✓	✓	✓	✓	X	
12. J03CF0	SOIL	6/8/05	1041	✓	✓	✓	✓	✓	✓	X	
13. J03CF1	SOIL	6/8/05	1055	✓	✓	✓	✓	✓	✓	X	
14. J03CF2	SOIL	6/8/05	1110	✓	✓	✓	✓	✓	✓	X	
15. J03CF3	SOIL	6/8/05	1117	✓	✓	✓	✓	✓	✓	X	

00003

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Doug Bowers Doug Bowers	6-9-05/1545	Ref 2B 3728	6-9-05/1545
Ref 2B 3728	6905 0900	SUGALE	6905 0900
SUGALE ERC	6905 0900	FEDEX	
FedEx	6-10-05 0920		6-10-05 0920

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}, Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to relinquish samples from 3728 Ref #2B on 6/9/05

Matrix: S=Soil, SE=Sediment, SO=Solid, Sl=Sludge, W=Water, O=Oil, A=Air, DS=Drum S, DL=Drum L, 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 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 4 of 5

Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER, JH
Price Code: Many	Data Turnaroun		
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC	SAF No.: B04-002	Air Quality: 21 days
Ice Chest No.: GRC 02 506, 96 002, 02 501, 03 105, 02 101, TNU052	Field Logbook No.: EL 1173-5	COA: R128B22600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES / LIONVILLE	Offsite Property No.: A050 239/240		Bill of Lading/Air Bill No.: SCE 05PC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C				
Type of Container	aG	aG	aG	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1	1				
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1				

	Sample No.	Matrix *	Sample Date	Sample Time											
16.	J03CF4	SOIL	6/8/05	1230	✓	✓	✓	✓	✓	✓	✓				
17.	J03CF5	SOIL	6/8/05	1235	✓	✓	✓	✓	✓	✓	✓				
18.	J03CF6	SOIL	6/8/05	1250	✓	✓	✓	✓	✓	✓	✓				
19.	J03CF7	SOIL	6/8/05	1330	✓	✓	✓	✓	✓	✓	✓				
20.	J03CF8	SOIL	6/8/05	1333	✓	✓	✓	✓	✓	✓	✓				

000035

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Doug Bowers	Date/Time: 6-8-05/1545	Received By/Stored In: REF 2B 3728	Date/Time: 6-8-05/1545
Relinquished By/Removed From: REF 2B 3728	Date/Time: 6905 0900	Received By/Stored In: SIGALE	Date/Time: 6905 0900
Relinquished By/Removed From: SIGALE 6905 ERC	Date/Time: 0900	Received By/Stored In: FED EX	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 6/10/05 0920	Received By/Stored In:	Date/Time: 6-10-05 0920
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to Relinquish samples from 3728 Ref # 2B on 6/9/05

Matrix
S=Soil
SE=Sedim
SO=Solid
SL=Sludge
W = Wate
O=Oil
A=Air
DS=Drum
DL=Drum
T=Tissue
WI=Wipe
L=Liquid
V=Vegeta
X=Other

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 2 of 2

Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER, JH
Price Code: Many	Data Turnaroun: 21 days		
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC	SAF No.: B04-002	Air Quality
Ice Chest No.: ERC 02 506, 96 002, 02 501, 03 105, 02 101, TNU 052	Field Logbook No.: EL 1173-5	COA: R128B22600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A050 239/240		Bill of Lading/Air Bill No.: SEE ASPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C				
Type of Container	aG	aG	aG	aG	aG	aG	aG				
No. of Container(s)	1	1	1	1	1	1	1				
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1				
Sample No. / Matrix * / Sample Date / Sample Time											
21. J03CF9 / SOIL / 6/8/05 / 1335	✓	✓	✓	✓	✓	✓	✓				
22. J03CH0 / SOIL / 6/8/05 / 1400	✓	✓	✓	✓	✓	✓	✓				
23. J03CH1 / SOIL / 6/8/05 / 0910	✓	✓	✓	✓	✓	✓	✓				
24. J03CH2 / SOIL / 6/8/05 / 1044	✓	✓	✓	✓	✓	✓	✓				
25. J03CC8 / SOIL / 6/8/05 / 0803	✓	✓	✓	✓	✓	✓	✓			FCP Semi VOA	only

00000036

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From: D Bowers	6-8-05/1545	Received By/Stored In: R of 2B 3718	6-8-05/1545
Relinquished By/Removed From: REF 2B 3728	6905 0900	Received By/Stored In: SJGALES	6905 0900
Relinquished By/Removed From: SJGALES ERC	6905 0980	Received By/Stored In: FED EX	
Relinquished By/Removed From: Fed Ex	6/10/05 0920	Received By/Stored In:	6-10-05 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}: Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}: Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to relinquish samples from 3728 Ref # 2B on 6 18 105

Matrix: S=Soil, SE=Sediment, SO=Solid, SL=Sludge, W=Water, O=Oil, A=Air, DS=Drum, DL=Drum, 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 (03/01/2002)

Appendix 5

Data Validation Supporting Documentation

PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E

PROJECT: 100BC 128-B-2		DATA PACKAGE: H3203
VALIDATOR: TLP	LAB: LLI	DATE: 8/3/05
		SDG: H3203

ANALYSES PERFORMED

SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)		

SAMPLES/MATRIX

J03CC9	J03CD0	J03CD1	J03CD2	J03CD4	J03CD5	J03CD6
~~J03CD~~	J03CD7	J03CD8	J03CD9	J03CF0	J03CF1	J03CF2
J03CF3	J03CF4	J03CF5	J03CF6	J03CF7	J03CF8	J03CF9
J03CH0	J03CH1	J03CH2	~~J03CC8~~ 8/22			

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes (No) N/A

Comments:

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations acceptable? ..... Yes No (N/A)

Continuing calibrations acceptable? ..... Yes No (N/A)

Standards traceable? ..... Yes No (N/A)

Standards expired? ..... Yes No (N/A)

Calculation check acceptable? ..... Yes No (N/A)

DDT and endrin breakdowns acceptable? ..... Yes No (N/A)

Comments:

PCB DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

Calibration blanks analyzed? (Levels D, E) ..... Yes No N/A

Calibration blank results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field/trip blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field/trip blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: no FB

4. ACCURACY (Levels C, D, and E)

Surrogates analyzed? ..... Yes No N/A

Surrogate recoveries acceptable? ..... Yes No N/A

Surrogates traceable? (Levels D, E) ..... Yes No N/A

Surrogates expired? (Levels D, E) ..... Yes No N/A

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments: Surrogate PCB D1 & D2 J all detects no PAS

toxaphen. – no ms/msd lcs – J all

PCB DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable? ..... Yes No N/A

Duplicate results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:

6. SYSTEM PERFORMANCE (Levels D and E)

Chromatographic performance acceptable? ..... Yes No N/A

Positive results resolved acceptably? ..... Yes No N/A

Comments:

7. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments:

PCB DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION LIMITS (all levels)

Compound identification acceptable? (Levels D, E) ..... Yes No N/A

Compound quantitation acceptable? (Levels D, E) ..... Yes No N/A

Results reported for all requested analyses? ..... Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: all toxaphene + methoxychlor over past all in D2 ~~[illegible]~~ D0

9. SAMPLE CLEANUP (Levels D and E)

Fluoricil ® (or other absorbent) cleanup performed? ..... Yes No N/A

Lot check performed? ..... Yes No N/A

Check recoveries acceptable? ..... Yes No N/A

GPC cleanup performed? ..... Yes No N/A

GPC check performed? ..... Yes No N/A

GPC check recoveries acceptable? ..... Yes No N/A

GPC calibration performed? ..... Yes No N/A

GPC calibration check performed? ..... Yes No N/A

GPC calibration check retention times acceptable? ..... Yes No N/A

Check/calibration materials traceable? ..... Yes No N/A

Check/calibration materials Expired? ..... Yes No N/A

Analytical batch QC given similar cleanup? ..... Yes No N/A

Transcription/Calculation Errors? ..... Yes No N/A

Comments:

Date: 8 August 2005
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100BC Burial Grounds - Soil Full Protocol - Waste Site 128-B-2
Subject: Wet Chemistry - Data Package No. H3203-LLI

INTRODUCTION

This memo presents the results of data validation on Data Package No. H3203-LLI prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Analysis
J03CC9	6/8/05	Soil	C	See note 1
J03CD0	6/8/05	Soil	C	See note 1
J03CD1	6/8/05	Soil	C	See note 1
J03CD2	6/8/05	Soil	C	See note 1
J03CD3	6/8/05	Soil	C	See note 1
J03CD4	6/8/05	Soil	C	See note 1
J03CD5	6/8/05	Soil	C	See note 1
J03CD6	6/8/05	Soil	C	See note 1
J03CD7	6/8/05	Soil	C	See note 1
J03CD8	6/8/05	Soil	C	See note 1
J03CD9	6/8/05	Soil	C	See note 1
J03CF0	6/8/05	Soil	C	See note 1
J03CF1	6/8/05	Soil	C	See note 1
J03CF2	6/8/05	Soil	C	See note 1
J03CF3	6/8/05	Soil	C	See note 1
J03CF4	6/8/05	Soil	C	See note 1
J03CF5	6/8/05	Soil	C	See note 1
J03CF6	6/8/05	Soil	C	See note 1
J03CF7	6/8/05	Soil	C	See note 1
J03CF8	6/8/05	Soil	C	See note 1
J03CF9	6/8/05	Soil	C	See note 1
J03CH0	6/8/05	Soil	C	See note 1
J03CH1	6/8/05	Soil	C	See note 1
J03CH2	6/8/05	Soil	C	See note 1

1 - Total petroleum hydrocarbons (TPH) by 418.1

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, Rev. 4, February 2005). Appendices 1 through 6 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested by Client

DATA QUALITY PARAMETERS

- **Holding Times**

Analytical holding times for metals are assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Soil samples must be analyzed within 28 days for TPH.

If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were acceptable.

- **Method Blanks**

Method Blanks

Method blank analyses are performed to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. All blank results must fall below the contract required detection limit (CRQL) to be acceptable.

All method blank results were acceptable.

Field (Equipment) Blank

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike and Laboratory Control Sample

Matrix spike (MS) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 70% to 130%. Samples with a recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a recovery of 30% to 69% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 130% or less than 70% and a sample result greater than the IDL are qualified as estimates and flagged "J".

Finally, for samples with a recovery greater than 130% and a sample result less than the IDL, no qualification is required.

All accuracy results were acceptable.

- **Precision**

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike duplicate (MSD) analyses performed on a sample in the analytical batch. Precision may alternatively be assessed using unspiked duplicate analyses performed on a sample in the analytical batch. If both sample and replicate activities (concentrations) are greater than five times the CRDL and the RPD is less than 30%, no qualification is required. If either activity (concentration) is less than five times the CRDL, the RPD control limit is less than or equal to two times the CRDL. If the RPD is outside the applicable control limit, associated results are qualified as estimated detects or estimated non-detects.

All laboratory duplicate results were acceptable.

Field Duplicate

Two sets of field duplicate samples (J03CD4/J03CH1 and J03CF0/J03CH2) were submitted for analysis. Field duplicate results are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the required quantitation limits (RQLs) to ensure that laboratory detection levels meet the required criteria.

All undetected TPH results exceeded the RQL. Under the BHI statement of work, no qualification is required.

- **Completeness**

Data package No. H3203-LLI was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

All undetected TPH results exceeded the RQL. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-96-22, Rev. 4, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, February 2005.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with BHI validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the sample quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated concentration is an estimate, but the data are usable for decision-making purposes.

BJ - Applied to inorganic analyses only. Indicates the analyte concentration was greater than the IDL but less than the CRDL and is considered an estimated value.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

WET CHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: H3203	REVIEWER: TLI	Project: 128-B-2	PAGE 1 OF 1
Comments: No qualifiers assigned			

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

WET CHEMISTRY ANALYSIS, SOIL MATRIX, MG/KG

Project: BECHTEL-HANFORD																					
Laboratory: LLI																					
Case	SDG: H3203																				
Sample Number		J03CC9		J03CD0		J03CD1		J03CD2		J03CD3		J03CD4		J03CD5		J03CD6		J03CD7		J03CD8	
Remarks																					
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05	
Wet Chemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total petroleum hydrocarbons	5	133	U	133	U	134	U	134	U	133	U	134	U	133	U	133	U	132	U	132	U

Sample Number		J03CD9		J03CF0		J03CF1		J03CF2		J03CF3		J03CF4		J03CF5		J03CF6		J03CF7		J03CF8	
Remarks																					
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05	
Wet Chemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Total petroleum hydrocarbons	5	133	U	134	U	134	U	132	U	133	U	133	U	134	U	133	U	134	U	133	U

Sample Number		J03CF9		J03CH0		J03CH1		J03CH2	
Remarks									
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05	
Wet Chemistry	RQL	Result	Q	Result	Q	Result	Q	Result	Q
Total petroleum hydrocarbons	5	132	U	132	U	134	U	134	U

000010

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation.

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 07/01/05

CLIENT: TNUHANFORD B04-002 H3203
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0506L720

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J03CC9	% Solids	99.5		%	0.01	1.0
		Petroleum Hydrocarbons	133	u	MG/KG	133	1.0
-002	J03CD0	% Solids	99.9		%	0.01	1.0
		Petroleum Hydrocarbons	133	u	MG/KG	133	1.0
-003	J03CD1	% Solids	99.7		%	0.01	1.0
		Petroleum Hydrocarbons	134	u	MG/KG	134	1.0
-004	J03CD2	% Solids	98.8		%	0.01	1.0
		Petroleum Hydrocarbons	134	u	MG/KG	134	1.0
-005	J03CD3	% Solids	99.5		%	0.01	1.0
		Petroleum Hydrocarbons	133	u	MG/KG	133	1.0
-006	J03CD4	% Solids	99.4		%	0.01	1.0
		Petroleum Hydrocarbons	134	u	MG/KG	134	1.0
-007	J03CD5	% Solids	99.6		%	0.01	1.0
		Petroleum Hydrocarbons	133	u	MG/KG	133	1.0
-008	J03CD6	% Solids	100		%	0.01	1.0
		Petroleum Hydrocarbons	133	u	MG/KG	133	1.0
-009	J03CD7	% Solids	99.9		%	0.01	1.0
		Petroleum Hydrocarbons	132	u	MG/KG	132	1.0
-010	J03CD8	% Solids	99.9		%	0.01	1.0
		Petroleum Hydrocarbons	132	u	MG/KG	132	1.0

8/6/04

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 07/01/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-011	J03CD9	% Solids	99.9		%	0.01	1.0
		Petroleum Hydrocarbons	133	u	MG/KG	133	1.0
-012	J03CF0	% Solids	99.4		%	0.01	1.0
		Petroleum Hydrocarbons	134	u	MG/KG	134	1.0
-013	J03CF1	% Solids	99.8		%	0.01	1.0
		Petroleum Hydrocarbons	134	u	MG/KG	134	1.0
-014	J03CF2	% Solids	99.9		%	0.01	1.0
		Petroleum Hydrocarbons	132	u	MG/KG	132	1.0
-015	J03CF3	% Solids	99.8		%	0.01	1.0
		Petroleum Hydrocarbons	133	u	MG/KG	133	1.0
-016	J03CF4	% Solids	99.8		%	0.01	1.0
		Petroleum Hydrocarbons	133	u	MG/KG	133	1.0
-017	J03CF5	% Solids	99.1		%	0.01	1.0
		Petroleum Hydrocarbons	134	u	MG/KG	134	1.0
-018	J03CF6	% Solids	99.6		%	0.01	1.0
		Petroleum Hydrocarbons	133	u	MG/KG	133	1.0
-019	J03CF7	% Solids	99.0		%	0.01	1.0
		Petroleum Hydrocarbons	134	u	MG/KG	134	1.0
-020	J03CF8	% Solids	99.6		%	0.01	1.0
		Petroleum Hydrocarbons	133	u	MG/KG	133	1.0

8/6/04

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 07/01/05

CLIENT: TNUHANFORD B04-002 H3203
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0506L736

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	J03CF9	% Solids	99.9		%	0.01	1.0
		Petroleum Hydrocarbons	132	u	MG/KG	132	1.0
-002	J03CH0	% Solids	99.8		%	0.01	1.0
		Petroleum Hydrocarbons	132	u	MG/KG	132	1.0
-003	J03CH1	% Solids	99.5		%	0.01	1.0
		Petroleum Hydrocarbons	134	u	MG/KG	134	1.0
-004	J03CH2	% Solids	99.4		%	0.01	1.0
		Petroleum Hydrocarbons	134	u	MG/KG	134	1.0
-005	J03CC8	% Solids	99.9		%	0.01	1.0

8/6/04

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B04-002 H3203
LVL#: 0506L720

W.O.#: 11343-606-001-9999-00
Date Received: 06-10-05

INORGANIC NARRATIVE

1. This narrative covers the analyses of 20 soil samples.

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

   LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

3. Sample holding times as required by the method and/or contract were met.

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. The method blanks for Petroleum Hydrocarbons (PHC) were within the method criteria.

6. The Laboratory Control Samples (LCS) for PHC were within the laboratory control limits.

7. The matrix spike recovery for PHC was within the 75-125% control limits.

8. The replicate analyses for Percent Solids and PHC were within the 20% Relative Percent Difference (RPD) control limit.

9. Results for solid samples are reported on a dry weight basis.

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 package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

7/6/05
Date

njp\i06-720

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

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

LIONVILLE LABORATORY INC.

Analytical Report

Client: TNU-HANFORD B04-002 H3203
LVL#: 0506L736

W.O.#: 11343-606-001-9999-00
Date Received: 06-10-05

INORGANIC NARRATIVE

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

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

   LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.

3. Sample holding times as required by the method and/or contract were met.

4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.

5. The method blank for Petroleum Hydrocarbons (PHC) was within the method criteria.

6. The Laboratory Control Sample (LCS) for PHC was within the laboratory control limits.

7. The matrix spike recovery for PHC was within the 75-125% control limits.

8. The replicate analyses for Percent Solids and PHC were within the 20% Relative Percent Difference (RPD) control limit.

9. Results for solid samples are reported on a dry weight basis.

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 package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

9/6/05
Date

njp\i06-736

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 9 pages.

208 Welsh Pool Road • Exton, PA 19341- 1313 • (610) 280-3000 • Fax (610) 280-3041

05061 720

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 1 of 5

Collector D Bowersw/C Martinez/J Kiesler	Company Contact Doug Bowers	Telephone No. 531-0701	Project Coordinator KESSNER, JH	Price Code Many	Data Turnaround 21 days
Project Designation 100 BC Burial Grounds - Soil Full Protocol	Sampling Location 128-B-2 @ 100 BC		SAF No. B04-002	Air Quality	
Ice Chest No. ERL 02 506, 96 002, 02 501, 03105, 02 101, THV052	Field Logbook No. EL 1173-5	COA R128B22600	Method of Shipment Fed Ex		
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A050 239/240		Bill of Lading/Air Bill No. S GE 05PC		

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None (E)	Cool 4C (C)	Cool 4C (B)	Cool 4C (A)	None	Cool 4C (D)	Cool 4C (F)			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			

	Sample No.	Matrix *	Sample Date	Sample Time										
1.	J03CC9	SOIL	6/8/05	0817	✓	✓	✓	✓	6-8-05	✓	✓			
2.	J03CD0	SOIL	6/8/05	0821	✓	✓	✓	✓		✓	✓			
3.	J03CD1	SOIL	6/8/05	0832	✓	✓	✓	✓		✓	✓			
4.	J03CD2	SOIL	6/8/05	0840	✓	✓	✓	✓		✓	✓			
5.	J03CD3	SOIL	6/8/05	0900	✓	✓	✓	✓		✓	✓			

CHAIN OF POSSESSION	Date/Time	Sign/Print Names	Date/Time
Relinquished By/Removed From Doug Bowers	6-8-05/1741	Received By/Stored In Ref 2B 3728	6-8-05/1741
Relinquished By/Removed From Ref 2B 3728	6905 0900	Received By/Stored In S GALE	6905 0900
Relinquished By/Removed From S GALE ERC	6905 0900	Received By/Stored In FED EX	
Relinquished By/Removed From Fed Ex	6/10/05 0920	Received By/Stored In	6/10/05 0920
Relinquished By/Removed From		Received By/Stored In	
Relinquished By/Removed From		Received By/Stored In	

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to Relinquish samples from 3728 Ref # 2B on 6/9/05

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 2 of 5

Collector D Bowersw/C Martinez/J Kiesler	Company Contact Doug Bowers	Telephone No. 531-0701	Project Coordinator KESSNER. JH
Price Code Many	Data Turnaround Air Quality 21 days		
Project Designation 100 BC Burial Grounds - Soil Full Protocol	Sampling Location 128-B-2 @ 100 BC		SAF No. B04-002
Ice Chest No. ERC 02 506, 96 002, 02 501, 03 105, 02 101, TNV 052	Field Logbook No. EL 1173-5	COA R128B22600	Method of Shipment Fed Ex
Shipped To EBERLINE SERVICES (LIONVILLE)	Offsite Property No. A050239/240		Bill of Lading/Air Bill No. SEE OSP

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation			None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C			
Type of Container			aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)			1	1	1	1	1	1	1			
Volume			250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS			See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			
Sample No.	Matrix *	Sample Date	Sample Time									
6 J03CD4	SOIL	6/8/05	0900	X	X	X	X	6-8-05	X	X		
7 J03CD5	SOIL	6/8/05	0950	X	X	X	X		X	X		
8 J03CD6	SOIL	6/8/05	0955	X	X	X	X		X	X		
9 J03CD7	SOIL	6/8/05	1001	X	X	X	X		X	X		
10 J03CD8	SOIL	6/8/05	1025	X	X	X	X		X	X		

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Doug Bowers	6-8-05/1545	Ref 2B 3728	6-8-05/1545
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Ref 2B 3728	6905 0900	SJ Gale	6905 0900
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
SJ Gale ERC	6905 0900	FED EX	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
FedEx	6-10-05 0920		6-10-05 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}: Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}: Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to relinquish samples from 3728 Ref # 2B on 6/9/05

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

BHI-EF-011 (03/01/2002)

000018

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 3 of 5

Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER, JH
Price Code: Many	Data Turnaround: Air Quality 21 days		
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC		SAF No.: B04-002
Ice Chest No.: ERC 02 506, 96 002, 02501, 03105, 02 101, THU 052	Field Logbook No.: EL 1173-5	COA: R128B22600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A050 239/240		Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

SAMPLE ANALYSIS												
Preservation				None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C		
Type of Container				aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)				1	1	1	1	1	1	1		
Volume				250mL	120mL	120mL	120mL	500mL	250mL	120mL		
				See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1		
Sample No.	Matrix *	Sample Date	Sample Time									
11. J03CD9	SOIL	6/8/05	1030	✓	✓	✓	✓		✓	X		
12. J03CF0	SOIL	6/8/05	1041	✓	✓	✓	✓		✓	X		
13. J03CF1	SOIL	6/8/05	1055	✓	✓	✓	✓		✓	X		
14. J03CF2	SOIL	6/8/05	1110	✓	✓	✓	✓		✓	X		
15. J03CF3	SOIL	6/8/05	1117	✓	✓	✓	✓		✓	X		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Doug Bowers	Date/Time: 6-9-05/1545	Received By/Stored In: REF 2B 3728	Date/Time: 6-9-05/1545
Relinquished By/Removed From: REF 2B 3728	Date/Time: 6905 0900	Received By/Stored In: SUGALE	Date/Time: 6905 0900
Relinquished By/Removed From: SUGALE	Date/Time: ERC 6905 0900	Received By/Stored In: FEDEX	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 6-10-05 0720	Received By/Stored In:	Date/Time: 6-10-05 0920
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}, Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to relinquish samples from 3728 Ref #2B on 6/9/05

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

BHI-EE-011 (03/01/2002)

0000019

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

Bechtel Hanford Inc.

B04-002-040 | Page 4 of 5

Collector: D Bowersw/C Martinez/J Kiesler

Company Contact: Doug Bowers | Telephone No.: 531-0701

Project Coordinator: KESSNER, JH

Price Code: Many | Data Turnaround: 21 days

Project Designation: 100 BC Burial Grounds - Soil Full Protocol

Sampling Location: 128-B-2 @ 100 BC

SAF No.: B04-002

Air Quality: 1

Ice Chest No.: GRC 02 506, 96 002, 02 501, 03 105, 02 101, JN0052

Field Logbook No.: EL 1173-5 | COA: R128B22600

Method of Shipment: Fed Ex

Shipped To: EBERLINE SERVICES / LIONVILLE

Offsite Property No.: A050 239/240

Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			

	Sample No.	Matrix *	Sample Date	Sample Time									
16.	J03CF4	SOIL	~~6/8/05~~ 1230 6/8/05	1230	✓	✓	✓	✓	✓	✓	✓		
17.	J03CF5	SOIL	6/8/05	1235	✓	✓	✓	✓	✓	✓	✓		
18.	J03CF6	SOIL	6/8/05	1250	✓	✓	✓	✓	✓	✓	✓		
19.	J03CF7	SOIL	6/8/05	1330	✓	✓	✓	✓	✓	✓	✓		
20.	J03CF8	SOIL	6/8/05	1333	✓	✓	✓	✓	✓	✓	✓		

020020

CHAIN OF POSSESSION

Relinquished By/Removed From (Sign/Print Names)	Date/Time	Received By/Stored In (Sign/Print Names)	Date/Time
Doug Bowers Bowers	6-8-05/1545	REF 2B 3728	6-8-05/1545
REF 2B 3728	6905 0900	SJGALE	6905 0900
SJGALE	6905 ORC 0900	FED EX	
Fed Ex	6/10/05 0920		6-10-05 0920

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to Relinquish samples from 3728 Ref # 2B on 6/9/05

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 2 of 5

Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER, JH
Price Code: Many	Data Turnaround: 21 days		
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC	SAF No.: B04-002	Air Quality
Ice Chest No.: ERC 02 506, 96 002, 02 501, 03 105, 02 101, TNU 052	Field Logbook No.: EL 1173-5	COA: R128B22600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A050 239/240		Bill of Lading/Air Bill No.: SEE ASPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation			None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C			
Type of Container			aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)			1	1	1	1	1	1	1			
Volume			250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS			See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			
Sample No.	Matrix *	Sample Date	Sample Time									
21. J03CF9	SOIL	6/8/05	1335	✓	✓	✓	✓	✓	✓	✓		
22. J03CH0	SOIL	6/8/05	1400	✓	✓	✓	✓	✓	✓	✓		
23. J03CH1	SOIL	6/8/05	0910	✓	✓	✓	✓	✓	✓	✓		
24. J03CH2	SOIL	6/8/05	1044	✓	✓	✓	✓	✓	✓	✓		
25. J03CC8	soil	6/8/05	0803	✓	✓	✓	✓	✓	✓	✓	FCP 5 ml VOA	only

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Doug Bowers	6-8-05/1544	REF 2B 3728	6-8-05/1544
REF 2B 3728	6905 0900	SJGALE	6905 0900
SJGALE	6905 0900 ERC	FED EX	
FED EX	6/10/05 0920		6-10-05 0920

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to relinquish samples from 3728 Ref # 2B on 6 18 105

Matrix *: S=Soil, SE=Sediment, SO=Solid, SL=Sludge, W=Water, O=Oil, A=Air, DS=Drum Solid, DL=Drum Liquid, 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 (03/01/2002)

000021

Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100BC 128-B-2			DATA PACKAGE: H3203		
VALIDATOR: TLI		LAB: LLI		DATE: 8/4/05	
			SDG: H3203		

ANALYSES PERFORMED					
Anions/IC	TOC	TOX	TPH-418.1	Oil and Grease	Alkalinity
Ammonia	BOD/COD	Chloride	Chromium-VI	pH	NO_3/NO_2
Sulfate	TDS	TKN	Phosphate		

SAMPLES/MATRIX							
J03CC9	J03CD0	J03CD1	J03CD2	J03CD3	J03CD4	J03CD5	J03CD6
J03CD7	J03CD8	J03CD9	J03CF0	J03CF1	J03CF2	J03CF3	J03CF4
J03CF5	J03CF6	J03CF7	J03CF8	J03CF9	J03CH0	J03CH1	J03CH2
~~J03CF6~~ 8/4/05							
							Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes (No) N/A

Comments:

2. INSTRUMENT PERFORMANCE AND CALIBRATIONS (Levels D and E)

Initial calibrations performed on all instruments? ..... Yes No (N/A)

Initial calibrations acceptable? ..... Yes No (N/A)

ICV and CCV checks performed on all instruments? ..... Yes No (N/A)

ICV and CCV checks acceptable? ..... Yes No (N/A)

Standards traceable? ..... Yes No (N/A)

Standards expired? ..... Yes No (N/A)

Calculation check acceptable? ..... Yes No (N/A)

Comments:

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

ICB and CCB checks performed for all applicable analyses? (Levels D, E) ..... Yes No N/A

ICB and CCB results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: _____

4. ACCURACY (Levels C, D, and E)

Spike samples analyzed? ..... Yes No N/A

Spike recoveries acceptable? ..... Yes No N/A

Sike standards NIST traceable? (Levels D, E) ..... Yes No N/A

Spike standards expired? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments: no pk

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

Duplicate RPD values acceptable? ..... Yes No N/A

Duplicate results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments:

6. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments:

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

7. RESULT QUANTITATION AND DETECTION LIMITS (all levels)

Results reported for all requested analyses? ..... Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: all undetects over

Appendix 6

Additional Documentation Requested by Client

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 07/01/05

CLIENT: TNUHANFORD B04-002 H3203 LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	05LHC038-MB1	Petroleum Hydrocarbons	133	u	MG/KG	133	1.0
BLANK10	05LHC039-MB1	Petroleum Hydrocarbons	133	u	MG/KG	133	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 07/01/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT		SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-005	J03CD3	Petroleum Hydrocarbons	605	4.4		560	107.1	1.0
BLANK10	05LHC038-MB1	Petroleum Hydrocarbons	525	133	u	560	93.7	1.0
BLANK10	05LHC039-MB1	Petroleum Hydrocarbons	644	133	u	560	115.0	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 07/01/05

CLIENT: TNUHANFORD B04-002 H3203

LVL LOT #: 0506L720

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-005REP	J03CD3	Petroleum Hydrocarbons	133 u	134 u	NC	1.0
-018REP	J03CF6	% Solids	99.6	99.6	0.060	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 07/01/05

CLIENT: TNUHANFORD B04-002 H3203
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0506L736

SAMPLE	SITE ID	ANALYTE	RESULT		UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	05LHC039-MB1	Petroleum Hydrocarbons	133	u	MG/KG	133	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 07/01/05

CLIENT: TNUHANFORD B04-002 H3203 LVL LOT #: 0506L736

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR(SPK)
-003	J03CH1	Petroleum Hydrocarbons	574	4.5	560	101.7	1.0
BLANK10	05LHC039-MB1	Petroleum Hydrocarbons	644	133 u	560	115.0	1.0

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 07/01/05

CLIENT: TNUHANFORD B04-002 H3203 LVL LOT #: 0506L736

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

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR(REP)
-003REP	J03CH1	Petroleum Hydrocarbons	134 u	133 u	NC	1.0
-005REP	J03CC8	% Solids	99.9	99.9	0.010	1.0

Date: 8 August 2005
To: Bechtel Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 100BC Burial Grounds - Soil Full Protocol - Waste Site 128-B-2
Subject: Volatile - Data Package No. H3203-LLI (SDG No. H3203)

INTRODUCTION

This memo presents the results of data validation on Data Package No. H3203-LLI prepared by Lionville Laboratory Inc. (LLI). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample Date	Media	Validation	Date
J03CC9	6/8/05	Soil	C	8270C
J03CC9R*	6/8/05	Soil	C	8270C
J03CD0	6/8/05	Soil	C	8270C
J03CD0R*	6/8/05	Soil	C	8270C
J03CD1	6/8/05	Soil	C	8270C
J03CD1R*	6/8/05	Soil	C	8270C
J03CD2	6/8/05	Soil	C	8270C
J03CD2R*	6/8/05	Soil	C	8270C
J03CD3	6/8/05	Soil	C	8270C
J03CD4	6/8/05	Soil	C	8270C
J03CD4R*	6/8/05	Soil	C	8270C
J03CD5	6/8/05	Soil	C	8270C
J03CD6	6/8/05	Soil	C	8270C
J03CD7	6/8/05	Soil	C	8270C
J03CD7R*	6/8/05	Soil	C	8270C
J03CD8	6/8/05	Soil	C	8270C
J03CD9	6/8/05	Soil	C	8270C
J03CD9R*	6/8/05	Soil	C	8270C
J03CF0	6/8/05	Soil	C	8270C
J03CF0R*	6/8/05	Soil	C	8270C
J03CF1	6/8/05	Soil	C	8270C
J03CF1R*	6/8/05	Soil	C	8270C
J03CF2	6/8/05	Soil	C	8270C
J03CF3	6/8/05	Soil	C	8270C
J03CF3R*	6/8/05	Soil	C	8270C
J03CF4	6/8/05	Soil	C	8270C
J03CF5	6/8/05	Soil	C	8270C
J03CF6	6/8/05	Soil	C	8270C
J03CF7	6/8/05	Soil	C	8270C
J03CF8	6/8/05	Soil	C	8270C
J03CF8R*	6/8/05	Soil	C	8270C
J03CF9	6/8/05	Soil	C	8270C

J03CH0	6/8/05	Soil	C	8270C
J03CH1	6/8/05	Soil	C	8270C
J03CH1R*	6/8/05	Soil	C	8270C
J03CH2	6/8/05	Soil	C	8270C
J03CC8	6/8/05	Soil	C	8270C

* - Reprepared and reanalyzed

Data validation was conducted in accordance with the Bechtel Hanford Incorporated (BHI) validation statement of work and the 100 Area Remedial Action Sampling and Analysis Plan (DOE/RL-96-22, February 2005). Appendices 1 through 5 provide the following information as indicated below:

Appendix 1. Glossary of Data Reporting Qualifiers
Appendix 2. Summary of Data Qualification
Appendix 3. Qualified Data Summary and Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation

DATA QUALITY OBJECTIVES

- **Holding Times**

Analytical holding times were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirements are as follows: Samples must be analyzed within 14 days of the date of sample collection.

If holding times are exceeded, but not by greater than two times the limit, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If holding times are exceeded by greater than two times the limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

All holding times were met.

- **Method Blanks**

Method blank analyses are conducted to determine the extent of laboratory contamination introduced through sampling, sample preparation and analysis. At least one acceptable method blank analysis must be conducted for every 20 samples. No contaminants should be present in the method blank. Analytical results for analytes present in any sample at less than five times the concentration of that analyte found in the associated blank are qualified as non-detects and

flagged "U". Common laboratory contaminants present in samples at less than ten times the concentration of that analyte found in the associated blank are qualified as non-detects. If a sample result is less than the CRQL and is less than five times (or less than ten times for lab contaminants) the highest associated blank result, the sample result value is raised to the CRQL level and qualified as undetected "U".

Due to method blank contamination, all methylene chlorine results (except J03CF9, J03CH0 and J03CC8) were qualified as undetected and flagged "U".

Due to method blank contamination, all methylene chlorine results in samples J03CF9, J03CH0 and J03CC8 were raised to the RQL, qualified as undetected and flagged "U".

All other method blank results were acceptable.

Field Blanks

One field blank (J03CC8) was submitted for analysis. No analytes were detected in the field blank.

- **Accuracy**

Matrix Spike/Matrix Spike Duplicate & Blank Spike Recoveries

Matrix spike/matrix spike duplicate analyses are used to assess the analytical accuracy of the reported data and the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike/matrix spike duplicate analyses are performed in duplicate using five compounds for which percent recoveries must be within a range of 50-150% or within laboratory control limits. If spike recoveries are outside control limits, detected sample results less than five times the spike concentration are qualified as estimates and flagged "J". Undetected sample results with spike recoveries below control limits are qualified as estimates and flagged "UJ". Undetected sample results are not qualified if the spike recovery is above control limits. Sample results greater than five times the spike concentration require no qualification.

Due to the lack of a matrix spike and matrix spike duplicate analysis, all volatile organic results in samples J03CH1R, J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6, J03CD7, J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7 and J03CF8 were qualified as estimates and flagged "J".

All other accuracy results were acceptable.

Surrogate Recovery

The analyses of surrogate compounds provide a measure of performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the EPA CLP program. If two surrogates of the same class of compounds (base/neutral or acid) are out of control limits, all associated sample results greater than the contract required quantitation limit (CRQL) are qualified as estimates and flagged "J". Sample results less than the CRQL and below the lower control limit are qualified as estimates and flagged "UJ". Sample results less than the CRQL with recoveries above the upper control limit require no qualification. If a surrogate recovery is less than 10%, detects are qualified as estimates and flagged "J" and nondetects are rejected and flagged "UR".

All surrogate results were acceptable.

- **Precision**

Matrix Spike/Matrix Spike Duplicate Samples

Matrix spike (MS)/matrix spike duplicate (MSD) results provide matrix-specific information on the precision of the method for specific target compound classes. Precision is expressed by the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. Samples results must be within RPD limits of +/-30%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated detected sample results are qualified as estimates and flagged "J". If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

Due to the lack of a matrix spike and matrix spike duplicate analysis, all volatile organic results in samples J03CH1R, J03CC8, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6, J03CD7, J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7 and J03CF8 were qualified as estimates and flagged "J".

All other precision results were acceptable.

Field Duplicate Samples

Two sets of field duplicate samples (J03CD4/J03CH1 and J03CF0/J03CH2) were submitted for analysis. Field duplicate results are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the required quantitation limits (RQL's) to ensure that laboratory detection levels meet the required criteria. Seventy-two analytes were reported above the RQL. Under the BHI statement of work, no qualification is required. All other analytes met the RQL.

- **Completeness**

Data package No. H3132-LLI was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Due to method blank contamination, all methylene chlorine results (except J03CF9, J03CH0 and J03CC8) were qualified as undetected and flagged "U". Due to method blank contamination, all methylene chlorine results in samples J03CF9, J03CH0 and J03CC8 were raised to the RQL, qualified as undetected and flagged "U". Due to the lack of a matrix spike and matrix spike duplicate analysis, all volatile organic results in samples J03CH1R, J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6, J03CD7, J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7 and J03CF8 were qualified as estimates and flagged "J".

Data flagged "J" indicates that the associated concentration is an estimate, but under the BHI statement of work, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

Seventy-two were reported above the RQL. Under the BHI statement of work, no qualification is required.

REFERENCES

BHI, MRB-SBB-A23665, *Validation Statement of Work*, Bechtel Hanford Incorporated, September 5, 1997.

DOE/RL-96-22, Rev. 4, *100 Area Remedial Action Sampling and Analysis Plan*, U.S. Department of Energy, February 2005.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the BHI validation SOW are as follows:

U - Indicates the compound or analyte was analyzed for and not detected in the sample. The value reported is the same quantitation limit corrected for sample dilution and moisture content by the laboratory.

UJ - Indicates the compound or analyte was analyzed for and not detected in the sample. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

J - Indicates the compound or analyte was analyzed for and detected. Due to a minor QC deficiency identified during the data validation, the associated quantitation limit is an estimate.

R - Indicates the compound or analyte was analyzed for, detected, and due to an identified major QC deficiency, the data are unusable.

UR - Indicates the compound or analyte was analyzed for and not detected in the sample. Additionally, the data is unusable due to an identified major QC deficiency.

NJ - Indicates presumptive evidence of a compound at an estimated value. The data may not be valid for some specific applications (i.e., usable for decision-making purposes).

N - Indicates presumptive evidence of a compound. The data may not be valid for some specific applications usable for decision-making purposes).

Appendix 2

Summary of Data Qualification

VOLATILE ORGANIC DATA QUALIFICATION SUMMARY*

SDG: H3203	REVIEWER: TLI	Project: 128-B-2	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Methylene Chloride	U	All except J03CF9, J03CH0 and J03CC8	Blank contamination
Methylene chloride	U at RQL	J03CF9, J03CH0 J03CC8	Blank contamination
All	J	J03CC9, J03CD0, J03CD1, J03CD2, J03CD3, J03CD4, J03CD5, J03CD6, J03CD7, J03CD8, J03CD9, J03CF0, J03CF1, J03CF2, J03CF3, J03CF4, J03CF5, J03CF6, J03CF7, J03CF8, J03CH1R	No MS or MSD

* - The Qualified Data Summary Table includes laboratory applied "U" qualifiers not specifically identified here. The laboratory applied "U" qualifiers are included to minimize misinterpretation of results contained in the table.

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX (ug/Kg)

Project: BECHTEL-HANFORD																					
Laboratory: LLI																					
Case:	SDG: H3203																				
Sample Number		J03CC9		J03CC9R		J03CD0		J03CD0R		J03CD1		J03CD1R		J03CD2		J03CD2R		J03CD3		J03CD4	
Remarks																					
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05	
Analysis Date		06/16/05		06/20/05		06/16/05		06/20/05		06/16/05		06/20/05		06/16/05		06/20/05		06/17/05		06/17/05	
VOA	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	UJ	10	U	10	UJ	10	U	9	UJ	11	U	11	UJ	10	U	11	UJ	11	UJ
Bromomethane	10	10	UJ	10	U	10	UJ	10	U	9	UJ	11	U	11	UJ	10	U	11	UJ	11	UJ
Vinyl Chloride	10	10	UJ	10	U	10	UJ	10	U	9	UJ	11	U	11	UJ	10	U	11	UJ	11	UJ
Chloroethane	10	10	UJ	10	U	10	UJ	10	U	9	UJ	11	U	11	UJ	10	U	11	UJ	11	UJ
Methylene Chloride	10	40	UJ	19	U	40	UJ	16	U	25	UJ	19	U	34	UJ	15	U	15	UJ	19	UJ
Acetone	10	10	UJ	10	U	10	UJ	10	U	9	UJ	11	U	11	UJ	10	U	11	UJ	11	UJ
Carbon Disulfide	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
1,1-Dichloroethene	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
1,1-Dichloroethane	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
1,2-Dichloroethene (total)	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
Chloroform	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
1,2-Dichloroethane	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
2-Butanone	10	10	UJ	10	U	10	UJ	10	U	9	UJ	11	U	11	UJ	10	U	11	UJ	11	UJ
1,1,1-Trichloroethane	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
Carbon Tetrachloride	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
Bromodichloromethane	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
1,2-Dichloropropane	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
cis-1,3-Dichloropropene	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
Trichloroethene	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
Dibromochloromethane	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
1,1,2-Trichloroethane	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
Benzene	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
trans-1,3-Dichloropropene	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
Bromoform	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
4-Methyl-2-pentanone	10	10	UJ	10	U	10	UJ	10	U	9	UJ	11	U	11	UJ	10	U	11	UJ	11	UJ
2-Hexanone	10	10	UJ	10	U	10	UJ	10	U	9	UJ	11	U	11	UJ	10	U	11	UJ	11	UJ
Tetrachloroethene	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
1,1,2,2-Tetrachloroethane	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
Toluene	10	6	J	5	U	6		3		5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
Chlorobenzene	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
Ethylbenzene	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
Styrene	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
Xylene	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
cis-1,2-Dichloroethene	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ
trans-1,2-Dichloroethene	10	5	UJ	5	U	5	UJ	5	U	5	UJ	6	U	6	UJ	5	U	6	UJ	6	UJ

000012

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize mis-interpretation of results. All other qualifiers shown were applied during validation.

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX (ug/Kg)

Project: BECHTEL-HANFORD																					
Laboratory: LLI																					
Case:	SDG: H3203																				
Sample Number		J03CD4R		J03CD5		J03CD6		J03CD7		J03CD7R		J03CD8		J03CD9		J03CD9R		J03CF0		J03CF0R	
Remarks																					
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05	
Analysis Date		06/20/05		06/17/05		06/17/05		06/17/05		06/20/05		06/17/05		06/17/05		06/20/05		06/17/05		06/20/05	
VOA	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	U	11	UJ	10	UJ	11	UJ	9	U	9	UJ	9	UJ	10	U	9	UJ	10	U
Bromomethane	10	10	U	11	UJ	10	UJ	11	UJ	9	U	9	UJ	9	UJ	10	U	9	UJ	10	U
Vinyl Chloride	10	10	U	11	UJ	10	UJ	11	UJ	9	U	9	UJ	9	UJ	10	U	9	UJ	10	U
Chloroethane	10	10	U	11	UJ	10	UJ	11	UJ	9	U	9	UJ	9	UJ	10	U	9	UJ	10	U
Methylene Chloride	10	17	U	19	UJ	24	UJ	32	UJ	21	U	17	UJ	27	UJ	23	U	20	UJ	17	U
Acetone	10	10	U	11	UJ	10	UJ	11	UJ	9	U	9	UJ	9	UJ	10	U	9	UJ	10	U
Carbon Disulfide	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
1,1-Dichloroethene	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
1,1-Dichloroethane	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
1,2-Dichloroethene (total)	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
Chloroform	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
1,2-Dichloroethane	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
2-Butanone	10	10	U	11	UJ	10	UJ	11	UJ	9	U	9	UJ	9	UJ	10	U	9	UJ	10	U
1,1,1-Trichloroethane	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
Carbon Tetrachloride	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
Bromodichloromethane	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
1,2-Dichloropropane	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
cis-1,3-Dichloropropene	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
Trichloroethene	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
Dibromochloromethane	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
1,1,2-Trichloroethane	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
Benzene	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
trans-1,3-Dichloropropene	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
Bromoform	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
4-Methyl-2-pentanone	10	10	U	11	UJ	10	UJ	11	UJ	9	U	9	UJ	9	UJ	10	U	9	UJ	10	U
2-Hexanone	10	10	U	11	UJ	10	UJ	11	UJ	9	U	9	UJ	9	UJ	10	U	9	UJ	10	U
Tetrachloroethene	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
1,1,2,2-Tetrachloroethane	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
Toluene	10	5	U	6	UJ	5	UJ	4	J	5	U	5	UJ	4	UJ	5	U	4	J	4	U
Chlorobenzene	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
Ethylbenzene	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
Styrene	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
Xylene	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
cis-1,2-Dichloroethene	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U
trans-1,2-Dichloroethene	10	5	U	6	UJ	5	UJ	6	UJ	5	U	5	UJ	4	UJ	5	U	4	UJ	5	U

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize mis-interpretation of results. All other qualifiers shown were applied during validation.

000013

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX (ug/Kg)

Project: BECHTEL-HANFORD																							
Laboratory: LLI																							
Case:	SDG: H3203																						
Sample Number		J03CF1		J03CF1R		J03CF2		J03CF3		J03CF3R		J03CF4		J03CF5		J03CF6		J03CF7		J03CF8	
Remarks																							
Sample Date		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05	
Analysis Date		06/17/05		06/20/05		06/17/05		06/17/05		06/16/05		06/17/05		06/17/05		06/17/05		06/17/05		06/20/05	
VOA	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Chloromethane	10	10	UJ	10	U	9	UJ	8	UJ	9	U	9	UJ	9	UJ	9	UJ	11	UJ	10	UJ
Bromomethane	10	10	UJ	10	U	9	UJ	8	UJ	9	U	9	UJ	9	UJ	9	UJ	11	UJ	10	UJ
Vinyl Chloride	10	10	UJ	10	U	9	UJ	8	UJ	9	U	9	UJ	9	UJ	9	UJ	11	UJ	10	UJ
Chloroethane	10	10	UJ	10	U	9	UJ	8	UJ	9	U	9	UJ	9	UJ	9	UJ	11	UJ	10	UJ
Methylene Chloride	10	22	UJ	15	U	12	UJ	24	UJ	19	U	12	UJ	12	UJ	14	UJ	13	UJ	18	UJ
Acetone	10	10	UJ	10	U	9	UJ	8	UJ	9	U	9	UJ	9	UJ	9	UJ	11	UJ	10	UJ
Carbon Disulfide	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
1,1-Dichloroethene	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
1,1-Dichloroethane	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
1,2-Dichloroethene (total)	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
Chloroform	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
1,2-Dichloroethane	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
2-Butanone	10	10	UJ	10	U	9	UJ	8	UJ	9	U	9	UJ	9	UJ	9	UJ	11	UJ	10	UJ
1,1,1-Trichloroethane	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
Carbon Tetrachloride	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
Bromodichloromethane	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
1,2-Dichloropropane	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
cis-1,3-Dichloropropene	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
Trichloroethene	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
Dibromochloromethane	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
1,1,2-Trichloroethane	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
Benzene	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
trans-1,3-Dichloropropene	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
Bromoform	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
4-Methyl-2-pentanone	10	10	UJ	10	U	9	UJ	8	UJ	9	U	9	UJ	9	UJ	9	UJ	11	UJ	10	UJ
2-Hexanone	10	10	UJ	10	U	9	UJ	8	UJ	9	U	9	UJ	9	UJ	9	UJ	11	UJ	10	UJ
Tetrachloroethene	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
1,1,2,2-Tetrachloroethane	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
Toluene	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
Chlorobenzene	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
Ethylbenzene	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
Styrene	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
Xylene	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
cis-1,2-Dichloroethene	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ
trans-1,2-Dichloroethene	10	5	UJ	5	U	4	UJ	4	UJ	5	U	5	UJ	5	UJ	4	UJ	6	UJ	5	UJ

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize mis-interpretation of results. All other qualifiers shown were applied during validation.

000014

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX (ug/Kg)

Project: BECHTEL-HANFORD																													
Laboratory: LLI																													
Case:	SDG: H3203																												
Sample Number		J03CF8R		J03CF9		J03CH0		J03CH1		J03CH1R		J03CH2		J03CC8															
Remarks								Duplicate				Duplicate		E. Blank															
Sample Date		6/8/05		06/08/05		6/8/05		6/8/05		6/8/05		6/8/05		6/8/05															
Analysis Date		06/20/05		06/21/05		06/21/05		06/21/05		06/21/05		06/21/05		06/21/05															
VOA	RQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q														
Chloromethane	10	10	U	11	U	10	U	11	U	10	UJ	10	U	10	U														
Bromomethane	10	10	U	11	U	10	U	11	U	10	UJ	10	U	10	U														
Vinyl Chloride	10	10	U	11	U	10	U	11	U	10	UJ	10	U	10	U														
Chloroethane	10	10	U	11	U	10	U	11	U	10	UJ	10	U	10	U														
Methylene Chloride	10	16	U	10	U	10	U	11	U	18	UJ	10	U	10	U														
Acetone	10	10	U	11	U	10	U	10	U	10	UJ	10	U	10	U														
Carbon Disulfide	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
1,1-Dichloroethene	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
1,1-Dichloroethane	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
1,2-Dichloroethene (total)	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
Chloroform	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
1,2-Dichloroethane	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
2-Butanone	10	10	U	11	U	10	U	11	U	10	UJ	10	U	10	U														
1,1,1-Trichloroethane	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
Carbon Tetrachloride	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
Bromodichloromethane	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
1,2-Dichloropropane	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
cis-1,3-Dichloropropene	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
Trichloroethene	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
Dibromochloromethane	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
1,1,2-Trichloroethane	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
Benzene	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
trans-1,3-Dichloropropene	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
Bromoform	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
4-Methyl-2-pentanone	10	10	U	11	U	10	U	11	U	10	UJ	10	U	10	U														
2-Hexanone	10	10	U	11	U	10	U	11	U	10	UJ	10	U	10	U														
Tetrachloroethene	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
1,1,2,2-Tetrachloroethane	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
Toluene	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
Chlorobenzene	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
Ethylbenzene	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
Styrene	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
Xylene	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
cis-1,2-Dichloroethene	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														
trans-1,2-Dichloroethene	10	5	U	6	U	5	U	6	U	5	UJ	5	U	5	U														

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize mis-interpretation of results. All other qualifiers shown were applied during validation.

000015

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

Report Date: 07/01/05 14:53

RFW Batch Number: **0506L720** Client: **TNUHANFORD B04-002 H3203** Work Order: 11343606001 Page: 1a

	Cust ID:	J03CC9	J03CC9	J03CD0	J03CD0	J03CD1	J03CD1
Sample Information	RFW#:	001	001	002	002	003	003
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.04	1.00	1.00	0.962	0.926	1.09
	Units:	ug/Kg	ug/Kg REPREP	ug/Kg	ug/Kg REPREP	ug/Kg	ug/Kg REPREP
Surrogate Recovery	Toluene-d8	105 %	99 %	103 %	102 %	93 %	96 %
	Bromofluorobenzene	106 %	102 %	108 %	93 %	92 %	93 %
	1,2-Dichloroethane-d4	122 %	121 %	124 %	122 %	114 %	129 %
		fl	fl	fl	fl	fl	fl
Chloromethane		10 U J	10 U	10 U J	10 U	9 U J	11 U
Bromomethane		10 U	10 U	10 U	10 U	9 U	11 U
Vinyl Chloride		10 U	10 U	10 U	10 U	9 U	11 U
Chloroethane		10 U	10 U	10 U	10 U	9 U	11 U
Methylene Chloride		40 ~~B~~ U	19 ~~B~~ U	40 ~~B~~ U	16 ~~B~~ U	25 ~~B~~ U	19 ~~B~~ U
Acetone		10 U	10 U	10 U	10 U	9 U	11 U
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U	6 U
1,1-Dichloroethene		5 U	5 U	5 U	5 U	5 U	6 U
1,1-Dichloroethane		5 U	5 U	5 U	5 U	5 U	6 U
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U	5 U	6 U
Chloroform		5 U	5 U	5 U	5 U	5 U	6 U
1,2-Dichloroethane		5 U	5 U	5 U	5 U	5 U	6 U
2-Butanone		10 U	10 U	10 U	10 U	9 U	11 U
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U	5 U	6 U
Carbon Tetrachloride		5 U	5 U	5 U	5 U	5 U	6 U
Bromodichloromethane		5 U	5 U	5 U	5 U	5 U	6 U
1,2-Dichloropropane		5 U	5 U	5 U	5 U	5 U	6 U
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	6 U
Trichloroethene		5 U	5 U	5 U	5 U	5 U	6 U
Dibromochloromethane		5 U	5 U	5 U	5 U	5 U	6 U
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U	5 U	6 U
Benzene		5 U	5 U	5 U	5 U	5 U	6 U
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	6 U
Bromoform		5 U	5 U	5 U	5 U	5 U	6 U
4-Methyl-2-pentanone		10 U	10 U	10 U	10 U	9 U	11 U
2-Hexanone		10 U	10 U	10 U	10 U	9 U	11 U
Tetrachloroethene		5 U	5 U	5 U	5 U	5 U	6 U
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U	5 U	6 U
Toluene		6	5 U	6	3 J	5 U	6 U

*= Outside of EPA CLP QC limits.

8/6/05

0000016

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 1b

Cust ID:	J03CC9	J03CC9	J03CD0	J03CD0	J03CD1	J03CD1
RFW#:	001	001 REPREP	002	002 REPREP	003	003 REPREP
Chlorobenzene	5 U J	5 U	5 U J	5 U	5 U J	6 U
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	6 U
Styrene	5 U	5 U	5 U	5 U	5 U	6 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	6 U
cis-1,2-dichloroethene	5 U	5 U	5 U	5 U	5 U	6 U
trans-1,2-dichloroethene	5 U	5 U	5 U	5 U	5 U	6 U

*= Outside of EPA CLP QC limits.

K

8/6/05

000017

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

Report Date: 07/01/05 14:53

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 2a

	Cust ID:	J03CD2	J03CD2	J03CD3	J03CD4	J03CD4	J03CD5
Sample Information	RFW#:	004	004	005	006	006	007
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.11	1.02	1.11	1.14	1.02	1.14
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
			REPREP			REPREP	
Surrogate Recovery	Toluene-d8	103 %	102 %	101 %	107 %	106 %	94 %
	Bromofluorobenzene	101 %	97 %	102 %	109 %	104 %	94 %
	1,2-Dichloroethane-d4	128 %	127 %	122 %	127 %	135 %	112 %
		fl	fl	fl	fl	fl	fl
Chloromethane		11 U J	10 U	11 U J	11 U J	10 U	11 U J
Bromomethane		11 U	10 U	11 U	11 U	10 U	11 U
Vinyl Chloride		11 U	10 U	11 U	11 U	10 U	11 U
Chloroethane		11 U	10 U	11 U	11 U	10 U	11 U
Methylene Chloride		34 ~~B~~ U	15 ~~B~~ U	15 ~~B~~ U	19 ~~B~~ U	17 ~~B~~ U	19 ~~B~~ U
Acetone		11 U	10 U	11 U	11 U	10 U	11 U
Carbon Disulfide		6 U	5 U	6 U	6 U	5 U	6 U
1,1-Dichloroethene		6 U	5 U	6 U	6 U	5 U	6 U
1,1-Dichloroethane		6 U	5 U	6 U	6 U	5 U	6 U
1,2-Dichloroethene (total)		6 U	5 U	6 U	6 U	5 U	6 U
Chloroform		6 U	5 U	6 U	6 U	5 U	6 U
1,2-Dichloroethane		6 U	5 U	6 U	6 U	5 U	6 U
2-Butanone		11 U	10 U	11 U	11 U	10 U	11 U
1,1,1-Trichloroethane		6 U	5 U	6 U	6 U	5 U	6 U
Carbon Tetrachloride		6 U	5 U	6 U	6 U	5 U	6 U
Bromodichloromethane		6 U	5 U	6 U	6 U	5 U	6 U
1,2-Dichloropropane		6 U	5 U	6 U	6 U	5 U	6 U
cis-1,3-Dichloropropene		6 U	5 U	6 U	6 U	5 U	6 U
Trichloroethene		6 U	5 U	6 U	6 U	5 U	6 U
Dibromochloromethane		6 U	5 U	6 U	6 U	5 U	6 U
1,1,2-Trichloroethane		6 U	5 U	6 U	6 U	5 U	6 U
Benzene		6 U	5 U	6 U	6 U	5 U	6 U
Trans-1,3-Dichloropropene		6 U	5 U	6 U	6 U	5 U	6 U
Bromoform		6 U	5 U	6 U	6 U	5 U	6 U
4-Methyl-2-pentanone		11 U	10 U	11 U	11 U	10 U	11 U
2-Hexanone		11 U	10 U	11 U	11 U	10 U	11 U
Tetrachloroethene		6 U	5 U	6 U	6 U	5 U	6 U
1,1,2,2-Tetrachloroethane		6 U	5 U	6 U	6 U	5 U	6 U
Toluene		6 U	5 U	6 U	6 U	5 U	6 U

*= Outside of EPA CLP QC limits.

K 8/6/05

000018

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 2b

Cust ID:	J03CD2	J03CD2	J03CD3	J03CD4	J03CD4	J03CD5
RFW#:	004	004 REPREP	005	006	006 REPREP	007
Chlorobenzene	6 U J	5 U	6 U J	6 U J	5 U	6 U J
Ethylbenzene	6 U	5 U	6 U	6 U	5 U	6 U
Styrene	6 U	5 U	6 U	6 U	5 U	6 U
Xylene (total)	6 U	5 U	6 U	6 U	5 U	6 U
cis-1,2-dichloroethene	6 U	5 U	6 U	6 U	5 U	6 U
trans-1,2-dichloroethene	6 U	5 U	6 U	6 U	5 U	6 U

*= Outside of EPA CLP QC limits.

8/4/05

000019

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

Report Date: 07/01/05 14:53

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 3a

	Cust ID:	J03CD6		J03CD7		J03CD7		J03CD8		J03CD9		J03CD9	
Sample Information	RFW#:	008		009		009		010		011		011	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	1.04		1.11		0.926		0.926		0.893		0.962	
	Units:	ug/Kg		ug/Kg		ug/Kg REPREP		ug/Kg		ug/Kg		ug/Kg REPREP	
Surrogate Recovery	Toluene-d8	92	%	98	%	100	%	93	%	98	%	98	%
	Bromofluorobenzene	96	%	98	%	88	%	91	%	95	%	98	%
	1,2-Dichloroethane-d4	117	%	132	%	124	%	124	%	125	%	121	%
			fl		fl		fl		fl		fl		fl
Chloromethane		10	U	11	U	9	U	9	U	9	U	10	U
Bromomethane		10	U	11	U	9	U	9	U	9	U	10	U
Vinyl Chloride		10	U	11	U	9	U	9	U	9	U	10	U
Chloroethane		10	U	11	U	9	U	9	U	9	U	10	U
Methylene Chloride		24	U	32	U	21	U	17	U	27	U	23	U
Acetone		10	U	11	U	9	U	9	U	9	U	10	U
Carbon Disulfide		5	U	6	U	5	U	5	U	4	U	5	U
1,1-Dichloroethene		5	U	6	U	5	U	5	U	4	U	5	U
1,1-Dichloroethane		5	U	6	U	5	U	5	U	4	U	5	U
1,2-Dichloroethene (total)		5	U	6	U	5	U	5	U	4	U	5	U
Chloroform		5	U	6	U	5	U	5	U	4	U	5	U
1,2-Dichloroethane		5	U	6	U	5	U	5	U	4	U	5	U
2-Butanone		10	U	11	U	9	U	9	U	9	U	10	U
1,1,1-Trichloroethane		5	U	6	U	5	U	5	U	4	U	5	U
Carbon Tetrachloride		5	U	6	U	5	U	5	U	4	U	5	U
Bromodichloromethane		5	U	6	U	5	U	5	U	4	U	5	U
1,2-Dichloropropane		5	U	6	U	5	U	5	U	4	U	5	U
cis-1,3-Dichloropropene		5	U	6	U	5	U	5	U	4	U	5	U
Trichloroethene		5	U	6	U	5	U	5	U	4	U	5	U
Dibromochloromethane		5	U	6	U	5	U	5	U	4	U	5	U
1,1,2-Trichloroethane		5	U	6	U	5	U	5	U	4	U	5	U
Benzene		5	U	6	U	5	U	5	U	4	U	5	U
Trans-1,3-Dichloropropene		5	U	6	U	5	U	5	U	4	U	5	U
Bromoform		5	U	6	U	5	U	5	U	4	U	5	U
4-Methyl-2-pentanone		10	U	11	U	9	U	9	U	9	U	10	U
2-Hexanone		10	U	11	U	9	U	9	U	9	U	10	U
Tetrachloroethene		5	U	6	U	5	U	5	U	4	U	5	U
1,1,2,2-Tetrachloroethane		5	U	6	U	5	U	5	U	4	U	5	U
Toluene		5	U	4	U	5	U	5	U	4	U	5	U

*= Outside of EPA CLP QC limits.

J J J J

8/6/05

000020

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 3b

Cust ID:	J03CD6	J03CD7	J03CD7	J03CD8	J03CD9	J03CD9
RFW#:	008	009	009 REPREP	010	011	011 REPREP
Chlorobenzene	5 U J	6 U J	5 U	5 U J	4 U J	5 U
Ethylbenzene	5 U	6 U	5 U	5 U	4 U	5 U
Styrene	5 U	6 U	5 U	5 U	4 U	5 U
Xylene (total)	5 U	6 U	5 U	5 U	4 U	5 U
cis-1,2-dichloroethene	5 U	6 U	5 U	5 U	4 U	5 U
trans-1,2-dichloroethene	5 U	6 U	5 U	5 U	4 U	5 U

*= Outside of EPA CLP QC limits.

8/6/05

000021

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

Report Date: 07/01/05 14:53

RFW Batch Number: **0506L720** Client: **TNUHANFORD B04-002 H3203** Work Order: 11343606001 Page: 4a

	Cust ID:	J03CF0	J03CF0	J03CF1	J03CF1	J03CF2	J03CF3
Sample Information	RFW#:	012	012	013	013	014	015
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	0.877	0.943	1.00	0.962	0.877	0.847
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
			REPREP		REPREP		
Surrogate Recovery	Toluene-d8	92 %	93 %	95 %	96 %	86 %	88 %
	Bromofluorobenzene	96 %	88 %	96 %	91 %	93 %	86 %
	1,2-Dichloroethane-d4	117 %	114 %	123 %	117 %	116 %	123 %
		fl	fl	fl	fl	fl	fl
Chloromethane		9 U J	10 U	10 U J	10 U	9 U J	8 U J
Bromomethane		9 U	10 U	10 U	10 U	9 U	8 U
Vinyl Chloride		9 U	10 U	10 U	10 U	9 U	8 U
Chloroethane		9 U	10 U	10 U	10 U	9 U	8 U
Methylene Chloride		20 ~~B~~ U	17 ~~B~~ U	22 ~~B~~ U	15 ~~B~~ U	12 ~~B~~ U	24 ~~B~~ U
Acetone		9 U	10 U	10 U	10 U	9 U	8 U
Carbon Disulfide		4 U	5 U	5 U	5 U	4 U	4 U
1,1-Dichloroethene		4 U	5 U	5 U	5 U	4 U	4 U
1,1-Dichloroethane		4 U	5 U	5 U	5 U	4 U	4 U
1,2-Dichloroethene (total)		4 U	5 U	5 U	5 U	4 U	4 U
Chloroform		4 U	5 U	5 U	5 U	4 U	4 U
1,2-Dichloroethane		4 U	5 U	5 U	5 U	4 U	4 U
2-Butanone		9 U	10 U	10 U	10 U	9 U	8 U
1,1,1-Trichloroethane		4 U	5 U	5 U	5 U	4 U	4 U
Carbon Tetrachloride		4 U	5 U	5 U	5 U	4 U	4 U
Bromodichloromethane		4 U	5 U	5 U	5 U	4 U	4 U
1,2-Dichloropropane		4 U	5 U	5 U	5 U	4 U	4 U
cis-1,3-Dichloropropene		4 U	5 U	5 U	5 U	4 U	4 U
Trichloroethene		4 U	5 U	5 U	5 U	4 U	4 U
Dibromochloromethane		4 U	5 U	5 U	5 U	4 U	4 U
1,1,2-Trichloroethane		4 U	5 U	5 U	5 U	4 U	4 U
Benzene		4 U	5 U	5 U	5 U	4 U	4 U
Trans-1,3-Dichloropropene		4 U	5 U	5 U	5 U	4 U	4 U
Bromoform		4 U	5 U	5 U	5 U	4 U	4 U
4-Methyl-2-pentanone		9 U	10 U	10 U	10 U	9 U	8 U
2-Hexanone		9 U	10 U	10 U	10 U	9 U	8 U
Tetrachloroethene		4 U	5 U	5 U	5 U	4 U	4 U
1,1,2,2-Tetrachloroethane		4 U	5 U	5 U	5 U	4 U	4 U
Toluene		4 ~~B~~ 8/4/6	4 ~~B~~ 8/4/6	5 U	5 U	4 U	4 U

*= Outside of EPA CLP QC limits.

8/4/05

000022

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 4b

Cust ID:	J03CF0	J03CF0	J03CF1	J03CF1	J03CF2	J03CF3
RFW#:	012	012 REPREP	013	013 REPREP	014	015
Chlorobenzene	4 U J	5 U	5 U J	5 U	4 U J	4 U J
Ethylbenzene	4 U	5 U	5 U	5 U	4 U	4 U
Styrene	4 U	5 U	5 U	5 U	4 U	4 U
Xylene (total)	4 U	5 U	5 U	5 U	4 U	4 U
cis-1,2-dichloroethene	4 U	5 U	5 U	5 U	4 U	4 U
trans-1,2-dichloroethene	4 U	5 U	5 U	5 U	4 U	4 U

*= Outside of EPA CLP QC limits.

8/6/05

000023

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

Report Date: 07/01/05 14:53

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 5a

	Cust ID:	J03CF3		J03CF4		J03CF5		J03CF6		J03CF7		J03CF7	
Sample Information	RFW#:	015		016		017		018		019		019 MS	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	D.F.:	0.909		0.943		0.909		0.877		1.11		0.980	
	Units:	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
		REP	REP										
Surrogate Recovery	Toluene-d8	96	%	92	%	92	%	92	%	97	%	94	%
	Bromofluorobenzene	91	%	85	%	89	%	96	%	103	%	98	%
	1,2-Dichloroethane-d4	121	%	122	%	128	%	123	%	133	%	119	%
			fl		fl		fl		fl		fl		fl
Chloromethane		9	U	9	U J	9	U J	9	U J	11	U J	10	U
Bromomethane		9	U	9	U	9	U	9	U	11	U	10	U
Vinyl Chloride		9	U	9	U	9	U	9	U	11	U	10	U
Chloroethane		9	U	9	U	9	U	9	U	11	U	10	U
Methylene Chloride		19		12		12		14		13		10	B
Acetone		9	U	9	U	9	U	9	U	11	U	10	U
Carbon Disulfide		5	U	5	U	5	U	4	U	6	U	5	U
1,1-Dichloroethene		5	U	5	U	5	U	4	U	6	U	90	%
1,1-Dichloroethane		5	U	5	U	5	U	4	U	6	U	5	U
1,2-Dichloroethene (total)		5	U	5	U	5	U	4	U	6	U	5	U
Chloroform		5	U	5	U	5	U	4	U	6	U	5	U
1,2-Dichloroethane		5	U	5	U	5	U	4	U	6	U	5	U
2-Butanone		9	U	9	U	9	U	9	U	11	U	10	U
1,1,1-Trichloroethane		5	U	5	U	5	U	4	U	6	U	5	U
Carbon Tetrachloride		5	U	5	U	5	U	4	U	6	U	5	U
Bromodichloromethane		5	U	5	U	5	U	4	U	6	U	5	U
1,2-Dichloropropane		5	U	5	U	5	U	4	U	6	U	5	U
cis-1,3-Dichloropropene		5	U	5	U	5	U	4	U	6	U	5	U
Trichloroethene		5	U	5	U	5	U	4	U	6	U	101	%
Dibromochloromethane		5	U	5	U	5	U	4	U	6	U	5	U
1,1,2-Trichloroethane		5	U	5	U	5	U	4	U	6	U	5	U
Benzene		5	U	5	U	5	U	4	U	6	U	91	%
Trans-1,3-Dichloropropene		5	U	5	U	5	U	4	U	6	U	5	U
Bromoform		5	U	5	U	5	U	4	U	6	U	5	U
4-Methyl-2-pentanone		9	U	9	U	9	U	9	U	11	U	10	U
2-Hexanone		9	U	9	U	9	U	9	U	11	U	10	U
Tetrachloroethene		5	U	5	U	5	U	4	U	6	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U	5	U	4	U	6	U	5	U
Toluene		5	U	5	U	5	U	4	U	6	U	108	%

*= Outside of EPA CLP QC limits.

8/6/05

000024

88888814

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 5b

Cust ID:	J03CF3	J03CF4	J03CF5	J03CF6	J03CF7	J03CF7
RFW#:	015 REPREP	016	017	018	019	019 MS
Chlorobenzene	5 U	5 U J	5 U J	4 U J	6 U J	99 %
Ethylbenzene	5 U	5 U	5 U	4 U	6 U	5 U
Styrene	5 U	5 U	5 U	4 U	6 U	5 U
Xylene (total)	5 U	5 U	5 U	4 U	6 U	5 U
cis-1,2-dichloroethene	5 U	5 U	5 U	4 U	6 U	5 U
trans-1,2-dichloroethene	5 U	5 U	5 U	4 U	6 U	5 U

*= Outside of EPA CLP QC limits.

K 8/4/05

000025

000000815

Lionville Laboratory, Inc.

Volatiles by GC/MS, HSL List

Report Date: 07/01/05 14:53

RFW Batch Number: **0506L720** Client: **TNUHANFORD B04-002 H3203** Work Order: 11343606001 Page: 6a

	Cust ID:	J03CF7	J03CF8	J03CF8	VBLKXT	VBLKXV	VBLKXV BS
Sample Information	RFW#:	019 MSD	020	020	05LVG188-MB1	05LVG193-MB1	05LVG193-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	0.926	0.943	1.00	1.00	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg REPREP	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Toluene-d8	94 %	98 %	94 %	88 %	93 %	94 %
	Bromofluorobenzene	96 %	96 %	91 %	87 %	86 %	93 %
	1,2-Dichloroethane-d4	124 %	130 %	127 %	82 %	112 %	112 %
Chloromethane		9 U	10 U J	10 U	10 U	10 U	10 U
Bromomethane		9 U	10 U	10 U	10 U	10 U	10 U
Vinyl Chloride		9 U	10 U	10 U	10 U	10 U	10 U
Chloroethane		9 U	10 U	10 U	10 U	10 U	10 U
Methylene Chloride		9 B	18 ~~B~~ U	16 ~~B~~ U	5	2 J	4 JB
Acetone		9 U	10 U	10 U	10 U	10 U	10 U
Carbon Disulfide		5 U	5 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene		93 %	5 U	5 U	5 U	5 U	85 %
1,1-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		5 U	5 U	5 U	5 U	5 U	5 U
Chloroform		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
2-Butanone		9 U	10 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride		5 U	5 U	5 U	5 U	5 U	5 U
Bromodichloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane		5 U	5 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Trichloroethene		106 %	5 U	5 U	5 U	5 U	103 %
Dibromochloromethane		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Benzene		93 %	5 U	5 U	5 U	5 U	90 %
Trans-1,3-Dichloropropene		5 U	5 U	5 U	5 U	5 U	5 U
Bromoform		5 U	5 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone		9 U	10 U	10 U	10 U	10 U	10 U
2-Hexanone		9 U	10 U	10 U	10 U	10 U	10 U
Tetrachloroethene		5 U	5 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		5 U	5 U	5 U	5 U	5 U	5 U
Toluene		103 %	5 U	5 U	5 U	5 U	99 %

*= Outside of EPA CLP QC limits.

8/6/05

000026

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 6b

Cust ID:	J03CF7	J03CF8	J03CF8	VBLKXT	VBLKXV	VBLKXV BS
RFW#:	019 MSD	020	020 REPREP	05LVG188-MB1	05LVG193-MB1	05LVG193-MB1
Chlorobenzene	99 %	5 U J	5 U	5 U	5 U	100 %
Ethylbenzene	5 U	5 U	5 U	5 U	5 U	5 U
Styrene	5 U	5 U	5 U	5 U	5 U	5 U
Xylene (total)	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U
trans-1,2-dichloroethene	5 U	5 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

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8/4/05

000027

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

Report Date: 07/01/05 14:53

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 7a

	Cust ID:	VBLKXU		VBLKXU BS	
Sample Information	RFW#:	05LVG191-MB1		05LVG191-MB1	
	Matrix:	SOIL		SOIL	
	D.F.:	1.00		1.00	
	Units:	ug/Kg		ug/Kg	
Surrogate Recovery	Toluene-d8	95	%	93	%
	Bromofluorobenzene	100	%	94	%
	1,2-Dichloroethane-d4	112	%	111	%
Chloromethane		10	U	10	U
Bromomethane		10	U	10	U
Vinyl Chloride		10	U	10	U
Chloroethane		10	U	10	U
Methylene Chloride		4	J	4	JB
Acetone		10	U	10	U
Carbon Disulfide		5	U	5	U
1,1-Dichloroethene		5	U	98	%
1,1-Dichloroethane		5	U	5	U
1,2-Dichloroethene (total)		5	U	5	U
Chloroform		5	U	5	U
1,2-Dichloroethane		5	U	5	U
2-Butanone		10	U	10	U
1,1,1-Trichloroethane		5	U	5	U
Carbon Tetrachloride		5	U	5	U
Bromodichloromethane		5	U	5	U
1,2-Dichloropropane		5	U	5	U
cis-1,3-Dichloropropene		5	U	5	U
Trichloroethene		5	U	105	%
Dibromochloromethane		5	U	5	U
1,1,2-Trichloroethane		5	U	5	U
Benzene		5	U	100	%
Trans-1,3-Dichloropropene		5	U	5	U
Bromoform		5	U	5	U
4-Methyl-2-pentanone		10	U	10	U
2-Hexanone		10	U	10	U
Tetrachloroethene		5	U	5	U
1,1,2,2-Tetrachloroethane		5	U	5	U
Toluene		5	U	101	%

*= Outside of EPA CLP QC limits.

8/6/05

000028

RFW Batch Number: 0506L720 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 7b

	Cust ID: VBLKXU	VBLKXU BS	
	RFW#: 05LVG191-MB1	05LVG191-MB1	
Chlorobenzene	5 U	100	%
Ethylbenzene	5 U	5	U
Styrene	5 U	5	U
Xylene (total)	5 U	5	U
cis-1,2-dichloroethene	5 U	5	U
trans-1,2-dichloroethene	5 U	5	U

*= Outside of EPA CLP QC limits.

8/6/05

000029

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

Report Date: 07/01/05 09:52

RFW Batch Number: 0506L736 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 1a

	Cust ID:	J03CF9	J03CH0	J03CH1	J03CH1	J03CH2	J03CC8
Sample Information	RFW#:	001	002	003	003	004	005
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.09	0.943	1.11	0.980	1.04	1.02
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg REPREP	ug/Kg	ug/Kg
Surrogate Recovery	Toluene-d8	100 %	98 %	96 %	101 %	99 %	97 %
	Bromofluorobenzene	99 %	91 %	96 %	109 %	102 %	90 %
	1,2-Dichloroethane-d4	114 %	116 %	121 %	120 %	116 %	119 %
		fl	fl	fl	fl	fl	fl
Chloromethane		11 U	10 U	11 U	10 U J	10 U	10 U
Bromomethane		11 U	10 U	11 U	10 U	10 U	10 U
Vinyl Chloride		11 U	10 U	11 U	10 U	10 U	10 U
Chloroethane		11 U	10 U	11 U	10 U	10 U	10 U
Methylene Chloride		10 ~~7~~ 16 U	10 ~~9~~ 16 U	11 ~~8~~ 16 U	18 ~~5~~ 16 U	10 ~~5~~ 16 U	10 ~~4~~ 16 U
Acetone		11 U	10 U	11 U	10 U	10 U	10 U
Carbon Disulfide		6 U	5 U	6 U	5 U	5 U	5 U
1,1-Dichloroethene		6 U	5 U	6 U	5 U	5 U	5 U
1,1-Dichloroethane		6 U	5 U	6 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		6 U	5 U	6 U	5 U	5 U	5 U
Chloroform		6 U	5 U	6 U	5 U	5 U	5 U
1,2-Dichloroethane		6 U	5 U	6 U	5 U	5 U	5 U
2-Butanone		11 U	10 U	11 U	10 U	10 U	10 U
1,1,1-Trichloroethane		6 U	5 U	6 U	5 U	5 U	5 U
Carbon Tetrachloride		6 U	5 U	6 U	5 U	5 U	5 U
Bromodichloromethane		6 U	5 U	6 U	5 U	5 U	5 U
1,2-Dichloropropane		6 U	5 U	6 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		6 U	5 U	6 U	5 U	5 U	5 U
Trichloroethene		6 U	5 U	6 U	5 U	5 U	5 U
Dibromochloromethane		6 U	5 U	6 U	5 U	5 U	5 U
1,1,2-Trichloroethane		6 U	5 U	6 U	5 U	5 U	5 U
Benzene		6 U	5 U	6 U	5 U	5 U	5 U
Trans-1,3-Dichloropropene		6 U	5 U	6 U	5 U	5 U	5 U
Bromoform		6 U	5 U	6 U	5 U	5 U	5 U
4-Methyl-2-pentanone		11 U	10 U	11 U	10 U	10 U	10 U
2-Hexanone		11 U	10 U	11 U	10 U	10 U	10 U
Tetrachloroethene		6 U	5 U	6 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		6 U	5 U	6 U	5 U	5 U	5 U
Toluene		6 U	5 U	6 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

R 8/6/05

000030

RFW Batch Number: 0506L736 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 1b

Cust ID:	J03CF9	J03CH0	J03CH1	J03CH1	J03CH2	J03CC8
RFW#:	001	002	003	003 REPREP	004	005
Chlorobenzene	6 U	5 U	6 U	5 U	5 U	5 U
Ethylbenzene	6 U	5 U	6 U	5 U	5 U	5 U
Styrene	6 U	5 U	6 U	5 U	5 U	5 U
Xylene (total)	6 U	5 U	6 U	5 U	5 U	5 U
cis-1,2-dichloroethene	6 U	5 U	6 U	5 U	5 U	5 U
trans-1,2-dichloroethene	6 U	5 U	6 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

J

JC 8/4/05

000031

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

Report Date: 07/01/05 09:52

RFW Batch Number: 0506L736 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 2a

	Cust ID:	J03CC8	J03CC8	VBLKYB	VBLKYB BS
Sample Information	RFW#:	005 MS	005 MSD	05LVG195-MB1	05LVG195-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.09	1.04	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate Recovery	Toluene-d8	92 %	94 %	94 %	95 %
	Bromofluorobenzene	89 %	94 %	94 %	91 %
	1,2-Dichloroethane-d4	106 %	109 %	111 %	113 %
Chloromethane		11 U	10 U	10 U	10 U
Bromomethane		11 U	10 U	10 U	10 U
Vinyl Chloride		11 U	10 U	10 U	10 U
Chloroethane		11 U	10 U	10 U	10 U
Methylene Chloride		6 B	6 B	3 J	4 JB
Acetone		11 U	10 U	10 U	10 U
Carbon Disulfide		6 U	5 U	5 U	5 U
1,1-Dichloroethene		94 %	93 %	5 U	83 %
1,1-Dichloroethane		6 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		6 U	5 U	5 U	5 U
Chloroform		6 U	5 U	5 U	5 U
1,2-Dichloroethane		6 U	5 U	5 U	5 U
2-Butanone		11 U	10 U	10 U	10 U
1,1,1-Trichloroethane		6 U	5 U	5 U	5 U
Carbon Tetrachloride		6 U	5 U	5 U	5 U
Bromodichloromethane		6 U	5 U	5 U	5 U
1,2-Dichloropropane		6 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		6 U	5 U	5 U	5 U
Trichloroethene		101 %	97 %	5 U	100 %
Dibromochloromethane		6 U	5 U	5 U	5 U
1,1,2-Trichloroethane		6 U	5 U	5 U	5 U
Benzene		92 %	96 %	5 U	93 %
Trans-1,3-Dichloropropene		6 U	5 U	5 U	5 U
Bromoform		6 U	5 U	5 U	5 U
4-Methyl-2-pentanone		11 U	10 U	10 U	10 U
2-Hexanone		11 U	10 U	10 U	10 U
Tetrachloroethene		6 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		6 U	5 U	5 U	5 U
Toluene		99 %	102 %	5 U	98 %

*= Outside of EPA CLP QC limits.

K 8/6/05

000032

RFW Batch Number: 0506L736 Client: TNUHANFORD B04-002 H3203 Work Order: 11343606001 Page: 2b

Cust ID:	J03CC8		J03CC8		VBLKYB		VBLKYB BS	
RFW#:	005 MS		005 MSD		05LVG195-MB1		05LVG195-MB1	
Chlorobenzene	98	%	103	%	5	U	104	%
Ethylbenzene	6	U	5	U	5	U	5	U
Styrene	6	U	5	U	5	U	5	U
Xylene (total)	6	U	5	U	5	U	5	U
cis-1,2-dichloroethene	6	U	5	U	5	U	5	U
trans-1,2-dichloroethene	6	U	5	U	5	U	5	U

*= Outside of EPA CLP QC limits.

000033

8/6/05

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD B04-002
LVL #: 0506L720
SDG/SAF # H3203/B04-002

W.O. #: 11343-606-001-9999-00
Date Received: 06-10-2005

GC/MS VOLATILE

Twenty (20) soil samples were collected on 06-08-2005.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8260B for TCL volatile target compounds on 06-16,17,20-2005.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were analyzed within required holding time.
3. Non-target compounds were not detected in the samples.
4. All surrogate recoveries were within acceptance criteria.
5. All matrix spike recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. The method blanks contained the common laboratory contaminant Methylene Chloride at levels less than 2x the CRQL.
8. Internal standard area criteria were not met for several samples. The analyses of associated matrix spike sample fulfill the reanalysis requirement of sample J03CF7. All other out of criteria samples were reanalyzed on 06-20-2005 and reported.
9. Manual integrations are performed according to SOP 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 the Glossary ("Technical Flags For Manual Integration").
10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
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."

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

7/11/05
Date

000035

som\group\data\voa\tnu-hanford\0506-720.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 2 8 pages.

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B04-002 H3203

JUL 2005

DATE RECEIVED: 06/10/05 LVL LOT # :0506L720

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J03CC9	001	S	05LVG188	06/08/05	N/A	06/16/05
J03CC9	001 R1	S	05LVG193	06/08/05	N/A	06/20/05
J03CD0	002	S	05LVG188	06/08/05	N/A	06/16/05
J03CD0	002 R1	S	05LVG193	06/08/05	N/A	06/20/05
J03CD1	003	S	05LVG188	06/08/05	N/A	06/16/05
J03CD1	003 R1	S	05LVG193	06/08/05	N/A	06/20/05
J03CD2	004	S	05LVG188	06/08/05	N/A	06/16/05
J03CD2	004 R1	S	05LVG193	06/08/05	N/A	06/20/05
J03CD3	005	S	05LVG191	06/08/05	N/A	06/17/05
J03CD4	006	S	05LVG191	06/08/05	N/A	06/17/05
J03CD4	006 R1	S	05LVG193	06/08/05	N/A	06/20/05
J03CD5	007	S	05LVG191	06/08/05	N/A	06/17/05
J03CD6	008	S	05LVG191	06/08/05	N/A	06/17/05
J03CD7	009	S	05LVG191	06/08/05	N/A	06/17/05
J03CD7	009 R1	S	05LVG193	06/08/05	N/A	06/20/05
J03CD8	010	S	05LVG191	06/08/05	N/A	06/17/05
J03CD9	011	S	05LVG191	06/08/05	N/A	06/17/05
J03CD9	011 R1	S	05LVG193	06/08/05	N/A	06/20/05
J03CF0	012	S	05LVG191	06/08/05	N/A	06/17/05
J03CF0	012 R1	S	05LVG193	06/08/05	N/A	06/20/05
J03CF1	013	S	05LVG191	06/08/05	N/A	06/17/05
J03CF1	013 R1	S	05LVG193	06/08/05	N/A	06/20/05
J03CF2	014	S	05LVG191	06/08/05	N/A	06/17/05
J03CF3	015	S	05LVG191	06/08/05	N/A	06/17/05
J03CF3	015 R1	S	05LVG193	06/08/05	N/A	06/20/05
J03CF4	016	S	05LVG191	06/08/05	N/A	06/17/05
J03CF5	017	S	05LVG191	06/08/05	N/A	06/17/05
J03CF6	018	S	05LVG191	06/08/05	N/A	06/17/05
J03CF7	019	S	05LVG191	06/08/05	N/A	06/17/05
J03CF7	019 MS	S	05LVG193	06/08/05	N/A	06/20/05
J03CF7	019 MSD	S	05LVG193	06/08/05	N/A	06/20/05
J03CF8	020	S	05LVG193	06/08/05	N/A	06/20/05
J03CF8	020 R1	S	05LVG193	06/08/05	N/A	06/20/05

LAB QC:

VBLKXT	MB1	S	05LVG188	N/A	N/A	06/16/05
VBLKXV	MB1	S	05LVG193	N/A	N/A	06/20/05
VBLKXV	MB1 BS	S	05LVG193	N/A	N/A	06/20/05
VBLKXU	MB1	S	05LVG191	N/A	N/A	06/17/05
VBLKXU	MB1 BS	S	05LVG191	N/A	N/A	06/17/05

LIONVILLE LABORATORY INC.

Case Narrative

Client: TNU-HANFORD B04-002
LVL #: 0506L736
SDG/SAF # H3203/B04-002

W.O. #: 11343-606-001-9999-00
Date Received: 06-10-2005

GC/MS VOLATILE

Five (5) soil samples were collected on 06-08-2005.

The samples and their associated QC samples were analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8260B for TCL volatile target compounds on 06-21-2005.

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

1. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
2. Samples were analyzed within required holding time.
3. A non-target compound was detected in sample J03CC8.
4. All surrogate recoveries were within acceptance criteria.
5. All matrix spike recoveries were within acceptance criteria.
6. All blank spike recoveries were within acceptance criteria.
7. The method blank contained the common laboratory contaminant Methylene Chloride at a level less than the CRQL.
8. Internal standard area criteria were not met for sample J03CH1. This sample was reanalyzed on 06-21-2005 and reported.
9. Manual integrations are performed according to SOP 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 the Glossary ("Technical Flags For Manual Integration").
10. LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete listing of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager.
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."

Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

7/11/05
Date

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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 2 6 pages.

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RECEIVED
JUL 2005

Lionville Laboratory, Inc.
VOA ANALYTICAL DATA PACKAGE FOR
TNUHANFORD B04-002 H3203

DATE RECEIVED: 06/10/05 LVL LOT # :05061736

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
J03CF9	001	S	05LVG195	06/08/05	N/A	06/21/05
J03CH0	002	S	05LVG195	06/08/05	N/A	06/21/05
J03CH1	003	S	05LVG195	06/08/05	N/A	06/21/05
J03CH1	003 R1	S	05LVG195	06/08/05	N/A	06/21/05
J03CH2	004	S	05LVG195	06/08/05	N/A	06/21/05
J03CC8	005	S	05LVG195	06/08/05	N/A	06/21/05
J03CC8	005 MS	S	05LVG195	06/08/05	N/A	06/21/05
J03CC8	005 MSD	S	05LVG195	06/08/05	N/A	06/21/05

LAB QC:

VBLKYB	MB1	S	05LVG195	N/A	N/A	06/21/05
VBLKYB	MB1 BS	S	05LVG195	N/A	N/A	06/21/05

05D6L 720

Bechtel Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B04-002-040 | Page 1 of 5

Collector: D Bowersw/C Martinez/J Kiesler

Company Contact: Doug Bowers | Telephone No.: 531-0701

Project Coordinator: KESSNER, JH

Price Code: Many | Data Turnaround: 21 days

Project Designation: 100 BC Burial Grounds - Soil Full Protocol

Sampling Location: 128-B-2 @ 100 BC

SAF No.: B04-002

Air Quality

Ice Chest No.: ERC 02 506, 96 002, 02 501, 03105, 02 101, TNU 052

Field Logbook No.: EL 1173-5 | COA: R128B22600

Method of Shipment: Fed Ex

Shipped To: EBERLINE SERVICES LIONVILLE

Offsite Property No.: A050 239/240

Bill of Lading/Air Bill No.: S GE 05PC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None (E)	Cool 4C (C)	Cool 4C (B)	Cool 4C (A)	None	Cool 4C (D)	Cool 4C (F)			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			

	Sample No.	Matrix *	Sample Date	Sample Time										
1.	J03CC9	SOIL	6/8/05	0817	✓	✓	✓	✓	6-8-05	✓	✓			
2.	J03CD0	SOIL	6/8/05	0821	✓	✓	✓	✓		✓	✓			
3.	J03CD1	SOIL	6/8/05	0832	✓	✓	✓	✓		✓	✓			
4.	J03CD2	SOIL	6/8/05	0840	✓	✓	✓	✓		✓	✓			
5.	J03CD3	SOIL	6/8/05	0900	✓	✓	✓	✓		✓	✓			

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Doug Bowers	6-8-05 / 1941	Ref 2B 3728	6-8-05 / 1945
Ref 2B 3728	6905 0900	SJGALE	6905 0900
SJGALE ERC	6905 0900	FEDEX	
FedEx	6/10/05 0920		6/10/05 0920

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7470 - (CV) AB 6905

(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to Relinquish samples from 3728 Ref # 2B on 6/9/05

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

BHI-EE-011 (03/01/2002)

G60000

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B04-002-040

Bechtel Hanford Inc.

Collector: D Bowersw/C Martinez/J Kiesler

Company Contact: Doug Bowers

Telephone No.: 531-0701

Project Coordinator: KESSNER, JH

Price Code: Many

Data Turnaround: Air Quality 21 days

Project Designation: 100 BC Burial Grounds - Soil Full Protocol

Sampling Location: 128-B-2 @ 100 BC

SAF No.: B04-002

Ice Chest No.: ERC 02 506, 96 002, 02 501, 03 105, 02 101, TNV 052

Field Logbook No.: EL 1173-5

COA: R128B22600

Method of Shipment: Fed Ex

Bill of Lading/Air Bill No.: SEE OSP C

Shipped To: EBERLINE SERVICES LIONVILLE

Offsite Property No.: A050239/240

POSSIBLE SAMPLE HAZARDS/REMARKS: NA

Special Handling and/or Storage: NA

SAMPLE ANALYSIS												
Preservation				None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C		
Type of Container				aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)				1	1	1	1	1	1	1		
Volume				250mL	120mL	120mL	120mL	500mL	250mL	120mL		
				See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1		
Sample No.	Matrix *	Sample Date	Sample Time									
6. J03CD4	SOIL	6/8/05	0900	X	X	X	X	X	X	X		
7 J03CD5	SOIL	6/8/05	0950	X	X	X	X	X	X	X		
8 J03CD6	SOIL	6/8/05	0955	X	X	X	X	X	X	X		
9 J03CD7	SOIL	6/8/05	1001	X	X	X	X	X	X	X		
10 J03CD8	SOIL	6/8/05	1025	X	X	X	X	X	X	X		

CHAIN OF POSSESSION

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Doug Bowers Bowers	6-8-05/1545	Ref ZB 3728	6-8-05/1545
Ref ZB 3728	6905 0900	SJ Gale	6905 0900
SJ Gale ERC	6905 0900	FED EX	
FED EX	6-10-05 0920		6-10-05 0920

Sign/Print Names

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}; Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to relinquish samples from 3728 Ref # ZB on 6/9/05

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

BHI-EE-011 (03/01/2002)

Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		B04-002-040	Page 3 of 5
Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER, JH	Price Code: Many / Data Turnaround: Air Quality 21 days
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC		SAF No.: B04-002	
Ice Chest No.: ERC 02 506, 96 002, 02501, 03105, 02 101, THU 052	Field Logbook No.: EL 1173-5	COA: R128B22600	Method of Shipment: Fed Ex	
Shipped To: EBERLINE SERVICES (LIONVILLE)	Offsite Property No.: A050 239/240		Bill of Lading/Air Bill No.: SEE 03PC	

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

SAMPLE ANALYSIS												
			Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C		
			Type of Container	aG	aG	aG	aG	aG	aG	aG		
			No. of Container(s)	1	1	1	1	1	1	1		
			Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL		
				See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1		
Sample No.	Matrix *	Sample Date	Sample Time									
11. J03CD9	SOIL	6/8/05	1030	✓	✓	✓	✓		✓	X		
12. J03CF0	SOIL	6/8/05	1041	✓	✓	✓	✓		✓	X		
13. J03CF1	SOIL	6/8/05	1055	✓	✓	✓	✓		✓	X		
14. J03CF2	SOIL	6/8/05	1110	✓	✓	✓	✓		✓	X		
15. J03CF3	SOIL	6/8/05	1117	✓	✓	✓	✓		✓	X		

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: Doug Bowers	Date/Time: 6-9-05/1545	Received By/Stored In: Ref 2B 3728	Date/Time: 6-9-05/1545
Relinquished By/Removed From: REF 2B 3728	Date/Time: 6905 0900	Received By/Stored In: SUGALE	Date/Time: 6905 0900
Relinquished By/Removed From: SUGALE ERC	Date/Time: 6905 0900	Received By/Stored In: FED EX	Date/Time:
Relinquished By/Removed From: Fed Ex	Date/Time: 6-10-05 0900	Received By/Stored In:	Date/Time: 6-10-05 0900
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}, Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to relinquish samples from 3728 Ref #2B on 6/9/05

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

BHI-EE-011 (03/01/2002)

000041

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

B04-002-040 | Page 4 of 5

Bechtel Hanford Inc.

Collector: D Bowersw/C Martinez/J Kiesler

Company Contact: Doug Bowers | Telephone No.: 531-0701

Project Coordinator: KESSNER, JH

Price Code: Many | Data Turnaround: 21 days

Project Designation: 100 BC Burial Grounds - Soil Full Protocol

Sampling Location: 128-B-2 @ 100 BC

SAF No.: B04-002

Air Quality

Ice Chest No.: GRC 02 506, 96 002, 02 501, 03 105, 02 101, TNV052

Field Logbook No.: EL 1173-5 | COA: R128B22600

Method of Shipment: Fed Ex

Shipped To: EBERLINE SERVICES / LIONVILLE

Offsite Property No.: A050 239/240

Bill of Lading/Air Bill No.: SEE OSPC

POSSIBLE SAMPLE HAZARDS/REMARKS: NA

Special Handling and/or Storage: NA

SAMPLE ANALYSIS												
Preservation				None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C		
Type of Container				aG	aG	aG	aG	aG	aG	aG		
No. of Container(s)				1	1	1	1	1	1	1		
Volume				250mL	120mL	120mL	120mL	500mL	250mL	120mL		
				See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1		
Sample No.	Matrix *	Sample Date	Sample Time									
16. J03CF4	SOIL	~~6/8/05~~	1230	✓	✓	✓	✓	✓	✓	✓		
17. J03CF5	SOIL	6/8/05	1235	✓	✓	✓	✓	✓	✓	✓		
18. J03CF6	SOIL	6/8/05	1250	✓	✓	✓	✓	✓	✓	✓		
19. J03CF7	SOIL	6/8/05	1330	✓	✓	✓	✓	✓	✓	✓		
20. J03CF8	SOIL	6/8/05	1333	✓	✓	✓	✓	✓	✓	✓		

CHAIN OF POSSESSION

Relinquished By/Removed From (Sign/Print Names)	Date/Time	Received By/Stored In (Sign/Print Names)	Date/Time
Doug Bowers	6-8-05/1545	REF 2B 3728	6-8-05/1545
REF 2B 3728	6905 0900	SIGALE	6905 0900
SIGALE	6905 GRC 0900	FED EX	
Fed Ex	6/10/05 0920		6-10-05 0920

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}: Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}: Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to Relinquish samples from 3728 Ref # 2D on 6/9/05

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

BHI-EE-011 (03/01/2002)

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Bechtel Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	B04-002-040	Page 2 of 2

Collector: D Bowersw/C Martinez/J Kiesler	Company Contact: Doug Bowers	Telephone No.: 531-0701	Project Coordinator: KESSNER, JH
Price Code: Many	Data Turnaround: Air Quality 21 days		
Project Designation: 100 BC Burial Grounds - Soil Full Protocol	Sampling Location: 128-B-2 @ 100 BC		SAF No.: B04-002
Ice Chest No.: ERC 02 506, 96 002, 02 501, 03 105, 02 101, TNV 052	Field Logbook No.: EL 1173-5	COA: R128B22600	Method of Shipment: Fed Ex
Shipped To: EBERLINE SERVICES LIONVILLE	Offsite Property No.: A050 239/240		Bill of Lading/Air Bill No.: SEZ 0SPC

POSSIBLE SAMPLE HAZARDS/REMARKS

NA

Special Handling and/or Storage

NA

Preservation	None	Cool 4C	Cool 4C	Cool 4C	None	Cool 4C	Cool 4C			
Type of Container	aG	aG	aG	aG	aG	aG	aG			
No. of Container(s)	1	1	1	1	1	1	1			
Volume	250mL	120mL	120mL	120mL	500mL	250mL	120mL			
SAMPLE ANALYSIS	See item (1) in Special Instructions.	PCBs - 8082	Semi-VOA - 8270A (TCL)	VOA - 8260A (TCL)	See item (2) in Special Instructions.	Pesticides - 8081	TPH (Total) - 418.1			

	Sample No.	Matrix *	Sample Date	Sample Time										
21.	J03CF9	SOIL	6/8/05	1335	✓	✓	✓	✓	✓	✓	✓			
22.	J03CH0	SOIL	6/8/05	1400	✓	✓	✓	✓	✓	✓	✓			
23.	J03CH1	SOIL	6/8/05	0910	✓	✓	✓	✓	✓	✓	✓			
24.	J03CH2	SOIL	6/8/05	1044	✓	✓	✓	✓	✓	✓	✓			
25.	J03CC8	soil	6/8/05	0803	✓	✓	✓	✓	✓	✓	✓		TCP semi VOA	only

0000043

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From: D Bowers	Date/Time: 6-8-05/1545	Received By/Stored In: RoF 2B 3728	Date/Time: 6-8-05/1545
Relinquished By/Removed From: RoF 2B 3728	Date/Time: 6905 0900	Received By/Stored In: SJGALE	Date/Time: 6905 0900
Relinquished By/Removed From: SJGALE 6905 0900 ERC	Date/Time:	Received By/Stored In: FED EX	Date/Time:
Relinquished By/Removed From: Fed Ex 6/10/05	Date/Time: 0920	Received By/Stored In: 6-10-05	Date/Time: 0920
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:
Relinquished By/Removed From:	Date/Time:	Received By/Stored In:	Date/Time:

SPECIAL INSTRUCTIONS

Run Isotopic Uranium analysis off of the GEA material

(1) ICP Metals - 6010 (Client List) {~~Aluminum~~, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, ~~Calcium~~, Chromium, Cobalt, Copper, ~~Iron~~, Lead, ~~Magnesium~~, Manganese, Molybdenum, Nickel, ~~Potassium~~, Selenium, ~~Silicon~~, Silver, ~~Sodium~~, Vanadium, Zinc}: Mercury - 7470 - (CV)
(2) Gamma Spectroscopy (TCL List) {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}: Gamma Spec - Add-on {Silver-108 metastable}

Personnel not available to relinquish samples from 3728 Ref # ZB on 6/8/05

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

BHI-EE-011 (03/01/2002)

Appendix 5

Data Validation Supporting Documentation

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 100BC 128-B-2			DATA PACKAGE: H3203		
VALIDATOR: TLI		LAB: LLI		DATE: 8/4/08	
			SDG: H3203		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)

SAMPLES/MATRIX J03CC9 J03CD0 J03CD1 J03CD2 J03CD3 J03CD4 J03CD5
J03CD6 J03CD7 J03CD8 J03CD9 J03CF0 J03CF1 J03CF2 J03CF3 J03CF4
J03CF5 J03CF6 J03CF7 J03CF8 J03CF9 J03CH0 J03CH1 J03CH2 J03CC8
J03CC9R ~~J03CD0~~ J03CD0R J03CD1R J03CD2R J03CD4R J03CD7R J03CD9R
J03CF0R J03CF1R J03CF3R J03CF8R J03CH1R
Soil

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? ..... Yes (No) N/A

Comments:

2. INSTRUMENT TUNING AND CALIBRATION (Levels D and E)

GC/MS tuning/performance check acceptable? ..... Yes No (N/A)

Initial calibrations acceptable? ..... Yes No (N/A)

Continuing calibrations acceptable? ..... Yes No (N/A)

Standards traceable? ..... Yes No (N/A)

Standards expired? ..... Yes No (N/A)

Calculation check acceptable? ..... Yes No (N/A)

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

3. BLANKS (Levels B, C, D, and E)

Calibration blanks analyzed? (Levels D, E) ..... Yes No N/A

Calibration blank results acceptable? (Levels D, E) ..... Yes No N/A

Laboratory blanks analyzed? ..... Yes No N/A

Laboratory blank results acceptable? ..... Yes No N/A

Field/trip blanks analyzed? (Levels C, D, E) ..... Yes No N/A

Field/trip blank results acceptable? (Levels C, D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: C9-D2 - U at RQL M-chlorid

D3-F8 m-chlorid ~~D6, D7, D8, F1, F3 8146~~ all U at RQL ~~all other~~ 8146 - ~~F8~~ ok 8146

F9-C8 - U at RQL - all - m chlorid

Reprep - D7 ok D9 ok all oth U at RQL m-chlorid (except H1)

4. ACCURACY (Levels C, D, and E)

Surrogates/system monitoring compounds analyzed? ..... Yes No N/A

Surrogate/system monitoring compound recoveries acceptable? ..... Yes No N/A

Surrogates traceable? (Levels D, E) ..... Yes No N/A

Surrogates expired? (Levels D, E) ..... Yes No N/A

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD results acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards? (Levels D, E) ..... Yes No N/A

LCS/BSS samples analyzed? ..... Yes No N/A

LCS/BSS results acceptable? ..... Yes No N/A

Standards traceable? (Levels D, E) ..... Yes No N/A

Standards expired? (Levels D, E) ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Performance audit sample(s) analyzed? ..... Yes No N/A

Performance audit sample results acceptable? ..... Yes No N/A

Comments: no PAS

No MS/MSD on all except Reprep - J all

plus J03C H1R

GC/MS ORGANIC DATA VALIDATION CHECKLIST

5. PRECISION (Levels C, D, and E)

MS/MSD samples analyzed? ..... Yes No N/A

MS/MSD RPD values acceptable? ..... Yes No N/A

MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A

MS/MSD standards expired? (Levels D, E) ..... Yes No N/A

Field duplicate RPD values acceptable? ..... Yes No N/A

Field split RPD values acceptable? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: No MS/MSD on all except repsp - J all

6. SYSTEM PERFORMANCE (Levels D and E)

Internal standards analyzed? ..... Yes No N/A

Iinternal standard areas acceptable? ..... Yes No N/A

Internal standard retention times acceptable? ..... Yes No N/A

Standards traceable? ..... Yes No N/A

Standards expired? ..... Yes No N/A

Transcription/calculation errors? ..... Yes No N/A

Comments:

7. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A

Sample holding times acceptable? ..... Yes No N/A

Comments:

GC/MS ORGANIC DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, QUANTITATION, AND DETECTION LIMITS (all levels)

Compound identification acceptable? (Levels D, E) ..... Yes No N/A

Compound quantitation acceptable? (Levels D, E) ..... Yes No N/A

Results reported for all requested analyses? ..... Yes No N/A

Results supported in the raw data? (Levels D, E) ..... Yes No N/A

Samples properly prepared? (Levels D, E) ..... Yes No N/A

Laboratory properly identified and coded all TIC? (Levels D, E) ..... Yes No N/A

Detection limits meet RDL? ..... Yes No N/A

Transcription/calculation errors? (Levels D, E) ..... Yes No N/A

Comments: 72 over

9. SAMPLE CLEANUP (Levels D and E)

GPC cleanup performed? ..... Yes No N/A

GPC check performed? ..... Yes No N/A

GPC check recoveries acceptable? ..... Yes No N/A

GPC calibration performed? ..... Yes No N/A

GPC calibration check performed? ..... Yes No N/A

GPC calibration check retention times acceptable? ..... Yes No N/A

Check/calibration materials traceable? ..... Yes No N/A

Check/calibration materials Expired? ..... Yes No N/A

Analytical batch QC given similar cleanup? ..... Yes No N/A

Transcription/Calculation Errors? ..... Yes No N/A

Comments: