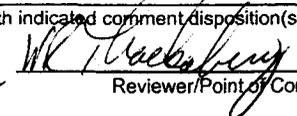
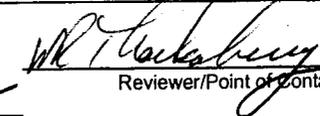


ORP-114 (02/02)		ORP - REVIEW COMMENT RECORD (RCR)		1. Date June 7, 2005	2. Review No. N/A
				3. Project No. 200-MW-1	4. Page 1 of 1
5. Document Number(s)/Title(s) Data Package SDG H2905		6. Program/Project/Building Number GRP & Waste Sites/200-MW-1		7. Reviewer Bill Thackaberry	8. Organization/Group Env & Science Assurance (QA)
				9. Location/Phone E6-35 372-0742	
17. Comment Submittal Approval		10. Agreement with indicated comment disposition(s)		11. CLOSED	
Organization Manager (optional)		<u>6/15/05</u> Date  Reviewer/Point of Contact Requester		<u>6/15/05</u> Date  Reviewer/Point of Contact Requester	
12. Item	13a. Comment(s)/Discrepancy(s) (Provide technical justification for the comment and detailed recommendation of the action required to correct/resolve the discrepancy/problem indicated.)	14. Reviewer Concurrence Required	15. Disposition (Provide justification if NOT accepted). Provide separate attachments if necessary.		16. Status
1	Wet Chemistry -pg 4, The RPD paragraph gives an erroneous sample number. "B19P66" should be B19966.				✓
2	Wet Chemistry -pg 4, The Minor Deficiencies paragraph gives an erroneous sample number. "B19P66" should be B19966.				✓
3	Wet Chemistry -pg 9, The Wet Chemistry Data Qualification Summary gives an erroneous sample number. "B19P66" should be B19966.				✓
4	Wet Chemistry - pg 27 checklist item 6 says "pH - <2x J all" however, pg 2 holding times paragraph says hold time as exceeded by greater than 2 times for pH.				✓
5	Semi volatiles - pg 11 and pg 16 assign a J qualifier to motor oil. This is not explained in the letter report or the data qualification summary.				✓
	Inorganics, Radiochemistry, Volatiles, PCBs - No Comment				

Date: 24 May 2005
To: Fluor Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 200-MW-1 Characterization Sampling and Analysis - Soil
Subject: Inorganics - Data Package No. H2905



INTRODUCTION

This memo presents the results of data validation on Data Package No. H2905 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	Media	Validation	Analysis
B19PT5	12/13/04	Soil	C	See note 1

1 - ICP metals by 6010B and mercury by 7471A.

Data validation was conducted in accordance with the FHI validation statement of work and the 200-MW-1 Miscellaneous Waste Group OU RI/FS Workplan, DOE/RL-001-65 (Rev. 0), April 2002. 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 6 months for ICP metals and 28 days for mercury.

All holding times were acceptable.

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- **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.

All preparation blank results were acceptable.

Field (Equipment) Blank

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike & Matrix Spike Duplicate

Matrix spike (MS), matrix spike duplicate (MSD) and laboratory control sample (LCS) analyses are used to assess the analytical accuracy of the reported data. The matrix spike is used to assess effect of the matrix on the ability to accurately quantify sample concentrations. Recoveries must fall within the range of 75% to 125%. Samples with a spike recovery of less than 30% and a sample result below the IDL are rejected and flagged "UR". Samples with a spike recovery of 30% to 74% and a sample result less than the IDL are qualified "UJ". Samples with a spike recovery of greater than 125% or less than 74% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a spike recovery greater than 125% and a sample result less than the IDL, no qualification is required.

All MS/MSD results were acceptable.

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Laboratory Control Sample

The LCS is used to monitor the overall performance of all steps in the analysis. Recoveries must fall within the range of 80% to 120% for LCS analysis. Samples with a recovery of less than 50% are rejected and flagged "UR". Samples with a recovery of 50% to 79% and a sample recovery below the IDL are qualified "UJ". Samples with a recovery of greater than 120% or less than 80% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 120% and a sample result less than the IDL, no qualification is required.

All LCS results were acceptable.

- **Precision**

Laboratory Duplicate Samples

Analytical precision is expressed by the relative percent differences (RPD) between the recoveries of matrix spike and 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 $\pm 35\%$, 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

No field duplicate results were submitted for analysis.

- **Analytical Detection Limits**

Reported analytical detection levels are compared against the required target quantitation limits (RTQLs) to ensure that laboratory detection levels meet the required criteria. All results met the analyte specific RTQL.

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- **Completeness**

Data package No. H2905 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

None found.

REFERENCES

FHI, Contract #20266, *Validation Statement of Work*, Fluor Hanford Incorporated, July 7, 2003.

DOE/RL-2001-65, Rev. 0, *200-MW-1 Miscellaneous Waste Group OUs RI/FS Work Plan*, April 2002.

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Appendix 1

Glossary of Data Reporting Qualifiers

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Qualifiers which may be applied by data validators in compliance with FHI 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).

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Appendix 2

Summary of Data Qualification

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INORGANIC DATA QUALIFICATION SUMMARY*

SDG: H2905	REVIEWER: TLI	DATE: 5/24/05	PAGE <u>1</u> OF <u>1</u>
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.

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

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Project: FLUOR HANFORD			
Laboratory: LLJ			
Case	SDG: H2905		
Sample Number	B19PT5		
Remarks			
Sample Date	12/13/04		
Inorganics		Result	Q
Silver	0.6	0.09	U
Cadmium	0.5	0.03	U
Chromium	1	5.4	
Copper	2.5	10.4	
Mercury	0.2	0.01	U
Lead	1	3.6	

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/21/05

CLIENT: TNUHANFORD P04-015 H2905
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L484

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-004	B19PTS	Silver, Total	0.09 u	MG/KG	0.09	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	5.4	MG/KG	0.07	1.0
		Copper, Total	10.4	MG/KG	0.13	1.0
		Mercury, Total	0.01 u	MG/KG	0.01	1.0
		Lead, Total	3.6	MG/KG	0.20	1.0

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5/21/05

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

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Analytical Report

Client: TNU-HANFORD F04-015
LVL#: 0412L484
SDG/SAF#: H2905/F04-015

W.O.#: 11343-606-001-9999-00
Date Received: 12-18-04

METALS CASE NARRATIVE

1. This narrative covers the analysis of 1 soil sample.
2. The sample was prepared and analyzed in accordance with methods checked on the attached glossary.
3. All analyses were performed within the required holding times.
4. All results presented in this report are derived from samples that met LvLI's sample acceptance policy.
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. Refer to the Inorganics Laboratory Control Standards Report.
10. All matrix spike (MS) recoveries were within the 75-125% control limits. Refer to the Inorganics Accuracy Report.
11. The duplicate analyses for 3 analytes were outside the 20% Relative Percent Difference (RPD) control limits. Refer to the Inorganics Precision Report.
12. For the purposes of this report, the data has been reported to the Instrument Detection Limit (IDL). Values between the IDL and the Practical Quantitation Limit (PQL) are acquired in a

The results presented in this report relate only to the analytical testing and conditions of the samples at receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 18 pages.

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region of less-certain quantification.

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



Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

jjw/m12-484

1/25/05
Date



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FLUOR Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						F04-015-118	PAGE 1 OF 1		
COLLECTOR Pope/Pfister/Hughes/Wiberg		COMPANY CONTACT CS Cearlock		TELEPHONE NO. 372-9638		PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days		
SAMPLING LOCATION 216-U-3; 22.5R-25R		PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil				SAF NO. F04-015		AIR QUALITY <input type="checkbox"/>			
ICE CHEST NO. <i>HPP-03-015</i>		FIELD LOGBOOK NO. HNF-N-386 1		COA 119144E510		METHOD OF SHIPMENT Federal Express					
SHIPPED TO <i>Becca</i>		OFFSITE PROPERTY NO. <i>See PTK 14591</i>				BILL OF LADING/AIR BILL NO. <i>See PTK 14591</i>					
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	
		TYPE OF CONTAINER		gG	gG	gGs*	gGs*	gG	gG	P	
		NO. OF CONTAINER(S)		1	1	3	3	1	1	1	
		VOLUME		250mL	250mL	40mL	40mL	120mL	120mL	50mL	
SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: <i>849953 MMS</i> <i>B19975 12/14/04</i>		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	Alcohols, Glycols, Ketones - 8015 (1-Butanol)	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (5) IN SPECIAL INSTRUCTIONS	
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME								
B19PT5	SOIL	12-13-04	0750	X	X	X	X	X	X		
CHAIN OF POSSESSION		SIGN/ PRINT NAMES				SPECIAL INSTRUCTIONS					
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME	** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (1) IC Anions - 300.0 {Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} Total Cyanide - 9010; pH (Soil) - 9045; (2) ICP Metals - 6010A (Supertrace) {Cadmium, Chromium, Lead, Silver} ICP Metals - 6010A (Supertrace Add-On) {Copper} Mercury - 7471 - (CV); (3) VOA - 8260A (TCL); VOA - 8260A (Add-On) (cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene) (4) Semi-VOA - 8270A (Add-On) (Tributyl phosphate) TPH-Gasoline Range - WTPH-G; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range} (5) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Americium-241, Isotopic Plutonium, Isotopic Uranium, Strontium-89,90 - Total Sr, Total Uranium)					
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME						
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME						
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME						
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME						
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME						
LABORATORY SECTION	RECEIVED BY	TITLE				DATE/TIME					
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY				DATE/TIME					

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Appendix 5

Data Validation Supporting Documentation

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INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	200-MW-1		DATA PACKAGE: H2905		
VALIDATOR:	TLF	LAB:	LLI	DATE: 5/16/05	
			SDG:	H2905	
ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		
SAMPLES/MATRIX					
D19PTS					
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: NO FB

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: 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: _____

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
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: _____

Appendix 6

Additional Documentation Requested by Client

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Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/21/05

CLIENT: TNUHANFORD F04-015 H2905
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L484

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK1	05L0002-MB1	Silver, Total	0.10 u	MG/KG	0.10	1.0
		Cadmium, Total	0.03 u	MG/KG	0.03	1.0
		Chromium, Total	0.08 u	MG/KG	0.08	1.0
		Copper, Total	0.14 u	MG/KG	0.14	1.0
		Lead, Total	0.22 u	MG/KG	0.22	1.0
BLANK1	04C0284-MB1	Mercury, Total	0.02 u	MG/KG	0.02	1.0

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Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/21/05

CLIENT: TNUHANFORD P04-015 H2905

LVL LOT #: 0412L484

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

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-004	B19PT5	Silver, Total	4.2	0.09u	4.8	87.5	1.0
		Cadmium, Total	4.3	0.03u	4.8	89.6	1.0
		Chromium, Total	24.6	5.4	19.3	99.5	1.0
		Copper, Total	34.4	10.4	24.1	99.6	1.0
		Mercury, Total	0.16	0.01u	0.15	110.1	1.0
		Lead, Total	48.1	3.6	48.2	92.3	1.0

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Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/21/05

CLIENT: TNUHANFORD F04-015 H2905
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L484

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION
			RESULT	REPLICATE	RPD	
-004REP	B19PT5	Silver, Total	0.09u	0.09u	NC	1.0
		Cadmium, Total	0.03u	0.03u	NC	1.0
		Chromium, Total	5.4	6.9	24.4	1.0
		Copper, Total	10.4	12.9	21.5	1.0
		Mercury, Total	0.01u	0.02u	NC	1.0
		Lead, Total	3.6	4.5	22.2	1.0

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Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/21/05

CLIENT: TNUHANFORD P04-015 H2905
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L484

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	SPIKED AMOUNT	UNITS	%RECOV
LCS1	05L0002-LC1	Silver, LCS	47.4	50.0	MG/KG	94.8
		Cadmium, LCS	24.2	25.0	MG/KG	96.8
		Chromium, LCS	50.1	50.0	MG/KG	100.2
		Copper, LCS	121	125	MG/KG	96.6
		Lead, LCS	241	250	MG/KG	96.6
LCS1	04C0284-LC1	Mercury, LCS	6.4	6.2	MG/KG	103.0

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Date: 24 May 2005
To: Fluor Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 200-MW-1 Characterization Sampling and Analysis - Soil
Subject: PCB - Data Package No. H2905



INTRODUCTION

This memo presents the results of data validation on Data Package No. H2905 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	Media	Validation	Analysis
B19PT5	12/13/04	Soil	C	See note 1

1 - PCBs by 8082.

Data validation was conducted in accordance with the FHI validation statement of work and the 200-MW-1 Miscellaneous Waste Group OU RI/FS Workplan, DOE/RL-2001-65 (Rev. 0), April 2002. 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

DATA QUALITY OBJECTIVES

- **Holding Times/Sample Preservation**

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 analyzed within 14 days of the date of sample collection.

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.

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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 minimum detectable activity (MDA). 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 MDA, the result is qualified as undetected and elevated to the MDA.

All method blank target compound results were acceptable.

Field Blanks

No equipment blanks were submitted for analysis.

- **Accuracy**

Matrix Spike/Blank Spike

Matrix spike and blank spike 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 and is done in duplicate. Matrix spike and blank spike analyses must be within control limits of 50% to 150%. 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.

All matrix spike/blank spike 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

000002

compounds with surrogate recoveries above the upper control limit require no qualification.

All 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 35%. 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.

All precision results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

- **Analytical Detection Levels**

Reported analytical detection levels are compared against the required target quantitation limits (RTQL) to ensure that laboratory detection levels meet the required criteria. All results met the analyte specific RTQL.

- **Completeness**

Data Package No. H2905 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.

000003

MINOR DEFICIENCIES

None found.

REFERENCES

FHI, Contract #20266, *Validation Statement of Work*, Fluor Hanford Incorporated, July 7, 2003.

DOE/RL-2001-65, Rev. 0, *200-MW-1 Miscellaneous Waste Group OUs RI/FS Work Plan*, April 2002.

000004

Appendix 1

Glossary of Data Reporting Qualifiers

000005

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).

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Appendix 2

Summary of Data Qualification

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PCB DATA QUALIFICATION SUMMARY*

SDG: H2905	REVIEWER: TLI	DATE: 5/24/05	PAGE <u>1</u> OF <u>1</u>
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.

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: FLUOR-HANFORD			
Laboratory: LLI			
Case:	SDG: H2905		
Sample Number	B19PT5		
Remarks			
Sample Date	12/13/04		
Analysis Date	12/23/04		
PCB	RDL	Result	Q
Aroclor-1016	16.5	13	U
Aroclor-1221	16.5	13	U
Aroclor-1232	16.5	13	U
Aroclor-1242	16.5	13	U
Aroclor-1248	16.5	13	U
Aroclor-1254	16.5	13	U
Aroclor-1260	16.5	13	U

000010

Lionville Laboratory, Inc.

PCBs by GC

Report Date: 12/23/04 14:33

RFW Batch Number: 0412L484

Client: TNU-HANFORD F04-015, 42905 Work Order: 11343606001 Page: 1

Sample Information	Cust ID:	B19PT5	B19PT5	B19PT5	PBLKDQ	PBLKDQ BS
	RFW#:	004	004 MS	004 MSD	04LE1534-MB1	04LE1534-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
Surrogate:	Tetrachloro-m-xylene	75 %	66 %	67 %	52 %	69 %
	Decachlorobiphenyl	72 %	63 %	65 %	53 %	69 %
		-----fl-----	-----fl-----	-----fl-----	-----fl-----	-----fl-----
Aroclor-1016		13 U	93 %	89 %	13 U	92 %
Aroclor-1221		13 U				
Aroclor-1232		13 U				
Aroclor-1242		13 U				
Aroclor-1248		13 U				
Aroclor-1254		13 U				
Aroclor-1260		13 U	91 %	87 %	13 U	95 %

0412L484

000011

R Steylos

JH 12/27/04

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

00000005

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000012



Case Narrative

Client: TNU HANFORD F04-015
LVL#: 0412L484
SDG/SAF#: H2905/F04-015

W.O.#: 11343-606-001-9999-00
Date Received: 12-18-2004

PCB

One (1) soil sample was collected on 12-13-2004.

The sample and its associated QC samples were extracted on 12-21-2004 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures on 12-22,23-2004. 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 a sample that met LvLI's sample acceptance policy.
2. The sample was extracted and analyzed within required holding time.
3. The sample and its 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. All initial calibrations associated with this data set were within acceptance criteria.
9. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
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.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

1/24/05
Date

son\l:\group\data\pest\tnu hanford\0412-484.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 2 pages.

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COLLECTOR Pope/Pfister/Hughes/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION 216-U-3; 22.5R-25R	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil	SAF NO. F04-015	AIR QUALITY <input type="checkbox"/>		
ICE CHEST NO. <i>HRP-03-015</i>	FIELD LOGBOOK NO. HNF-N-386 1	COA 119144ES10	METHOD OF SHIPMENT Federal Express		

SHIPPED TO *Becca* OFFSITE PROPERTY NO. *SEU PTK 14591* BILL OF LADING/AIR BILL NO. *SEU PTK 14591*

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION							None
		TYPE OF CONTAINER							
		NO. OF CONTAINER(S)							
		VOLUME							
		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None
		aG	aG	aGs*	aGs*	aG	aG	aG	P
		1	1	3	3	1	1	1	1
		250mL	250mL	40mL	40mL	120mL	120mL	50mL	
	SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: <i>819962 MAB</i> <i>B19975 12/14/04</i>	SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	Alcohol, Glycols, Ketones - 8015 (1-Butanol)	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	PCBs - 8082; SEE ITEM (5) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	Cool 4C	None					
B19PTS	SOIL	12-13-04	0750	X	X	X	X	X	X	

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>R. PASTER/Rebecca</i>	DATE/TIME 12-13-04 1415	RECEIVED BY/STORED IN <i>M.O. - 076 RRL</i>	DATE/TIME 12-13-04 1415	** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (1) IC Anions - 300.0 {Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} Total Cyanide - 9010; pH (Soil) - 9045; (2) ICP Metals - 6010A (Supertrace) {Cadmium, Chromium, Lead, Silver} ICP Metals - 6010A (Supertrace Add-On) {Copper} Mercury - 7471 - (CV); (3) VOA - 8260A (TCL); VOA - 8260A (Add-On) (cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene) (4) Semi-VOA - 8270A (Add-On) (Tributyl phosphate) TPH-Gasoline Range - WTPH-G; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range} (5) Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Americium-241, Isotopic Plutonium, Isotopic Uranium, Strontium-89,90 - Total Sr, Total Uranium)	
RELINQUISHED BY/REMOVED FROM <i>M.G. BROWN</i>	DATE/TIME 12/16/04 1220	RECEIVED BY/STORED IN <i>M.G. BROWN</i>	DATE/TIME 12/16/04 1220		
RELINQUISHED BY/REMOVED FROM <i>M.G. BROWN</i>	DATE/TIME 12/16/04 1220	RECEIVED BY/STORED IN <i>LED CA</i>	DATE/TIME		
RELINQUISHED BY/REMOVED FROM <i>DeDe</i>	DATE/TIME 12-18-04 11:15	RECEIVED BY/STORED IN <i>DeDe</i>	DATE/TIME 12-18-04 11:15		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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Appendix 5

Data Validation Supporting Documentation

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PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	200-MW-1 200-MW-1		DATA PACKAGE: H2905		
VALIDATOR:	FLI	LAB:	LLI	DATE: 5/10/05	
			SDG:	H2905	
ANALYSES PERFORMED					
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)		
SAMPLES/MATRIX					
BIPTS					
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 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: _____

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: No PA _____

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: _____

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: 24 May 2005
To: Fluor Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 200-MW-1 Characterization Sampling and Analysis - Soil
Subject: Radiochemistry - Data Package No. H2905



INTRODUCTION

This memo presents the results of data validation on Data Package No. H2905 prepared by Eberline Services (EB). A list of samples validated along with the analyses reported and the method of analysis is provided in the following table.

Sample ID	Sample	Media	Validation	Analysis
B19PT5	12/13/04	Soil	C	See note 1
B19960	12/10/04	Soil	C	See note 2
B19961	12/10/04	Soil	C	See note 2
B19962	12/13/04	Soil	C	See note 2
B19963	12/14/04	Soil	C	See note 2
B19964	12/15/04	Soil	C	See note 2
B19965	12/16/04	Soil	C	See note 2
B19966	12/20/04	Soil	C	See note 2

- 1 - Strontium-90, total uranium, gamma spectroscopy and alpha spectroscopy.
2 - Technetium-99, tritium and iodine-129.

Data validation was conducted in accordance with the FHI validation statement of work and the 200-MW-1 Miscellaneous Waste Group OU RI/FS Workplan, DOE/RL-2001-65 (Rev. 0), April 2002. 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

000001

DATA QUALITY OBJECTIVES

- **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.

- **Laboratory (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 required detection limit (RDL), 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 minimum detectable activity (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 laboratory blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

- **Accuracy**

Accuracy is evaluated by analyzing distilled water or field samples spiked with known amounts of radionuclides. The sample activity as determined by analysis is compared to the known activity to assess accuracy. The acceptable laboratory control sample (LCS) and matrix spike (MS) recovery range is either 65-135% or 70-130%, depending on the analyte. 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, rejected, or not qualified, depending on the activity of the individual sample.

All accuracy results were acceptable.

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- **Precision**

Analytical precision is expressed by the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. Precision may also be assessed using unspiked duplicate sample analyses. If both sample and replicate activities are greater than five times the contract required detection limit (CRDL) and the RPD is less than +/- 35 percent, the results are acceptable. If either activities are less than five times the CRDL, a control limit of less than or equal to two times the CRDL is used for soil samples and less than or equal to the CRDL for water samples. If either the original or replicate value is below the CRDL, the applicable control limits are less than or equal to the CRDL for water samples and less than or equal to two times the CRDL for soil samples. 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 Duplicate Samples

One set of field duplicate samples (B19960/B19961) were submitted for analysis. Field duplicate samples are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **Detection Levels**

Reported analytical detection levels are compared against the required target quantitation limits (RTQLs) to ensure that laboratory detection levels meet the required criteria. All reported laboratory detection levels met the analyte specific RTQL.

- **Completeness**

Data package SDG No. H2905 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.

000003

MINOR DEFICIENCIES

None found.

REFERENCES

FHI, Contract #20266, *Validation Statement of Work*, Fluor Hanford Incorporated, July 7, 2003.

DOE/RL-2001-65, Rev. 0, *200-MW-1 Miscellaneous Waste Group OUs RI/FS Work Plan*, April 2002.

Appendix 1

Glossary of Data Reporting Qualifiers

Qualifiers which may be applied by data validators in compliance with the FHI 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.

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Appendix 2
Summary of Data Qualification

000007

RADIOCHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: H2905	REVIEWER: TLI	DATE: 5/24/05	PAGE <u>1</u> OF <u>1</u>
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.

000008

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: FLUOR-HANFORD																	
Laboratory: EB																	
Case		SDG: H2905															
Sample Number	B19PT5		B19660		B19961		B19962		B19963		B19964		B19965		B19966		
Remarks	Duplicate																
Sample Date	12/13/04		12/10/04		12/10/04		12/13/04		12/14/04		12/15/05		12/16/05		12/20/04		
Radiochemistry	RTQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q		
Tritium	400	NA		0.362		0.417		0.955		0.105	U	0.175	U	1.78		0.142	U
Technetium-99	15	NA		0.080	U	0.126	U	0.115	U	0.252	U	-0.183	U	-0.119	U	0.090	U
Iodine-129	2	NA		-0.336	U	0.527	U	-0.258	U	0.034	U	0.533	U	-0.146	U	-0.099	U
Total Strontium	1	0.017	U	NA		NA											
Total Uranium (ug/g)		1.47		NA													
Uranium-233/234(aspec)	1	0.592		NA													
Uranium-235(aspec)	1	0.025	U	NA		NA											
Uranium-238(aspec)	1	0.551		NA													
Plutonium-238	1	0	U	NA		NA											
Plutonium-239/240	1	0.035	U	NA		NA											
Americium-241	1	0	U	NA		NA											
Potassium-40		10.4		NA													
Cobalt-60	0.05		U	U	NA		NA										
Cesium 137	0.1		U	U	NA		NA										
Radium-226		0.430		NA													
Radium-228		0.634		NA													
Europium-152	0.1		U	U	NA		NA										
Europium-154	0.1		U	U	NA		NA										
Europium-155	0.1		U	U	NA		NA										
Thorium-228		0.553		NA													
Thorium-232		0.634		NA													
Uranium-235(gea)			U	U	NA		NA										
Uranium-238(gea)			U	U	NA		NA										
Americium-241(gea)			U	U	NA		NA										
NA = Not analyzed																	

000010

* - RTQL 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 H2905

R412175-01

B19960

DATA SHEET

SDG <u>7191</u>	Client/Case no <u>Hanford</u>	SDG <u>H2905</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R412175-01</u>	Client sample id <u>B19960</u>	
Dept sample id <u>7191-001</u>	Location/Matrix <u>216-U-3; 17.5-20ft</u>	<u>SOLID</u>
Received <u>12/16/04</u>	Collected/Weight <u>12/10/04 10:50</u>	<u>99.1 g</u>
% solids <u>96.5</u>	Custody/SAF No <u>F04-015-065</u>	<u>F04-015</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.362	0.15	0.23	400		H
Technetium 99	14133-76-7	0.080	0.28	0.47	15	U	TC
Iodine 129	15046-84-1	-0.336	0.85	1.9	2.0	U	I

200-MW-1 Charatrizatn.Samp.&Ana-Soil

R
5/24/05

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2905

R412175-02

B19961

D A T A S H E E T

SDG <u>7191</u>	Client/Case no <u>Hanford</u>	SDG <u>H2905</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R412175-02</u>	Client sample id <u>B19961</u>	
Dept sample id <u>7191-002</u>	Location/Matrix <u>216-U-3; 17.5-20ft</u>	<u>SOLID</u>
Received <u>12/16/04</u>	Collected/Weight <u>12/10/04 10:50</u>	<u>100.6 g</u>
‡ solids <u>93.1</u>	Custody/SAF No <u>F04-015-065</u>	<u>F04-015</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.417	0.15	0.23	400		H
Technetium 99	14133-76-7	0.126	0.36	0.56	15	U	TC
Iodine 129	15046-84-1	0.527	0.54	1.2	2.0	U	I

200-MW-1 Charatrizatn.Samp.&Ana-Soil

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5/24/05

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2905

R412280-01

B19962

DATA SHEET

SDG <u>7209</u>	Client/Case no <u>Hanford</u>	SDG <u>H2905</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R412280-01</u>	Client sample id <u>B19962</u>	
Dept sample id <u>7209-001</u>	Location/Matrix <u>216-U-3; 22.5ft-25ft</u>	<u>SOLID</u>
Received <u>12/23/04</u>	Collected/Weight <u>12/13/04 07:50</u>	<u>82.7 g</u>
% solids <u>94.3</u>	Custody/SAF No <u>F04-015-120</u>	<u>F04-015</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.955	0.23	0.33	400		H
Technetium 99	14133-76-7	0.115	0.17	0.52	15	U	TC
Iodine 129	15046-84-1	-0.258	0.62	1.4	2.0	U	I

200-MW-1 Charac. Sampling & Ana.-Soil

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5/24/05

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2905

R412214-01

B19963

DATA SHEET

SDG <u>7197</u>	Client/Case no <u>Hanford</u>	SDG <u>H2905</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R412214-01</u>	Client sample id <u>B19963</u>	
Dept sample id <u>7197-001</u>	Location/Matrix <u>216-U-3; 35ft-37.5ft</u>	<u>SOLID</u>
Received <u>12/20/04</u>	Collected/Weight <u>12/14/04 07:00</u>	<u>60.1 g</u>
% solids <u>96.0</u>	Custody/SAF No <u>F04-015-067</u>	<u>F04-015</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.105	0.14	0.22	400	U	H
Technetium 99	14133-76-7	0.252	0.29	1.0	15	U	TC
Iodine 129	15046-84-1	0.034	0.47	1.0	2.0	U	I

200-MW-1 Charac.Samp. & Analysis-Soil

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2905

R412214-02

B19964

D A T A S H E E T

SDG <u>7197</u>	Client/Case no <u>Hanford</u>	SDG <u>H2905</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R412214-02</u>	Client sample id <u>B19964</u>	
Dept sample id <u>7197-002</u>	Location/Matrix <u>216-U-3; 47ft-49.5ft</u>	<u>SOLID</u>
Received <u>12/20/04</u>	Collected/Weight <u>12/15/04 07:00</u>	<u>88.4 g</u>
% solids <u>98.2</u>	Custody/SAF No <u>F04-015-068</u>	<u>F04-015</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.175	0.14	0.22	400	U	H
Technetium 99	14133-76-7	-0.183	0.24	0.85	15	U	TC
Iodine 129	15046-84-1	0.533	1.4	<u>3.3</u>	2.0	U	I

200-MW-1 Charac.Samp.& Analysis-Soil

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Lab id <u>EBERLINE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2905

R412214-03

B19965

DATA SHEET

SDG <u>7197</u>	Client/Case no <u>Hanford</u>	SDG <u>H2905</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R412214-03</u>	Client sample id <u>B19965</u>	
Dept sample id <u>7197-003</u>	Location/Matrix <u>216-U-3; 97.5ft-100ft</u>	<u>SOLID</u>
Received <u>12/20/04</u>	Collected/Weight <u>12/16/04 09:00</u>	<u>56.4 g</u>
% solids <u>92.0</u>	Custody/SAF No <u>F04-015-069</u>	<u>F04-015</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	1.78	0.18	0.23	400		H
Technetium 99	14133-76-7	-0.119	0.20	0.67	15	U	TC
Iodine 129	15046-84-1	-0.146	1.0	<u>2.3</u>	2.0	U	I

200-MW-1 Charac.Samp.& Analysis-Soil

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2905

R412280-02

B19966

DATA SHEET

SDG <u>7209</u>	Client/Case no <u>Hanford</u>	SDG <u>H2905</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R412280-02</u>	Client sample id <u>B19966</u>	
Dept sample id <u>7209-002</u>	Location/Matrix <u>216-U-3; 1275ft-129.5ft</u>	<u>SOLID</u>
Received <u>12/23/04</u>	Collected/Weight <u>12/20/04 07:40</u>	<u>70.5 g</u>
‡ solids <u>91.8</u>	Custody/SAF No <u>F04-015-070</u>	<u>F04-015</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.142	0.16	0.26	400	U	H
Technetium 99	14133-76-7	0.090	0.23	0.55	15	U	TC
Iodine 129	15046-84-1	-0.099	0.48	1.1	2.0	U	I

200-MW-1 Charac. Sampling & Ana. - Soil

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>
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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2905

R412280-03

B19PT5

DATA SHEET

SDG <u>7209</u>	Client/Case no <u>Hanford</u>	SDG <u>H2905</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R412280-03</u>	Client sample id <u>B19PT5</u>	
Dept sample id <u>7209-003</u>	Location/Matrix <u>216-U-3; 22.5ft-25ft</u>	<u>SOLID</u>
Received <u>12/23/04</u>	Collected/Weight <u>12/13/04 07:50</u>	<u>681.6 g</u>
% solids <u>95.7</u>	Custody/SAF No <u>F04-015-118</u>	<u>F04-015</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Total Strontium	SR-RAD	0.017	0.12	0.24	1.0	U	SR
Total Uranium (ug/g)	7440-61-1	1.47	0.17	0.008	1.0		U_T
Uranium 233/234	U-233/234	0.592	0.21	0.16	1.0		U
Uranium 235	15117-96-1	0.025	0.049	0.19	1.0	U	U
Uranium 238	U-238	0.551	0.21	0.16	1.0		U
Plutonium 238	13981-16-3	0	0.070	0.27	1.0	U	PU
Plutonium 239/240	PU-239/240	0.035	0.070	0.27	1.0	U	PU
Americium 241	14596-10-2	0	0.054	0.21	1.0	U	AM
Potassium 40	13966-00-2	10.4	0.54	0.25			GAM
Cobalt 60	10198-40-0	U		0.027	0.050	U	GAM
Cesium 137	10045-97-3	U		0.026	0.10	U	GAM
Radium 226	13982-63-3	0.430	0.054	0.053	0.10		GAM
Radium 228	15262-20-1	0.634	0.10	0.098	0.20		GAM
Europium 152	14683-23-9	U		0.068	0.10	U	GAM
Europium 154	15585-10-1	U		0.083	0.10	U	GAM
Europium 155	14391-16-3	U		0.075	0.10	U	GAM
Thorium 228	14274-82-9	0.553	0.032	0.030			GAM
Thorium 232	TH-232	0.634	0.10	0.098			GAM
Uranium 235	15117-96-1	U		0.10		U	GAM
Uranium 238	U-238	U		3.3		U	GAM
Americium 241	14596-10-2	U		0.12		U	GAM

200-MW-1 Charac. Sampling & Ana.-Soil

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5/24/05

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

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1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H2905 was composed of eight solid (soil) samples designated under SAF No. F04-015 with a Project Designation of: 200-MW-1 Characterization Sampling and Analysis-Soil.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist. The three samples received on December 16 and the three received December 20 were analyzed together in preparation batches with common QC samples. The two samples received December 23 were analyzed with their own QC samples.

2.0 ANALYSIS NOTES

2.2 Tritium Analyses

No problems were encountered during the course of the analyses.

2.6 Total Strontium Analyses

B19PT5 Dayer 5/24/05
Required for samples ~~B19960~~ and ~~B19961~~ only. No problems were encountered during the course of the analyses.

2.7 Technetium-99 Analyses

No problems were encountered during the course of the analyses.

2.8 Iodine-129 Analyses

No problems were encountered during the course of the analyses.

2.9 Isotopic Uranium Analyses

B19PT5 Dayer 5/24/05
Required for samples ~~B19960~~ and ~~B19961~~ only. No problems were encountered during the course of the analyses.

2.10 Total Uranium Analyses

B19PT5 Dayer 5/24/05
Required for samples ~~B19960~~ and ~~B19961~~ only. No problems were encountered during the course of the analyses.

2.14 Isotopic Plutonium Analyses

B19PT5 Dayer 5/24/05
Required for samples ~~B19960~~ and ~~B19961~~ only. No problems were encountered during the course of the analyses.

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Eberline Services
W.O. No. R4-12-175-7191
R4-12-214-7197
R4-12-280-7209

Fluor Hanford Inc.
SDG H2905

Case Narrative

Page 2 of 2

- 2.15 Americium-241 Analyses *BIAPTS Dayer 5/24/05*
Required for samples ~~B19960 and B19964~~ only. No problems were encountered during the course of the analyses.
- 2.16 Gamma Spectroscopy *BIAPTS Dayer 5/24/05*
Required for samples ~~B19960 and B19964~~ only. 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

2/22/05

Date

REVISED
Dayer

5/24/05

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FLUOR Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F04-015-065	PAGE 1 OF 1				
COLLECTOR Pope/Pfister/Tyra/Wiberg		COMPANY CONTACT CS Cearlock		TELEPHONE NO. 372-9638		PROJECT COORDINATOR TRENT, SJ		PRICE CODE BN	DATA TURNAROUND		
SAMPLING LOCATION 216-U-3; 17.5-204 LF 127/04		PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil H2905 (7/91)			SAF NO. F04-015		AIR QUALITY <input type="checkbox"/>		45 Days / 45 Days		
ICE CHEST NO. GRP-03-019		FIELD LOGBOOK NO. HNF-N-386 1		COA 119144ES10		METHOD OF SHIPMENT Federal Express					
SHIPPED TO Eberline Services		OFFSITE PROPERTY NO. 20 PTK 14590			BILL OF LADING/AIR BIL NO. 20 PTK 14590						
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION		Cool 4C	None						
		TYPE OF CONTAINER		2G	2G						
		NO. OF CONTAINER(S)		1	1						
		VOLUME		120mL	60mL						
SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: B19951		SAMPLE ANALYSIS		SEE ITEM (1) IN SPEC. INSTRUCTIONS	Iodine-129; Technetium-99; Tritium - H3;						
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME								
B19960	SOIL	12/10/04	1050		X						
B19961	SOIL	12/10/04	1050		X						
CHAIN OF POSSESSION				SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS					
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME	(1)NO2/NOS - 353.2; Oil & Grease - 413.1; Chromium Hex - 7196; 12/8/04					
<i>Donna Wibe</i>		12/14/04	<i>110-026</i>		12/14/04						
<i>110-026</i>		12/15/04	<i>110-026</i>		12/15/04						
<i>110-026</i>		12/16/04	<i>110-026</i>		12/16/04						
<i>FED EX</i>		12/16/04 9:40	<i>110-026</i>		12/16/04						
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME						
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME						
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME						
LABORATORY SECTION	RECEIVED BY	TITLE			DATE/TIME						
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY			DATE/TIME						

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FLUOR Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F04-015-120	PAGE 1 OF 1
COLLECTOR Pope/Pfister/Tyra/Wiberg		COMPANY CONTACT CS Clearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8N
SAMPLING LOCATION 216-U-3; 22.5R-25R		PROJECT DESIGNATION H2923 (7209) 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015		DATA TURNAROUND 45 Days / 45 Days
ICE CHEST NO. GRP. 03-003		FIELD LOGBOOK NO. HNF-N-386 1	COA 119144ES10	METHOD OF SHIPMENT Federal Express		
SHIPPED TO Eberline Services		OFFSITE PROPERTY NO. See PTR 14601		BILL OF LADING/AIRBILL NO. See PTR 14601		
MATRIX* A=Air DL=Drum L=Liquid DS=Drum S=Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION	None			
		TYPE OF CONTAINER	aG			
		NO. OF CONTAINER(S)	1			
	VOLUME	60ml.				
SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: B19962 B19975 02/1/04	SAMPLE ANALYSIS	Iodine-129; Technetium-99; Tritium - H3;				
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B19962	SOIL	12-13-04	0750	X		
CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME			
R. Pfister / R. Wiberg	12-13-04 1415	M. O. 026 FRIG #1	12-13-04 1415			
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME			
M. O. 026	12/21/04 0830	M. H. B. / M. H. B.	12/21/04 0830			
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME			
M. H. B. / M. H. B.	12/21/04 0830	M. H. B.	12/21/04 0830			
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME			
M. H. B.	12/23/04 12:00	M. H. B.	12/23/04 12:00			
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME			
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME			
LABORATORY SECTION	RECEIVED BY		TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD		DISPOSED BY		DATE/TIME	

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FLUOR Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F04-015-067	PAGE 1 OF 1
COLLECTOR Pope/Pfister/Tyra/Wiberg		COMPANY CONTACT CS Cearlock		TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8N
SAMPLING LOCATION 216-U-3; 35FT-37.5FT		PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil H2912 (7A7)			SAF NO. F04-015		DATA TURNAROUND 45 Days / 45 Days
ICE CHEST NO. GRP-03-009		FIELD LOGBOOK NO. HNF-N-386 1		COA 119144ES10	METHOD OF SHIPMENT Federal Express		
SHIPPED TO Eberline Services		OFFSITE PROPERTY NO. PTR 14598			BILL OF LADING/AIR BILL NO. PTR 14598		
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION	Cool 4C	None			
		TYPE OF CONTAINER	aG	aG			
		NO. OF CONTAINER(S)	1	1			
		VOLUME	120mL	60mL			
SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: B19953		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Iodine-129; Technetium-99; Thorium-232;		
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B19983	SOIL	12/14/04	0700		X		
CHAIN OF POSSESSION				SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	(1)NO2/NO3 - 553.2; Oil & Grease - 413.1; Chromium Hex - 7196; MJ8 12-24			
<i>R. Pfeister</i>	12-14-04 0900	<i>MO-026 FRIG #1</i>	12-14-04 0900				
<i>MO-026 FRIG #1</i>	12/14/04 1045	<i>Greg Thomas</i>	12/14/04 1045				
<i>Greg Thomas</i>	12/14/04 1045	<i>Fed Ex</i>					
<i>Fed Ex</i>	12/20/04 15:00	<i>And Jones</i>	12/21/04 8:00				
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME			
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME			

000024

FLUOR Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F04-015-068	PAGE 1 OF 1
COLLECTOR Pope/Pfister/Tyra/Wiberg		COMPANY CONTACT CS Cearlock		TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8N
SAMPLING LOCATION 216-U-3; 47FT-49.5FT		PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil H2912 (7197)			SAF NO. F04-015	DATA TURNAROUND 45 Days / 45 Days	
ICE CHECK NO. ERC-02-406		FIELD LOGBOOK NO. HNF-N-386 1	COA 119144ES10		METHOD OF SHIPMENT Federal Express		
SHIPPED TO Eberline Services		OFFSITE PROPERTY NO. SO PTR 14598			BILL OF LADING/AIR BILL NO. SO PTR 14598		
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION	Cool 4C	None			
		TYPE OF CONTAINER	g	g			
		NO. OF CONTAINER(S)	1	1			
		VOLUME	120mL	60mL			
SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: B19954		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS Iodine-129; Technetium-99; Tritium - H3;			
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B19964	SOIL	12-15-04	0700				
CHAIN OF POSSESSION				SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	(1) NO2/NO3 - 355.2; Oil & Grease - 413.1; Chromium Hex - 7196;			
J.S. POPE	12/15/04 1330	M.A. REG #1	12/05/04 1330				
M.P. BULLER	12/14/04 1130	M.A. BULLER	12/16/04 1130				
M.P. BULLER	12/16/04 1130	DEA					
FED EX	12/20/04 10:00	J.P. TRENT	12/20/04 9:00				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME			
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME			

000025

FLUOR Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F04-015-069	PAGE 1	OF 1		
COLLECTOR Pope/Pfister/Tyra/Wilberg		COMPANY CONTACT CS Cearlock		TELEPHONE NO. 372-9638		PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION 216-U-3; 97.5FT-100FT		PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil				SAF NO. F04-015		AIR QUALITY <input type="checkbox"/>		
ICE CHEST NO. EPC-6118-02-406		FIELD LOGBOOK NO. HNF-N-386 1		COA 119144E510		METHOD OF SHIPMENT Federal Express				
SHIPPED TO Eberline Services		OFFSITE PROPERTY NO. Su PTK 14598				BILL OF LADING/AIR BILL NO. Su PTK 14598				
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION		Cool 4C	None					
		TYPE OF CONTAINER		gG	gG					
		NO. OF CONTAINER(S)		1	1					
	VOLUME		120mL	60mL						
SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: B19953		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Iodine-129; Technetium-99; Tritium - H3;					
B19954 mab 12/16/04										
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME							
B19965	SOIL	12-16-04	0900		X					
CHAIN OF POSSESSION		SIGN/ PRINT NAMES				SPECIAL INSTRUCTIONS (1) NQ2/NQ3 - 353.2; Oil & Grease - 410.1; Chromium Hex - 7196; mab 12-04				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME							
R. Pfister	12/16/04 1030	M. G. Butler	12/16/04 1030							
M. G. Butler	12/16/04 1105	M. G. Butler	12/16/04 1105							
M. G. Butler	12/16/04 1105	Red								
Red	12/21/04 09:20									
LABORATORY SECTION	RECEIVED BY	TITLE				DATE/TIME				
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY				DATE/TIME				

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FLUOR Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F04-015-070	PAGE 1 OF 1
COLLECTOR Pope/Pfister/Tyra/Wiberg		COMPANY CONTACT CS Cearlock		TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8N
SAMPLING LOCATION 216-U-3; 127FT-129.5FT		PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil <i>H2923 (7209)</i>			SAF NO. F04-015		AIR QUALITY <input type="checkbox"/>
ICE CHEST NO. <i>GRP. 03.003</i>		FIELD LOGBOOK NO. HNF-N-386 1		COA 119144E510	METHOD OF SHIPMENT Federal Express		
SHIPPED TO Eberline Services		OFFSITE PROPERTY NO. <i>SU PTK 14601</i>			BILL OF LADING/AIR BILL NO. <i>SU PTK 14601</i>		
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION		Cool 4C	None		
		TYPE OF CONTAINER		gG	gG		
		NO. OF CONTAINER(S)		1	1		
		VOLUME		120ml	60ml		
SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: <i>B19955 12/21/04</i>		SAMPLE ANALYSIS		SEE (1) IN SPECIAL INSTRUCTIONS	Iodine-129; Technetium-99; Tritium - H3;		
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B19966	SOIL	12/20/04	0740		X		
CHAIN OF POSSESSION				SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME	(1) NO2/NO3 - 353.2; Oil & Grease - 413.1; Chromium Hex - 7196; <i>MD812-04</i>	
<i>D. O. / [Signature]</i>		<i>12/20/04 0910</i>	<i>MD-220, Frig #1 [Signature]</i>		<i>0910</i>		
<i>MD-220 [Signature]</i>		<i>02/21/04 0800</i>	<i>M.H. [Signature]</i>		<i>02/21/04</i>		
<i>M.H. [Signature]</i>		<i>12/21/04</i>	<i>[Signature]</i>				
<i>[Signature]</i>		<i>12/23/04 12:00</i>	<i>[Signature]</i>		<i>12/23/04 12:00</i>		
<i>[Signature]</i>			<i>[Signature]</i>				
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME		
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME		
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME		
LABORATORY SECTION		RECEIVED BY			TITLE	DATE/TIME	
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD			DISPOSED BY	DATE/TIME	

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FLUOR Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST						F04-015-118		PAGE 1 OF 1		
COLLECTOR Pope/Pfister/Hughes/Wiberg		COMPANY CONTACT CS Clearlock		TELEPHONE NO. 372-9638		PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8N		DATA TURNAROUND 45 Days / 45 Days		
SAMPLING LOCATION 216-U-3; 22.5R-25R		PROJECT DESIGNATION H 2923 (7209) 200-MW-1 Characterization Sampling and Analysis - Soil				SAF NO. F04-015		AIR QUALITY <input type="checkbox"/>				
ICE CHEST NO. HPP-03-003		FIELD LOGBOOK NO. HNF-N-386 1		COA 119144ES10		METHOD OF SHIPMENT Federal Express						
SHIPPED TO Eberline Services		OFFSITE PROPERTY NO. See PTR 14601				BILL OF LADING/AIR BILL NO. See PTR 14601						
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION		Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	
		TYPE OF CONTAINER		aG	aG	aGs*	aGs*	aG	aG			P
		NO. OF CONTAINER(S)		1	1	3	3	1	1	1		
		VOLUME		250mL	250mL	40mL	40mL	120mL	120mL	500mL		
		SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: 819958/1100 B19975 12/21/04		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	Alcohols, Glycols, Ketones - 8015 (1-Butanol)	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	PCMs - 8082;	SEE ITEM (5) IN SPECIAL INSTRUCTIONS
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME									
B19PT5	SOIL	12-13-04	6750							X		
CHAIN OF POSSESSION				SIGN/ PRINT NAMES				SPECIAL INSTRUCTIONS				
RELINQUISHED BY/REMOVED FROM R. Pfister/Pfister		DATE/TIME 12-13-04 1415		RECEIVED BY/STORED IN M. G. 026 FRIG #1		DATE/TIME 12-13-04 1415		** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (1)IC Anions - 300.0 {Fluoride, Nitrate, Nitrite, Phosphate, Sulfate} Total Cyanide - 9010; pH (Soil) - 9045; (2)ICP Metals - 6010A (Supertrace) {Cadmium, Chromium, Lead, Silver} ICP Metals - 6010A (Supertrace Add-On) {Copper} Mercury - 7471 - (CV); (3)VOA - 8260A (ICL); VOA - 8260A (Add-On) {cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene} (4)Semi-VOA -- 8270A (Add-On) {Tributyl phosphate} TPH-Gasoline Range - WTPH-G; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range} (5)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr; Total Uranium;				
RELINQUISHED BY/REMOVED FROM M. G. 026 FRIG #1		DATE/TIME 12/21/04 0830		RECEIVED BY/STORED IN M. G. 026 FRIG #1		DATE/TIME 12/21/04 0830						
RELINQUISHED BY/REMOVED FROM M. G. 026 FRIG #1		DATE/TIME 12/21/04 0830		RECEIVED BY/STORED IN M. G. 026 FRIG #1		DATE/TIME 12/21/04 0830						
RELINQUISHED BY/REMOVED FROM F. D. 12		DATE/TIME 12/23/04 12:00		RECEIVED BY/STORED IN F. D. 12		DATE/TIME 12/23/04 12:00						
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME						
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME						
LABORATORY SECTION		RECEIVED BY				TITLE		DATE/TIME				
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD				DISPOSED BY		DATE/TIME				

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Appendix 5

Data Validation Supporting Documentation

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**APPENDIX A
RADIOCHEMICAL DATA VALIDATION CHECKLIST**

VALIDATION LEVEL:	A	B	<u>C</u>	D	E
PROJECT:	200-Mw-1		DATA PACKAGE:	H 2905	
VALIDATOR:	TLP	LAB:	FB	DATE:	5/10/05
		SDG:	H 2905		
ANALYSES PERFORMED					
Gross Alpha/Beta	<u>Strontium-90</u>	<u>Technetium-99</u>	<u>Alpha Spectroscopy</u>	<u>Gamma Spectroscopy</u>	
<u>Total Uranium</u>	Radium-22	<u>Tritium</u>	<u>I-129</u>		
SAMPLES/MATRIX					
	B19960	B19961	B19963	B19964	B19965
	B19962	B19966	B19965		

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: use tracer per FHI

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 FS or Pas* _____

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: _____

Appendix 6

Additional Documentation Requested by Client

000036

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2905

R412175-04

Method Blank

METHOD BLANK

SDG <u>7191</u>	Client/Case no <u>Hanford</u>	SDG <u>H2905</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R412175-04</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7191-004</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F04-015</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.090	0.14	0.23	400	U	H
Technetium 99	14133-76-7	0.052	0.21	0.76	15	U	TC
Iodine 129	15046-84-1	0.060	0.32	0.72	2.0	U	I

200-MW-1 Charatrizatn.Samp.&Ana-Soil

QC-BLANK 51222

000037

Lab id <u>EBRINE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>
00000011

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2905

R412175-03

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7191</u> Contact <u>Melissa C. Mannion</u>	Client/Case no <u>Hanford</u> <u>SDG H2905</u> Contract No. <u>630</u>
Lab sample id <u>R412175-03</u> Dept sample id <u>7191-003</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOLID</u> SAF No <u>F04-015</u>

ANALYTE	RESULT	2σ ERR	MDA	SDL	QUALI-	ADDED	2σ ERR	REC	3σ LMTS	PROTOCOL
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS TEST	pCi/g	pCi/g	%	(TOTAL)	LIMITS
Tritium	11.8	0.55	0.38	400	H	11.8	0.47	100	82-118	80-120
Technetium 99	111	3.0	0.85	15	TC	109	4.4	102	83-117	80-120
Iodine 129	125	2.8	<u>5.0</u>	2.0	I	116	4.6	108	82-118	80-120

200-MW-1 Charatrizatn.Samp. & Ana-Soil

QC-LCS 51221

Lab id <u>EBRLINE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2905

R412175-05

B19960

DUPLICATE

SDG <u>7191</u> Contact <u>Melissa C. Mannion</u> DUPLICATE Lab sample id <u>R412175-05</u> Dept sample id <u>7191-005</u> ‡ solids <u>96.5</u>	ORIGINAL Lab sample id <u>R412175-01</u> Dept sample id <u>7191-001</u> Received <u>12/16/04</u> ‡ solids <u>96.5</u>	Client/Case no <u>Hanford</u> SDG <u>H2905</u> Contract No. <u>630</u> Client sample id <u>B19960</u> Location/Matrix <u>216-U-3; 17.5-20ft</u> SOLID Collected/Weight <u>12/10/04 10:50</u> <u>99.1 g</u> Custody/SAF No <u>F04-015-065</u> <u>F04-015</u>
---	--	---

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
Tritium	0.419	0.15	0.23	400		H	0.362	0.15	0.23		15	84	
Technetium 99	-0.010	0.31	0.93	15	U	TC	0.080	0.28	0.47	U	-		
Iodine 129	-1.04	2.7	<u>6.1</u>	2.0	U	I	-0.336	0.85	1.9	U	-		

200-MW-1 Charatrizatn.Samp.&Ana-Soil

QC-DUP#1 51223

Lab id <u>EBERLINE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2905

R412175-06

B19961

MATRIX SPIKE

SDG <u>7191</u>	Client/Case no <u>Hanford</u>	<u>SDG H2905</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R412175-06</u>	Lab sample id <u>R412175-02</u>	Client sample id <u>B19961</u>
Dept sample id <u>7191-006</u>	Dept sample id <u>7191-002</u>	Location/Matrix <u>216-U-3: 17.5-20ft</u>
	Received <u>12/16/04</u>	Collected/Weight <u>12/10/04 10:50 100.6 g</u>
% solids <u>93.1</u>	% solids <u>93.1</u>	Custody/SAF No <u>F04-015-065</u> <u>F04-015</u>

ANALYTE	SPIKE pCi/g	2σ ERR (COUNT)	MDA pCi/g	EDL pCi/g	QUALI- FIERS TEST	ADDED pCi/g	2σ ERR pCi/g	ORIGINAL pCi/g	2σ ERR (COUNT)	REC 3σ % (TOTAL)	LMTS LIMITS	PROTOCOL LIMITS
Tritium	57.3	2.4	0.83	400	X H	58.2	2.3	0.417	0.15	98	83-117	60-140

200-MW-1 Charatrizatn.Samp.&Ana-Soil

QC-MS#2 51224

Lab id <u>EBRLINE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-MS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H2905

R412175-04

Method Blank

METHOD BLANK

SDG <u>7197</u>	Client/Case no <u>Hanford</u>	SDG <u>H2905</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R412175-04</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7191-004</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F04-015</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	0.090	0.14	0.23	400	U	H
Technetium 99	14133-76-7	0.052	0.21	0.76	15	U	TC
Iodine 129	15046-84-1	0.060	0.32	0.72	2.0	U	I

200-MW-1 Charac.Samp.& Analysis-Soil

QC-BLANK 51222

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2905

R412175-03

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7197</u> Contact <u>Melissa C. Mannion</u>	Client/Case no <u>Hanford</u> SDG <u>H2905</u> Contract No. <u>630</u>
Lab sample id <u>R412175-03</u> Dept sample id <u>7191-003</u>	Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOLID</u> SAP No <u>F04-015</u>

ANALYTE	RESULT	2σ ERR	MDA	RDL	QUALI-	ADDED	2σ ERR	REC	3σ LMTS	PROTOCOL
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS TEST	pCi/g	pCi/g	‡	(TOTAL)	LIMITS
Tritium	11.8	0.55	0.38	400	H	11.8	0.47	100	82-118	80-120
Technetium 99	111	3.0	0.85	15	TC	109	4.4	102	83-117	80-120
Iodine 129	125	2.8	<u>5.0</u>	2.0	I	116	4.6	108	82-118	80-120

200-MW-1 Charac.Samp.& Analysis-Soil

QC-LCS 51221

LAB CONTROL SAMPLES

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SUMMARY DATA SECTION

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2905

R412214-06

B19963

DUPLICATE

SDG <u>7197</u> Contact <u>Melissa C. Mannion</u> DUPLICATE Lab sample id <u>R412214-06</u> Dept sample id <u>7197-006</u> ‡ solids <u>96.0</u>	ORIGINAL Lab sample id <u>R412214-01</u> Dept sample id <u>7197-001</u> Received <u>12/20/04</u> ‡ solids <u>96.0</u>	Client/Case no <u>Hanford</u> SDG <u>H2905</u> Contract No. <u>630</u> Client sample id <u>B19963</u> Location/Matrix <u>216-U-3; 35ft-37.5ft</u> <u>SOLID</u> Collected/Weight <u>12/14/04 07:00</u> <u>60.1 g</u> Custody/SAP No <u>F04-015-067</u> <u>F04-015</u>
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ANALYTE	DUPLICATE		MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL		MDA pCi/g	QUALI- FIERS	RPD ‡	3σ TOT	PROT LIMIT
	pCi/g	2σ ERR (COUNT)					pCi/g	2σ ERR (COUNT)					
Tritium	0.087	0.14	0.23	400	U	H	0.105	0.14	0.22	U	-		
Technetium 99	-0.078	0.39	1.1	15	U	TC	0.252	0.29	1.0	U	-		
Iodine 129	0.154	0.45	1.0	2.0	U	I	0.034	0.47	1.0	U	-		

200-MW-1 Charac.Samp.& Analysis-Soil

QC-DUP#1 51314

Lab id <u>EBRLWE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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EBERLINE SERVICES/RICHMOND
SAMPLE DELIVERY GROUP H2905

R412280-05

Method Blank

METHOD BLANK

SDG <u>7209</u>	Client/Case no <u>Hanford</u>	SDG <u>H2905</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R412280-05</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7209-005</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F04-015</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	0.096	0.20	0.33	400	U	H
Total Strontium	SR-RAD	0.018	0.12	0.25	1.0	U	SR
Technetium 99	14133-76-7	0.205	0.28	0.50	15	U	TC
Total Uranium (ug/g)	7440-61-1	0	0.004	0.008	1.0	U	U_T
Uranium 233/234	U-233/234	0	0.052	0.20	1.0	U	U
Uranium 235	15117-96-1	0.031	0.063	0.24	1.0	U	U
Uranium 238	U-238	0.078	0.10	0.20	1.0	U	U
Plutonium 238	13981-16-3	0.015	0.030	0.12	1.0	U	PU
Plutonium 239/240	PU-239/240	0	0.030	0.12	1.0	U	PU
Americium 241	14596-10-2	0.070	0.14	0.18	1.0	U	AM
Iodine 129	15046-84-1	-0.130	0.29	0.66	2.0	U	I
Potassium 40	13966-00-2	U		0.23		U	GAM
Cobalt 60	10198-40-0	U		0.026	0.050	U	GAM
Cesium 137	10045-97-3	U		0.023	0.10	U	GAM
Radium 226	13982-63-3	U		0.041	0.10	U	GAM
Radium 228	15262-20-1	U		0.086	0.20	U	GAM
Europium 152	14683-23-9	U		0.057	0.10	U	GAM
Europium 154	15585-10-1	U		0.068	0.10	U	GAM
Europium 155	14391-16-3	U		0.034	0.10	U	GAM
Thorium 228	14274-82-9	U		0.026		U	GAM
Thorium 232	TH-232	U		0.086		U	GAM
Uranium 235	15117-96-1	U		0.059		U	GAM
Uranium 238	U-238	U		2.8		U	GAM
Americium 241	14596-10-2	U		0.019		U	GAM

200-MW-1 Charac. Sampling& Ana.-Soil

QC-BLANK 51384

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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EBERLINE SERVICES/RICHMOND.

SAMPLE DELIVERY GROUP H2905

R412280-04

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7209</u> Contact <u>Melissa C. Mannion</u> Lab sample id <u>R412280-04</u> Dept sample id <u>7209-004</u>	Client/Case no <u>Hanford</u> SDG <u>H2905</u> Contract No. <u>630</u> Client sample id <u>Lab Control Sample</u> Material/Matrix <u>SOLID</u> SAF No <u>F04-015</u>
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ANALYTE	RESULT	2σ ERR	MDA	RDL	QUALI-	ADDED	2σ ERR	REC	3σ LMTS	PROTOCOL
	pCi/g	(COUNT)	pCi/g	pCi/g	FIERS TEST	pCi/g	pCi/g	%	(TOTAL)	LIMITS
Tritium	17.0	0.54	0.34	400	H	17.3	0.69	98	83-117	80-120
Total Strontium	11.4	0.62	0.25	1.0	SR	11.1	0.44	103	81-119	80-120
Technetium 99	114	2.2	0.53	15	TC	120	4.8	95	84-116	80-120
Total Uranium (ug/g)	36.2	4.4	0.084	1.0	U_T	36.2	1.4	100	77-123	80-120
Uranium 233/234	19.1	1.6	0.72	1.0	U	19.3	0.77	99	84-116	80-120
Uranium 235	14.8	1.4	0.15	1.0	U	15.7	0.63	94	84-116	80-120
Uranium 238	20.5	1.7	0.69	1.0	U	21.0	0.84	98	85-115	80-120
Plutonium 238	24.5	1.8	0.11	1.0	PU	26.4	1.1	93	86-114	80-120
Plutonium 239/240	28.4	2.0	0.11	1.0	PU	29.0	1.2	98	86-114	80-120
Americium 241	23.7	3.1	0.39	1.0	AM	22.4	0.90	106	77-123	80-120
Iodine 129	124	2.4	<u>3.5</u>	2.0	I	127	5.1	98	84-116	80-120
Cobalt 60	1.22	0.049	0.024	0.050	GAM	1.17	0.047	104	75-125	80-120
Cesium 137	1.23	0.043	0.031	0.10	GAM	1.18	0.047	104	75-125	80-120

200-MW-1 Charac. Sampling& Ana.--Soil

QC-LCS 51383

LAB CONTROL SAMPLES

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SUMMARY DATA SECTION

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Lab id <u>EBERLINE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2905

R412280-06

B19962

DUPLICATE

SDG <u>7209</u> Contact <u>Melissa C. Mannion</u> DUPLICATE Lab sample id <u>R412280-06</u> Dept sample id <u>7209-006</u> % solids <u>94.3</u>	ORIGINAL Lab sample id <u>R412280-01</u> Dept sample id <u>7209-001</u> Received <u>12/23/04</u> % solids <u>94.3</u>	Client/Case no <u>Hanford</u> SDG <u>H2905</u> Contract No. <u>630</u> Client sample id <u>B19962</u> Location/Matrix <u>216-U-3; 22.5ft-25ft</u> SOLID Collected/Weight <u>12/13/04 07:50</u> <u>82.7 g</u> Custody/SAF No <u>F04-015-120</u> <u>F04-015</u>
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ANALYTE	DUPLICATE		MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL		MDA pCi/g	QUALI- FIERS	RPD %	3σ TOT	PROT LIMIT
	pCi/g	2σ ERR (COUNT)					pCi/g	2σ ERR (COUNT)					
Tritium	0.830	0.22	0.33	400		H	0.955	0.23	0.33		14	58	
Technetium 99	0.028	0.18	0.56	15	U	TC	0.115	0.17	0.52	U	-	-	
Iodine 129	0.150	0.42	0.94	2.0	U	I	-0.258	0.62	1.4	U	-	-	

200-MW-1 Charac. Sampling& Ana.-Soil

QC-DUP#1 51385

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2905

R412280-07

B19PT5

DUPLICATE

SDG <u>7209</u> Contact <u>Melissa C. Mannion</u> DUPLICATE Lab sample id <u>R412280-07</u> Dept sample id <u>7209-007</u> % solids <u>95.7</u>	ORIGINAL Lab sample id <u>R412280-03</u> Dept sample id <u>7209-003</u> Received <u>12/23/04</u> % solids <u>95.7</u>	Client/Case no <u>Hanford</u> SDG <u>H2905</u> Contract No. <u>630</u> Client sample id <u>B19PT5</u> Location/Matrix <u>216-U-3; 22.5ft-25ft</u> <u>SOLID</u> Collected/Weight <u>12/13/04 07:50</u> <u>681.6 g</u> Custody/SAF No <u>F04-015-118</u> <u>F04-015</u>
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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
Total Strontium	-0.053	0.11	0.24	1.0	U	SR	0.017	0.12	0.24	U	-	-	-
Total Uranium (ug/g)	1.41	0.17	0.008	1.0		U_T	1.47	0.17	0.008		4	31	
Uranium 233/234	0.632	0.23	0.15	1.0		U	0.592	0.21	0.16		7	77	
Uranium 235	0.093	0.093	0.18	1.0	U	U	0.025	0.049	0.19	U	-	-	-
Uranium 238	0.536	0.19	0.15	1.0		U	0.551	0.21	0.16		3	79	
Plutonium 238	-0.018	0.036	0.14	1.0	U	PU	0	0.070	0.27	U	-	-	-
Plutonium 239/240	0.036	0.036	0.14	1.0	U	PU	0.035	0.070	0.27	U	-	-	-
Americium 241	0.047	0.070	0.090	1.0	U	AM	0	0.054	0.21	U	-	-	-
Potassium 40	10.6	0.46	0.24			GAM	10.4	0.54	0.25		2	33	
Cobalt 60	U		0.022	0.050	U	GAM	U		0.027	U	-	-	-
Cesium 137	U		0.021	0.10	U	GAM	U		0.026	U	-	-	-
Radium 226	0.435	0.038	0.038	0.10		GAM	0.430	0.054	0.053		1	39	
Radium 228	0.650	0.096	0.093	0.20		GAM	0.634	0.10	0.098		2	45	
Europium 152	U		0.055	0.10	U	GAM	U		0.068	U	-	-	-
Europium 154	U		0.070	0.10	U	GAM	U		0.083	U	-	-	-
Europium 155	U		0.061	0.10	U	GAM	U		0.075	U	-	-	-
Thorium 228	0.541	0.027	0.025			GAM	0.553	0.032	0.030		2	34	
Thorium 232	0.650	0.096	0.093			GAM	0.634	0.10	0.098		2	45	
Uranium 235	U		0.084		U	GAM	U		0.10	U	-	-	-
Uranium 238	U		2.6		U	GAM	U		3.3	U	-	-	-
Americium 241	U		0.099		U	GAM	U		0.12	U	-	-	-

200-MM-1 Charac. Sampling& Ana.-Soil

QC-DUP#3 51386

Lab id EBRINE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-DUP
 Version 3.06
 Report date 02/21/05

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H2905

R412280-08

B19962

MATRIX SPIKE

SDG <u>7209</u>	Client/Case no <u>Hanford</u>	SDG <u>H2905</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
MATRIX SPIKE	ORIGINAL	
Lab sample id <u>R412280-08</u>	Lab sample id <u>R412280-01</u>	Client sample id <u>B19962</u>
Dept sample id <u>7209-008</u>	Dept sample id <u>7209-001</u>	Location/Matrix <u>216-U-3; 22.5ft-25ft</u> <u>SOLID</u>
	Received <u>12/23/04</u>	Collected/Weight <u>12/13/04 07:50</u> <u>82.7 g</u>
% solids <u>94.3</u>	% solids <u>94.3</u>	Custody/SAF No <u>F04-015-120</u> <u>F04-015</u>

ANALYTE	SPIKE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	ORIGINAL pCi/g	2σ ERR (COUNT)	REC % (TOTAL)	LMTS LIMITS	PROTOCOL
Tritium	86.0	1.2	0.34	400	X	H	88.7	3.5	0.955	0.23	96	84-116	60-140

200-MW-1 Charac. Sampling& Ana.-Soil

QC-MS#1 51387

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Lab id <u>EBRLINE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-MS</u>
Version <u>3.06</u>
Report date <u>02/21/05</u>

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Date: 24 May 2005
To: Fluor Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 200-MW-1 Characterization Sampling and Analysis - Soil
Subject: Semivolatile - Data Package No. H2905



INTRODUCTION

This memo presents the results of data validation on Data Package No. H2905 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	Media	Validation	Analysis
B19PT5	12/13/05	Soil	C	See note 1

1 -Semivolatiles by 8270, TPH-D (diesel and kerosene), gasoline range organics and 1-butanol by 8015B.

Data validation was conducted in accordance with the FHI validation statement of work and the 200-MW-1 Miscellaneous Waste Group OU RI/FS Workplan, DOE/RL-2001-65 (Rev. 0), April 2002. 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

DATA QUALITY OBJECTIVES

• Holding Times/Sample Preservation

Analytical holding times were assessed to ascertain whether the holding time requirements were met by the laboratory. The holding time requirement for semivolatile organics are extraction within 14 days of the date of sample collection and analysis within 40 days from the date of extraction. Method 8015B requires analysis within 14 days.

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

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limit, all associated detectable sample results are qualified as estimates and flagged "J" and all non-detects are rejected and flagged "UR".

Due to the holding time being exceeded by less than twice the limit, all 1-butanol, diesel range organics, motor oil and kerosene results were qualified as estimates and flagged "J".

All other 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 bis(2-ethylhexyl)phthalate and di-n-butylphthalate results were qualified as estimates and flagged "J".

All other method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike/Matrix Spike Duplicate & Blank Spike

Matrix spike/matrix spike duplicate and blank spike sample analyses are used to assess the analytical accuracy of the reported data. Matrix spike/matrix duplicate results are used to assess 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

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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 outside control limits are qualified as estimates and flagged "UJ". Sample results greater than five times the spike concentration require no qualification.

All matrix spike/matrix spike duplicate and blank spike 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 +/-35%. 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.

All MS/MSD RPD results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

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- **Analytical Detection Levels**

Reported analytical detection levels are compared against the required target quantitation limits (RTQL's) to ensure that laboratory detection levels meet the required criteria. The diesel range organics, kerosene and kerosene result exceeded the analyte specific RTQL. Under the FHI statement of work, no qualification is required.

- **Completeness**

Data package No. H2905 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 the holding time being exceeded by less than twice the limit, all 1-butanol, diesel range organics, motor oil and kerosene results were qualified as estimates and flagged "J". Due to method blank contamination, all bis(2-ethylhexyl)phthalate and di-n-butylphthalate results were qualified as estimates and flagged "J". Data flagged "J" is an estimate, but under the FHI validation SOW, the data may be usable for decision-making purposes. All other validated results are considered accurate within the standard error associated with the methods.

The diesel range organics, kerosene and kerosene result exceeded the analyte specific RTQL. Under the FHI statement of work, no qualification is required.

REFERENCES

FHI, Contract #20266, *Validation Statement of Work*, Fluor Hanford Incorporated, July 7, 2003.

DOE/RL-2001-65, Rev. 0, *200-MW-1 Miscellaneous Waste Group OUs RI/FS Work Plan*, April 2002.

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Appendix 1

Glossary of Data Reporting Qualifiers

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Qualifiers which may be applied by data validators in compliance with the FHI 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).

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Appendix 2

Summary of Data Qualification

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SEMIVOLATILE DATA QUALIFICATION SUMMARY*

SDG: H2905	REVIEWER: TLI	DATE: 5/24/05	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
1-Butanol Kerosene Diesel range organics Motor oil	J	All	Holding time
bis(2-ethylhexyl)phthalate di-n-butylphthalate	J	All	Blank contamination

* - 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.

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: FLUOR-HANFORD			
Laboratory: LLI			
Case:	SDG: H2905		
Sample Number	B19PT5		
Remarks			
Sample Date	12/13/04		
Extraction Date	12/21/04		
Analysis Date	12/22/04		
Semivolatle/8015B	RTQL	Result	Q
Phenol		350	U
bis(2-Chloroethyl)ether		350	U
2-Chlorophenol		350	U
1,3-Dichlorobenzene		350	U
1,4-Dichlorobenzene		350	U
1,2-Dichlorobenzene		350	U
2-methylphenol		350	U
2,2'-oxybis(1-chloropropane)		350	U
3 and/or 4-Methylphenol		350	U
N-Nitroso-di-n-propylamine		350	U
Hexachloroethane		350	U
Nitrobenzene		350	U
Isophorone		350	U
2-Nitrophenol		350	U
2,4-Dimethylphenol		350	U
bis(2-Chloroethoxy)methane		350	U
2,4-Dichlorophenol		350	U
1,2,4-Trichlorobenzene		350	U
Naphthalene		350	U
4-Chloroaniline		350	U
Hexachlorobutadiene		350	U
4-Chloro-3-methylphenol		350	U
2-Methylnaphthalene		350	U
Hexachlorocyclopentadiene		350	U
2,4,6-Trichlorophenol		350	U
2,4,5-Trichlorophenol		870	U
2-Chloronaphthalene		350	U
2-Nitroaniline		870	U
Dimethylphthalate		350	U
Acenaphthylene		350	U
2,6-Dinitrotoluene		350	U
3-Nitroaniline		860	U
Acenaphthene		350	U

000010

Project: FLUOR-HANFORD			
Laboratory: LLI			
Case:		SDG: H2905	
Sample Number		B19PT5	
Remarks			
Sample Date		12/13/04	
Extraction Date		12/21/04	
Analysis Date		12/22/04	
Semivolatile/8015B		Result	Q
2,4-Dinitrophenol		870	U
4-Nitrophenol		870	U
Dibenzofuran		350	U
2,4-Dinitrotoluene		350	U
Diethylphthalate		350	U
4-Chlorophenyl-phenyl ether		350	U
Fluorene		350	U
4-Nitroaniline		870	U
4,6-Dinitro-2-methylphenol		870	U
N-Nitrosodiphenylamine		350	U
4-Bromophenyl-phenyl ether		350	U
Hexachlorobenzene		350	U
Pentachlorophenol		870	U
Phenanthrene		350	U
Anthracene		350	U
Carbazole		350	U
Di-n-butylphthalate		52	J
Fluoranthene		350	U
Pyrene		350	U
Butylbenzylphthalate		350	U
3,3'-Dichlorobenzidine		350	U
Benzo(a)anthracene		350	U
Chrysene		350	U
bis(2-Ethylhexyl)phthalate		51	J
Di-n-octylphthalate		350	U
Benzo(b)fluoranthene		350	U
Benzo(k)fluoranthene		350	U
Benzo(a)pyrene		350	U
Indeno(1,2,3-cd)pyrene		350	U
Dibenz(a,h)anthracene		350	U
Benzo(g,h,i)perylene		350	U
Tributylphosphate	3300	350	U
Diesel Range Organics	5000	12500	UJ
Kerosene*	5	12.5	U
Motor Oil	5000	15000	J
1-Butanol*	5	5.0	J
Gasoline Range Organics	5000	30	U

* - Units are mg/kg

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

Lionville Laboratory, Inc.

Semivolatiles by GC/MS, Special List

Report Date: 12/27/04 11:01

RFW Batch Number: 0412L484

Client: TNU-HANFORD F04-015.42905 Work Order: 11343606001

Page: 1a

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Sample Information	Cust ID:	B19PT5	B19PT5	B19PT5	SBLKCW	SBLKCW BS	SBLKCW BSD
RFW#:	004	004 MS	004 MSD	04LE1538-MB1	04LE1538-MB1	04LE1538-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	Nitrobenzene-d5	74 %	68 %	62 %	84 %	66 %	74 %
Recovery	2-Fluorobiphenyl	74 %	69 %	68 %	80 %	63 %	73 %
	p-Terphenyl-d14	94 %	84 %	93 %	87 %	76 %	70 %
	Phenol-d5	79 %	70 %	69 %	90 %	72 %	81 %
	2-Fluorophenol	72 %	68 %	59 %	79 %	66 %	76 %
	2,4,6-Tribromophenol	83 %	81 %	86 %	91 %	74 %	84 %
-----fl-----fl-----fl-----fl-----fl-----fl-----fl							
	Phenol	350 U	66 %	65 %	330 U	64 %	77 %
	bis(2-Chloroethyl) ether	350 U	350 U	350 U	330 U	330 U	330 U
	2-Chlorophenol	350 U	68 %	64 %	330 U	64 %	77 %
	1,3-Dichlorobenzene	350 U	350 U	350 U	330 U	330 U	330 U
	1,4-Dichlorobenzene	350 U	64 %	53 %	330 U	58 %	72 %
	1,2-Dichlorobenzene	350 U	350 U	350 U	330 U	330 U	330 U
	2-Methylphenol	350 U	350 U	350 U	330 U	330 U	330 U
	2,2'-oxybis(1-Chloropropane)	350 U	350 U	350 U	330 U	330 U	330 U
	3/4-Methylphenol	350 U	350 U	350 U	330 U	330 U	330 U
	N-Nitroso-Di-n-propylamine	350 U	68 %	70 %	330 U	78 %	88 %
	Hexachloroethane	350 U	350 U	350 U	330 U	330 U	330 U
	Nitrobenzene	350 U	350 U	350 U	330 U	330 U	330 U
	Isophorone	350 U	350 U	350 U	330 U	330 U	330 U
	2-Nitrophenol	350 U	350 U	350 U	330 U	330 U	330 U
	2,4-Dimethylphenol	350 U	350 U	350 U	330 U	330 U	330 U
	bis(2-Chloroethoxy) methane	350 U	350 U	350 U	330 U	330 U	330 U
	2,4-Dichlorophenol	350 U	350 U	350 U	330 U	330 U	330 U
	1,2,4-Trichlorobenzene	350 U	65 %	60 %	330 U	58 %	71 %
	Naphthalene	350 U	350 U	350 U	330 U	330 U	330 U
	4-Chloroaniline	350 U	350 U	350 U	330 U	330 U	330 U
	Hexachlorobutadiene	350 U	350 U	350 U	330 U	330 U	330 U
	4-Chloro-3-methylphenol	350 U	70 %	78 %	330 U	69 %	81 %
	2-Methylnaphthalene	350 U	350 U	350 U	330 U	330 U	330 U
	Hexachlorocyclopentadiene	350 U	350 U	350 U	330 U	330 U	330 U
	2,4,6-Trichlorophenol	350 U	350 U	350 U	330 U	330 U	330 U
	2,4,5-Trichlorophenol	870 U	870 U	870 U	840 U	840 U	840 U

*= Outside of EPA CLP QC limits.

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Cust ID:	B19PT5	B19PT5	B19PT5	SBLKCW	SBLKCW BS	SBLKCW BSD
RFW#:	004	004 MS	004 MSD	04LE1538-MB1	04LE1538-MB1	04LE1538-MB1

2-Chloronaphthalene	350 U	350 U	350 U	330 U	330 U	330 U
2-Nitroaniline	870 U	870 U	870 U	840 U	840 U	840 U
Dimethylphthalate	350 U	350 U	350 U	330 U	330 U	330 U
Acenaphthylene	350 U	350 U	350 U	330 U	330 U	330 U
2,6-Dinitrotoluene	350 U	350 U	350 U	330 U	330 U	330 U
3-Nitroaniline	870 U	870 U	870 U	840 U	840 U	840 U
Acenaphthene	350 U	66 %	67 %	330 U	57 %	72 %
2,4-Dinitrophenol	870 U	870 U	870 U	840 U	840 U	840 U
4-Nitrophenol	870 U	57 %	81 %	840 U	75 %	97 %
Dibenzofuran	350 U	350 U	350 U	330 U	330 U	330 U
2,4-Dinitrotoluene	350 U	62 %	78 %	330 U	67 %	82 %
Diethylphthalate	350 U	350 U	350 U	330 U	330 U	330 U
4-Chlorophenyl-phenylether	350 U	350 U	350 U	330 U	330 U	330 U
Fluorene	350 U	350 U	350 U	330 U	330 U	330 U
4-Nitroaniline	870 U	870 U	870 U	840 U	840 U	840 U
4,6-Dinitro-2-methylphenol	870 U	870 U	870 U	840 U	840 U	840 U
N-Nitrosodiphenylamine (1)	350 U	350 U	350 U	330 U	330 U	330 U
4-Bromophenyl-phenylether	350 U	350 U	350 U	330 U	330 U	330 U
Hexachlorobenzene	350 U	350 U	350 U	330 U	330 U	330 U
Pentachlorophenol	870 U	67 %	80 %	840 U	69 %	86 %
Phenanthrene	350 U	350 U	350 U	330 U	330 U	330 U
Anthracene	350 U	350 U	350 U	330 U	330 U	330 U
Carbazole	350 U	350 U	350 U	330 U	330 U	330 U
Di-n-Butylphthalate	52 ^{JB J}	45 JB	86 JB	51 J	59 JB	110 JB
Fluoranthene	350 U	350 U	350 U	330 U	330 U	330 U
Pyrene	350 U	76 %	87 %	330 U	66 %	68 %
Butylbenzylphthalate	350 U	350 U	350 U	330 U	330 U	19 J
3,3'-Dichlorobenzidine	350 U	350 U	350 U	330 U	330 U	330 U
Benzo(a)anthracene	350 U	350 U	350 U	330 U	330 U	330 U
Chrysene	350 U	350 U	350 U	330 U	330 U	330 U
bis(2-Ethylhexyl) phthalate	51 ^{JB J}	350 U	58 JB	27 J	26 JB	40 JB
Di-n-Octyl phthalate	350 U	350 U	350 U	330 U	330 U	330 U
Benzo(b)fluoranthene	350 U	350 U	350 U	330 U	330 U	330 U
Benzo(k)fluoranthene	350 U	350 U	350 U	330 U	330 U	330 U
Benzo(a)pyrene	350 U	350 U	350 U	330 U	330 U	330 U
Indeno(1,2,3-cd)pyrene	350 U	350 U	350 U	330 U	330 U	330 U
Dibenzo(a,h)anthracene	350 U	350 U	350 U	330 U	330 U	330 U
Benzo(g,h,i)perylene	350 U	350 U	350 U	330 U	330 U	330 U
Tributylphosphate	350 U	350 U	350 U	330 U	330 U	330 U

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

RL 5/21/05

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Lionville Laboratory, Inc.

GC SCAN

Report Date: 02/02/05 15:20

RFW Batch Number: 0412L484

Client: TNUHANFORD F04-015 H2905 Work Order: 11343606001 Page: 1

Sample Information	Cust ID:	B19PT5	B19PT5	B19PT5	BLK	BLK BS
RFW#:	004	004 MS	004 MSD	04GCX048-MB1	04GCX048-MB1	
Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	
D.F.:	1.00	1.00	1.00	1.00	1.00	
Units:	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
3-Pentanol	125 %	144 %	140 %	122 %	139 %	
-----fl-----	-----fl-----	-----fl-----	-----fl-----	-----fl-----	-----fl-----	
1-Butanol	5.0 U J	145 %	145 %	5.0 U	143 %	

K
5/21/05

Pr 2/2/05

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

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Lionville Laboratory, Inc.

GAS RANGE ORGANICS

Report Date: 01/11/05 10:33

RFW Batch Number: 0412L484

Client: TNUHANFORD F04-015 H2905 Work Order: 11343606001 Page: 1

	Cust ID:	B19PT5	B19PT5	B19PT5	TBLKSK	TBLKSK BS
Sample Information	RFW#:	004	004 MS	004 MSD	04LVJC27-MB1	04LVJC27-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	UG/KG	UG/KG	UG/KG	UG/KG	UG/KG
	Fluorobenzene	79 ‡	95 ‡	93 ‡	97 ‡	97 ‡
	-----fl-----fl-----fl-----fl-----fl-----fl-----fl					
Gasoline Range Organics (GRO)		30 U	90 ‡	84 ‡	30 U	106 ‡

R 5/21/05

R 7/19/05

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

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Lionville Laboratory, Inc.
DIESEL RANGE ORGANICS BY GC

Report Date: 05/20/05 12:51

RFW Batch Number: 0412L484

Client: TUDHANFORD F04-015 H2905 Work Order: 11343606001 Page: 1

No. 0278 P. 1

Sample Information	Cust ID:	B19PT5	B19PT5	B19PT5	BLK	BLK BS
	RFW#:	004	004 MS	004 MSD	04LE1537-MB1	04LE1537-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
	p-Terphenyl	102 †	97 †	100 †	92 †	101 †
		-----fl-----	-----fl-----	-----fl-----	-----fl-----	-----fl-----
Kerosene		12.5 U J	NS	NS	12.0 U	NS

Page 4a

VSL00001SA

May. 20. 2005 5:26PM

Handwritten initials and date: J 5/24/05

REVISED
Handwritten signature

5/24/05

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

Lionville Laboratory, Inc.

DIESEL RANGE ORGANICS BY GC

Report Date: 02/02/05 14:35

RFW Batch Number: 0412L484

Client: TNUHANFORD F04-015 H2905 Work Order: 11343606001 Page: 1

Sample Information	Cust ID:	B19PT5	B19PT5	B19PT5	BLK	BLK BS
	RFW#:	004	004 MS	004 MSD	04LE1537-MB1	04LE1537-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.00	1.00	1.00	1.00	1.00
	Units:	ug/kg	ug/kg	ug/kg	ug/kg	ug/kg
<hr/>						
	p-Terphenyl	102 %	97 %	100 %	92 %	101 %
<hr/>						
	Diesel Range Organics _____	12500 U J	75 %	91 %	12000 U	94 %
	Motor Oil Range Organics _____	15000 I	NS	NS	12000 U	NS
<hr/>						

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5/2/05

7/8/05

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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

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

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Case Narrative

Client: TNU HANFORD B04-015
LVL#: 0412L484
SDG/SAF#: H2905/B04-015

W.O.#: 11343-606-001-9999-00
Date Received: 12-18-2004

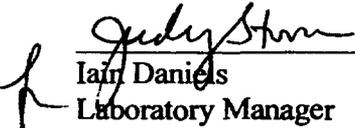
SEMIVOLATILE

One (1) soil sample was collected on 12-13-2004.

The sample and its associated QC samples were extracted according to Lionville Laboratory SOPs based on SW 846 method 3550B on 12-21-2004 and analyzed according to criteria set forth in Lionville Laboratory SOPs based on SW 846 Method 8270C for client specified Semivolatile target compounds on 12-21,22-2004.

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 a sample that met LvLI's sample acceptance policy.
2. The sample was extracted and analyzed within required holding time.
3. Non-target compounds were detected in the sample.
4. All surrogate recoveries were within 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 contaminants Bis (2-Ethylhexyl) phthalate and Di-n-butylphthalate at levels less than the CRQL.
8. Internal standard area criteria were not met for sample B19PT5 MS. The analysis of associated matrix spike duplicate fulfills the reanalysis requirement.
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. 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

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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 17 pages.

1/26/05
Date

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Case Narrative

Client: TNU-HANFORD F04-015
LVL #: 0412L484
SDG/SAF # H2905/F04-015

W.O. #: 11343-606-001-9999-00
Date Received: 12-18-2004

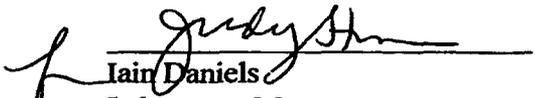
GC SCAN BY FID

One (1) soil sample was collected on 12-13-2004.

The sample and its associated QC samples were prepared on 12-24-2004 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedures based on method 8015B for 1-Butanol on 12-30-2004.

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 a sample that met LvLI's sample acceptance policy.
2. The sample was extracted and analyzed within required holding time.
3. The method blank was below the reporting limits for the target compound.
4. All surrogate recoveries were within acceptance criteria.
5. The blank spike recovery was within acceptance criteria.
6. The matrix spike recoveries were within acceptance criteria.
7. Confirmation was not required because target compounds were not detected in the sample.
8. All initial calibrations were within acceptance criteria.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated


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 12 pages.

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Analytical Report

Client: TNU HANFORD F04-015
LVL#: 0412L484
SDG/SAF#: H2905/F04-015

W.O.#: 11343-606-001-9999-00
Date Received: 12-18-2004

GRO

One (1) soil sample was collected on 12-13-2004.

The sample and its associated QC samples were analyzed according to Lionville Laboratory SOPs based on SW-846 method 8015 for Gasoline Range Organics (GRO) on 12-27-2004. The analysis met the intent of method WTPH-G.

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 a sample that met LVL's sample acceptance policy.
2. The sample was analyzed within required holding time.
3. The method blank was below the reporting limits for the target compound.
4. All surrogate recoveries were within acceptance criteria.
5. The blank spike recovery was within acceptance criteria.
6. The matrix spike recoveries were within acceptance criteria.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.


Ian Daniels
Laboratory Manager
Lionville Laboratory Incorporated


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 12 pages.

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Case Narrative

Client: TNU-HANFORD F04-015
LVL #: 0412L484
SDG/SAF # H2905/F04-015

W.O. #: 11343-606-001-9999-00
Date Received: 12-18-2004

DIESEL RANGE ORGANICS

One (1) soil sample was collected on 12-13-2004.

The sample and its associated QC samples were extracted on 12-21-2004 and analyzed according to Lionville Laboratory SOPs based on SW846, 3rd Edition procedure on 01-05-2005. The analysis was based on method 8015B. The analysis met the intent of method WTPH-D.

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 a sample that met LVL's sample acceptance policy.
2. The sample was extracted and analyzed within required holding time.
3. The method blank was below the reporting limits for the target compounds.
4. All surrogate recoveries were within acceptance criteria.
5. The blank spike recovery was within acceptance criteria.
6. The matrix spike recoveries were within acceptance criteria.
7. All initial calibrations associated with this data set were within acceptance criteria.
8. All continuing calibration standards analyzed prior to sample extracts were within acceptance criteria.
9. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard-copy data package has been authorized by the laboratory Manager or a designee, as verified by the following signature.


Jeff Daniels
Laboratory Manager
Lionville Laboratory Incorporated

2/2/05
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 12 pages.

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COLLECTOR Pope/Pfister/Hughes/Wiberg	COMPANY CONTACT CS Clearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION 216-U-3; 22.5ft-25ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015	AIR QUALITY <input type="checkbox"/>	

ICE CHEST NO. <i>ARP-03-015</i>	FIELD LOGBOOK NO. HNF-N-386 1	COA 119144ES10	METHOD OF SHIPMENT Federal Express		
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SHIPPED TO <i>Becca</i>	OFFSITE PROPERTY NO. <i>See PTR 14591</i>	BILL OF LADING/AIR BILL NO. <i>See PTR 14591</i>
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MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None
			TYPE OF CONTAINER	aG	aG	aGs*	aGs*	aG	aG
NO. OF CONTAINER(S)	1	1	3	3	1	1	1	1	
VOLUME	250mL	250mL	40mL	40mL	120mL	120mL	50mL		
SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: <i>819962</i> <i>B19975 12/14/04</i>	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	Alcohols, Glycols, Ketones - #015 (1-Butanol)	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	PCBs - 8082	SEE ITEM (5) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B19PT5	SOIL	12-13-04	0750	X	X	X	X	X	X

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (1)IC Anions - 300.0 (Fluoride, Nitrate, Nitrite, Phosphate, Sulfate) Total Cyanide - 9010; pH (Soil) - 9045; (2)ICP Metals - 6010A (Supertrace) (Cadmium, Chromium, Lead, Silver) ICP Metals - 6010A (Supertrace Add-On) (Copper) Mercury - 7471 - (CV); (3)VOA - 8260A (TCL); VOA - 8260A (Add-On) (cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene) (4)Semi-VOA -- 8270A (Add-On) (Tributyl phosphate) TPH-Gasoline Range - WTPH-G; TPH-Diesel Range - WTPH-D (Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range) (5)Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) Americium-241, Isotopic Plutonium, Isotopic Uranium, Strontium-89,90 Total Sr, Total Uranium)	
<i>R. P. Stover</i>	<i>12-13-04 1415</i>	<i>M. O. D. R. K. S. A.</i>	<i>12-13-04 1415</i>		
<i>M. O. D. R. K. S. A.</i>	<i>12/16/04 1220</i>	<i>M. H. D. R. K. S. A.</i>	<i>12/16/04 1220</i>		
<i>M. H. D. R. K. S. A.</i>	<i>12/16/04 1220</i>	<i>LED CA</i>			
<i>W. J. E.</i>	<i>12-18-04 11:15</i>	<i>W. J. E.</i>	<i>12-18-04 11:15</i>		

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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8-12

Lionville Laboratory, Inc.
 GCSC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD F04-015 H2905

DATE RECEIVED: 12/18/04

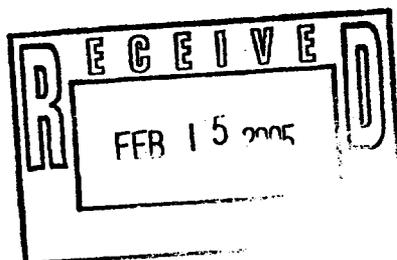
LVL LOT # :0412L484

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B19PT5	004	S	04GCX048	12/13/04	12/27/04	12/30/04
B19PT5	004 MS	S	04GCX048	12/13/04	12/27/04	12/30/04
B19PT5	004 MSD	S	04GCX048	12/13/04	12/27/04	12/30/04

LAB QC:

BLK	MB1	S	04GCX048	N/A	12/27/04	12/30/04
BLK	MB1 BS	S	04GCX048	N/A	12/27/04	12/30/04

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Lionville Laboratory, Inc.
 DRO ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD F04-015 H2905

DATE RECEIVED: 12/18/04

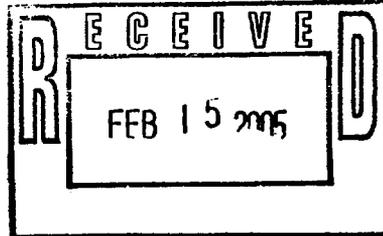
LVL LOT # :0412L484

CLIENT ID	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B19PT5	004	S	04LE1537	12/13/04	12/21/04	01/05/05
B19PT5	004 MS	S	04LE1537	12/13/04	12/21/04	01/05/05
B19PT5	004 MSD	S	04LE1537	12/13/04	12/21/04	01/05/05

LAB QC:

BLK	MB1	S	04LE1537	N/A	12/21/04	01/05/05
BLK	MB1 BS	S	04LE1537	N/A	12/21/04	01/05/05

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Appendix 5

Data Validation Supporting Documentation

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GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	200-MW-1		DATA PACKAGE: H2905		
VALIDATOR:	JLI	LAB: LLP	DATE: 5/10/05		
			SDG: H2905		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270	8015B	SW-846 8270 (TCLP)
SAMPLES/MATRIX					
B19PTS		B19PTS			
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: di-n-butyl phthalate + bis(2-ethylhexyl)phthalate in
mb - J

NO FB

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

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: _____

6. SYSTEM PERFORMANCE (Levels D and E)

Internal standards analyzed? Yes No N/A
Internal 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: TPH-D < 24 Diesel + 110 - J
1-butanol < 24 J

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: Diesel + motor oil + kerosene
 + kerosene

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: 24 May 2005
To: Fluor Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 200-MW-1 Characterization Sampling and Analysis - Soil
Subject: Volatiles - Data Package No. H2905



INTRODUCTION

This memo presents the results of data validation on Data Package No. H2905 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	Media	Validation	Analysis
B19PT5	12/13/05	Soil	C	See note 1

1 - Volatile by 8260A..

Data validation was conducted in accordance with the FHI validation statement of work and the 200-MW-1 Miscellaneous Waste Group OU RI/FS Workplan, DOE/RL-2001-65 (Rev. 0), April 2002. 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

DATA QUALITY OBJECTIVES

● **Holding Times/Sample Preservation**

Analytical holding times 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 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 acceptable.

- **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 of a given matrix. 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 project quantitation limit (MDL) and is less than five times (or less than ten times for laboratory contaminants) the highest associated blank result, the sample result value is raised to the MDL, qualified as undetected and flagged "U".

Due to method blank contamination, the methylene chloride results was qualified as undetected and flagged "U".

All other method blank results were acceptable.

Field Blanks

No field blanks were submitted for analysis.

- **Accuracy**

Matrix Spike/Matrix Spike Duplicate & Blank Spike

Matrix spike/matrix spike duplicate and blank spike analyses are used to assess the analytical accuracy of the reported data. The matrix spike/matrix spike duplicate are used to assess the effect of the matrix on the ability to accurately quantify sample concentrations. Matrix spike/matrix spike duplicate analyses are performed in duplicate using the target compounds for which percent recoveries must be within 50-150%. 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 outside control limits are qualified as estimates and flagged "UJ". Sample results greater than five times the spike concentration require no qualification.

All accuracy and blank spike results were acceptable.

Surrogate Recovery

The analysis of surrogate compounds provides a measure of system performance for individual samples. Matrix-specific surrogate compound recovery control windows have been established by the laboratory program. When a surrogate compound recovery is out of the control window, all positively identified target compounds associated with the unacceptable surrogate recoveries are qualified as estimates and flagged "J". Undetected compounds with surrogate recoveries less than the lower control limit are qualified as having an estimated detection limit and flagged "UJ". Samples with surrogate recoveries less than ten percent are qualified as estimates and flagged "J" for detects, and rejected and flagged "UR" for nondetects. Undetected compounds with surrogate recoveries greater than the upper control limit require no qualification. Surrogates are not required for formaldehyde analysis.

All surrogate recovery 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 by the relative percent difference (RPD) between the recoveries of duplicate matrix spike analyses performed on a sample. Sample results must be within RPD limits of +/- 35%. If RPD values are out of specification and the sample concentration is less than five times the spike concentration, all associated sample results are qualified as estimates and flagged "J" for detects and "UJ" for non-detects. If RPD values are out of specification and the sample concentration is greater than five times the spike concentration, no qualification is required.

All MS/MSD RPD results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

- **Detection Limits**

Reported analytical detection levels are compared against the required target quantitation limits (RTQLs) to ensure that laboratory detection levels meet the required criteria. Ten analytes exceeded the RTQL. Under the FHI statement of work, no qualification is required.

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- **Completeness**

Data package No. H2905 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, the methylene chloride results was qualified as undetected and flagged "U".

Ten analytes exceeded the RTQL. Under the FHI statement of work, no qualification is required.

REFERENCES

FHI, Contract #20266, *Validation Statement of Work*, Fluor Hanford Incorporated, July 7, 2003.

DOE/RL-2001-65, Rev. 0, *200-MW-1 Miscellaneous Waste Group OUs RI/FS Work Plan*, April 2002.

Appendix 1

Glossary of Data Reporting Qualifiers

000005

Qualifiers which may be applied by data validator 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 sample quantitation limit corrected for 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).

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Appendix 2

Summary of Data Qualification

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VOLATILE DATA QUALIFICATION SUMMARY*

SDG: H2905	REVIEWER: TLI	DATE: 5/24/05	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Methylene Chloride	U	All	Method blank contamination

* - 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.

000008

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

000009

Project: FLUOR-HANFORD			
Laboratory: LLI			
Case:	SDG: H2905		
Sample Number	B19PT5		
Sample Date	12/13/04		
VOA	RTQL	Result	Q
Chloromethane		11	U
Bromomethane		11	U
Vinyl Chloride		11	U
Chloroethane		11	U
Methylene Chloride	5	15	U
Acetone		11	U
Carbon Disulfide		6	U
1,1-Dichloroethene	5	6	U*
1,1-Dichloroethane	10	6	U
1,2-Dichloroethene (total)		6	U
Chloroform	5	6	U*
1,2-Dichloroethane		6	U
2-Butanone	10	11	U*
1,1,1-Trichloroethane	5	6	U*
Carbon Tetrachloride	5	6	U*
Bromodichloromethane		6	U
1,2-Dichloropropane		6	U
cis-1,3-Dichloropropene		6	U
Trichloroethene		6	U
Dibromochloromethane		6	U
1,1,2-Trichloroethane		6	U
Benzene	5	6	U*
trans-1,3-Dichloropropene		6	U
Bromoform		6	U
4-Methyl-2-pentanone		11	U
2-Hexanone		11	U
Tetrachloroethene		6	U
1,1,2,2-Tetrachloroethane		6	U
Toluene	5	6	U*
Chlorobenzene	5	6	U*
Ethylbenzene	5	6	U*
Styrene		6	U
Xylenes (total)	5	6	U*
n-Butylbenzene		6	U
trans-1,2-Dichloroethene		6	U
cis-1,2-Dichloroethene		6	U

000010

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

Report Date: 01/19/05 11:19

RFW Batch Number: 0412L484

Client: TNUHANFORD F04-015 H2905 Work Order: 11343606001 Page: 1a

Sample Information	Cust ID:	B19PT5	B19PT5	B19PT5	VBLKIO	VBLKIO BS
	RFW#:	004	004 MS	004 MSD	04LVG398-MB1	04LVG398-MB1
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL
	D.F.:	1.02	0.980	0.909	1.00	1.00
	Units:	ug/Kg	ug/Kg	ug/Kg	ug/Kg	ug/Kg
Surrogate	Toluene-d8	105 %	101 %	104 %	109 %	104 %
Recovery	Bromofluorobenzene	108 %	101 %	107 %	107 %	100 %
	1,2-Dichloroethane-d4	122 %	118 %	124 %	122 %	115 %
-----fl-----fl-----fl-----fl-----fl-----fl-----						
Chloromethane		11 U	10 U	10 U	10 U	10 U
Bromomethane		11 U	10 U	10 U	10 U	10 U
Vinyl Chloride		11 U	10 U	10 U	10 U	10 U
Chloroethane		11 U	10 U	10 U	10 U	10 U
Methylene Chloride		15 U	16 B	14 B	3 J	3 JB
Acetone		11 U	10 U	10 U	10 U	10 U
Carbon Disulfide		6 U	5 U	5 U	5 U	5 U
1,1-Dichloroethene		6 U	90 %	92 %	5 U	88 %
1,1-Dichloroethane		6 U	5 U	5 U	5 U	5 U
1,2-Dichloroethene (total)		6 U	5 U	5 U	5 U	5 U
Chloroform		6 U	5 U	5 U	5 U	5 U
1,2-Dichloroethane		6 U	5 U	5 U	5 U	5 U
2-Butanone		11 U	10 U	10 U	10 U	10 U
1,1,1-Trichloroethane		6 U	5 U	5 U	5 U	5 U
Carbon Tetrachloride		6 U	5 U	5 U	5 U	5 U
Bromodichloromethane		6 U	5 U	5 U	5 U	5 U
1,2-Dichloropropane		6 U	5 U	5 U	5 U	5 U
cis-1,3-Dichloropropene		6 U	5 U	5 U	5 U	5 U
Trichloroethene		6 U	102 %	106 %	5 U	105 %
Dibromochloromethane		6 U	5 U	5 U	5 U	5 U
1,1,2-Trichloroethane		6 U	5 U	5 U	5 U	5 U
Benzene		6 U	96 %	100 %	5 U	95 %
Trans-1,3-Dichloropropene		6 U	5 U	5 U	5 U	5 U
Bromoform		6 U	5 U	5 U	5 U	5 U
4-Methyl-2-pentanone		11 U	10 U	10 U	10 U	10 U
2-Hexanone		11 U	10 U	10 U	10 U	10 U
Tetrachloroethene		6 U	5 U	5 U	5 U	5 U
1,1,2,2-Tetrachloroethane		6 U	5 U	5 U	5 U	5 U
Toluene		6 U	102 %	103 %	5 U	100 %

*= Outside of EPA CLP QC limits.

Handwritten signature and date: 5/21/05

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Cust ID: B19PT5 B19PT5 B19PT5 VBLKIO VBLKIO BS
 RFW#: 004 004 MS 004 MSD 04LVG398-MB1 04LVG398-MB1

	6 U	98 %	101 %	5 U	100 %
Chlorobenzene	6 U	98 %	101 %	5 U	100 %
Ethylbenzene	6 U	5 U	5 U	5 U	5 U
Styrene	6 U	5 U	5 U	5 U	5 U
Xylene (total)	6 U	5 U	5 U	5 U	5 U
N-butylbenzene	6 U	5 U	5 U	5 U	5 U
trans-1,2-dichloroethene	6 U	5 U	5 U	5 U	5 U
cis-1,2-dichloroethene	6 U	5 U	5 U	5 U	5 U

*= Outside of EPA CLP QC limits.

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 3/21/05

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

000013



Case Narrative

Client: TNU HANFORD F04-015
LVL#: 0412L484
SDG/SAF#: H2905/F04-015

W.O.#: 11343-606-001-9999-00
Date Received: 12-18-2004

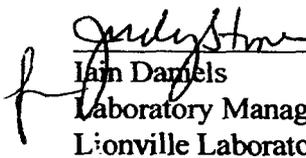
GC/MS VOLATILE

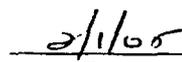
One (1) soil sample was collected on 12-13-2004.

The sample and its 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 12-22-2004.

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 a sample that met LvLI's sample acceptance policy.
2. The sample was analyzed within required holding time.
3. Non-target compounds were detected in the sample.
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 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. "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."


Ian Daniels
Laboratory Manager
Lionville Laboratory Incorporated


Date

som\group\data\voa\tnu-hanford\0411-484.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 17 pages.

00000003

COLLECTOR: Pope/Pfister/Hughes/Wiberg
 COMPANY CONTACT: CS Clearlock TELEPHONE NO.: 372-9638 PROJECT COORDINATOR: TRENT, SJ
 PRICE CODE: SN DATA TURNAROUND: 45 Days / 45 Days

SAMPLING LOCATION: 216-U-3; 22.5R-25R PROJECT DESIGNATION: 200-MW-1 Characterization Sampling and Analysis - Soil SAF NO.: F04-015
 AIR QUALITY:

ICE CHEST NO.: **HFP-03-015** FIELD LOGBOOK NO.: HNF-N-386 1 COA: 119144E510 METHOD OF SHIPMENT: Federal Express

SHIPPED TO: **Becca** OFFSITE PROPERTY NO.: **SEPTER 14591** BILL OF LADING/AIR BILL NO.: **SEPTER 14591**

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	
			TYPE OF CONTAINER	aG	aG	aGs*	aGs*	aG	aG	P
			NO. OF CONTAINER(S)	1	1	3	3	1	1	1
			VOLUME	250mL	250mL	40mL	40mL	120mL	120mL	50mL
SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: 019952 MFB B19975 12/14/04		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	Alcohols, Glycols, Ketones - 8015 (1-Butanol)	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	PCBs - 8082	SEE ITEM (5) IN SPECIAL INSTRUCTIONS	

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	Cool 4C	None					
B19PT5	SOIL	12-13-04	0750	X	X	X	X	X	X	

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis. (1)IC Anions - 300.0 (Fluoride, Nitrate, Nitrite, Phosphate, Sulfate) Total Cyanide - 9010; pH (Soil) - 9045; (2)ICP Metals - 6010A (Supertrace) {Cadmium, Chromium, Lead, Silver} ICP Metals - 6010A (Supertrace Add-On) {Copper} Mercury - 7471 - (CV); (3)VOA - 8260A (TCL); VOA - 8260A (Add-On) (cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene); (4)Semi-VOA - 8270A (Add-On) (Tributyl phosphate) TPH-Gasoline Range - WTPH-G; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range} (5)Gamma Spectrometry (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155, Americium-241, Isotopic Plutonium, Isotopic Uranium, Strontium-89,90 - Total Sr, Total Uranium);	
R. PASTER/Rebecca	12-13-04 1415	M.D. FRICK	12-13-04 1415		
M.G. DRINK	12/16/04 1220	M.G. DRINK	12/16/04 1220		
M.H. DRINK	12/16/04 1220	Red CA			
Red CA	12-18-04 11:15	Red CA	12-18-04 11:15		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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MFB 8-12-04

Appendix 5

Data Validation Supporting Documentation

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	200-MW-1		DATA PACKAGE: H2905		
VALIDATOR:	TLI	LAB:	LLI	DATE: 5/10/05	
			SDG:	H2905	
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
SAMPLES/MATRIX					
B19PTS					
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: methylene chloride - U

NO PD

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

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: _____

6. SYSTEM PERFORMANCE (Levels D and E)

- Internal standards analyzed? Yes No N/A
- Internal 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	<u>N/A</u>
Compound quantitation acceptable? (Levels D, E)	Yes	No	<u>N/A</u>
Results reported for all requested analyses?	<u>Yes</u>	No	N/A
Results supported in the raw data? (Levels D, E)	Yes	No	<u>N/A</u>
Samples properly prepared? (Levels D, E)	Yes	No	<u>N/A</u>
Laboratory properly identified and coded all TIC? (Levels D, E)	Yes	No	<u>N/A</u>
Detection limits meet RDL?	Yes	<u>No</u>	N/A
Transcription/calculation errors? (Levels D, E)	Yes	No	<u>N/A</u>

Comments: 10 over

9. SAMPLE CLEANUP (Levels D and E)

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

Comments:

Date: 24 May 2005
 To: Fluor Hanford Inc. (technical representative)
 From: TechLaw, Inc.
 Project: 200-MW-1 Characterization Sampling and Analysis - Soil
 Subject: Wet Chemistry - Data Package No. H2905



INTRODUCTION

This memo presents the results of data validation on Data Package No. H2905 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	Media	Validation	Analysis
B19PT5	12/13/04	Soil	C	See note 1*
B19960	12/10/04	Soil	C	See note 2
B19961	12/10/04	Soil	C	See note 2
B19962	12/13/04	Soil	C	See note 2
B19963	12/14/04	Soil	C	See note 2
B19964	12/15/04	Soil	C	See note 2
B19965	12/16/04	Soil	C	See note 2
B19966	12/20/04	Soil	C	See note 2 & 3

1 - Anions by 300.0, pH by 9045C, cyanide by 9010B.

2 - Chromium VI by 7196A, nitrate/nitrite by 353.1, oil & grease by 9071A.

3 - Reported as SDG H2923.

* - Nitrate, nitrite and phosphate not validated or reported per FHI.

Data validation was conducted in accordance with the FHI validation statement of work and the 200-MW-1 Miscellaneous Waste Group OU RI/FS Workplan, DOE/RL-2001-65 (Rev. 0), April 2002. 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/Sample Preservation**

Analytical holding times 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 30 days for chromium VI; 28 days for nitrate/nitrite, oil & grease, fluoride and sulfate; 14 days for cyanide; and immediate (24 hours) for pH.

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".

Due to the holding time being exceeded by greater than twice the limit, all pH results were qualified as estimates and flagged "J".

Due to the holding time being exceeded by less than twice the limit, the nitrate/nitrite results in all samples were qualified as estimates and flagged "J".

All other 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 equipment blanks were submitted for analysis.

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- **Accuracy**

Matrix Spike

Matrix spike (MS) 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. Matrix spike and LCS recoveries must fall within the range of 75% to 125%. 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 74% and a sample result less than the IDL are qualified "UJ". Samples with a recovery of greater than 125% or less than 75% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 125% and a sample result less than the IDL, no qualification is required.

All matrix spike recovery results were acceptable.

Laboratory Control Sample

The LCS is used to monitor the overall performance of all steps in the analysis. Recoveries must fall within the range of 80% to 120% for LCS analysis. Samples with a recovery of less than 50% are rejected and flagged "UR". Samples with a recovery of 50% to 79% and a sample recovery below the IDL are qualified "UJ". Samples with a recovery of greater than 120% or less than 80% and a sample result greater than the IDL are qualified as estimates and flagged "J". Finally, for samples with a recovery greater than 120% and a sample result less than the IDL, no qualification is required.

Due to an LCS recovery outside QC limits (131%), the oil & grease result in sample B19963 was qualified as an estimate and flagged "J".

All other LCS 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 35%, 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,

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associated results are qualified as estimated detects or estimated non-detects.

Due to an RPD outside QC limits (68.6%), the nitrate/nitrite result in sample B19966 was qualified as an estimate and flagged "J".

All other laboratory duplicate results were acceptable.

Field Duplicate

One set of field duplicate samples (B19960/B19961) were submitted for analysis. Field duplicate samples 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 target quantitation limits (RTQLs) to ensure that laboratory detection levels meet the required criteria. All undetected oil & grease results were reported above the RTQL. Under the FHI statement of work, no qualification is required. All other results met the RTQL.

- **Completeness**

Data package No. H2905 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 the holding time being exceeded by greater than twice the limit, all pH results were qualified as estimates and flagged "J". Due to the holding time being exceeded by less than twice the limit, the nitrate/nitrite results in all samples were qualified as estimates and flagged "J". Due to an LCS recovery outside QC limits (131%), the oil & grease result in sample B19963 was qualified as an estimate and flagged "J". Due to an RPD outside QC limits (68.6%), the nitrate/nitrite result in sample B19966 was qualified as an estimate and flagged "J". Data flagged "J" is an estimate, but under the FHI validation SOW, the data may be usable for decision-making purposes. All other validated results are considered accurate

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within the standard error associated with the methods.

All undetected oil & grease results were reported above the RTQL. Under the FHI statement of work, no qualification is required.

REFERENCES

FHI, Contract #20266, *Validation Statement of Work*, Fluor Hanford Incorporated, July 7, 2003.

DOE/RL-2001-65, Rev. 0, *200-MW-1 Miscellaneous Waste Group OUs RI/FS Work Plan*, April 2002.

Appendix 1

Glossary of Data Reporting Qualifiers

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Qualifiers which may be applied by data validators in compliance with FHI 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).

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Appendix 2

Summary of Data Qualification

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WET CHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: H2905	REVIEWER: TLI	DATE: 5/24/05	PAGE <u>1</u> OF <u>1</u>
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
pH Nitrate/nitrite	J	All	Holding time
Oil & grease	J	B19963	LCS recovery
Nitrate/nitrite	J	B19966	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.

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Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

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Project: FLUOR-HANFORD																	
Laboratory: LLI																	
Case		SDG: H2905															
Sample Number	B19PT5		B19660		B19961		B19962		B19963		B19964		B19965		B19966		
Remarks	Duplicate																
Sample Date	12/13/04		12/10/04		12/10/04		12/13/04		12/14/04		12/15/05		12/16/04		12/20/04		
Wet Chemistry	RTQL	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q	Result	Q
Fluoride	5	1.0	U	NA		NA											
Cyanide	0.5	0.50	U	NA		NA											
Sulfate	5	11.5		NA													
pH**			9.0	J		NA											
Chromium VI	0.6	NA		0.21	U	0.21	U	0.21	U	0.23		0.21	U	0.22	U	0.24	
Nitrate/nitrite		NA		0.33	J	0.34	J	0.41	J	0.21	UJ	0.21	UJ	0.70	J	0.94	J
Oil & Grease	200	NA		689	U	694	U	710	U	864	J	693	U	731	U	731	U
** - Units are pH units																	
NA - Not analyzed																	

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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 01/25/05

CLIENT: TNUHANFORD P04-015 H2905
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L484

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B19960	‡ Solids	96.8	‡	0.01	1.0
		Chromium VI	0.21	u MG/KG	0.21	1.0
		Nitrate Nitrite	0.33	J MG/KG	0.21	1.0
		Oil & Grease Gravimetri	689	u MG/KG	689	1.0
-002	B19961	‡ Solids	96.1	‡	0.01	1.0
		Chromium VI	0.21	u MG/KG	0.21	1.0
		Nitrate Nitrite	0.34	J MG/KG	0.21	1.0
		Oil & Grease Gravimetri	694	u MG/KG	694	1.0
-003	B19962	‡ Solids	93.9	‡	0.01	1.0
		Chromium VI	0.21	u MG/KG	0.21	1.0
		Nitrate Nitrite	0.41	J MG/KG	0.21	1.0
		Oil & Grease Gravimetri	710	u MG/KG	710	1.0
-004	B19PTS	‡ Solids	95.9	‡	0.01	1.0
		Fluoride by IC	1.0	u MG/KG	1.0	1.0
		Nitrite by IC	1.04	u MG/KG	1.04	1.0
		Nitrate by IC	2.55	MG/KG	1.04	1.0
		Cyanide, Total	0.50	u MG/KG	0.50	1.0
		Phosphate by IC	1.0	u MG/KG	1.0	1.0
		Sulfate by IC	11.5	MG/KG	1.0	1.0
		pH	9.0	J SOIL PH	0.01	1.0
-005	B19963	‡ Solids	95.2	‡	0.01	1.0
		Chromium VI	0.23	MG/KG	0.21	1.0
		Nitrate Nitrite	0.21	u J MG/KG	0.21	1.0
		Oil & Grease Gravimetri	864	J MG/KG	700	1.0
-006	B19964	‡ Solids	96.2	‡	0.01	1.0
		Chromium VI	0.21	u MG/KG	0.21	1.0
		Nitrate Nitrite	0.21	u J MG/KG	0.21	1.0
		Oil & Grease Gravimetri	693	u MG/KG	693	1.0
-007	B19965	‡ Solids	91.2	‡	0.01	1.0
		Chromium VI	0.22	u MG/KG	0.22	1.0
		Nitrate Nitrite	0.70	J MG/KG	0.22	1.0
		Oil & Grease Gravimetri	731	u MG/KG	731	1.0

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 5/21/05

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Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 01/24/05

CLIENT: TNUHANFORD F04-015 H2923
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L505

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B19966	% Solids	91.2	%	0.01	1.0
		Chromium VI	0.24	MG/KG	0.22	1.0
		Nitrate Nitrite	0.94	MG/KG	0.22	1.0
		Oil & Grease Gravimetri	731	u MG/KG	731	1.0

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5/21/05

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

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Analytical Report

Client: TNU-HANFORD F04-015 H2905
LVL#: 0412L484

W.O.#: 11343-606-001-9999-00
Date Received: 12-18-04

INORGANIC NARRATIVE

1. This narrative covers the analyses of 7 soil samples.
2. The samples were prepared and analyzed in accordance with the methods indicated on the attached glossary.
3. Sample holding times as required by the method and/or contract were met.
4. The results presented in this report are derived from samples that met LVL's sample acceptance policy.
5. The method blanks were within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits with the exception of LCS 04LOG046-MB1 for Oil and Grease that was above the 80-125% control limit at 131.5% however the duplicate LCS 04LOG046-MB1 was within the control limits at 112.0%. The duplicate LCS for Oil and Grease was within the 20% Relative Percent Difference (RPD) control limit.
7. The matrix spike (MS) recoveries for Nitrate Nitrite, Oil and Grease, Fluoride, Nitrite, Nitrate, Total Cyanide, Sulfate and Chromium VI were within the 75-125% control limits however MS recovery for Phosphate was above the control limits at 127.9%.
8. The replicate analyses Nitrate Nitrite, Oil and Grease, Percent solifs, Fluoride, Nitrite, Nitrate, Total Cyanide, Phosphate, pH and Chromium VI were within the 20% RPD control limit however replicate analysis for Sulfate was outside the control limit at 20.4%.
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

1/28/08
Date

njp012-484

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.

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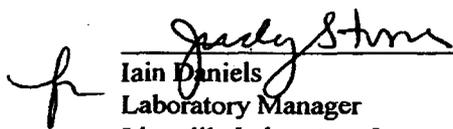
Analytical Report

Client: TNU-HANFORD F04-015 H2923
LVL#: 0412L505

W.O.#: 11343-606-001-9999-00
Date Received: 12-23-04

INORGANIC NARRATIVE

1. This narrative covers the analyses of 1 soil sample.
2. The sample was prepared and analyzed in accordance with the methods indicated on the attached glossary.
3. Sample holding times as required by the method and/or contract were met.
4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. The method blanks were within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits.
7. The matrix spike recoveries for Chromium VI, Nitrate Nitrite and Oil and Grease were within the 75-125% control limits.
8. The replicate analyses Percent Solids and Oil and Grease were within the 20% Relative Percent Difference (RPD) control limit however replicate analyses for Chromium VI and Nitrate Nitrite were outside the control limit that may be attributed to sample inhomogeneity.
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
njpv12-505

1/28/05
Date

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 11 pages.

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FLUOR Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F04-015-065	PAGE 1 OF 1	
COLLECTOR Pope/Pfister/Tyra/Wiberg		COMPANY CONTACT CS Clearlock		TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8N	
SAMPLING LOCATION 216-U-3; 12.5FT-15FT 17.5-20ft 15 12/7/04		PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil			SAF NO. F04-015		DATA TURNAROUND 45 Days / 45 Days	
ICE CHEST NO. GRP-03-016		FIELD LOGBOOK NO. HNF-N-386 1		COA 119144ES10	METHOD OF SHIPMENT Federal Express			
SHIPPED TO Beira		OFFSITE PROPERTY NO. See PTR 14591			BILL OF LADING/AIR BILL NO. See PTR 14591			
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION	Cool 4C	None				
		TYPE OF CONTAINER	gG	gG				
		NO. OF CONTAINER(S)	1	1				
		VOLUME	120mL	60mL				
SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: B19951		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Item 129; Technetium-99; Uranium-235;			
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME					
B19980	SOIL	12/10/04	1050	X				
B19961	SOIL	12/10/04	1050	X				
CHAIN OF POSSESSION		SIGN/ PRINT NAMES			SPECIAL INSTRUCTIONS			
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	(1)NO2/NO3 - 353.2; Oil & Grease - 413.1; Chromium Hex - 7196;				
<i>[Signature]</i>	12/10/04 11:30	<i>[Signature]</i>	12/10/04 11:30					
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME					
<i>[Signature]</i>	12/10/04 11:50	<i>[Signature]</i>	12/10/04 11:50					
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME					
<i>[Signature]</i>	12/10/04 11:50	<i>[Signature]</i>	12/10/04 11:50					
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME					
<i>[Signature]</i>	12/18/04 11:15	<i>[Signature]</i>	12/19/04 11:15					
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME					
LABORATORY SECTION	RECEIVED BY	TITLE			DATE/TIME			
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY			DATE/TIME			

000017

15

COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days
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SAMPLING LOCATION 216-U-3; 22.5ft-25ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil	SAF NO. F04-015	AIR QUALITY <input type="checkbox"/>
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ICE CHEST NO. GRR-03-015	FIELD LOGBOOK NO. HNF-N-386 1	COA 119144ES10	METHOD OF SHIPMENT Federal Express
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SHIPPED TO Lionville Laboratory Incorporated	OFFSITE PROPERTY NO. See PTL 14591	BILL OF LADING/AIR BILL NO. See PTL 14591
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MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION Cool 4C	TYPE OF CONTAINER 9G	NO. OF CONTAINER(S) 1	VOLUME 120mL	SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: 949952 B19975 MAB 2/16/04	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B19962	SOIL	12-13-04	0750	X					

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS (1)NO2/NO3 - 353.2; Chromium Hex - 7196; Oil & Grease - 413.1;
RELINQUISHED BY/REMOVED FROM <i>R. PASTER</i>	DATE/TIME 12-13-04 1415	RECEIVED BY/STORED IN <i>M.D. 076</i>
RELINQUISHED BY/REMOVED FROM <i>M.D. 076</i>	DATE/TIME 12/16/04 1220	RECEIVED BY/STORED IN <i>M.A. Buchner</i>
RELINQUISHED BY/REMOVED FROM <i>M.A. Buchner</i>	DATE/TIME 12/16/04 1415	RECEIVED BY/STORED IN <i>Red 9A</i>
RELINQUISHED BY/REMOVED FROM <i>Red 9A</i>	DATE/TIME 12-18-04 1115	RECEIVED BY/STORED IN <i>WJ/msh</i>
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

00000033

FLUOR Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F04-015-067	PAGE 1 OF 1
COLLECTOR Pope/Pfister/Tyra/Wiberg		COMPANY CONTACT CS Clearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE BN	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION 216-U-3; 35FT-37.5FT		PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO. GRR-03-015		FIELD LOGBOOK NO. HNF-N-386 1	COA 119144ES10	METHOD OF SHIPMENT Federal Express		
SHIPPED TO MTR 81224 Beer		OFFSITE PROPERTY NO. See PTR 14591		BILL OF LADING/AIR BILL NO. See PTR 14591		
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION Cool 4C None	TYPE OF CONTAINER aG aG	NO. OF CONTAINER(S) 1 1	VOLUME 120ml 60ml	SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: 819953
		SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Iodine-129; Technetium-99; Thallium-201;			
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME			
B19983	SOIL	12/14/04	0700	X		
000000						
CHAIN OF POSSESSION		SIGN/ PRINT NAMES			SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	(1)NO2/NO3 - 353.2; Oil & Grease - 413.1; Chromium Hex - 7196;		
R. Pfeister	12/14/04 0900	M. G. ...	12-14-04 0900			
M. G. ...	12/16/04 1200	M. G. ...	12/16/04			
M. G. ...	12/18/04 11:15	M. G. ...	12-18-04 11:15			
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME			
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME			
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME			
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME		
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME		

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FLUOR Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F04-015-068	PAGE 1 OF 1
COLLECTOR Pope/Pfister/Tyra/Wiberg		COMPANY CONTACT CS Cearlock		TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8N
SAMPLING LOCATION 216-U-3; 47FT-49.5FT		PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil			SAF NO. F04-015	AIR QUALITY <input type="checkbox"/>	DATA TURNAROUND 45 Days / 45 Days
ICE CHEST NO <i>GRR-03-015</i>		FIELD LOGBOOK NO. HNF-N-386 1	COA 119144E510		METHOD OF SHIPMENT Federal Express		
SHIPPED TO <i>Becca</i>		OFFSITE PROPERTY NO. <i>SU PTR 14591</i>			BILL OF LADING/AIR BILL NO. <i>SU PTR 14591</i>		
MATRIX* A=Air DL=Drum L=Liquid DS=Drum S=Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	FOSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION	Cool 4C	None			
		TYPE OF CONTAINER	aG	aG			
		NO. OF CONTAINER(S)	1	1			
		VOLUME	120mL	60mL			
SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: 819954		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS Iodine-129; Technetium-99; Tritium - H3;				
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B19984	SOIL	12-15-04	0700	X			
CHAIN OF POSSESSION				SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM <i>J.S. Aude</i>		DATE/TIME <i>12-15-04 1330</i>	RECEIVED BY/STORED IN <i>MO-026 Ref. #1</i>		DATE/TIME <i>12-15-04 1330</i>	(1)NO2/NO3 - 353.2; Oil & Grease - 413.1; Chromium Hex - 7196;	
RELINQUISHED BY/REMOVED FROM <i>M.D. B...</i>		DATE/TIME <i>12/16/04 1210</i>	RECEIVED BY/STORED IN <i>M.H. B...</i>		DATE/TIME <i>12/16/04</i>		
RELINQUISHED BY/REMOVED FROM <i>M.H. B...</i>		DATE/TIME <i>12/16/04</i>	RECEIVED BY/STORED IN <i>ED & X</i>		DATE/TIME <i>12/16/04</i>		
RELINQUISHED BY/REMOVED FROM <i>Ed Ex</i>		DATE/TIME <i>12-18-04 11:15</i>	RECEIVED BY/STORED IN <i>JU V...</i>		DATE/TIME <i>12-18-04 11:15</i>		
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME		
RELINQUISHED BY/REMOVED FROM		DATE/TIME	RECEIVED BY/STORED IN		DATE/TIME		
LABORATORY SECTION	RECEIVED BY			TITLE	DATE/TIME		
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD			DISPOSED BY	DATE/TIME		

FLUOR Hanford Inc.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST				F04-015-069	PAGE 1 OF 1
COLLECTOR Pope/Pfister/Tyra/Wiberg		COMPANY CONTACT CS Clearlock		TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8N
SAMPLING LOCATION 216-U-3; 97.5FT-100FT		PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil			SAF NO. F04-015	DATA TURNAROUND 45 Days / 45 Days	
ICE CHEST NO. <i>GFP-03-015</i>		FIELD LOGBOOK NO. HNF-N-386 1	COA 119144ES10		METHOD OF SHIPMENT Federal Express		
SHIPPED TO <i>Beera</i>		OFFSITE PROPERTY NO. <i>See PTR 14591</i>			BILL OF LADING/AIR BIL NO. <i>See PTR 14591</i>		
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION		Cool 4C	None		
		TYPE OF CONTAINER		gG	gG		
		NO. OF CONTAINER(S)		1	1		
		VOLUME		120mL	60mL		
SPECIAL HANDLING AND/OR STORAGE Radioactive Tie To: 849999 <i>B19964 12/16/04</i>		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Iodine-129; Technetium-99; Trifluor - H3;		
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B19965	SOIL	12-16-04	8410	X			
CHAIN OF POSSESSION				SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	(1)NO2/NO3 - 353.2; Oil & Grease - 413.1; Chromium Hex - 7196;			
<i>R. PASTER</i>	<i>12/16/04 1030</i>	<i>M.O. 026 FRIG #1</i>	<i>12/16/04 1030</i>				
<i>M. B. BROWN</i>	<i>12/16/04 1210</i>	<i>M. B. BROWN</i>	<i>12/16/04</i>				
<i>M. B. BROWN</i>	<i>12/18/04 11:15</i>	<i>J. V. MUTH</i>	<i>12-18-04 11:15</i>				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME				
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME			
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME			

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COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Caerlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION 216-U-3; 127FT-129.5FT	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015	AIR QUALITY <input type="checkbox"/>	

ICE CHEST NO. SHNS-500	FIELD LOGBOOK NO. HNF-N-386 1	COA 119144ES10	METHOD OF SHIPMENT Federal Express		
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SHIPPED TO 812-812-04 Beera	OPPOSITE PROPERTY NO. Su PTR M62	BILL OF LADING/AIRBILL NO. Su PTR M62
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MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS N/A	PRESERVATION	Cool 4C	None							
		TYPE OF CONTAINER	#G	#G							
		NO. OF CONTAINER(S)	1	1							
		VOLUME	120ml	60ml							
SPECIAL HANDLING AND/OR STORAGE Radioactive Tls To: 819956 M09 B19955 12/21/04		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	Iodine-129; Technetium-99; Tritium-3H;							

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME							
B19968	SOIL	12/20/04	0740	X						

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	(1)NO2/NO3 - 353.2; Oil & Grease - 413.1; Chromium Hex - 7196;	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

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Appendix 5

Data Validation Supporting Documentation

000024

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT:	200-MW-1		DATA PACKAGE: #2905		
VALIDATOR:	TLI	LAB:	LLI	DATE: 5/10/05	
			SDG: #2905		
ANALYSES PERFORMED					
Anions/IC	TOC	TOX	TPH-418.1	Oil and Grease	Alkalinity
Ammonia	BOD/COD	Chloride	Chromium-VI	pH	NO₃/NO₂
Sulfate	TDS	TKN	Phosphate		
SAMPLES/MATRIX					
B19960 B19961 B19962 B19963 B19964 B19965					
B19965 B19966 B19967					
↘ reported in SDG 2923					
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: NO FB

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

Spike samples analyzed?..... Yes No N/A
Spike recoveries acceptable?..... Yes No N/A
Spike 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: 131 96 OHA - 63 J NO PAT

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: no²/no³ - 68.6% - 96⁴ - J
964

6. HOLDING TIMES (all levels)

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

Comments: oil + 5/10/02 no²/no³ - own <2x - J all hand split
ph - 4.5 J all
>2x

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 undetected oil + grease

Appendix 6

Additional Documentation Requested by Client

000029

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/25/05

CLIENT: TNUHANFORD F04-015 H2905
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L484

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	04LVI048-MB1	Chromium VI	0.20	u MG/KG	0.20	1.0
BLANK10	05LN3003-MB1	Nitrate Nitrite	0.20	u MG/KG	0.20	1.0
BLANK10	04LOG046-MB1	Oil & Grease Gravimetri	667	u MG/KG	667	1.0
BLANK10	04LICB74-MB1	Fluoride by IC	1.0	u MG/KG	1.0	1.0
		Nitrite by IC	1.00	u MG/KG	1.00	1.0
		Nitrate by IC	1.00	u MG/KG	1.00	1.0
		Phosphate by IC	1.0	u MG/KG	1.0	1.0
		Sulfate by IC	1.0	u MG/KG	1.0	1.0
BLANK1	04LC085-MB1	Cyanide, Total	0.50	u MG/KG	0.50	1.0

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Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/25/05

CLIENT: TNUHANFORD F04-015 H2905
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L484

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-003	B19962	Nitrate Nitrite	6.1	0.41	5.3	108.2	1.0
		Oil & Grease Gravimetr	8120	710 u	7660	106.1	1.0
-004	B19PTS	Fluoride by IC	45.7	0.09	41.6	109.5	2.0
		Nitrite by IC	45.8	1.04u	41.6	110.0	2.0
		Nitrate by IC	51.9	2.55	41.6	118.5	2.0
		Cyanide, Total	5.12	0.50u	4.99	102.7	1.0
		Phosphate by IC	53.2	1.0 u	41.6	127.9	2.0
		Sulfate by IC	60.5	11.5	41.6	117.7	2.0
-007	B19965	Soluble Chromium VI	4.7	0.22u	4.4	107.5	1.0
		Insoluble Chromium VI	1730	0.22u	1440	120.1	100
BLANK10	04LVI048-MB1	Soluble Chromium VI	4.1	0.20u	4.0	101.4	1.0
		Insoluble Chromium VI	1380	0.20u	1180	117.1	100
BLANK10	05LN3003-MB1	Nitrate Nitrite	5.2	0.20u	5.0	104.0	1.0
BLANK10	04LOG046-MB1	Oil & Grease Gravimetr	9450	667 u	7190	131.5	1.0
		Oil & Grease - Grav M	8050	667 u	7190	112.0	1.0
BLANK10	04LICB74-MB1	Fluoride by IC	19.3	1.0 u	20.0	96.5	1.0
		Nitrite by IC	20.0	1.00u	20.0	99.8	1.0
		Nitrate by IC	20.0	1.00u	20.0	99.9	1.0
		Phosphate by IC	19.5	1.0 u	20.0	97.4	1.0
		Sulfate by IC	19.7	1.0 u	20.0	98.4	1.0

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Lionville Laboratory, Inc.

INORGANICS DUPLICATE SPIKE REPORT 01/25/05

CLIENT: INUHANFORD P04-015 H2905
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L484

SAMPLE	SITE ID	ANALYTE	SPIKE#1		SPIKE#2	
			%RECOV	%RECOV	%RECOV	%DIFF
BLANK10	04LOG046-MB1	Oil & Grease - Grav	131.5	112.0	16.0	

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Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/25/05

CLIENT: INOHANFORD F04-015 H2905
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L484

SAMPLE	SITE ID	ANALYTE	INITIAL			DILUTION FACTOR(REP)
			RESULT	REPLICATE RPD		
-003REP	B19962	Nitrate Nitrite	0.41	0.44	5.6	1.0
		Oil & Grease Gravimetri	710 u	710 u	NC	1.0
-004REP	B199T5	% Solids	95.9	95.8	0.073	1.0
		Fluoride by IC	1.0 u	1.0 u	NC	1.0
		Nitrite by IC	1.04u	1.03u	NC	1.0
		Nitrate by IC	2.55	3.06	18.1	1.0
		Cyanide, Total	0.50u	0.50u	NC	1.0
		Phosphate by IC	1.0 u	1.0 u	NC	1.0
		Sulfate by IC	11.5	14.1	20.4	1.0
		pH	9.0	9.0	0.1	1.0
-007REP	B19965	Chromium VI	0.22u	0.22u	NC	1.0

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Lionville Laboratory, Inc.

INORGANICS LABORATORY CONTROL STANDARDS REPORT 01/25/05

CLIENT: TNUHANFORD P04-015 H2905
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L484

SAMPLE	SITE ID	ANALYTE	SPIKED	SPIKED	UNITS	%RECOV
			SAMPLE	AMOUNT		
LCSS1	04LC085-LCS1	Cyanide, Total LCS	2.12	2.0	MG/KG	105.8
LCSS2	04LC085-LCS2	Cyanide, Total LCS	10.2	10.0	MG/KG	102.1

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Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 01/24/05

CLIENT: TNUHANFORD F04-015 H2923
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L505

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	04LVI048-MB1	Chromium VI	0.20	u MG/KG	0.20	1.0
BLANK10	05LN3B04-MB1	Nitrate Nitrite	0.20	u MG/KG	0.20	1.0
BLANK10	04LOG047-MB1	Oil & Grease Gravimetri	667	u MG/KG	667	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 01/24/05

CLIENT: TNOHANFORD F04-015 H2923
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L505

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-001	B19966	Soluble Chromium VI	4.7	0.24	4.4	101.7	1.0
		Insoluble Chromium VI	1400	0.24	1190	118.0	100
		Nitrate Nitrite	6.4	0.94	5.5	99.4	1.0
		Oil & Grease Gravimetr	8530	731 u	8950	95.4	1.0
BLANK10	04LVI048-MB1	Soluble Chromium VI	4.1	0.20u	4.0	101.4	1.0
		Insoluble Chromium VI	1380	0.20u	1180	117.1	100
BLANK10	05LN3B04-MB1	Nitrate Nitrite	5.1	0.20u	5.0	102.8	1.0
BLANK10	04LOG047-MB1	Oil & Grease Gravimetr	8300	667 u	8160	101.7	1.0

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Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 01/24/05

CLIENT: TNUHANFORD F04-015 H2923
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0412L505

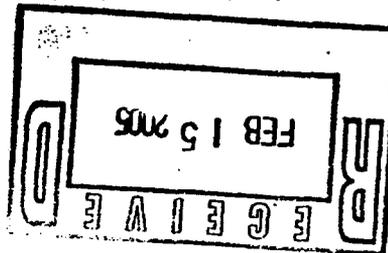
SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-001REP	B19966	‡ Solids	91.2	91.9	0.73	1.0
		Chromium VI	0.24	0.22u	143.0	1.0
		Nitrate Nitrite	0.94	0.46	68.6	1.0
		Oil & Grease Gravimetri	731 u	731 u	NC	1.0

Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD F04-015 H2905

DATE RECEIVED: 12/18/04

LVL LOT # :0412L484

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B19960						
% SOLIDS	001	S	04L&S206	12/10/04	12/27/04	12/28/04
CHROMIUM VI	001	S	04LVI048	12/10/04	12/28/04	12/28/04
NITRATE NITRITE	001	S	05LN3003	12/10/04	01/14/05	01/15/05
OIL & GREASE BY GRAV	001	S	04LOG046	12/10/04	12/28/04	12/29/04
B19961						
% SOLIDS	002	S	04L&S206	12/10/04	12/27/04	12/28/04
CHROMIUM VI	002	S	04LVI048	12/10/04	12/28/04	12/28/04
NITRATE NITRITE	002	S	05LN3003	12/10/04	01/14/05	01/15/05
OIL & GREASE BY GRAV	002	S	04LOG046	12/10/04	12/28/04	12/29/04
B19962						
% SOLIDS	003	S	04L&S206	12/13/04	12/27/04	12/28/04
CHROMIUM VI	003	S	04LVI048	12/13/04	12/28/04	12/28/04
NITRATE NITRITE	003	S	05LN3003	12/13/04	01/14/05	01/15/05
NITRATE NITRITE	003 REP	S	05LN3003	12/13/04	01/14/05	01/15/05
NITRATE NITRITE	003 MS	S	05LN3003	12/13/04	01/14/05	01/15/05
OIL & GREASE BY GRAV	003	S	04LOG046	12/13/04	12/28/04	12/29/04
OIL AND GREASE BY GR	003 REP	S	04LOG046	12/13/04	12/28/04	12/29/04
OIL AND GREASE BY GR	003 MS	S	04LOG046	12/13/04	12/28/04	12/29/04
B19PT5						
% SOLIDS	004	S	04L&S205	12/13/04	12/23/04	12/23/04
% SOLIDS	004 REP	S	04L&S205	12/13/04	12/23/04	12/23/04
FLUORIDE BY IC	004	S	04LICB74	12/13/04	12/30/04	12/30/04
FLUORIDE BY IC	004 REP	S	04LICB74	12/13/04	12/30/04	12/30/04
FLUORIDE BY IC	004 MS	S	04LICB74	12/13/04	12/30/04	12/30/04
NITRITE BY IC	004	S	04LICB74	12/13/04	12/30/04	12/30/04
NITRITE BY IC	004 REP	S	04LICB74	12/13/04	12/30/04	12/30/04
NITRITE BY IC	004 MS	S	04LICB74	12/13/04	12/30/04	12/30/04
NITRATE BY IC	004	S	04LICB74	12/13/04	12/30/04	12/30/04
NITRATE BY IC	004 REP	S	04LICB74	12/13/04	12/30/04	12/30/04



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Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD F04-015 H2905

DATE RECEIVED: 12/18/04

LVL LOT # :0412L484

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
NITRATE BY IC	004 MS	S	04LICB74	12/13/04	12/30/04	12/30/04
TOTAL CYANIDE	004	S	04LC085	12/13/04	12/23/04	12/23/04
TOTAL CYANIDE	004 REP	S	04LC085	12/13/04	12/23/04	12/23/04
TOTAL CYANIDE	004 MS	S	04LC085	12/13/04	12/23/04	12/23/04
PHOSPHATE BY IC	004	S	04LICB74	12/13/04	12/30/04	12/30/04
PHOSPHATE BY IC	004 REP	S	04LICB74	12/13/04	12/30/04	12/30/04
PHOSPHATE BY IC	004 MS	S	04LICB74	12/13/04	12/30/04	12/30/04
SULFATE BY IC	004	S	04LICB74	12/13/04	12/30/04	12/30/04
SULFATE BY IC	004 REP	S	04LICB74	12/13/04	12/30/04	12/30/04
SULFATE BY IC	004 MS	S	04LICB74	12/13/04	12/30/04	12/30/04
PH	004	S	04LPH110	12/13/04	12/22/04	12/22/04
PH	004 REP	S	04LPH110	12/13/04	12/22/04	12/22/04

B19963

‡ SOLIDS	005	S	04L‡S206	12/14/04	12/27/04	12/28/04
CHROMIUM VI	005	S	04LVI048	12/14/04	12/28/04	12/28/04
NITRATE NITRITE	005	S	05LN3003	12/14/04	01/14/05	01/15/05
OIL & GREASE BY GRAV	005	S	04LOG046	12/14/04	12/28/04	12/29/04

B19964

‡ SOLIDS	006	S	04L‡S206	12/15/04	12/27/04	12/28/04
CHROMIUM VI	006	S	04LVI048	12/15/04	12/28/04	12/28/04
NITRATE NITRITE	006	S	05LN3003	12/15/04	01/14/05	01/15/05
OIL & GREASE BY GRAV	006	S	04LOG046	12/15/04	12/28/04	12/29/04

B19965

‡ SOLIDS	007	S	04L‡S206	12/16/04	12/27/04	12/28/04
CHROMIUM VI	007	S	04LVI048	12/16/04	12/28/04	12/28/04
CHROMIUM VI	007 REP	S	04LVI048	12/16/04	12/28/04	12/28/04
CHROMIUM VI	007 MS	S	04LVI048	12/16/04	12/28/04	12/28/04
CHROMIUM VI	007 MSD	S	04LVI048	12/16/04	12/28/04	12/28/04
NITRATE NITRITE	007	S	05LN3003	12/16/04	01/14/05	01/15/05
OIL & GREASE BY GRAV	007	S	04LOG046	12/16/04	12/28/04	12/29/04

LAB QC:

CHROMIUM VI	MB1	S	04LVI048	N/A	12/28/04	12/28/04
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Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD F04-015 H2905

DATE RECEIVED: 12/18/04

LVL LOT # :0412L484

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
CHROMIUM VI	MB1 BS	S	04LVI048	N/A	12/28/04	12/28/04
CHROMIUM VI	MB1 BSD	S	04LVI048	N/A	12/28/04	12/28/04
NITRATE NITRITE	MB1	S	05LN3003	N/A	01/14/05	01/15/05
NITRATE NITRITE	MB1 BS	S	05LN3003	N/A	01/14/05	01/15/05
OIL & GREASE BY GRAV	MB1	S	04LOG046	N/A	12/28/04	12/29/04
OIL AND GREASE BY GR	MB1 BS	S	04LOG046	N/A	12/28/04	12/29/04
OIL AND GREASE BY GR	MB1 BSD	S	04LOG046	N/A	12/28/04	12/29/04
FLUORIDE BY IC	MB1	S	04LICB74	N/A	12/30/04	12/30/04
FLUORIDE BY IC	MB1 BS	S	04LICB74	N/A	12/30/04	12/30/04
NITRITE BY IC	MB1	S	04LICB74	N/A	12/30/04	12/30/04
NITRITE BY IC	MB1 BS	S	04LICB74	N/A	12/30/04	12/30/04
NITRATE BY IC	MB1	S	04LICB74	N/A	12/30/04	12/30/04
NITRATE BY IC	MB1 BS	S	04LICB74	N/A	12/30/04	12/30/04
TOTAL CYANIDE	LCS L	S	04LC085	N/A	12/23/04	12/23/04
TOTAL CYANIDE	LCS L	S	04LC085	N/A	12/23/04	12/23/04
TOTAL CYANIDE	MB1	S	04LC085	N/A	12/23/04	12/23/04
PHOSPHATE BY IC	MB1	S	04LICB74	N/A	12/30/04	12/30/04
PHOSPHATE BY IC	MB1 BS	S	04LICB74	N/A	12/30/04	12/30/04
SULFATE BY IC	MB1	S	04LICB74	N/A	12/30/04	12/30/04
SULFATE BY IC	MB1 BS	S	04LICB74	N/A	12/30/04	12/30/04

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Lionville Laboratory, Inc.
 INORGANIC ANALYTICAL DATA PACKAGE FOR
 TNUHANFORD F04-015 H2923

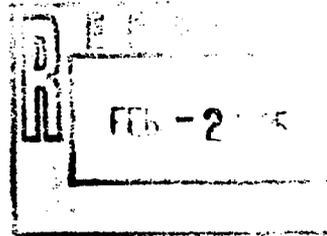
DATE RECEIVED: 12/23/04

LVL LOT # :0412L505

CLIENT ID /ANALYSIS	LVL #	MTX	PREP #	COLLECTION	EXTR/PREP	ANALYSIS
B19966						
% SOLIDS	001	S	04L&S206	12/20/04	12/27/04	12/28/04
% SOLIDS	001 REP	S	04L&S206	12/20/04	12/27/04	12/28/04
CHROMIUM VI	001	S	04LVI048	12/20/04	12/28/04	12/28/04
CHROMIUM VI	001 REP	S	04LVI048	12/20/04	12/28/04	12/28/04
CHROMIUM VI	001 MS	S	04LVI048	12/20/04	12/28/04	12/28/04
CHROMIUM VI	001 MSD	S	04LVI048	12/20/04	12/28/04	12/28/04
NITRATE NITRITE	001	S	05LN3B04	12/20/04	01/19/05	01/19/05
NITRATE NITRITE	001 REP	S	05LN3B04	12/20/04	01/19/05	01/19/05
NITRATE NITRITE	001 MS	S	05LN3B04	12/20/04	01/19/05	01/19/05
OIL & GREASE BY GRAV	001	S	04LOG047	12/20/04	12/30/04	12/31/04
OIL AND GREASE BY GR	001 REP	S	04LOG047	12/20/04	12/30/04	12/31/04
OIL AND GREASE BY GR	001 MS	S	04LOG047	12/20/04	12/30/04	12/31/04

LAB QC:

CHROMIUM VI	MB1	S	04LVI048	N/A	12/28/04	12/28/04
CHROMIUM VI	MB1 BS	S	04LVI048	N/A	12/28/04	12/28/04
CHROMIUM VI	MB1 BSD	S	04LVI048	N/A	12/28/04	12/28/04
NITRATE NITRITE	MB1	S	05LN3B04	N/A	01/19/05	01/19/05
NITRATE NITRITE	MB1 BS	S	05LN3B04	N/A	01/19/05	01/19/05
OIL & GREASE BY GRAV	MB1	S	04LOG047	N/A	12/30/04	12/31/04
OIL AND GREASE BY GR	MB1 BS	S	04LOG047	N/A	12/30/04	12/31/04



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