ORP-114
(02/02)

ORP - REVIEW COMMENT RECORD (RCR)

1. Date	2. Review No.
July 5, 2005	N/A
3. Project No. 200-MW-1	4. Page 1 of 2

5. Document Number(s)/Title(s)	6. Program/Project/Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
Data Package SDG WSCF20050854	GRP & Waste Sites/200-MW-1	Bill Thackaberry	Env & Science Assurance (QA)	E6-35 372-0742

17. Comment Submittal Approval	10. Agreement with indicated comment disposition(s)	11. CLOSED
Organization Manager (optional)	8/18/05 Date; WC Thackaberry Reviewer/Point of Contact; Requester	8/18/05 Date; WC Thackaberry 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	PCB, pg 2, under method blank the validator states "Due to the lack of a blank analysis..." this is contradicted by a statemen on pg 16 that says a PCB blank was analyzed.		additional data provided - case closed	✓
2	PCB - Pg 2 statement "Due to the lack of LCS analysis all PCB results were qualified as estimates...". This conflicts with pg 16 which states that a PCB LCS was analyzed.		"	✓
3	PCB Pg 8, same comment as 1 & 2.		"	✓
4	Wet Chemistry - Pg 2 & 4 state that pH hold time was exceeded by greater than 2 times the limit. However pg 24 checklist item 6 note says "pH <2X J all". Please resolve.		case closed	✓
5	Wet Chemistry - There is no page 17 and there are 2 pages stamped "18".		case closed	✓
	semivolatiles, volatiles, inorganics - No comment			

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ORP-114
(02/02)

ORP - REVIEW COMMENT RECORD (RCR) (continued)

1. Date	2. Review No.
July 5, 2005	N/A
3. Project No.	4. Page 2 of 2
200-MW-1	

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

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REVIEW COMMENT RECORD (RCR)

1. Date 06/27/05	2. Review No.
3. Project No. 200-MW-1	4. Page 1 of 1

5. Document Number(s)/Title(s)	6. Program/Project/Building Number	7. Reviewer	8. Organization/Group	9. Location/Phone
Validation Package for SDG WSCF20050854	Chracterization Soil Sampling	RL Weiss	ERC - S&DM	Sigma 1 372-9631

17. Comment Submittal Approval:	10. Agreement with indicated comment disposition(s)	11. Closed
Organization Manager (Optional)	R. L. Weiss 06/27/2005 Reviewer/Point of Contract Date R. L. Weiss Author/Originator	Reviewer/Point of Contact 8-17-05 Date Author/Originator

12. Item	13. 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.)	16. Status
1	Inorganic, Pages 2, 4, 8, 10, 11, &23; It appears that the laboratory spikes Cu to 40 ppm for MS & MSD. Cu concentration in spiked sample (B1C7D2) is 621. This is > 4 times the spike so "J" qualifier should not be applied.		you are correct	OK RLW
2	Semivolatile, Page 10, typos; No tributylphosphate results shown. Result for B1C7D2 do not match values on lab report (pg 11).		Case	OK RLW
3	PCB- Are results for blank and LCS truly unavailable? If available, this would probably remove the need for "J" qualifiers		I dont see a qualifier on the pcb data - reject	OK RLW
4	All others – No Comments			

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Date: 20 June 2005
To: Fluor Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 200-MW-1 Characterization Sampling and Analysis - Soil
Subject: Inorganics - Data Package No. WSCF20050854 (50854)

INTRODUCTION

This memo presents the results of data validation on Data Package No. 50854 prepared by WSCF Analytical Laboratories (WSCF). 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
B1C7D2	4/13/05	Soil	C	ICP/MS metals by 200.8
B1C7D4	4/13/05	Soil	C	ICP/MS metals by 200.8

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

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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.

- **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.

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 +/- 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 duplicates were submitted for analysis.

- **Analytical Detection Limits**

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

- **Completeness**

Data package No. 50854 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.

Appendix 1

Glossary of Data Reporting Qualifiers

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).

Appendix 2

Summary of Data Qualification

INORGANIC DATA QUALIFICATION SUMMARY*

SDG: 50854	REVIEWER: TLI	PROJECT: 200-MW-1	PAGE 1 OF 1
COMMENTS: No qualifiers assigned			

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

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

Project: FLUOR-HANFORD					
Laboratory: WSCF					
Case	SDG: WSCF20050854				
Sample Numbe		B1C7D2		B1C7D4	
Remarks					
Sample Date		4/13/05		4/13/05	
Inorganics	RTQL	Result	Q	Result	Q
Silver	0.5	1.36		0.418	
Cadmium	0.5	0.688		0.303	
Chromium	1	7.26		4.71	
Copper	2.5	621		23.5	
Lead	10	6.95		3.56	
Uranium	1	0.628		0.530	

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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.

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F04-015: F04-015

Group #: WSCF20050854

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Inorganic															
W050001192	B1C7D2	GRP	TRENT	57-12-5	Cyanide	SOIL	LA-695-402	U	< 0.200	mg/kg	1.00	0.20	04/25/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	TS	Total solids	SOIL	LA-519-412		95.5	%	1.00	0.0	04/25/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	PH	pH Measurement	SOIL	LA-212-411		7.81	pH	1.00	0.010	04/20/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	NO2-N	Nitrogen in Nitrite	SOIL	LA-533-410	U	< 0.950	mg/kg	50.00	0.95	04/25/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	NO3-N	Nitrogen in Nitrate	SOIL	LA-533-410	B	1.64	mg/kg	50.00	0.65	04/25/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	PO4-P	Phosphate (P) by IC	SOIL	LA-533-410	U	< 2.70	mg/kg	50.00	2.7	04/25/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	14808-79-8	Sulfate	SOIL	LA-533-410	B	17.2	mg/kg	50.00	5.0	04/25/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	7440-22-4	Silver	SOIL	LA-505-412		1.36	mg/kg	0.99	0.099	04/27/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	7440-43-9	Cadmium	SOIL	LA-505-412		0.688	mg/kg	0.99	0.099	04/27/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	7440-47-3	Chromium	SOIL	LA-505-412		7.26	mg/kg	0.99	4.0	04/27/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	7440-50-8	Copper	SOIL	LA-505-412		621	mg/kg	9.87	4.9	04/27/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	7439-92-1	Lead	SOIL	LA-505-412		6.95	mg/kg	0.99	0.20	04/27/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	7440-61-1	Uranium	SOIL	LA-505-412		0.628	mg/kg	0.99	0.099	04/27/05	04/13/05	04/19/05
W050001195	B1C7D3	GRP	TRENT	TS	Total solids	SOIL	LA-519-412		95.4	%	1.00	0.0	04/25/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	57-12-5	Cyanide	SOIL	LA-695-402	U	< 0.200	mg/kg	1.00	0.20	04/25/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	TS	Total solids	SOIL	LA-519-412		96.9	%	1.00	0.0	04/25/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	PH	pH Measurement	SOIL	LA-212-411		8.69	pH	1.00	0.010	04/20/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	PO4-P	Phosphate (P) by IC	SOIL	LA-533-410	U	< 2.70	mg/kg	50.00	2.7	04/25/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	14808-79-8	Sulfate	SOIL	LA-533-410	B	14.2	mg/kg	50.00	5.0	04/25/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	7440-22-4	Silver	SOIL	LA-505-412		0.418	mg/kg	1.00	0.10	04/27/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	7440-43-9	Cadmium	SOIL	LA-505-412		0.303	mg/kg	1.00	0.10	04/27/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	7440-47-3	Chromium	SOIL	LA-505-412		4.71	mg/kg	1.00	4.0	04/27/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	7440-50-8	Copper	SOIL	LA-505-412		23.5	mg/kg	1.00	2.0	04/27/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	7439-92-1	Lead	SOIL	LA-505-412		3.56	mg/kg	1.00	0.20	04/27/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	7440-61-1	Uranium	SOIL	LA-505-412		0.530	mg/kg	1.00	0.10	04/27/05	04/13/05	04/19/05

6/20/05

6/20/05

MDL=Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (Inorganic) U - Analyzed for but not detected above limiting criteria.
RQ=Result Qualifier

DF=Dilution Factor
* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

6/20/05

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Sample Delivery Group	**WSCF20050854**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F04-015**
Data Deliverable	**Summary Report**

Introduction

Three (3) 200-MW-1 Characterization Sampling and Analysis – Soil/216-E-4, (9' – 10'), samples (B1C7D2, B1C7D3, and B1C7D4) were received at the WSCF Laboratory on April 19 , 2005. The samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 1) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 2) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information. Copies of the chain of custody and sample receipt are included as Attachment 3.

Analytical Methodology for Requested Analyses

Inorganic

- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- Cyanide by EPA Method 335.2. Analytical work was performed with no deviations to the approved method.
- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- Percent Solids by EPA Method 160.3. Analytical work was performed with no deviations to the approved method.
- pH by EPA Method 150.1. Analytical work was performed with no deviations to the approved method.

Organic

- PCB by EPA Method 8082. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270C. Analytical work was performed with no deviations to the approved method.

- TPH Diesel/Gas Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.

- VOA by EPA Method 8260B. Analytical work was performed with no deviations to the approved method.

Inorganic Comments

Anions - The hold times for Nitrite and Nitrate analyses were not met. A Blank, Laboratory Control Sample, Duplicate, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See pages 10 through 11 for QC details. Analytical Notes:

- Preparation Date: 25-apr-2005.

- Nitrate – Sample B1C7D3 result was B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.

- Sulfate – Sample (B1C7D3 and B1C7D4) results were B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.

All QC controls are within the established limits.

Cyanide - The hold time for this analysis was met. A Blank, Preparation Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See page 12 for QC details.

All QC controls are within the established limits.

ICP-MS Metals – The hold time for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See pages 13 through 14 for QC details. Analytical Notes:

- Preparation Date: 26-apr-2005.

- Copper – Matrix Spike Duplicate was below laboratory established limits. Since all of the other QC results were within laboratory limits, the sample results were not flagged.

- Silver – The Laboratory Control Sample recovery was below established laboratory limits, but was within manufacturer's limits.

- Sample B1C7D4 was received with study seal broken.

All other QC controls are within the established limits.

Percent Solids – Analyzed for organic results correction.

pH – The hold time for this analysis was met. All internal laboratory controls were within established limits. See page 15 for QC details.

Organic Comments

- Sample results were moisture corrected and reported on a dry-weight basis.

PCB – The hold time for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page 22 for QC details. Analytical Notes:

- Preparation Date: 20-apr-2005.
- PCB – Non-detect sample results (B1C7D2 and B1C7D4) exceeded required RDLs.

All other QC controls are within the established limits.

Semi-VOA – The hold time for this analysis was not met. Both samples had to be re-extracted on May 2, 2005 after holding time had expired due to problems in the sample preparation. Both sets of extractions (April 21 and May 2) had no target compounds of interest found in the either sample (B1C7D2 or B1C7D4). A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See pages 23 through 26 for QC details. Analytical Notes:

- Preparation Date: 02-may-2005.
- Pentachlorophenol-d5 – The Laboratory Control Sample recovery was slightly below established laboratory limits.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spike Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See page 32 for QC details. Analytical Note:

- Preparation Date: 21-apr-2005.

All QC controls are within the established limits.

TPHG-WA - The hold time for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spike Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See page 31 for QC details. Analytical Note:

- Preparation Date: 27-apr-2005.

All QC controls are within the established limits.

VOA – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter

of Instruction. See pages 27 through 30 for QC details. All QC controls are within the established limits.

This Summary Report is in compliance with the SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the WSCF Laboratory Analytical Manager and Client Services, as verified by the following signature.

Pauline D. Mix
WSCF Client Services

Abbreviations

Hg – mercury
IC – ion chromatography
ICP – inductively coupled plasma
ICP/AES – ICP/atomic emission spectroscopy
ICP/MS – ICP/mass spectrometry
Total U – total uranium
AT/TB – total alpha/total beta
AEA – Alpha Energy Analysis
WTPH-G – Total Hydrocarbons-Gasoline
Am – americium
Cm - curium
Pu – plutonium
Np – neptunium
GEA – gamma energy analysis
H3 – Tritium
Sr – Strontium 89, 90
WTPH-D – Total Hydrocarbons-Diesel
TSS – Total Suspended Solids

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 5/19/05	F04-015-157	PAGE 1 OF 2
COLLECTOR: Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT: CS Cearlock — TELEPHONE NO.: 372-9638	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: 8N — DATA TURNAROUND: 45 Days / ~~15 Days~~ AP 4-19-05
SAMPLING LOCATION: 200-E-4; 9-10 ft	PROJECT DESIGNATION: 200-MW-1 Characterization Sampling and Analysis - Soil	SAF NO.: F04-015	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO. — COA: 119144ES10	METHOD OF SHIPMENT: Government Vehicle	
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A	BILL OF LADING/AIR BILL NO.: N/A	

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

SPECIAL HANDLING AND/OR STORAGE: Radioactive Tie To: B1C7C8

20050854

PRESERVATION	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	NONE			
TYPE OF CONTAINER	aG	aG	aG	aGs*	aG	P	AG	P		
NO. OF CONTAINER(S)	1	1	1	2 AP 4-19-05	1	1	1	1 AP 4-19-05		
VOLUME	250mL	120mL	250mL	40mL	120mL	500mL AP 4-19-05		120mL		
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS	SEE ITEM 6 IN SPEC. INST.			

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1C7D2	SOIL	4/13/05	1105	X	X	X	X	X					
~~B1C7C4~~	~~SOIL~~	~~4-13-05~~	~~1005~~	4-14-05						X			

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
JSPOPE / ASTYR	4-13-05 1400	MW-026 / REF. #1	4-13-05 1400
MW-026 / REF. #1	4-19-05 0800	JSPOPE / ASTYR	4-19-05 0800
JSPOPE / ASTYR	4-19-05 0945	[illegible]	4/19/05 0945

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

RUN Gamma Spectroscopy ON ICP/MS Bottle

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

A-6003-618(03/03)

000017

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F04-815-157	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N	DATA TURNAROUND
SAMPLING LOCATION 200-E-4; 9-10 ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015	AIR QUALITY ☐	45 Days
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 119144E510	METHOD OF SHIPMENT Government Vehicle		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS PMG 2/11/05

** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis.
(1)IC Anions - 300.0 (~~Fluoride~~, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate) Total Cyanide - 9010; pH (Soil) - 9045;
(2)ICP/MS - 200.8 (TAL) (Cadmium, Chromium, Copper, Silver) ICP/MS - 200.8 (Add-on) (Lead, Uranium) PMG 2/11/05
(3)VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, 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) Isotopic Plutonium, Isotopic Uranium, Americium-241, Strontium-89,90 – Total Sr;~~ 4-19-05
~~(6) Activity Scan - 24 hr turnaround~~ RG 4-19-05

A-6003-618(03/03)

000048

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F04-015-163	PAGE 1 OF 2
COLLECTOR: Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT: CS Cearlock	TELEPHONE NO.: 372-9638	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: BN / DATA TURNAROUND: 45 Days ~~45 Days~~ 48 4-27-05
SAMPLING LOCATION: 200-E-4; 14-15 ft	PROJECT DESIGNATION: 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO.: F04-015	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.	COA: 119144ES10	METHOD OF SHIPMENT: Government Vehicle	
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

MATRIX[a]: 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

SPECIAL HANDLING AND/OR STORAGE: Radioactive Tie To: B1C7C9

PRESERVATION	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None					
TYPE OF CONTAINER	aG	aG	aG	aGa*	aG	P					
NO. OF CONTAINER(S)	1	1	1	~~2~~ 1 4-17-05	1	1					
VOLUME	250mL	120mL	250mL	40mL	120mL	500mL					
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS					

SAMPLE NO.	MATRIX[a]	SAMPLE DATE	SAMPLE TIME										
B1C7D4 1W0506 1195	SOIL	4-13-05	1055	X	X	X	X	X					

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: JSAyre/ASfer 4-13-05	DATE/TIME: 1400	RECEIVED BY/STORED IN: MW-026/Ref. #1 4-13-05	DATE/TIME: 1400
RELINQUISHED BY/REMOVED FROM: MW-026/Ref. #1 4-19-05	DATE/TIME: 0600	RECEIVED BY/STORED IN: J. Ayre/ASfer 4-19-05	DATE/TIME: 0600
RELINQUISHED BY/REMOVED FROM: JSAyre/ASfer 4-19-05	DATE/TIME: 0945	RECEIVED BY/STORED IN: [illegible] 4/19/05	DATE/TIME: 0945
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

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

RUN GAMMA SPECTROSCOPY ON ICP/MS BOTTLE

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

A-6003-618(03/03)

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F04-015-163	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE BN AIR QUALITY ☐	DATA TURNAROUND 45 Days
SAMPLING LOCATION 200-E-4; 14-15 R	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015		
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 119144ES10	METHOD OF SHIPMENT Government Vehicle		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS PMG 2/11/05

** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis.

(1)IC Anions - 300.0 (~~Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite,~~ Phosphorous in phosphate, Sulfate) Total Cyanide - 9010; pH (Soil) - 9045;

(2)ICP/MS - 200.8 (TAL) (Cadmium, Chromium, Copper, Silver) ICP/MS - 200.8 (Add-on) (Lead, Uranium) PMG 2/11/05

(3)VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, 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) Isotopic Plutonium, Isotopic Uranium, Americium-241, Strontium-89,90 -- Total Sr;~~ [illegible] 4-19-05

A-6003-618(03/03)

000020

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 200-MW-1			DATA PACKAGE: 50854		
VALIDATOR: TLI		LAB: WSCF		DATE: 6/16/05	
			SDG: 50854		
ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide	200.8	
SAMPLES/MATRIX					
B1C7D2 B1C7D4					
					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

Copper MSD – 10% J all

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/caleulation 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

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

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

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

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

Comments:

Appendix 6

Additional Documentation Requested by Client

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F04-015
Sample Date: 04/13/05
Receive Date:04/19/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050001192									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Silver	7440-22-4	370.535	92.634	% Recov	04/27/05	70.000	130.000	
MS	Cadmium	7440-43-9	380.9117	95.228	% Recov	04/27/05	70.000	130.000	
MS	Chromium	7440-47-3	358.239	89.560	% Recov	04/27/05	70.000	130.000	
MS	Copper	7440-50-8	33.8	84.500	% Recov	04/27/05	70.000	130.000	
MS	Lead	7439-92-1	381.253	95.313	% Recov	04/27/05	70.000	130.000	
MS	Uranium	7440-61-1	385.172	96.293	% Recov	04/27/05	70.000	130.000	
MSD	Silver	7440-22-4	368.635	92.159	% Recov	04/27/05	70.000	130.000	
MSD	Cadmium	7440-43-9	373.8117	93.453	% Recov	04/27/05	70.000	130.000	
MSD	Chromium	7440-47-3	357.739	89.435	% Recov	04/27/05	70.000	130.000	
MSD	Copper	7440-50-8	4	10.000	% Recov	04/27/05	70.000	130.000	
MSD	Lead	7439-92-1	371.863	92.963	% Recov	04/27/05	70.000	130.000	
MSD	Uranium	7440-61-1	373.672	93.418	% Recov	04/27/05	70.000	130.000	
SPK-RPD	Silver	7440-22-4	92.159	0.514	RPD	04/27/05	0.000	20.000	
SPK-RPD	Cadmium	7440-43-9	93.453	1.661	RPD	04/27/05	0.000	20.000	
SPK-RPD	Chromium	7440-47-3	89.435	0.140	RPD	04/27/05	0.000	20.000	
SPK-RPD	Copper	7440-50-8	91.870	0.163	RPD	04/27/05	0.000	20.000	
SPK-RPD	Lead	7439-92-1	92.963	2.496	RPD	04/27/05	0.000	20.000	
SPK-RPD	Uranium	7440-61-1	93.418	3.031	RPD	04/27/05	0.000	20.000	
BATCH QC									
BLANK	Silver	7440-22-4	<0.1	n/a	ug/L	04/27/05			U
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L	04/27/05			U
BLANK	Chromium	7440-47-3	<4.0	n/a	ug/L	04/27/05			U
BLANK	Copper	7440-50-8	<2.0	n/a	ug/L	04/27/05			U
BLANK	Lead	7439-92-1	<0.2	n/a	ug/L	04/27/05			U
BLANK	Uranium	7440-61-1	<0.1	n/a	ug/L	04/27/05			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F04-015
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Silver	7440-22-4	139.4	107.231	% Recov	04/27/05	110.000	170.000	*
LCS	Cadmium	7440-43-9	129.7	101.328	% Recov	04/27/05	88.000	127.000	
LCS	Chromium	7440-47-3	60.81	87.498	% Recov	04/27/05	50.000	126.000	
LCS	Copper	7440-50-8	145.8	98.514	% Recov	04/27/05	61.000	134.000	
LCS	Lead	7439-92-1	136.5	96.127	% Recov	04/27/05	87.000	120.000	
LCS	Uranium	7440-61-1	397.2	99.300	% Recov	04/27/05	89.000	107.000	

000029

Date: 20 June 2005
To: Fluor Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 200-MW-1 Characterization Sampling and Analysis - Soil
Subject: Volatile - Data Package No.WSCF20050854 (50854)

INTRODUCTION

This memo presents the results of data validation on Data Package No. 50854 prepared by WSCF Analytical Laboratories. (WSCF). 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
B1C7D2	4/13/05	Soil	C	Volatiles by 8260A
B1C7D3	4/13/05	Soil	C	Volatiles by 8260A
B1C7D4	4/13/05	Soil	C	Volatiles 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
Appendix 6. Additional Documentation Requested by Client

AUG 2005
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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".

All 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

One set of field duplicates (B1C7D2/B1C7D3) were submitted for analysis. Field duplicates are compared using the same criteria as for laboratory duplicates. All field duplicate results were acceptable.

- **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 analytes met the RTQL.

- **Completeness**

Data package No. 50854 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.

Appendix 1

Glossary of Data Reporting Qualifiers

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).

Appendix 2

Summary of Data Qualification

VOLATILE ORGANIC DATA QUALIFICATION SUMMARY*

SDG: 50854	REVIEWER: TLI	PROJECT: 200-MW-1	PAGE 1 OF 1
COMMENTS: No qualifiers assigned			

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

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

VOLATILE ORGANIC ANALYSIS, SOIL MATRIX, (UG/KG)

Project: FLUOR-HANFORD							
Laboratory: WSCF							
Case:	SDG: WSCF20050854						
Sample Number		B1C7D2		B1C7D3		B1C7D4	
Remarks				Duplicate			
Sample Date		4/13/05		4/13/05		4/13/05	
VOA	RTQL	Result	Q	Result	Q	Result	Q
1,1-Dichloroethene		<2.10	U	<2.10	U	<2.10	U
Trichloroethene		<2.10	U	<2.10	U	<2.10	U
Benzene	5	<2.10	U	<2.10	U	<2.10	U
Toluene		<2.10	U	<2.10	U	<2.10	U
Chlorobenzene	5	<2.10	U	<2.10	U	<2.10	U
1,1-Dichloroethane	10	<2.10	U	<2.10	U	<2.10	U
Ethylbenzene	5	<2.10	U	<2.10	U	<2.10	U
Styrene		<2.10	U	<2.10	U	<2.10	U
cis-1,3-Dichloropropene		<2.10	U	<2.10	U	<2.10	U
trans-1,3-Dichloropropene		<2.10	U	<2.10	U	<2.10	U
1,2-Dichloroethane	5	<2.10	U	<2.10	U	<2.10	U
4-Methyl-2-pentanone		<2.10	U	<2.10	U	<2.10	U
Dibromochloromethane		<2.10	U	<2.10	U	<2.10	U
Tetrachloroethene		<2.10	U	<2.10	U	<2.10	U
Xylenes (total)		<2.10	U	<2.10	U	<2.10	U
1,2-Dichloroethene (total)		<2.10	U	<2.10	U	<2.10	U
Carbon Tetrachloride	5	<2.10	U	<2.10	U	<2.10	U
2-Hexanone		<2.10	U	<2.10	U	<2.10	U
Acetone	20	<2.10	U	<2.10	U	<2.10	U
Chloroform	5	<2.10	U	<2.10	U	<2.10	U
1,1,1-Trichloroethane	5	<2.10	U	<2.10	U	<2.10	U
Bromomethane		<2.10	U	<2.10	U	<2.10	U
Chloromethane		<2.10	U	<2.10	U	<2.10	U
Chloroethane		<2.10	U	<2.10	U	<2.10	U
Vinyl Chloride		<2.10	U	<2.10	U	<2.10	U
Methylene Chloride	5	<2.10	U	<2.10	U	<2.10	U
Carbon Disulfide		<2.10	U	<2.10	U	<2.10	U
Bromoform		<2.10	U	<2.10	U	<2.10	U
Bromodichloromethane		<2.10	U	<2.10	U	<2.10	U
1,2-Dichloropropane		<2.10	U	<2.10	U	<2.10	U
2-Butanone		<2.10	U	<2.10	U	<2.10	U
1,1,2-Trichloroethane	5	<2.10	U	<2.10	U	<2.10	U
1,1,2,2-Tetrachloroethane		<2.10	U	<2.10	U	<2.10	U
1-Butanol		<42.0	U	<42.0	U	<41.0	U
trans-1,2-Dichloroethylene	1	<2.10	U	<2.10	U	<2.10	U
cis-1,2-Dichloroethylene	1	<2.10	U	<2.10	U	<2.10	U

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F04-015: F04-015

Group #: WSCF20050854

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Organic															
W050001192	B1C7D2	GRP	TRENT	TPHGASOLINE	Total Pet. Hydrocarbons Gas	SOIL	LA-523-443	U	< 250	ug/kg	1.00	2.5e+02	04/27/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	12674-11-2	Aroclor-1016	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	< 100	ug/kg	1.00	1.0e+02	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	11097-69-1	Aroclor-1254	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	11100-14-4	Aroclor-1268	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	100-02-7	4-Nitrophenol	SOIL	LA-523-456	U	< 160	ug/kg	1.00	1.6e+02	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	< 150	ug/kg	1.00	1.5e+02	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	108-95-2	Phenol	SOIL	LA-523-456	U	< 88.0	ug/kg	1.00	88	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	< 85.0	ug/kg	1.00	85	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	< 64.0	ug/kg	1.00	64	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	129-00-0	Pyrene	SOIL	LA-523-456	U	< 51.0	ug/kg	1.00	51	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	< 77.0	ug/kg	1.00	77	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	< 74.0	ug/kg	1.00	74	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	83-32-9	Acenaphthene	SOIL	LA-523-456	U	< 56.0	ug/kg	1.00	56	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	87-86-5	Pentachlorophenol	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	< 130	ug/kg	1.00	1.3e+02	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	126-73-8	Tributyl phosphate	SOIL	LA-523-456	U	< 33.0	ug/kg	1.00	33	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	75-35-4	1,1-Dichloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	79-01-6	Trichloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	71-43-2	Benzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	108-88-3	Toluene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05

MDL = Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorganic) U - Analyzed for but not detected above limiting criteria.
RQ = Result Qualifier

DF = Dilution Factor
* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 1.1
Groundwater Remediation Program

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F04-015: F04-015

Group #: WSCF20050854

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W050001192	B1C7D2	GRP	TRENT	108-90-7	Chlorobenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	75-34-3	1,1-Dichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	100-41-4	Ethylbenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	100-42-5	Styrene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	10061-01-5	cis-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	10061-02-6	trans-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	107-06-2	1,2-Dichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	108-10-1	4-Methyl-2-Pentanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	124-48-1	Dibromochloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	127-18-4	Tetrachloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	1330-20-7	Xylenes (total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	540-59-0	1,2-Dichloroethane(Total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	56-23-5	Carbon tetrachloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	591-78-6	2-Hexanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	67-64-1	Acetone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	67-66-3	Chloroform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	71-55-6	1,1,1-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	74-83-9	Bromomethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	74-87-3	Chloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	75-00-3	Chloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	75-01-4	Vinyl chloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	75-09-2	Methylenechloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	75-15-0	Carbon disulfide	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	75-25-2	Bromoform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	75-27-4	Bromodichloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	78-87-5	1,2-Dichloropropane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	78-93-3	2-Butenone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05

MDL = Minimum Detection Limit B - The analyte < the ROL but >= the IDL/MDL (inorganic) U - Analyzed for but not detected above limiting criteria.
RQ = Result Qualifier

DF = Dilution Factor
* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 1.1
Groundwater Remediation Program

5/20/05

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F04-015: F04-015

Group #: WSCF20050854

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W050001192	B1C7D2	GRP	TRENT	79-00-5	1,1,2-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	79-34-5	1,1,2,2-Tetrachloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	71-36-3	1-Butanol	SOIL	LA-523-455	U	< 42.0	ug/kg	1.00	42	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	156-60-5	trans-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	156-59-2	cis-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
~~W050001192~~	~~B1C7D2~~	~~GRP~~	~~TRENT~~	~~TPHDIESEL~~	~~Total Pet. Hydrocarbons-Diesel~~	~~SOIL~~	~~NWTPH~~	~~U~~	~~< 3.90e+03~~	~~ug/kg~~	~~1.00~~	~~8.0e+03~~	~~04/27/05~~	~~04/13/05~~	~~04/13/05~~
~~W050001192~~	~~B1C7D2~~	~~GRP~~	~~TRENT~~	~~TPHKEROSENE~~	~~Kerosene~~	~~SOIL~~	~~NWTPH~~	~~U~~	~~< 3.90e+03~~	~~ug/kg~~	~~1.00~~	~~8.0e+03~~	~~04/27/05~~	~~04/13/05~~	~~04/13/05~~
W050001193	B1C7D3	GRP	TRENT	75-35-4	1,1-Dichloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	79-01-6	Trichloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	71-43-2	Benzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	108-88-3	Toluene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	108-90-7	Chlorobenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-34-3	1,1-Dichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	100-41-4	Ethylbenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	100-42-5	Styrene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	10061-01-5	cis-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	10061-02-6	trans-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	107-06-2	1,2-Dichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	108-10-1	4-Methyl-2-Pentenone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	124-48-1	Dibromochloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	127-18-4	Tetrachloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	1330-20-7	Xylenes (total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	540-59-0	1,2-Dichloroethene(Total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	56-23-5	Carbon tetrachloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	591-78-6	2-Hexanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	67-64-1	Acetone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	67-66-3	Chloroform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05

MDL=Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorganic) U - Analyzed for but not detected above limiting criteria.
RQ=Result Qualifier

DF=Dilution Factor
* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

6/20/05

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F04-015: F04-015

Group #: WSCF20050854

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W050001193	B1C7D3	GRP	TRENT	71-55-6	1,1,1-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	74-83-9	Bromomethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	74-87-3	Chloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-00-3	Chloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-01-4	Vinyl chloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-09-2	Methylenechloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-15-0	Carbon disulfide	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-25-2	Bromoform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-27-4	Bromodichloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	78-87-5	1,2-Dichloropropane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	78-93-3	2-Butanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	79-00-5	1,1,2-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	79-34-5	1,1,2,2-Tetrachloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	71-36-3	1-Butanol	SOIL	LA-523-455	U	< 42.0	ug/kg	1.00	42	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	156-60-5	trans-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	156-59-2	cis-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
~~W050001195~~	~~B1C7D4~~	~~GRP~~	~~TRENT~~	~~TPHGASOLINE~~	~~Total Pet. Hydrocarbons-Gas~~	~~SOIL~~	~~LA-523-443~~	~~U~~	~~< 250~~	~~ug/kg~~	~~1.00~~	~~2.5e+02~~	~~04/27/05~~	~~04/13/05~~	~~04/19/05~~
W050001195	B1C7D4	GRP	TRENT	12674-11-2	Aroclor-1016	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	< 100	ug/kg	1.00	1.0e+02	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	11097-69-1	Aroclor-1254	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	11100-14-4	Aroclor-1268	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	100-02-7	4-Nitrophenol	SOIL	LA-523-456	U	< 160	ug/kg	1.00	1.6e+02	05/02/05	04/13/05	04/19/05

MDL=Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorganic) U - Analyzed for but not detected above limiting criteria.
RQ=Result Qualifier

DF=Dilution Factor
* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

6/20/05

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F04-015: F04-015

Group #: WSCF20050854

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ		Result	Unit	DF	MDL	Analyze	Sample	Receive
W050001195	B1C7D4	GRP	TRENT	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	<	140	ug/kg	1.00	1.4e+02	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	108-95-2	Phenol	SOIL	LA-523-456	U	<	87.0	ug/kg	1.00	87	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	<	83.0	ug/kg	1.00	83	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	<	63.0	ug/kg	1.00	63	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	129-00-0	Pyrene	SOIL	LA-523-456	U	<	50.0	ug/kg	1.00	50	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	<	73.0	ug/kg	1.00	73	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	83-32-9	Acenaphthene	SOIL	LA-523-456	U	<	55.0	ug/kg	1.00	55	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	87-86-5	Pentachlorophenol	SOIL	LA-523-456	U	<	74.0	ug/kg	1.00	74	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	<	130	ug/kg	1.00	1.3e+02	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	126-73-8	Tributyl phosphate	SOIL	LA-523-456	U	<	33.0	ug/kg	1.00	33	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	75-35-4	1,1-Dichloroethene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	79-01-6	Trichloroethene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	71-43-2	Benzene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	108-88-3	Toluene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	108-90-7	Chlorobenzene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	75-34-3	1,1-Dichloroethane	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	100-41-4	Ethylbenzene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	100-42-5	Styrene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	10061-01-5	cis-1,3-Dichloropropene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	10061-02-6	trans-1,3-Dichloropropene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	107-06-2	1,2-Dichloroethane	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	108-10-1	4-Methyl-2-Pentanone	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	124-48-1	Dibromochloromethane	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	127-18-4	Tetrachloroethene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	1330-20-7	Xylenes (total)	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	540-59-0	1,2-Dichloroethene(Total)	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05

MDL = Minimum Detection Limit
RQ = Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)

U - Analyzed for but not detected above limiting criteria.

DF = Dilution Factor

* - indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 1.1
Groundwater Remediation Program

5/20/05

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F04-015: F04-015

Group #: WSCF20050854

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W050001195	B1C7D4	GRP	TRENT	56-23-5	Carbon tetrachloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	591-78-6	2-Hexanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	67-64-1	Acetone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	67-66-3	Chloroform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	71-55-6	1,1,1-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	74-83-9	Bromomethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	74-87-3	Chloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	75-00-3	Chloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	75-01-4	Vinyl chloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	75-09-2	Methylenechloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	75-15-0	Carbon disulfide	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	75-25-2	Bromoform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	75-27-4	Bromodichloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	78-87-5	1,2-Dichloropropane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	78-93-3	2-Butanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	79-00-5	1,1,2-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	79-34-5	1,1,2,2-Tetrachloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	71-36-3	1-Butanol	SOIL	LA-523-455	U	< 41.0	ug/kg	1.00	41	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	156-60-5	trans-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	156-59-2	cis-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
~~W050001195~~	~~B1C7D4~~	~~GRP~~	~~TRENT~~	~~TPHDIESEL~~	~~Total Pet. Hydrocarbons Diesel~~	~~SOIL~~	~~NWTPH~~		~~1.20e+05~~	~~ug/kg~~	~~1.00~~	~~3.9e+03~~	~~04/27/05~~	~~04/13/05~~	~~04/19/05~~
~~W050001195~~	~~B1C7D4~~	~~GRP~~	~~TRENT~~	~~TPHKEROSENE~~	~~Kerosene~~	~~SOIL~~	~~NWTPH~~		~~1.00e+05~~	~~ug/kg~~	~~1.00~~	~~3.9e+03~~	~~04/27/05~~	~~04/13/05~~	~~04/19/05~~

4/20/05

MDL = Minimum Detection Limit
RQ = Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)

U - Analyzed for but not detected above limiting criteria.

DF = Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 1.1
Groundwater Remediation Program

4/20/05

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Sample Delivery Group	**WSCF20050854**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F04-015**
Data Deliverable	**Summary Report**

Introduction

Three (3) 200-MW-1 Characterization Sampling and Analysis – Soil/216-E-4, (9' – 10'), samples (B1C7D2, B1C7D3, and B1C7D4) were received at the WSCF Laboratory on April 19 , 2005. The samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 1) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 2) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information. Copies of the chain of custody and sample receipt are included as Attachment 3.

Analytical Methodology for Requested Analyses

Inorganic

- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- Cyanide by EPA Method 335.2. Analytical work was performed with no deviations to the approved method.
- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- Percent Solids by EPA Method 160.3. Analytical work was performed with no deviations to the approved method.
- pH by EPA Method 150.1. Analytical work was performed with no deviations to the approved method.

Organic

- PCB by EPA Method 8082. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270C. Analytical work was performed with no deviations to the approved method.

- TPH Diesel/Gas Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.

- VOA by EPA Method 8260B. Analytical work was performed with no deviations to the approved method.

Inorganic Comments

Anions - The hold times for Nitrite and Nitrate analyses were not met. A Blank, Laboratory Control Sample, Duplicate, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See pages 10 through 11 for QC details. Analytical Notes:

- Preparation Date: 25-apr-2005.

- Nitrate – Sample B1C7D3 result was B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.

- Sulfate – Sample (B1C7D3 and B1C7D4) results were B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.

All QC controls are within the established limits.

Cyanide - The hold time for this analysis was met. A Blank, Preparation Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See page 12 for QC details.

All QC controls are within the established limits.

ICP-MS Metals – The hold time for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See pages 13 through 14 for QC details. Analytical Notes:

- Preparation Date: 26-apr-2005.

- Copper – Matrix Spike Duplicate was below laboratory established limits. Since all of the other QC results were within laboratory limits, the sample results were not flagged.

- Silver – The Laboratory Control Sample recovery was below established laboratory limits, but was within manufacturer's limits.

- Sample B1C7D4 was received with study seal broken.

All other QC controls are within the established limits.

Percent Solids – Analyzed for organic results correction.

pH – The hold time for this analysis was met. All internal laboratory controls were within established limits. See page 15 for QC details.

Organic Comments

- Sample results were moisture corrected and reported on a dry-weight basis.

PCB – The hold time for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page 22 for QC details. Analytical Notes:

- Preparation Date: 20-apr-2005.
- PCB – Non-detect sample results (B1C7D2 and B1C7D4) exceeded required RDLs.

All other QC controls are within the established limits.

Semi-VOA – The hold time for this analysis was not met. Both samples had to be re-extracted on May 2, 2005 after holding time had expired due to problems in the sample preparation. Both sets of extractions (April 21 and May 2) had no target compounds of interest found in the either sample (B1C7D2 or B1C7D4). A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See pages 23 through 26 for QC details. Analytical Notes:

- Preparation Date: 02-may-2005.
- Pentachlorophenol-d5 – The Laboratory Control Sample recovery was slightly below established laboratory limits.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spike Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See page 32 for QC details. Analytical Note:

- Preparation Date: 21-apr-2005.

All QC controls are within the established limits.

TPHG-WA - The hold time for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spike Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See page 31 for QC details. Analytical Note:

- Preparation Date: 27-apr-2005.

All QC controls are within the established limits.

VOA – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter

of Instruction. See pages 27 through 30 for QC details. All QC controls are within the established limits.

This Summary Report is in compliance with the SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the WSCF Laboratory Analytical Manager and Client Services, as verified by the following signature.

Pauline D. Mix
WSCF Client Services

Abbreviations

Hg – mercury
IC – ion chromatography
ICP – inductively coupled plasma
ICP/AES – ICP/atomic emission spectroscopy
ICP/MS – ICP/mass spectrometry
Total U – total uranium
AT/TB – total alpha/total beta
AEA – Alpha Energy Analysis
WTPH-G – Total Hydrocarbons-Gasoline
Am – americium
Cm - curium
Pu – plutonium
Np – neptunium
GEA – gamma energy analysis
H3 – Tritium
Sr – Strontium 89, 90
WTPH-D – Total Hydrocarbons-Diesel
TSS – Total Suspended Solids

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 5/19/05	F04-015-157	PAGE 1 OF 2
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~~ 4-19-05
SAMPLING LOCATION: 200-E-4; 9-10 ft	PROJECT DESIGNATION: 200-MW-1 Characterization Sampling and Analysis - Soil	SAF NO.: F04-015	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO. — COA: 119144ES10	METHOD OF SHIPMENT: Government Vehicle	
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A	BILL OF LADING/AIR BILL NO.: N/A	

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

SPECIAL HANDLING AND/OR STORAGE: Radioactive Tie To: B1C7C8

20050854

PRESERVATION	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	NONE			
TYPE OF CONTAINER	aG	aG	aG	aGr*	aG	P	AG	P		
NO. OF CONTAINER(S)	1	1	1	~~1~~ 2	1	1	1	4-19-05		
VOLUME	250mL	120mL	250mL	40mL	120mL	500mL	120mL			
SAMPLE ANALYSES	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS	SEE ITEM 6 IN SPEC. INST.			

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1C7D2	SOIL	4/13/05	1005	X	X	X	X	X					
~~B1C7C4~~	SOIL	4-13-05	~~1005~~ 4-19-05							X			

CHAIN OF POSSESSION — SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
JSPOPE / ASFIST	4-13-05 1400	MW-026 / REF #1	4-13-05 1400
MW-026 / REF #1	4-19-05 0800	JSPOPE / ASFIST	4-19-05 0800
JSPOPE / ASFIST	4-19-05 0945	[illegible]	4/19/05 0945

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

RUN Gamma Spectroscopy ON ICP/MS Bottle.

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

A-6003-518(03/03)

000022

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F04-815-157	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N DATA TURNAROUND
SAMPLING LOCATION 200-E-4; 9-10 ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015	AIR QUALITY ☐ 45 Days
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 119144ES10	METHOD OF SHIPMENT Government Vehicle	
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A	

SPECIAL INSTRUCTIONS — PMG 2/11/05

** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis.
(1)IC Anions - 300.0 ~~(Fluoride)~~ Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate} Total Cyanide - 9010; pH (Soil) - 9045;
(2)ICP/MS - 200.8 (TAL) {Cadmium, Chromium, Copper, Silver} ICP/MS - 200.8 (Add-on) {Lead, Uranium} — PMG 2/11/05
(3)VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, 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) Isotopic Plutonium, Isotopic Uranium, Americium-241, Strontium-89,90 -- Total Sr;~~ 4-19-05
~~(6) Activity SCAN - 24 hr TURNAROUND~~ RG 4-12-05

A-6003-818(03/03)

000023

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F04-015-163	PAGE 1 OF 2
COLLECTOR: Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT: CS Cearlock	TELEPHONE NO.: 372-9638	PROJECT COORDINATOR: TRENT, SJ	PRICE CODE: BN; DATA TURNAROUND: 45 Days ~~45 Days~~ 4-19-05
SAMPLING LOCATION: 200-E-4; 14-15 ft	PROJECT DESIGNATION: 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO.: F04-015	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO.	COA: 119144ES10	METHOD OF SHIPMENT: Government Vehicle	
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A	

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

SPECIAL HANDLING AND/OR STORAGE: Radioactive Tie To: B1C7C9

PRESERVATION	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None
TYPE OF CONTAINER	aG	aG	aG	aGs*	aG	P
NO. OF CONTAINER(S)	1	1	1	~~1~~ 2 4-17-05	1	1
VOLUME	250mL	120mL	250mL	40mL	120mL	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1C7D4 (WUS002) 195	SOIL	4-13-05	1055	X	X	X	X	X					

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
JSAPE/ASFer	4-13-05 1400	MW-026 / Ref. #1	4-13-05 1400
MW-026 / Ref. #1	4-19-05 0600	J. Ape / ASFer	4-19-05 0600
JSAPE/ASFer	4-19-05 0945	[illegible]	4/19/05 0945

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

RUN GAMMA SPECTROSCOPY ON ICP/MS BOTTLE

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

A-6003-818(03/03)

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F04-015-163	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N	DATA TURNAROUND
SAMPLING LOCATION 200-E-4; 14-15 ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015	AIR QUALITY ☐	45 Days
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 119144ES10	METHOD OF SHIPMENT Government Vehicle		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS PMG 2/11/05

** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis.

(1)IC Anions - 300.0 (~~Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite,~~ Phosphorous in phosphate, Sulfate) Total Cyanide - 9010; pH (Soil) - 9045;

(2)ICP/MS - 200.8 (TAL) (Cadmium, Chromium, Copper, Silver) ICP/MS - 200.8 (Add-on) (Lead, Uranium) PMG 2/11/05

(3)VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, 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) Isotopic Plutonium, Isotopic Uranium, Americium-241, Strontium-89,90 -- Total Sr;~~ Aso 4-19-05

A-6003-618(03/03)

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F04-015-158	PAGE 1 OF 2
COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N AIR QUALITY ☐	DATA TURNAROUND 45 Days / ~~45 Days~~
SAMPLING LOCATION 200-E-4; 9-10 ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015		
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 119144E510	METHOD OF SHIPMENT Government Vehicle		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*: A=Air; DL=Drums 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

SPECIAL HANDLING AND/OR STORAGE: Radioactive Tie To: B1C7C8

PRESERVATION	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None				
TYPE OF CONTAINER	aG	aG	aG	aGs*	aG	P				
NO. OF CONTAINER(S)	1	1	1	~~1~~ 2	1	1				
VOLUME	250mL	120mL	250mL	40mL	120mL	~~500mL~~ 4L				
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	~~SEE ITEM (2) IN SPECIAL INSTRUCTIONS~~ 4-19-05	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS				

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1C7D3 WU5002193	SOIL	4-13-05	1005				X						

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
TSPHS / ASHr	4-13-05 1400	MO-026 / REF #1	4-13-05 1400
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
MO-026 / REF #1	4-19-05 1600	ASHr / TSPHS	4-19-05 1600
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
TSPHS / ASHr	4-19-05 0945	[illegible]	4/19/05 0945
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

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

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

A-6003-61A(03/03)

000026

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F04-015-158	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N	DATA TURNAROUND
SAMPLING LOCATION 200-E-4; 9-10 ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015	AIR QUALITY ☐	45 Days
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 119144ES1D	METHOD OF SHIPMENT Government Vehicle		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS PMG 3/14/05

** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis.

~~(1)IC Anions - 300.0 (Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate) Total Cyanide - 9010, pH (Soil) - 9045;~~

~~(2)ICP/MS - 200.8 (TAL) (Cadmium, Chromium, Copper, Silver) ICP/MS - 200.8 (Add-On) (Lead, Uranium)~~ PMG 3/14/05

(3)VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, 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) Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 - Total Sr;~~

A-6003-618(03/03)

000027

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: 50854		
VALIDATOR: TLT		LAB: WSCF		DATE: 6/16/05	
			SDG: 50854		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
SAMPLES/MATRIX					
~~B4K9~~ 4-6	B1C7D2	B1C7D3	B1C7D4		
					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: No FR

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

Comments: _____

7. HOLDING TIMES (all levels)

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

Comments: _____

GC/MS ORGANIC DATA VALIDATION CHECKLIST

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

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

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 aceeptable? ..... Yes No N/A
Check/calibration materials traceable? ..... Yes No N/A
Check/calibration materials Expired? ..... Yes No N/A
Analytieal batch QC given similar cleanup? ..... Yes No N/A
Transcription/Calculation Errors? ..... Yes No N/A
Comments:

Appendix 6

Additional Documentation Requested by Client

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F04-015
Sample Date: 04/13/05
Receive Date:04/19/05

Lab ID: W050001192
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	1,1-Dichloroethene	75-35-4	50.010	98.700	% Recov	04/26/05	63.000	117.000	
MS	Benzene	71-43-2	50.780	97.000	% Recov	04/26/05	75.000	129.000	
MS	4-Bromofluorobenzene	460-00-4	103.60	98.900	% Recov	04/26/05	84.000	116.000	
MS	Chlorobenzene	108-90-7	52.160	99.600	% Recov	04/26/05	79.000	119.000	
MS	1,2-Dichloroethane-d4	17060-07-0	109.70	105.000	% Recov	04/26/05	82.000	136.000	
MS	Toluene-d8	2037-26-5	109.60	105.000	% Recov	04/26/05	89.000	119.000	
MS	Toluene	108-88-3	54.630	104.000	% Recov	04/26/05	76.000	120.000	
MS	Trichloroethene	79-01-6	50.940	97.300	% Recov	04/26/05	73.000	123.000	
MSD	1,1-Dichloroethene	75-35-4	51.090	97.600	% Recov	04/26/05	63.000	117.000	
MSD	Benzene	71-43-2	51.540	98.400	% Recov	04/26/05	75.000	129.000	
MSD	4-Bromofluorobenzene	460-00-4	102.40	97.600	% Recov	04/26/05	84.000	116.000	
MSD	Chlorobenzene	108-90-7	53.290	102.000	% Recov	04/26/05	79.000	119.000	
MSD	1,2-Dichloroethane-d4	17060-07-0	113.10	108.000	% Recov	04/26/05	82.000	136.000	
MSD	Toluene-d8	2037-26-5	111.10	108.000	% Recov	04/20/05	89.000	119.000	
MSD	Toluene	108-88-3	54.750	105.000	% Recov	04/26/05	76.000	120.000	
MSD	Trichloroethene	79-01-6	51.360	98.100	% Recov	04/26/05	73.000	123.000	
SPK-RPD	1,1-Dichloroethene	75-35-4	97.600	0.928	RPD	04/26/05	0.000	25.000	
SPK-RPD	Benzene	71-43-2	98.400	1.433	RPD	04/26/05	0.000	25.000	
SPK-RPD	4-Bromofluorobenzene	460-00-4	97.800	1.118	RPD	04/26/05	0.000	25.000	
SPK-RPD	Chlorobenzene	108-90-7	102.000	2.381	RPD	04/26/05	0.000	25.000	
SPK-RPD	1,2-Dichloroethane-d4	17060-07-0	108.000	2.817	RPD	04/26/05	0.000	25.000	
SPK-RPD	Toluene-d8	2037-26-5	108.000	0.948	RPD	04/26/05	0.000	25.000	
SPK-RPD	Toluene	108-88-3	105.000	0.957	RPD	04/26/05	0.000	25.000	
SPK-RPD	Trichloroethene	79-01-6	98.100	0.819	RPD	04/26/05	0.000	25.000	
SURR	4-Bromofluorobenzene	460-00-4	103.50	98.800	% Recov	04/26/05	71.000	125.000	
SURR	1,2-Dichloroethane-d4	17060-07-0	107.70	103.000	% Recov	04/26/05	80.000	134.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F04-015
Sample Date: 04/13/05
Receive Date:04/19/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SURR	Toluene-d8	2037-26-5	111.60	107.000	% Recov	04/26/05	80.000	126.000	
Lab ID: W050001193									
BATCH QC ASSOCIATED WITH SAMPLE									
SURR	4-Bromofluorobenzene	460-00-4	100.60	98.000	% Recov	04/26/05	71.000	125.000	
SURR	1,2-Dichloroethane-d4	17060-07-0	109.60	105.000	% Recov	04/26/05	80.000	134.000	
SURR	Toluene-d8	2037-26-5	112.70	108.000	% Recov	04/26/05	80.000	126.000	
Lab ID: W050001195									
BATCH QC ASSOCIATED WITH SAMPLE									
SURR	4-Bromofluorobenzene	460-00-4	101.80	98.600	% Recov	04/26/05	71.000	125.000	
SURR	1,2-Dichloroethane-d4	17060-07-0	110.40	107.000	% Recov	04/26/05	80.000	134.000	
SURR	Toluene-d8	2037-26-5	109.00	106.000	% Recov	04/26/05	80.000	126.000	
BATCH QC									
BLANK	1,1-Dichloroethene	75-34-3	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	1,1,1-Trichloroethane	71-55-6	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	1,1,2-Trichloroethane	79-00-5	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	1,1,2,2-Tetrachloroethane	79-34-5	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	1,1-Dichloroethene	75-35-4	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	1,2-Dichloroethane	107-06-2	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	1,2-Dichloroethene(Total)	540-59-0	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	1-Butanol	71-36-3	< 40	n/a	ug/Kg	04/26/05			U
BLANK	2-Hexanone	591-78-6	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	4-Methyl-2-Pentanone	108-10-1	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Acetone	67-64-1	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Bromodichloromethane	75-27-4	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Benzene	71-43-2	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	4-Bromofluorobenzene	460-00-4	97.960	98.000	% Recov	04/26/05	71.000	125.000	
BLANK	Bromoform	75-25-2	< 2.0	n/a	ug/Kg	04/26/05			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F04-015
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Carbon disulfide	75-15-0	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Carbon tetrachloride	56-23-5	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Dibromochloromethane	124-48-1	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Chloroform	67-66-3	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Chlorobenzene	108-90-7	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	cis-1,3-Dichloropropene	10061-01-5	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Chloroethane	75-00-3	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	1,2-Dichloroethane-d4	17060-07-0	100.60	101.000	% Recov	04/26/05	80.000	134.000	
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	1,2-Dichloropropane	78-87-5	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Ethylbenzene	100-41-4	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Bromomethane	74-83-9	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Chloromethane	74-87-3	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	2-Butanone	78-93-3	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Methylenechloride	75-09-2	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Tetrachloroethene	127-18-4	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Styrene	100-42-5	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Xylenes (total)	1330-20-7	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Toluene-d8	2037-26-5	104.30	104.000	% Recov	04/26/05	80.000	126.000	
BLANK	Toluene	108-88-3	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	trans-1,3-Dichloropropene	10061-02-6	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Trichloroethene	79-01-6	< 2.0	n/a	ug/Kg	04/26/05			U
BLANK	Vinyl chloride	75-01-4	< 2.0	n/a	ug/Kg	04/26/05			U
LCS	1,1-Dichloroethene	75-35-4	45.470	90.900	% Recov	04/26/05	70.000	130.000	
LCS	Benzene	71-43-2	50.200	100.000	% Recov	04/26/05	70.000	130.000	
LCS	4-Bromofluorobenzene	460-00-4	97.770	97.800	% Recov	04/26/05	71.000	125.000	
LCS	Chlorobenzene	108-90-7	49.360	98.700	% Recov	04/26/05	70.000	130.000	
LCS	1,2-Dichloroethene-d4	17060-07-0	103.80	104.000	% Recov	04/26/05	80.000	134.000	
LCS	Toluene-d8	2037-26-5	106.80	107.000	% Recov	04/26/05	80.000	126.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F04-015
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Toluene	108-88-3	51.810	104.000	% Recov	04/26/05	70.000	130.000	
LCS	Trichloroethene	79-01-6	47.780	95.600	% Recov	04/26/05	70.000	130.000	

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Date: 20 June 2005
To: Fluor Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 200-MW-1 Characterization Sampling and Analysis - Soil
Subject: Semivolatile - Data Package No.WSCF20050854 (50854)

INTRODUCTION

This memo presents the results of data validation on Data Package No. 50854 prepared by WSCF Analytical Laboratories. (WSCF). 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
B1C7D2	4/13/05	Soil	C	See note 1
B1C7D4	4/13/05	Soil	C	See note 1

1 - Semivolatiles by 8270, TPH-D (diesel and kerosene) and gasoline range organics 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
Appendix 6. Additional Documentation Requested by Client

AUG 2005
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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 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 semivolatile organic 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".

All 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 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.

Due to an LCS recovery outside QC limits (60.3%), all pentachlorophenol results were qualified as estimates and flagged "J".

All other 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.

- **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. All analytes met the RTQL.

- **Completeness**

Data package No. 50854 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 semivolatile organic results were qualified as estimates and flagged "J". Due to an LCS recovery outside QC limits (60.3%), all pentachlorophenol 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.

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 validation SOW are as follows:

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

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

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

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

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

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

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

Appendix 2

Summary of Data Qualification

SEMIVOLATILE DATA QUALIFICATION SUMMARY*

SDG: 50854	REVIEWER: TLI	PROJECT: 200-MW-1	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
Semivolatile organics	J	All	Holding time
Pentachlorophenol	J	All	LCS recovery

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

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

SEMIVOLATILE/8015B ANALYSIS, SOIL MATRIX, (UG/KG)

Project: FLUOR-HANFORD					
Laboratory: WSCF					
Case:	SDG: WSCF20060854				
Sample Number		B1C7D2		B1C7D4	
Remarks					
Sample Date		4/13/05		4/13/05	
Analysis Date		2/15/05		2/15/05	
Semivolatile/8015B	RTQL	Result	Q	Result	Q
4-Nitrophenol		<160	UJ	<160	UJ
1,4-Dichlorobenzene		<150	UJ	<140	UJ
Phenol	330	<88.0	UJ	<87.0	UJ
1,2,4-Trichlorobenzene		<85.0	UJ	<83.0	UJ
2,4-Dinitrotoluene		<64.0	UJ	<63.0	UJ
Pyrene		<51.0	UJ	<50.0	UJ
4-Chloro-3-methylphenol		<77.0	UJ	<75.0	UJ
N-Nitroso-di-n-propylamine		<74.0	UJ	<73.0	UJ
Acenaphthene		<56.0	UJ	<55.0	UJ
Pentachlorophenol		<75.0	UJ	<74.0	UJ
2-Chlorophenol		<130	UJ	<130	UJ
Tributylphosphate		<33.0	UJ	<33.0	UJ
TPH-D	5000	<3900	U	120000	
Kerosene	5000	<3900	U	100000	
TPH-G (gasoline range organics)	5000	<250	U	<250	

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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.

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F04-015: F04-015

Group #: WSCF20050854

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Organic															
W050001192	B1C7D2	GRP	TRENT	TPHGASOLINE	Total Pet. Hydrocarbons Gas	SOIL	LA-523-443	U	< 250	ug/kg	1.00	2.5e+02	04/27/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	12674-11-2	Aroclor-1016	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	< 100	ug/kg	1.00	1.0e+02	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	11097-69-1	Aroclor-1254	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	11100-14-4	Aroclor-1268	SOIL	LA-523-427	U	< 52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	100-02-7	4-Nitrophenol	SOIL	LA-523-456	U	< 160	ug/kg	1.00	1.6e+02	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	< 150	ug/kg	1.00	1.5e+02	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	108-95-2	Phenol	SOIL	LA-523-456	U	< 88.0	ug/kg	1.00	88	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	< 85.0	ug/kg	1.00	85	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	< 64.0	ug/kg	1.00	64	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	129-00-0	Pyrene	SOIL	LA-523-456	U	< 51.0	ug/kg	1.00	51	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	< 77.0	ug/kg	1.00	77	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	< 74.0	ug/kg	1.00	74	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	83-32-9	Acenaphthene	SOIL	LA-523-456	U	< 56.0	ug/kg	1.00	56	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	87-86-5	Pentachlorophenol	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	< 130	ug/kg	1.00	1.3e+02	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	126-73-8	Tributyl phosphate	SOIL	LA-523-456	U	< 33.0	ug/kg	1.00	33	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	75-35-4	1,1-Dichloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	79-01-6	Trichloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	71-43-2	Benzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	108-88-3	Toluene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05

MDL = Minimum Detection Limit B - The analyte < the RDL but >= the IDL/MDL (inorganic) U - Analyzed for but not detected above limiting criteria.
RQ = Result Qualifier

DF = Dilution Factor
* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 1.1
Groundwater Remediation Program

6/20/05

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F04-015: F04-015

Group #: WSCF20050854

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W050001192	B1C7D2	GRP	TRENT	79-00-5	1,1,2-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	79-34-5	1,1,2,2-Tetrachloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	71-36-3	1-Butanol	SOIL	LA-523-455	U	< 42.0	ug/kg	1.00	42	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	156-60-5	trans-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	156-59-2	cis-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	TPHDIESEL	Total Pet. Hydrocarbons Diesel	SOIL	NWTPH	U	< 3.90e+03	ug/kg	1.00	3.9e+03	04/27/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	TPHKEROSENE	Kerosene	SOIL	NWTPH	U	< 3.90e+03	ug/kg	1.00	3.9e+03	04/27/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-35-4	1,1-Dichloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	79-01-6	Trichloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	71-43-2	Benzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	108-88-3	Toluene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	108-90-7	Chlorobenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-34-3	1,1-Dichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	100-41-4	Ethylbenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	100-42-5	Styrene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	10061-01-5	cis-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	10061-02-6	trans-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	107-06-2	1,2-Dichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	108-10-1	4-Methyl-2-Pentenone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	124-48-1	Dibromochloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	127-18-4	Tetrachloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	1330-20-7	Xylenes (total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	540-59-0	1,2-Dichloroethene(Total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	56-23-5	Carbon tetrachloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	591-78-6	2-Hexanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	67-64-1	Acetone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	67-66-3	Chloroform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05

MDL = Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorganic) U - Analyzed for but not detected above limiting criteria.
RQ = Result Qualifier

DF = Dilution Factor
* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

U/20/05

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F04-015: F04-015

Group #: WSCF20050854

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ		Result	Unit	DF	MDL	Analyze	Sample	Receive
W050001193	B1C7D3	GRP	TRENT	71-55-6	1,1,1-Trichloroethane	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	74-83-9	Bromomethane	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	74-87-3	Chloromethane	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-00-3	Chloroethane	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-01-4	Vinyl chloride	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-09-2	Methylenechloride	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-15-0	Carbon disulfide	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-25-2	Bromoform	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-27-4	Bromodichloromethane	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	78-87-5	1,2-Dichloropropane	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	78-93-3	2-Butanone	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	79-00-5	1,1,2-Trichloroethane	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	79-34-5	1,1,2,2-Tetrachloroethane	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	71-36-3	1-Butanol	SOIL	LA-523-455	U	<	42.0	ug/kg	1.00	42	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	156-60-5	trans-1,2-Dichloroethylene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	156-59-2	cis-1,2-Dichloroethylene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	TPHGASOLINE	Total Pet. Hydrocarbons Gas	SOIL	LA-523-443	U	<	250	ug/kg	1.00	2.5e+02	04/27/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	12674-11-2	Aroclor-1016	SOIL	LA-523-427	U	<	51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	<	100	ug/kg	1.00	1.0e+02	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	<	51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	<	51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	<	51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	11097-69-1	Aroclor-1254	SOIL	LA-523-427	U	<	51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	<	51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	<	51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	11100-14-4	Aroclor-1268	SOIL	LA-523-427	U	<	51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	100-02-7	4-Nitrophenol	SOIL	LA-523-456	U J	<	160	ug/kg	1.00	1.6e+02	05/02/05	04/13/05	04/19/05

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RQ = Result Qualifier

DF = Dilution Factor
* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 1.1
Groundwater Remediation Program

4/20/05

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F04-015: F04-015

Group #: WSCF20050854

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ		Result	Unit	DF	MDL	Analyze	Sample	Receive
W050001195	B1C7D4	GRP	TRENT	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	<	140	ug/kg	1.00	1.4e+02	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	108-95-2	Phenol	SOIL	LA-523-456	U	<	87.0	ug/kg	1.00	87	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	<	83.0	ug/kg	1.00	83	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	<	63.0	ug/kg	1.00	63	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	129-00-0	Pyrene	SOIL	LA-523-456	U	<	50.0	ug/kg	1.00	50	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	<	73.0	ug/kg	1.00	73	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	83-32-9	Acenaphthene	SOIL	LA-523-456	U	<	55.0	ug/kg	1.00	55	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	87-86-5	Pentachlorophenol	SOIL	LA-523-456	U	<	74.0	ug/kg	1.00	74	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	<	130	ug/kg	1.00	1.3e+02	05/02/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	126-73-8	Tributyl phosphate	SOIL	LA-523-456	U	<	33.0	ug/kg	1.00	33	05/02/05	04/13/05	04/19/05
~~W050001195~~	~~B1C7D4~~	~~GRP~~	~~TRENT~~	~~75-35-4~~	~~1,1-Dichloroethene~~	~~SOIL~~	~~LA-523-455~~	~~U~~	~~<~~	~~2.10~~	~~ug/kg~~	~~1.00~~	~~2.1~~	~~04/26/05~~	~~04/13/05~~	~~04/19/05~~
W050001195	B1C7D4	GRP	TRENT	79-01-6	Trichloroethene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	71-43-2	Benzene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	108-88-3	Toluene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	108-90-7	Chlorobenzene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	75-34-3	1,1-Dichloroethane	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	100-41-4	Ethylbenzene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	100-42-5	Styrene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	10061-01-5	cis-1,3-Dichloropropene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	10061-02-6	trans-1,3-Dichloropropene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	107-06-2	1,2-Dichloroethane	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	108-10-1	4-Methyl-2-Pentanone	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	124-48-1	Dibromochloromethane	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	127-18-4	Tetrachloroethene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	1330-20-7	Xylenes (total)	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	540-59-0	1,2-Dichloroethene(Total)	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05

MDL = Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorganic) U - Analyzed for but not detected above limiting criteria.
RQ = Result Qualifier

DF = Dilution Factor
* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 1.1
Groundwater Remediation Program

U 20/05

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F04-015: F04-015

Group #: WSCF20050854

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W050001195	B1C7D4	GRP	TRENT	56-23-5	Carbon tetrachloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	591-78-6	2-Hexanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	67-64-1	Acetone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/18/05
W050001195	B1C7D4	GRP	TRENT	67-66-3	Chloroform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	71-55-6	1,1,1-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	74-83-9	Bromomethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/18/05
W050001195	B1C7D4	GRP	TRENT	74-87-3	Chloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	75-00-3	Chloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	75-01-4	Vinyl chloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	75-09-2	Methylenechloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	75-15-0	Carbon disulfide	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	75-25-2	Bromoform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	75-27-4	Bromodichloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	78-87-5	1,2-Dichloropropane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	78-93-3	2-Butanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	79-00-5	1,1,2-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	79-34-5	1,1,2,2-Tetrachloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	71-36-3	1-Butanol	SOIL	LA-523-455	U	< 41.0	ug/kg	1.00	41	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	156-60-5	trans-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	156-59-2	cis-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	TPHDIESEL	Total Pet. Hydrocarbons Diesel	SOIL	NWTPH		1.20e+05	ug/kg	1.00	3.9e+03	04/27/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	TPHKEROSENE	Kerosene	SOIL	NWTPH		1.00e+05	ug/kg	1.00	3.9e+03	04/27/05	04/13/05	04/19/05

K 6/20/05

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* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

K 6/20/05

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Sample Delivery Group	**WSCF20050854**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F04-015**
Data Deliverable	**Summary Report**

Introduction

Three (3) 200-MW-1 Characterization Sampling and Analysis – Soil/216-E-4, (9' – 10'), samples (B1C7D2, B1C7D3, and B1C7D4) were received at the WSCF Laboratory on April 19 , 2005. The samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 1) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 2) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information. Copies of the chain of custody and sample receipt are included as Attachment 3.

Analytical Methodology for Requested Analyses

Inorganic

- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- Cyanide by EPA Method 335.2. Analytical work was performed with no deviations to the approved method.
- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- Percent Solids by EPA Method 160.3. Analytical work was performed with no deviations to the approved method.
- pH by EPA Method 150.1. Analytical work was performed with no deviations to the approved method.

Organic

- PCB by EPA Method 8082. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270C. Analytical work was performed with no deviations to the approved method.

- TPH Diesel/Gas Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.

- VOA by EPA Method 8260B. Analytical work was performed with no deviations to the approved method.

Inorganic Comments

Anions - The hold times for Nitrite and Nitrate analyses were not met. A Blank, Laboratory Control Sample, Duplicate, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See pages 10 through 11 for QC details. Analytical Notes:

- Preparation Date: 25-apr-2005.

- Nitrate – Sample B1C7D3 result was B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.

- Sulfate – Sample (B1C7D3 and B1C7D4) results were B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.

All QC controls are within the established limits.

Cyanide - The hold time for this analysis was met. A Blank, Preparation Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See page 12 for QC details.

All QC controls are within the established limits.

ICP-MS Metals – The hold time for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See pages 13 through 14 for QC details. Analytical Notes:

- Preparation Date: 26-apr-2005.

- Copper – Matrix Spike Duplicate was below laboratory established limits. Since all of the other QC results were within laboratory limits, the sample results were not flagged.

- Silver – The Laboratory Control Sample recovery was below established laboratory limits, but was within manufacturer's limits.

- Sample B1C7D4 was received with study seal broken.

All other QC controls are within the established limits.

Percent Solids – Analyzed for organic results correction.

pH – The hold time for this analysis was met. All internal laboratory controls were within established limits. See page 15 for QC details.

Organic Comments

- Sample results were moisture corrected and reported on a dry-weight basis.

PCB – The hold time for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page 22 for QC details. Analytical Notes:

- Preparation Date: 20-apr-2005.
- PCB – Non-detect sample results (B1C7D2 and B1C7D4) exceeded required RDLs.

All other QC controls are within the established limits.

Semi-VOA – The hold time for this analysis was not met. Both samples had to be re-extracted on May 2, 2005 after holding time had expired due to problems in the sample preparation. Both sets of extractions (April 21 and May 2) had no target compounds of interest found in the either sample (B1C7D2 or B1C7D4). A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See pages 23 through 26 for QC details. Analytical Notes:

- Preparation Date: 02-may-2005.
- Pentachlorophenol-d5 – The Laboratory Control Sample recovery was slightly below established laboratory limits.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spike Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See page 32 for QC details. Analytical Note:

- Preparation Date: 21-apr-2005.

All QC controls are within the established limits.

TPHG-WA - The hold time for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spike Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See page 31 for QC details. Analytical Note:

- Preparation Date: 27-apr-2005.

All QC controls are within the established limits.

VOA – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter

of Instruction. See pages 27 through 30 for QC details. All QC controls are within the established limits.

This Summary Report is in compliance with the SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the WSCF Laboratory Analytical Manager and Client Services, as verified by the following signature.

Pauline D. Mix
WSCF Client Services

Abbreviations

Hg – mercury
IC – ion chromatography
ICP – inductively coupled plasma
ICP/AES – ICP/atomic emission spectroscopy
ICP/MS – ICP/mass spectrometry
Total U – total uranium
AT/TB – total alpha/total beta
AEA – Alpha Energy Analysis
WTPH-G – Total Hydrocarbons-Gasoline
Am – americium
Cm - curium
Pu – plutonium
Np – neptunium
GEA – gamma energy analysis
H3 – Tritium
Sr – Strontium 89, 90
WTPH-D – Total Hydrocarbons-Diesel
TSS – Total Suspended Solids

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F04-015-157	PAGE 1 OF 2

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~~		
SAMPLING LOCATION: 200-E-4; 9-10 ft	PROJECT DESIGNATION: 200-MW-1 Characterization Sampling and Analysis - Soil	SAF NO.: F04-015	AIR QUALITY ☐
ICE CHEST NO.	FIELD LOGBOOK NO.	COA: 119144E510	METHOD OF SHIPMENT: Government Vehicle
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

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

SPECIAL HANDLING AND/OR STORAGE: Radioactive Tie To: B1C7C8

20050854

PRESERVATION	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	NONE			
TYPE OF CONTAINER	aG	aG	aG	aGr*	aG	P	AG	AP		
NO. OF CONTAINER(S)	1	1	1	2	1	1	1			
VOLUME	250mL	120mL	250mL	40mL	120mL	500mL	120mL			
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	PCBs - 8082	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS	SEE ITEM 6 IN SPEC. INST.			

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1C7D2 W05WC192	SOIL	4/13/05	1005	X	X	X	X	X					
B1C7C4	SOIL	4-12-05	1005	4-19-05						X			

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
JSPARE / ASHER	4-13-05 1400	MW-026 / REF #1	4-13-05 1400
MW-026 / REF #1	4-19-05 0800	JSPARE / ASHER	4-19-05 0800
JSPARE / ASHER	4-19-05 0945	[illegible]	4/19/05 0945

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

RUN Gamma Spectroscopy ON ICP/MS Bottle

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

A-6003-618(03/03)

000021

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F04-015-157	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE BN AIR QUALITY ☐	DATA TURNAROUND 45 Days
SAMPLING LOCATION 200-E-4; 9-10 ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015		
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 119144ES10	METHOD OF SHIPMENT Government Vehicle		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS PMG 2/11/05

** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis.
(1)IC Anions - 300.0 {Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate} Total Cyanide - 9010; pH (Soil) - 9045;
(2)ICP/MS - 200.8 (TAL) {Cadmium, Chromium, Copper, Silver} ICP/MS - 200.8 (Add-on) {Lead, Uranium} PMG 2/11/05
(3)VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, 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) Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr;~~ 4-19-05
~~(6) Activity Scan - 24 hr turnaround~~ RG 4.19-05

A-6003-618(03/03)

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F04-015-163	PAGE 1 OF 2
COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE BN	DATA TURNAROUND
SAMPLING LOCATION 200-E-4; 14-15 ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015	AIR QUALITY ☐	45 Days ~~45 Days~~ 18 4-19-05
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 119144E510	METHOD OF SHIPMENT Government Vehicle		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

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

SPECIAL HANDLING AND/OR STORAGE: Radioactive Tie To: B1C7C9

PRESERVATION	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None
TYPE OF CONTAINER	aG	aG	aG	aG*	aG	P
NO. OF CONTAINER(S)	1	1	1	~~3~~ 2 4-19-05	1	1
VOLUME	250mL	120mL	250mL	40mL	120mL	500mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME						
B1C7D4 W0J5003199	SOIL	4-13-05	1055	X	X	X	X	X	

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
JSPike/JSPike 4-13-05	1400	MW-026/Ref. #1 4-13-05	1400
MW-026/Ref. #1 4-19-05	0600	9-44/JSPike 4-19-05	0600
JSPike/JSPike 4-19-05	0945	[illegible] 4/19/05	0945
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

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

RUN GAMMA SPECTROSCOPY ON ICP/MS BOTTLE

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

A-6003-618(03/03)

000023

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F04-015-163	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N AIR QUALITY ☐	DATA TURNAROUND 45 Days
SAMPLING LOCATION 200-E-4; 14-15 ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015		
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 119144ES10	METHOD OF SHIPMENT Government Vehicle		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS PMG 2/11/05

** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis.
(1)IC Anions - 300.0 ~~(Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite,~~ Phosphorous in phosphate, Sulfate} Total Cyanide - 9010; pH (Soil) - 9045;
(2)ICP/MS - 200.8 (TAL) (Cadmium, Chromium, Copper, Silver} ICP/MS - 200.8 (Add-on) {Lead, Uranium} PMG 2/11/05
(3)VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, 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} Isotopic Plutonium, Isotopic Uranium, Americium-241, Strontium-89,90~~ -- Total Sr; ASM 4-19-05

A-6003-618(03/03)

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: S0854		
VALIDATOR:		LAB: WSCF		DATE: 6/16/05	
			SDG: S0854		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270	8015B	SW-846 8270 (TCLP)
SAMPLES/MATRIX					
B1C7D2		B1C7D4			
					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: 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: LCS – pentachlorophenol 62% – J

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

7. HOLDING TIMES (all levels)

Samples properly preserved? ..... Yes No N/A
Sample holding times acceptable? ..... Yes No N/A
Comments: all SV <2X 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:

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:

Appendix 6

Additional Documentation Requested by Client

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F04-015
Sample Date: 04/13/05
Receive Date:04/19/05

Lab ID: W050001192
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	1,2,4-Trichlorobenzene	120-82-1	1210.1	87.000	% Recov	05/02/05	46.000	107.000	
MS	1,4-Dichlorobenzene	106-46-7	1189.3	85.500	% Recov	05/02/05	30.000	96.000	
MS	2,4-Dinitrotoluene	121-14-2	1251.4	89.900	% Recov	05/02/05	59.000	106.000	
MS	2-Fluorophenol	367-12-4	1218.6	87.600	% Recov	05/02/05	42.000	105.000	
MS	Acenaphthene	83-32-9	1162.2	83.500	% Recov	05/02/05	61.000	116.000	
MS	4-Chloro-3-methylphenol	59-50-7	2036.7	97.600	% Recov	05/02/05	61.000	106.000	
MS	2-Chlorophenol	95-57-8	1725.4	82.700	% Recov	05/02/05	66.000	106.000	
MS	N-Nitrosodi-n-dipropylamine	621-64-7	1221.9	87.800	% Recov	05/02/05	71.000	114.000	
MS	2-Fluorobiphenyl	321-60-8	1275.7	91.700	% Recov	05/02/05	56.000	122.000	
MS	Phenol	108-95-2	1816.6	87.000	% Recov	05/02/05	42.000	111.000	
MS	Nitrobenzene-d5	4165-60-0	1185.6	85.200	% Recov	05/02/05	64.000	111.000	
MS	4-Nitrophenol	100-02-7	1957.7	93.800	% Recov	05/02/05	32.000	118.000	
MS	Pentachlorophenol	87-86-5	1759.6	84.300	% Recov	05/02/05	62.000	114.000	
MS	Phenol-d5	4165-62-2	1172.8	84.300	% Recov	05/02/05	54.000	120.000	
MS	Pyrene	129-00-0	1024.0	73.600	% Recov	05/02/05	66.000	118.000	
MS	2,4,6-Tribromophenol	118-79-6	1388.5	99.800	% Recov	05/02/05	24.000	122.000	
MS	Terphenyl-d14 (7Cl)	98904-43-9	986.16	70.900	% Recov	05/02/05	35.000	150.000	
MSD	1,2,4-Trichlorobenzene	120-82-1	1199.2	86.300	% Recov	05/02/05	46.000	107.000	
MSD	1,4-Dichlorobenzene	106-46-7	1181.2	85.000	% Recov	05/02/05	30.000	96.000	
MSD	2,4-Dinitrotoluene	121-14-2	1266.8	91.200	% Recov	05/02/05	59.000	106.000	
MSD	2-Fluorophenol	367-12-4	1201.4	86.500	% Recov	05/02/05	42.000	105.000	
MSD	Acenaphthene	83-32-9	1167.7	84.100	% Recov	05/02/05	61.000	116.000	
MSD	4-Chloro-3-methylphenol	59-50-7	1979.2	95.000	% Recov	05/02/05	61.000	106.000	
MSD	2-Chlorophenol	95-57-8	1713.7	82.300	% Recov	05/02/05	66.000	106.000	
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	1171.2	84.300	% Recov	05/02/05	71.000	114.000	
MSD	2-Fluorobiphenyl	321-60-8	1283.3	92.400	% Recov	05/02/05	56.000	122.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F04-015
Sample Date: 04/13/05
Receive Date:04/19/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	Phenol	108-95-2	1795.6	86.200	% Recov	05/02/05	42.000	111.000	
MSD	Nitrobenzene-d5	4165-60-0	1181.2	83.600	% Recov	05/02/05	64.000	111.000	
MSD	4-Nitrophenol	100-02-7	1949.5	93.800	% Recov	05/02/05	32.000	118.000	
MSD	Pentachlorophenol	87-86-5	1697.7	81.500	% Recov	05/02/05	62.000	114.000	
MSD	Phenol-d5	4165-62-2	1153.1	83.000	% Recov	05/02/05	54.000	120.000	
MSD	Pyrene	129-00-0	1003.4	72.200	% Recov	05/02/05	66.000	118.000	
MSD	2,4,6-Tribromophenol	118-79-6	1411.6	102.000	% Recov	05/02/05	24.000	122.000	
MSD	Terphenyl-d14 (7Cl)	98904-43-9	958.65	69.000	% Recov	05/02/05	35.000	150.000	
SPK-RPD	1,2,4-Trichlorobenzene	120-82-1	86.300	0.808	RPD	05/02/05	0.000	20.000	
SPK-RPD	1,4-Dichlorobenzene	106-46-7	85.000	0.587	RPD	05/02/05	0.000	20.000	
SPK-RPD	2,4-Dinitrotoluene	121-14-2	91.200	1.436	RPD	05/02/05	0.000	20.000	
SPK-RPD	2-Fluorophenol	367-12-4	86.500	1.264	RPD	05/02/05	0.000	20.000	
SPK-RPD	Acenaphthene	83-32-9	84.100	0.716	RPD	05/02/05	0.000	20.000	
SPK-RPD	4-Chloro-3-methylphenol	59-50-7	95.000	2.700	RPD	05/02/05	0.000	20.000	
SPK-RPD	2-Chlorophenol	95-57-8	82.300	0.485	RPD	05/02/05	0.000	20.000	
SPK-RPD	N-Nitrosodi-n-dipropylamine	621-64-7	84.300	4.067	RPD	05/02/05	0.000	20.000	
SPK-RPD	2-Fluorobiphenyl	321-60-8	92.400	0.760	RPD	05/02/05	0.000	20.000	
SPK-RPD	Phenol	108-95-2	86.200	0.924	RPD	05/02/05	0.000	20.000	
SPK-RPD	Nitrobenzene-d5	4165-60-0	83.600	1.895	RPD	05/02/05	0.000	20.000	
SPK-RPD	4-Nitrophenol	100-02-7	93.600	0.213	RPD	05/02/05	0.000	20.000	
SPK-RPD	Pentachlorophenol	87-86-5	81.500	3.378	RPD	05/02/05	0.000	20.000	
SPK-RPD	Phenol-d5	4165-62-2	83.000	1.554	RPD	05/02/05	0.000	20.000	
SPK-RPD	Pyrene	129-00-0	72.200	1.920	RPD	05/02/05	0.000	20.000	
SPK-RPD	2,4,6-Tribromophenol	118-79-6	102.000	2.180	RPD	05/02/05	0.000	20.000	
SPK-RPD	Terphenyl-d14 (7Cl)	98904-43-9	69.000	2.716	RPD	05/02/05	0.000	20.000	
SURR	2-Fluorophenol	367-12-4	1210.2	86.900	% Recov	05/02/05	42.000	105.000	
SURR	2-Fluorobiphenyl	321-60-8	1298.4	93.300	% Recov	05/02/05	56.000	122.000	
SURR	Nitrobenzene-d5	4165-60-0	1211.2	86.900	% Recov	05/02/05	64.000	111.000	
SURR	Phenol-d5	4165-62-2	1196.0	85.800	% Recov	05/02/05	54.000	120.000	
SURR	2,4,6-Tribromophenol	118-79-6	1317.3	94.600	% Recov	05/02/05	24.000	122.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F04-015
Sample Date: 04/13/05
Receive Date:04/19/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SURR	Terphenyl-d14 (7Cl)	98904-43-9	989.71	71.000	% Recov	05/02/05	35.000	150.000	

Lab ID: W050001195
BATCH QC ASSOCIATED WITH SAMPLE

SURR	2-Fluorophenol	367-12-4	1179.3	86.200	% Recov	05/02/05	42.000	105.000	
SURR	2-Fluorobiphenyl	321-60-8	1263.0	92.300	% Recov	05/02/05	58.000	122.000	
SURR	Nitrobenzene-d5	4165-60-0	1187.5	86.800	% Recov	05/02/05	64.000	111.000	
SURR	Phenol-d5	4165-62-2	1177.4	86.100	% Recov	05/02/05	54.000	120.000	
SURR	2,4,6-Tribromophenol	118-79-6	1284.5	93.900	% Recov	05/02/05	24.000	122.000	
SURR	Terphenyl-d14 (7Cl)	98904-43-9	973.13	71.100	% Recov	05/02/05	35.000	150.000	

BATCH QC

BLANK	1,2,4-Trichlorobenzene	120-82-1	< 81	n/a	ug/Kg	05/02/05			U
BLANK	1,4-Dichlorobenzene	106-46-7	< 140	n/a	ug/Kg	05/02/05			U
BLANK	2,4-Dinitrotoluene	121-14-2	< 61	n/a	ug/Kg	05/02/05			U
BLANK	2-Fluorophenol	367-12-4	1141.6	85.600	% Recov	05/02/05	42.000	105.000	
BLANK	Acenaphthene	83-32-9	< 54	n/a	ug/Kg	05/02/05			U
BLANK	4-Chloro-3-methylphenol	59-50-7	< 73	n/a	ug/Kg	05/02/05			U
BLANK	2-Chlorophenol	95-57-8	< 120	n/a	ug/Kg	05/02/05			U
BLANK	N-Nitrosodi-n-dipropylamine	621-64-7	< 71	n/a	ug/Kg	05/02/05			U
BLANK	2-Fluorobiphenyl	321-60-8	1232.3	92.400	% Recov	05/02/05	58.000	122.000	
BLANK	Phenol	108-95-2	< 85	n/a	ug/Kg	05/02/05			U
BLANK	Nitrobenzene-d5	4165-60-0	1182.1	88.700	% Recov	05/02/05	64.000	111.000	
BLANK	4-Nitrophenol	100-02-7	< 150	n/a	ug/Kg	05/02/05			U
BLANK	Pentachlorophenol	87-86-5	< 72	n/a	ug/Kg	05/02/05			U
BLANK	Phenol-d5	4165-62-2	1155.3	86.600	% Recov	05/02/05	54.000	120.000	
BLANK	Pyrene	129-00-0	< 49	n/a	ug/Kg	05/02/05			U
BLANK	Tributyl phosphate	126-73-8	< 32	n/a	ug/Kg	05/02/05			U
BLANK	2,4,6-Tribromophenol	118-79-6	981.08	73.600	% Recov	05/02/05	24.000	122.000	
BLANK	Terphenyl-d14 (7Cl)	98904-43-9	1047.0	78.500	% Recov	05/02/05	35.000	150.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F04-015
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	1,2,4-Trichlorobenzene	120-82-1	1039.2	77.900	% Recov	05/02/05	46.000	107.000	
LCS	1,4-Dichlorobenzene	106-46-7	901.46	67.600	% Recov	05/02/05	42.000	111.000	
LCS	2,4-Dinitrotoluene	121-14-2	873.15	65.500	% Recov	05/02/05	59.000	106.000	
LCS	2-Fluorophenol	367-12-4	1084.4	81.300	% Recov	05/02/05	50.000	110.000	
LCS	Acenaphthene	83-32-9	1023.2	76.700	% Recov	05/02/05	61.000	116.000	
LCS	4-Chloro-3-methylphenol	59-50-7	1434.9	71.700	% Recov	05/02/05	61.000	106.000	
LCS	2-Chlorophenol	95-57-8	1494.6	74.700	% Recov	05/02/05	66.000	106.000	
LCS	N-Nitrosodi-n-dipropylamine	621-64-7	1012.2	75.900	% Recov	05/02/05	71.000	114.000	
LCS	2-Fluorobiphenyl	321-60-8	1080.0	81.000	% Recov	05/02/05	58.000	109.000	
LCS	Phenol	108-95-2	1490.6	74.500	% Recov	05/02/05	67.000	105.000	
LCS	Nitrobenzene-d5	4165-60-0	1048.2	78.600	% Recov	05/02/05	60.000	118.000	
LCS	4-Nitrophenol	100-02-7	1005.2	50.300	% Recov	05/02/05	32.000	118.000	
LCS	Pentachlorophenol	87-86-5	1206.7	60.300	% Recov	05/02/05	62.000	114.000	
LCS	Phenol-d5	4165-62-2	991.29	74.300	% Recov	05/02/05	59.000	116.000	
LCS	Pyrene	129-00-0	894.89	67.100	% Recov	05/02/05	66.000	118.000	
LCS	2,4,6-Tribromophenol	118-79-6	938.57	70.200	% Recov	05/02/05	60.000	120.000	
LCS	Terphenyl-d14 (7Cl)	98904-43-9	931.98	69.900	% Recov	05/02/05	60.000	120.000	

000034

SDG Number: WSCF20050854
Matrix: SOLID
Test: NWTPH-GX TPH Gasoline Range

QC Type	Analyte	CAS #	Q
Lab ID: W050001192			
BATCH QC ASSOCIATED WITH SAMPLE			
DUP	Total Pet. Hydrocarbons Gas	TPHGASOLINE	<:
MS	Total Pet. Hydrocarbons Gas	TPHGASOLINE	36
MSD	Total Pet. Hydrocarbons Gas	TPHGASOLINE	38
SPK-RPD	Total Pet. Hydrocarbons Gas	TPHGASOLINE	10
BATCH QC			
BLANK	Total Pet. Hydrocarbons Gas	TPHGASOLINE	<2
LCS	Total Pet. Hydrocarbons Gas	TPHGASOLINE	78(

000035

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: NWTPH-GX TPH Gasoline Range

SAF Number: F04-015
Sample Date: 04/13/05
Receive Date:04/19/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050001192									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Total Pet. Hydrocarbons Gas	TPHGASOLINE	<250	n/a	RPD	04/27/05	0.000	20.000	U
MS	Total Pet. Hydrocarbons Gas	TPHGASOLINE	3600	100.000	% Recov	04/27/05	50.000	150.000	
MSD	Total Pet. Hydrocarbons Gas	TPHGASOLINE	3800	105.556	% Recov	04/27/05	50.000	150.000	
SPK-RPD	Total Pet. Hydrocarbons Gas	TPHGASOLINE	105.556	5.408	RPD	04/27/05	0.000	20.000	
BATCH QC									
BLANK	Total Pet. Hydrocarbons Gas	TPHGASOLINE	<250	n/a	mg/L	04/27/05	0.000	300.000	U
LCS	Total Pet. Hydrocarbons Gas	TPHGASOLINE	7800	113.043	% Recov	04/27/05	85.000	115.000	

000035

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: WTPH-D TPH Diesel Range (Wa)

SAF Number: F04-015
Sample Date: 04/13/05
Receive Date:04/19/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050001192									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	ortho-Terphenyl Surr	84-15-1	25756	98.800	% Recov	04/28/05	70.000	130.000	
MS	Total Pet. Hydrocarbons Diesel	TPHDIESEL	128750	98.800	% Recov	04/28/05	75.000	125.000	
MSD	ortho-Terphenyl Surr	84-15-1	27143	96.000	% Recov	04/27/05	70.000	130.000	
MSD	Total Pet. Hydrocarbons Diesel	TPHDIESEL	128270	90.700	% Recov	04/27/05	75.000	125.000	
SPK-RPD	ortho-Terphenyl Surr	84-15-1	96.000	2.875	RPD	04/27/05	0.000	20.000	
SPK-RPD	Total Pet. Hydrocarbons Diesel	TPHDIESEL	90.700	8.549	RPD	04/27/05	0.000	20.000	
SURR	ortho-Terphenyl Surr	84-15-1	23118	88.800	% Recov	04/27/05	70.000	130.000	
Lab ID: W050001195									
BATCH QC ASSOCIATED WITH SAMPLE									
SURR	ortho-Terphenyl Surr	84-15-1	25024	95.900	% Recov	04/27/05	70.000	130.000	
BATCH QC									
BLANK	Kerosene	TPHKEROSENE	< 3800	n/a	ug/Kg	04/27/05			U
BLANK	ortho-Terphenyl Surr	84-15-1	23393	93.600	% Recov	04/27/05	70.000	130.000	
BLANK	Total Pet. Hydrocarbons Diesel	TPHDIESEL	< 3800	n/a	ug/Kg	04/27/05			U
LCS	Kerosene	TPHKEROSENE	110800	88.600	% Recov	04/27/05	70.000	130.000	
LCS	ortho-Terphenyl Surr	84-15-1	23115	92.500	% Recov	04/27/05	70.000	130.000	

000036

Date: 20 June 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. WSCF20050854 (50854)

INTRODUCTION

This memo presents the results of data validation on Data Package No. 50854 prepared by WSCF Analytical Laboratories (WSCF). 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
B1C7D2	4/13/05	Soil	C	See note 1 *
B1C7D4	4/13/05	Soil	C	See note 1 *

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

AUG 2005
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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 28 days for 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".

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.

- **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.

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

All laboratory duplicate results were acceptable.

Field Duplicate

No field duplicates were submitted for analysis.

- **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 results met the RTQL.

- **Completeness**

Data package No. 50854 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". 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.

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 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).

Appendix 2

Summary of Data Qualification

WET CHEMISTRY DATA QUALIFICATION SUMMARY*

SDG: 50854	REVIEWER: TLI	PROJECT: 200-MW-1	PAGE 1 OF 1
COMMENTS:			
COMPOUND	QUALIFIER	SAMPLES AFFECTED	REASON
pH	J	All	Holding time

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

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

GENERAL CHEMISTRY ANALYSIS, SOILMATRIX, (MG/KG)

Project: FLUOR-HANFORD									
Laboratory: WSCF									
Case	SDG: WSCF20050864								
Sample Number		B1C7D2		B1C7D4					
Remarks									
Sample Date		4/13/05		4/13/05					
General Chemistry	RTQL	Result	Q	Result	Q	Result	Q	Result	Q
Sulfate	5	17.2		14.2					
Cyanide	0.5	<0.200	U	<0.200	U				
pH**		7.81	J	8.69	J				

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.

000010

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F04-015: F04-015

Group #: WSCF20050854

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Inorganic															
W050001192	B1C7D2	GRP	TRENT	57-12-5	Cyanide	SOIL	LA-695-402	U	< 0.200	mg/kg	1.00	0.20	04/25/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	TS	Total solids	SOIL	LA-519-412		95.5	%	1.00	0.0	04/25/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	PH	pH Measurement	SOIL	LA-212-411	J	7.81	pH	1.00	0.010	04/20/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	NO2-N	Nitrogen in Nitrite *	SOIL	LA-533-410	U	< 0.950	mg/kg	50.00	0.95	04/25/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	NO3-N	Nitrogen in Nitrate *	SOIL	LA-533-410	B	1.64	mg/kg	50.00	0.65	04/25/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	PO4-P	Phosphate (P) by IC	SOIL	LA-533-410	U	< 2.70	mg/kg	50.00	2.7	04/25/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	14808-79-8	Sulfate	SOIL	LA-533-410	B	17.2	mg/kg	50.00	5.0	04/25/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	7440-22-4	Silver	SOIL	LA-505-412		1.36	mg/kg	0.99	0.099	04/27/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	7440-43-9	Cadmium	SOIL	LA-505-412		0.688	mg/kg	0.99	0.099	04/27/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	7440-47-3	Chromium	SOIL	LA-505-412		7.26	mg/kg	0.99	4.0	04/27/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	7440-50-8	Copper	SOIL	LA-505-412		621	mg/kg	9.87	4.9	04/27/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	7439-92-1	Lead	SOIL	LA-505-412		6.95	mg/kg	0.99	0.20	04/27/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	7440-61-1	Uranium	SOIL	LA-505-412		0.828	mg/kg	0.99	0.099	04/27/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	TS	Total solids	SOIL	LA-519-412		95.4	%	1.00	0.0	04/28/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	57-12-5	Cyanide	SOIL	LA-695-402	U	< 0.200	mg/kg	1.00	0.20	04/25/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	TS	Total solids	SOIL	LA-519-412		98.9	%	1.00	0.0	04/25/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	PH	pH Measurement	SOIL	LA-212-411	J	8.69	pH	1.00	0.010	04/20/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	PO4-P	Phosphate (P) by IC	SOIL	LA-533-410	U	< 2.7	mg/kg	50.00	2.7	04/25/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	14808-79-8	Sulfate	SOIL	LA-533-410	B	14.2	mg/kg	50.00	5.0	04/25/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	7440-22-4	Silver	SOIL	LA-505-412		0.418	mg/kg	1.00	0.10	04/27/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	7440-43-9	Cadmium	SOIL	LA-505-412		0.303	mg/kg	1.00	0.10	04/27/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	7440-47-3	Chromium	SOIL	LA-505-412		4.71	mg/kg	1.00	4.0	04/27/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	7440-50-8	Copper	SOIL	LA-505-412		23.5	mg/kg	1.00	2.0	04/27/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	7439-92-1	Lead	SOIL	LA-505-412		3.58	mg/kg	1.00	0.20	04/27/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	7440-61-1	Uranium	SOIL	LA-505-412		0.530	mg/kg	1.00	0.10	04/27/05	04/13/05	04/19/05

MDL = Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorganic) U - Analyzed for but not detected above limiting criteria.
RQ = Result Qualifier

DF = Dilution Factor
* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

6/20/05

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Sample Delivery Group	**WSCF20050854**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F04-015**
Data Deliverable	**Summary Report**

Introduction

Three (3) 200-MW-1 Characterization Sampling and Analysis – Soil/216-E-4, (9' – 10'), samples (B1C7D2, B1C7D3, and B1C7D4) were received at the WSCF Laboratory on April 19 , 2005. The samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 1) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 2) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information. Copies of the chain of custody and sample receipt are included as Attachment 3.

Analytical Methodology for Requested Analyses

Inorganic

- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- Cyanide by EPA Method 335.2. Analytical work was performed with no deviations to the approved method.
- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- Percent Solids by EPA Method 160.3. Analytical work was performed with no deviations to the approved method.
- pH by EPA Method 150.1. Analytical work was performed with no deviations to the approved method.

Organic

- PCB by EPA Method 8082. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270C. Analytical work was performed with no deviations to the approved method.

- TPH Diesel/Gas Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.

- VOA by EPA Method 8260B. Analytical work was performed with no deviations to the approved method.

Inorganic Comments

Anions - The hold times for Nitrite and Nitrate analyses were not met. A Blank, Laboratory Control Sample, Duplicate, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See pages 10 through 11 for QC details. Analytical Notes:

- Preparation Date: 25-apr-2005.

- Nitrate – Sample B1C7D3 result was B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.

- Sulfate – Sample (B1C7D3 and B1C7D4) results were B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.

All QC controls are within the established limits.

Cyanide - The hold time for this analysis was met. A Blank, Preparation Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See page 12 for QC details.

All QC controls are within the established limits.

ICP-MS Metals – The hold time for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See pages 13 through 14 for QC details. Analytical Notes:

- Preparation Date: 26-apr-2005.

- Copper – Matrix Spike Duplicate was below laboratory established limits. Since all of the other QC results were within laboratory limits, the sample results were not flagged.

- Silver – The Laboratory Control Sample recovery was below established laboratory limits, but was within manufacturer's limits.

- Sample B1C7D4 was received with study seal broken.

All other QC controls are within the established limits.

Percent Solids – Analyzed for organic results correction.

pH – The hold time for this analysis was met. All internal laboratory controls were within established limits. See page 15 for QC details.

Organic Comments

- Sample results were moisture corrected and reported on a dry-weight basis.

PCB – The hold time for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page 22 for QC details. Analytical Notes:

- Preparation Date: 20-apr-2005.
- PCB – Non-detect sample results (B1C7D2 and B1C7D4) exceeded required RDLs.

All other QC controls are within the established limits.

Semi-VOA – The hold time for this analysis was not met. Both samples had to be re-extracted on May 2, 2005 after holding time had expired due to problems in the sample preparation. Both sets of extractions (April 21 and May 2) had no target compounds of interest found in the either sample (B1C7D2 or B1C7D4). A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See pages 23 through 26 for QC details. Analytical Notes:

- Preparation Date: 02-may-2005.
- Pentachlorophenol-d5 – The Laboratory Control Sample recovery was slightly below established laboratory limits.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spike Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See page 32 for QC details. Analytical Note:

- Preparation Date: 21-apr-2005.

All QC controls are within the established limits.

TPHG-WA - The hold time for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spike Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See page 31 for QC details. Analytical Note:

- Preparation Date: 27-apr-2005.

All QC controls are within the established limits.

VOA – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter

of Instruction. See pages 27 through 30 for QC details. All QC controls are within the established limits.

This Summary Report is in compliance with the SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the WSCF Laboratory Analytical Manager and Client Services, as verified by the following signature.

Pauline D. Mix
WSCF Client Services

Abbreviations

Hg – mercury
IC – ion chromatography
ICP – inductively coupled plasma
ICP/AES – ICP/atomic emission spectroscopy
ICP/MS – ICP/mass spectrometry
Total U – total uranium
AT/TB – total alpha/total beta
AEA – Alpha Energy Analysis
WTPH-G – Total Hydrocarbons-Gasoline
Am – americium
Cm - curium
Pu – plutonium
Np – neptunium
GEA – gamma energy analysis
H3 – Tritium
Sr – Strontium 89, 90
WTPH-D – Total Hydrocarbons-Diesel
TSS – Total Suspended Solids

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 5/9/05	F04-015-157	PAGE 1 OF 2

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~~	AIR QUALITY: ☐	
SAMPLING LOCATION: 200-E-4; 9-10 ft	PROJECT DESIGNATION: 200-MW-1 Characterization Sampling and Analysis - Soil	SAF NO.: F04-015	
ICE CHEST NO.	FIELD LOGBOOK NO.	COA: 119144ES10	METHOD OF SHIPMENT: Government Vehicle
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A		BILL OF LADING/AIR BILL NO.: N/A

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

SPECIAL HANDLING AND/OR STORAGE: Radioactive Tie To: B1C7C8

20050854

PRESERVATION	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	NONE			
TYPE OF CONTAINER	aG	aG	aG	aGs*	aG	P	AG / P			
NO. OF CONTAINER(S)	1	1	1	~~1~~ 2	1	1	1	1		
VOLUME	250mL	120mL	250mL	40mL	120mL	500mL	120mL			
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS	See Item 6 IN Spec. Inst.			

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME									
B1C7D2 N05000192	SOIL	4/13/05	1005	X	X	X	X	X				
~~B1C7C8~~	~~SOIL~~	~~4-13-05~~	~~1005~~ 4-19-05							X		

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
JSPOPE / ASMr	4-13-05 1400	MW-62L / REF. #1	4-13-05 1400
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
MW-126 / REF. #1	4-19-05 0660	JSPOPE / ASMr	4-19-05 0600
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
JSPOPE / ASMr	4-19-05 0945	[illegible]	04/19/05 0945
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

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

RUN Gamma Spectroscopy ON ICP/MS Bottle

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

A-6003-618(03/03)

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F04-015-157	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE BN	DATA TURNAROUND
SAMPLING LOCATION 200-E-4; 9-10 ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015	AIR QUALITY ☐	45 Days
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 119144ES10	METHOD OF SHIPMENT Government Vehicle		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS — PMG 2/11/05

** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis.
(1)IC Anions - 300.0 ~~(Fluoride,~~ Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate) Total Cyanide - 9010; pH (Soil) - 9045;
(2)ICP/MS - 200.8 (TAL) (Cadmium, Chromium, Copper, Silver) ICP/MS - 200.8 (Add-on) (Lead, Uranium) — PMG 2/11/05
(3)VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, 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) Isotopic Plutonium, Isotopic Uranium; Americium-241, Strontium-89,90 – Total Sr;~~ 4-19-05
~~(6) Activity Scan - 24 hr turnaround~~ RP 4-19-05

A-6003-618(03/03)

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F04-015-163	PAGE 1 OF 2
COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE BN AIR QUALITY ☐	DATA TURNAROUND 45 Days ~~45 Days~~
SAMPLING LOCATION 200-E-4; 14-15 ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015		
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 119144ES10	METHOD OF SHIPMENT Government Vehicle		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

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

SPECIAL HANDLING AND/OR STORAGE: Radioactive Tie To: B1C7C9

PRESERVATION	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None					
TYPE OF CONTAINER	aG	aG	aG	aGs*	aG	P					
NO. OF CONTAINER(S)	1	1	1	~~2~~ 1 4-13-05	1	1					
VOLUME	250mL	120mL	250mL	40mL	120mL	500mL					
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS					

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1C7D4 (WUS003 1195)	SOIL	4-13-05	1055	X	X	X	X	X					

CHAIN OF POSSESSION / SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
JSMoore/ASfar	4-13-05 1400	MW-026/Ref. #1	4-13-05 1400
MW-026/Ref. #1	4-19-05 0600	JSMoore/ASfar	4-19-05 0600
JSMoore/ASfar	4-19-05 0945	[illegible signature]	4/19/05 0945

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

RUN GAMMA SPECTROSCOPY ON ICP/MS BOTTLE

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

A-6003-618(03/03)

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F04-015-163	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N	DATA TURNAROUND
SAMPLING LOCATION 200-E-4; 14-15 ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015	AIR QUALITY ☐	45 Days
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 119144ES10	METHOD OF SHIPMENT Government Vehicle		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS PMG 2/11/05

** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis.

(1)IC Anions - 300.0 {~~Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite,~~ Phosphorous in phosphate, Sulfate} Total Cyanide - 9010; pH (Soil) - 9045;

(2)ICP/MS - 200.8 (TAL) {Cadmium, Chromium, Copper, Silver} ICP/MS - 200.8 (Add-on) {Lead, Uranium} PMG 2/11/05

(3)VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, 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} Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr;~~ ASP 4-19-05

A-6003-618(03/03)

Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 200-MW-1			DATA PACKAGE: S0854		
VALIDATOR: TLI		LAB: WSCF		DATE: 6/16/05	
			SDG: S0854		

ANALYSES PERFORMED

Anions/IC	TOC	TOX	TPH-418.1	Oil and Grease	Alkalinity
Ammonia	BOD/COD	Chloride	Chromium-VI	pH	NO_3/NO_2
Sulfate	TDS	TKN	Phosphate	Cyanide	

SAMPLES/MATRIX
B1C7D2 BK7D4
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
Sike standards NIST traceable? (Levels D, E) ..... Yes No N/A
Spike standards expired? (Levels D, E) ..... Yes No N/A
LCS/BSS samples analyzed? ..... Yes No N/A
LCS/BSS results acceptable? ..... Yes No N/A
Standards traceable? (Levels D, E) ..... Yes No N/A
Standards expired? (Levels D, E) ..... Yes No N/A
Transcription/calculation errors? (Levels D, E) ..... Yes No N/A
Performance audit sample(s) analyzed? ..... Yes No N/A
Performance audit sample results acceptable? ..... Yes No N/A
Comments:

NO PAS

GENERAL CHEMISTRY ANALYSIS DATA VALIDATION CHECKLIST

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

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

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

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

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

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

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

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

Comments:

6. HOLDING TIMES (all levels)

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

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

Comments: pH ~~[illegible]~~ J all
>24

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:

Appendix 6

Additional Documentation Requested by Client

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: Anions by Ion Chromatography

SAF Number: F04-015
Sample Date: 04/13/05
Receive Date:04/19/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050001192									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Nitrogen in Nitrite	NO2-N	<9.50e-1	n/a	RPD	04/25/05	0.000	20.000	U
DUP	Nitrogen in Nitrate	NO3-N	1.72e+00	4.762	RPD	04/25/05	0.000	20.000	
DUP	Phosphate (P) by IC	PO4-P	<2.70e0	n/a	RPD	04/25/05	0.000	20.000	U
DUP	Sulfate	14808-79-8	1.52e+01	12.348	RPD	04/25/05	0.000	20.000	
MS	Nitrogen in Nitrite	NO2-N	4.77e-01	95.400	% Recov	04/25/05	75.000	125.000	
MS	Nitrogen in Nitrate	NO3-N	4.39e-01	97.339	% Recov	04/25/05	75.000	125.000	
MS	Phosphate (P) by IC	PO4-P	8.06e-01	83.179	% Recov	04/25/05	75.000	125.000	
MS	Sulfate	14808-79-8	1.87e+00	93.500	% Recov	04/25/05	75.000	125.000	
MSD	Nitrogen in Nitrite	NO2-N	4.93e-01	88.600	% Recov	04/25/05	75.000	125.000	
MSD	Nitrogen in Nitrate	NO3-N	4.43e-01	98.226	% Recov	04/25/05	75.000	125.000	
MSD	Phosphate (P) by IC	PO4-P	7.56e-01	78.019	% Recov	04/25/05	75.000	125.000	
MSD	Sulfate	14808-79-8	1.97e+00	98.500	% Recov	04/25/05	75.000	125.000	
BATCH QC									
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	04/25/05	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	04/25/05	0.000	300.000	U
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	04/25/05	0.000	300.000	U
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	04/25/05	0.000	300.000	U
BLANK	Phosphate (P) by IC	PO4-P	<5.40e-2	n/a	mg/L	04/25/05	0.000	300.000	U
BLANK	Phosphate (P) by IC	PO4-P	<5.40e-2	n/a	mg/L	04/25/05	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/a	mg/L	04/25/05	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/a	mg/L	04/25/05	0.000	300.000	U
LCS	Nitrogen in Nitrite	NO2-N	9.70e+01	97.000	% Recov	04/25/05	80.000	120.000	
LCS	Nitrogen in Nitrate	NO3-N	8.54e+01	94.053	% Recov	04/25/05	80.000	120.000	
LCS	Phosphate (P) by IC	PO4-P	1.76e+02	90.815	% Recov	04/25/05	80.000	120.000	
LCS	Sulfate	14808-79-8	3.81e+02	95.489	% Recov	04/25/05	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: Cyanide by Midi/Spectrophotom

SAF Number: F04-015
Sample Date: 04/13/05
Receive Date:04/19/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050001192									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Cyanide by Midi/Spectrophotom	57-12-5	93.4	93.400	% Recov	04/25/05	75.000	125.000	
MSD	Cyanide by Midi/Spectrophotom	57-12-5	90.8	90.800	% Recov	04/25/05	75.000	125.000	
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	90.800	2.823	RPD	04/25/05	0.000	20.000	
BATCH QC									
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	1	1.000	ug/L	04/25/05	-4.000	4.000	
BLNK-PREP	Cyanide by Midi/Spectrophotom	57-12-5	1	1.000	ug/L	04/25/05	-4.000	4.000	
LCS	Cyanide by Midi/Spectrophotom	57-12-5	97.4	97.400	% Recov	04/25/05	85.000	115.000	

000028

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: pH Soil and Waste Measurement

SAF Number: F04-015
Sample Date: 04/13/05
Receive Date:04/19/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050001192									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	pH Soil and Waste Measurement	PH	7.782	0.334	RPD	04/20/05	0.000	3.000	

000029

Date: 20 June 2005
To: Fluor Hanford Inc. (technical representative)
From: TechLaw, Inc.
Project: 200-MW-1 Characterization Sampling and Analysis - Soil
Subject: PCB - Data Package No.WSCF20050854 (50854)

INTRODUCTION

This memo presents the results of data validation on Data Package No. 50854 prepared by WSCF Analytical Laboratories. (WSCF). 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
B1C7D2	4/13/05	Soil	C	PCBs by 8082
B1C7D4	4/13/05	Soil	C	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
Appendix 6. Additional Documentation Requested by Client

AUG 2005
RECEIVED

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 extracted within 14 days and analyzed within 40 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.

- **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 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 exceeded the analyte specific RTQL. Under the FHI statement of work, no qualification is required.

- **Completeness**

Data Package No. 50854 was submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). The completion percentage was 100%.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

All results 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.

Appendix 1

Glossary of Data Reporting Qualifiers

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

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

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

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

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

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

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

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

Appendix 2

Summary of Data Qualification

PCB ORGANIC DATA QUALIFICATION SUMMARY*

SDG: 50854	REVIEWER: TLI	PROJECT: 200-MW-1	PAGE 1 OF 1
COMMENTS: No qualifiers assigned			

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

Appendix 3

Qualified Data Summary and Annotated Laboratory Reports

PCB ANALYSIS, SOIL MATRIX, (UG/KG)

Project: FLUOR-HANFORD					
Laboratory: WSCF					
Case:	SDG: WSCF20050854				
Sample Number		B1C7D2		B1C7D4	
Remarks					
Sample Date		4/13/05		4/13/05	
Analysis Date		4/21/05		4/21/05	
PCB	RTQL	Result	Q	Result	Q
Aroclor-1016	16.5	<52.0	U	<51.0	U
Aroclor-1221	16.5	<100	U	<100	U
Aroclor-1232	16.5	<52.0	U	<51.0	U
Aroclor-1242	16.5	<52.0	U	<51.0	U
Aroclor-1248	16.5	<52.0	U	<51.0	U
Aroclor-1254	16.5	<52.0	U	<51.0	U
Aroclor-1260	16.5	<52.0	U	<51.0	U
Aroicor-1262	16.5	<52.0	U	<51.0	U
Aroclor-1268	16.5	<52.0	U	<51.0	U

000010

Laboratory applied non-detect qualifiers "U" have been included in this table to minimize miss-interpretation of results. All other qualifiers shown were applied during validation. NA - Not analyzed

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F04-015: F04-015

Group #: WSCF20050854

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ		Result	Unit	DF	MDL	Analyze	Sample	Receive
Organic																
~~W050001192~~	~~B1C7D2~~	~~GRP~~	~~TRENT~~	~~TPHGASOLINE~~	~~Total Pet. Hydrocarbons Gas~~	~~SOIL~~	~~LA-523-443~~	~~U~~	~~<~~	~~250~~	~~ug/kg~~	~~1.00~~	~~2.8e+02~~	~~04/27/05~~	~~04/13/05~~	~~04/19/05~~
W050001192	B1C7D2	GRP	TRENT	12674-11-2	Aroclor-1016	SOIL	LA-523-427	U	<	52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	<	100	ug/kg	1.00	1.0e+02	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	<	52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	<	52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	<	52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	11097-69-1	Aroclor-1254	SOIL	LA-523-427	U	<	52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	<	52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	<	52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	11100-14-4	Aroclor-1268	SOIL	LA-523-427	U	<	52.0	ug/kg	1.00	52	04/21/05	04/13/05	04/19/05
~~W050001192~~	~~B1C7D2~~	~~GRP~~	~~TRENT~~	~~100-02-7~~	~~4-Nitrophenol~~	~~SOIL~~	~~LA-523-456~~	~~U~~	~~<~~	~~160~~	~~ug/kg~~	~~1.00~~	~~1.6e+02~~	~~05/02/05~~	~~04/13/05~~	~~04/19/05~~
W050001192	B1C7D2	GRP	TRENT	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	<	150	ug/kg	1.00	1.5e+02	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	108-95-2	Phenol	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	<	85.0	ug/kg	1.00	85	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	<	64.0	ug/kg	1.00	64	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	129-00-0	Pyrene	SOIL	LA-523-456	U	<	51.0	ug/kg	1.00	51	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	<	77.0	ug/kg	1.00	77	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	<	74.0	ug/kg	1.00	74	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	83-32-9	Acenaphthene	SOIL	LA-523-456	U	<	56.0	ug/kg	1.00	56	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	87-86-5	Pentachlorophenol	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	<	130	ug/kg	1.00	1.3e+02	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	126-73-8	Tributyl phosphate	SOIL	LA-523-456	U	<	33.0	ug/kg	1.00	33	05/02/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	75-35-4	1,1-Dichloroethene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	79-01-6	Trichloroethene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	71-43-2	Benzene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001192	B1C7D2	GRP	TRENT	108-88-3	Toluene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05

MDL = Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorganic) U - Analyzed for but not detected above limiting criteria.
RQ = Result Qualifier

R 7/10/05

DF = Dilution Factor
* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

Report WGPP/ver. 1.1
Groundwater Remediation Program

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F04-015: F04-015

Group #: WSCF20050854

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W050001193	B1C7D3	GRP	TRENT	71-55-6	1,1,1-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	74-83-9	Bromomethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	74-87-3	Chloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-00-3	Chloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-01-4	Vinyl chloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-09-2	Methylenechloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-15-0	Carbon disulfide	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-25-2	Bromoform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	75-27-4	Bromodichloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	78-87-5	1,2-Dichloropropane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	78-93-3	2-Butanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	79-00-5	1,1,2-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	79-34-5	1,1,2,2-Tetrachloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	71-36-3	1-Butanol	SOIL	LA-523-455	U	< 42.0	ug/kg	1.00	42	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	156-60-5	trans-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
W050001193	B1C7D3	GRP	TRENT	156-59-2	cis-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	04/26/05	04/13/05	04/19/05
~~W050001195~~	~~B1C7D4~~	~~GRP~~	~~TRENT~~	~~TPHGASOLINE~~	~~Total Pet. Hydrocarbons Gas~~	~~SOIL~~	~~LA-523-443~~	~~U~~	~~< 250~~	~~ug/kg~~	~~1.00~~	~~2.5e+02~~	~~04/27/05~~	~~04/13/05~~	~~04/19/05~~
W050001195	B1C7D4	GRP	TRENT	12674-11-2	Aroclor-1016	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	< 100	ug/kg	1.00	1.0e+02	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001196	B1C7D4	GRP	TRENT	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	11097-69-1	Aroclor-1254	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
W050001195	B1C7D4	GRP	TRENT	11100-14-4	Aroclor-1268	SOIL	LA-523-427	U	< 51.0	ug/kg	1.00	51	04/22/05	04/13/05	04/19/05
~~W050001195~~	~~B1C7D4~~	~~GRP~~	~~TRENT~~	~~100-02-7~~	~~4-Nitrophenol~~	~~SOIL~~	~~LA-523-456~~	~~U~~	~~< 160~~	~~ug/kg~~	~~1.00~~	~~1.6e+02~~	~~05/02/05~~	~~04/13/05~~	~~04/19/05~~

MDL=Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorganic) U - Analyzed for but not detected above limiting criteria.
RQ=Result Qualifier

DF=Dilution Factor
* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

7/10/05

Report WGPP/ver. 1.1
Groundwater Remediation Program

Sample Delivery Group	**WSCF20050854**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F04-015**
Data Deliverable	**Summary Report**

Introduction

Three (3) 200-MW-1 Characterization Sampling and Analysis – Soil/216-E-4, (9' – 10'), samples (B1C7D2, B1C7D3, and B1C7D4) were received at the WSCF Laboratory on April 19 , 2005. The samples were analyzed for the analytes indicated on the attached copy of the chain of custody (COC) form in accordance with the *Groundwater Remediation Program – Letter of Instruction*, referenced in the cover letter.

The narrative (Attachment 1) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 2) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information. Copies of the chain of custody and sample receipt are included as Attachment 3.

Analytical Methodology for Requested Analyses

Inorganic

- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- Cyanide by EPA Method 335.2. Analytical work was performed with no deviations to the approved method.
- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- Percent Solids by EPA Method 160.3. Analytical work was performed with no deviations to the approved method.
- pH by EPA Method 150.1. Analytical work was performed with no deviations to the approved method.

Organic

- PCB by EPA Method 8082. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270C. Analytical work was performed with no deviations to the approved method.

- TPH Diesel/Gas Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.

- VOA by EPA Method 8260B. Analytical work was performed with no deviations to the approved method.

Inorganic Comments

Anions - The hold times for Nitrite and Nitrate analyses were not met. A Blank, Laboratory Control Sample, Duplicate, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See pages 10 through 11 for QC details. Analytical Notes:

- Preparation Date: 25-apr-2005.

- Nitrate – Sample B1C7D3 result was B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.

- Sulfate – Sample (B1C7D3 and B1C7D4) results were B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.

All QC controls are within the established limits.

Cyanide - The hold time for this analysis was met. A Blank, Preparation Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See page 12 for QC details.

All QC controls are within the established limits.

ICP-MS Metals – The hold time for this analysis was met. A Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See pages 13 through 14 for QC details. Analytical Notes:

- Preparation Date: 26-apr-2005.

- Copper – Matrix Spike Duplicate was below laboratory established limits. Since all of the other QC results were within laboratory limits, the sample results were not flagged.

- Silver – The Laboratory Control Sample recovery was below established laboratory limits, but was within manufacturer's limits.

- Sample B1C7D4 was received with study seal broken.

All other QC controls are within the established limits.

Percent Solids – Analyzed for organic results correction.

pH – The hold time for this analysis was met. All internal laboratory controls were within established limits. See page 15 for QC details.

Organic Comments

- Sample results were moisture corrected and reported on a dry-weight basis.

PCB – The hold time for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See page 22 for QC details. Analytical Notes:

- Preparation Date: 20-apr-2005.
- PCB – Non-detect sample results (B1C7D2 and B1C7D4) exceeded required RDLs.

All other QC controls are within the established limits.

Semi-VOA – The hold time for this analysis was not met. Both samples had to be re-extracted on May 2, 2005 after holding time had expired due to problems in the sample preparation. Both sets of extractions (April 21 and May 2) had no target compounds of interest found in the either sample (B1C7D2 or B1C7D4). A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter of Instruction. See pages 23 through 26 for QC details. Analytical Notes:

- Preparation Date: 02-may-2005.
- Pentachlorophenol-d5 – The Laboratory Control Sample recovery was slightly below established laboratory limits.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spike Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See page 32 for QC details. Analytical Note:

- Preparation Date: 21-apr-2005.

All QC controls are within the established limits.

TPHG-WA - The hold time for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spike Duplicate were analyzed with each delivery group per GPP Letter of Instruction. See page 31 for QC details. Analytical Note:

- Preparation Date: 27-apr-2005.

All QC controls are within the established limits.

VOA – The hold time for this analysis was met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per the GPP Letter

of Instruction. See pages 27 through 30 for QC details. All QC controls are within the established limits.

This Summary Report is in compliance with the SOW, both technically and for completeness. Release of the data contained in this hard copy report has been authorized by the WSCF Laboratory Analytical Manager and Client Services, as verified by the following signature.

Pauline D. Mix
WSCF Client Services

Abbreviations

Hg – mercury
IC – ion chromatography
ICP – inductively coupled plasma
ICP/AES – ICP/atomic emission spectroscopy
ICP/MS – ICP/mass spectrometry
Total U – total uranium
AT/TB – total alpha/total beta
AEA – Alpha Energy Analysis
WTPH-G – Total Hydrocarbons-Gasoline
Am – americium
Cm - curium
Pu – plutonium
Np – neptunium
GEA – gamma energy analysis
H3 – Tritium
Sr – Strontium 89, 90
WTPH-D – Total Hydrocarbons-Diesel
TSS – Total Suspended Solids

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST 5/19/05	F04-015-157	PAGE 1 OF 2
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~~ 4 pm 4-19-05
SAMPLING LOCATION: 200-E-4; 9-10 ft	PROJECT DESIGNATION: 200-MW-1 Characterization Sampling and Analysis - Soil	SAF NO.: F04-015	AIR QUALITY: ☐
ICE CHEST NO.	FIELD LOGBOOK NO. — COA: 119144ES10	METHOD OF SHIPMENT: Government Vehicle	
SHIPPED TO: Waste Sampling & Characterization	OFFSITE PROPERTY NO.: N/A	BILL OF LADING/AIR BILL NO.: N/A	

MATRIX*: A=Air, DL=Drum Liquids, DS=Drum Solids, L=Liquid, O=Oil, S=Soil, SE=Sediment, T=Tissue, V=Vegetation, W=Water, Wf=Wipe, X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: N/A

SPECIAL HANDLING AND/OR STORAGE: Radioactive Tie To: B1C7C8

20050854

PRESERVATION	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None	NONE				
TYPE OF CONTAINER	aG	aG	aG	aGr*	aG	P	AG	P			
NO. OF CONTAINER(S)	1	1	1	~~1~~ 2 AB 4-14-05	1	1	1	4-19-05			
VOLUME	250mL	120mL	250mL	40mL	120mL	500mL	1 4-19-05	120mL			
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS	SEE ITEM 6 IN SPEC. INST.				

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1C7D2 1405wc1922	SOIL	4/13/05	1005	X	X	X	X	X					
~~B1C7C4~~	~~SOIL~~	~~4-18-05~~	~~1005~~ 4-19-05							X			

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: JSPOPE / ASfter 4-13-05 — DATE/TIME: 1400	RECEIVED BY/STORED IN: MW-026 / REF #1 4-13-05 — DATE/TIME: 1400	SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM: MW-026 / REF #1 4-19-05 — DATE/TIME: 0800	RECEIVED BY/STORED IN: JSPOPE / ASfter 4-19-05 — DATE/TIME: 0800	RUN Gamma Spectroscopy ON ICP/MS Bottle.
RELINQUISHED BY/REMOVED FROM: JSPOPE / ASfter 4-19-05 — DATE/TIME: 0945	RECEIVED BY/STORED IN: [signature] 4/19/05 — DATE/TIME: 0945	
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

A-6003-618(03/03)

000018

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F04-015-157	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N	DATA TURNAROUND
SAMPLING LOCATION 200-E-4; 9-10 ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015	AIR QUALITY ☐	45 Days
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 119144E510	METHOD OF SHIPMENT Government Vehicle		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS PMG 2/11/05

** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis.
(1)IC Anions - 300.0 ~~(Fluoride)~~ Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate) Total Cyanide - 9010; pH (Soil) - 9045;
(2)ICP/MS - 200.8 (TAL) (Cadmium, Chromium, Copper, Silver) ICP/MS - 200.8 (Add-on) (Lead, Uranium) PMG 2/11/05
(3)VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, 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) Isotopic Plutonium, Isotopic Uranium, Americium-241, Strontium-89,90 – Total Sr;~~ 4-19-05
~~(6) Activity Scan – 24 hr Turnaround~~ RP 4.19-05

A-6003-618(03/03)

000019

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F04-015-163	PAGE 1 OF 2
COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Cearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE BN AIR QUALITY ☐	DATA TURNAROUND 45 Days / ~~45 Days~~
SAMPLING LOCATION 200-E-4; 14-15 ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015		
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 119144ES10	METHOD OF SHIPMENT Government Vehicle		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX*: A=Air; DL=Drum Liquids; DS=Drum Solids; L=Liquid; O=Oil; S=Soil; SE=Sediment; T=Tissue; V=Vegitation; W=Water; WI=Wipe; X=Other

POSSIBLE SAMPLE HAZARDS/ REMARKS: N/A

SPECIAL HANDLING AND/OR STORAGE: Radioactive Tie To: B1C7C9

PRESERVATION	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None						
TYPE OF CONTAINER	aG	aG	aG	aGs*	aG	P						
NO. OF CONTAINER(S)	1	1	1	~~2~~ 1 4-17-05	2	1						
VOLUME	250mL	120mL	250mL	40mL	120mL	500mL						
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS						

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME										
B1C7D4 W0S003195	SOIL	4-13-05	1055	X	X	X	X	X					

CHAIN OF POSSESSION		SIGN/ PRINT NAMES	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
JSMPfister/AGPfister 4-13-05	1400	MW-026/Ref. #1 4-13-05	1400
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
MW-026/Ref. #1 4-19-05	0600	JSMPfister/AGPfister 4-19-05	0600
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
JSMPfister/AGPfister 4-19-05	0945	[illegible] 4/19/05	0945
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

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

RUN GAMMA SPECTROSCOPY ON ICP/MS BOTTLE

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

A-6003-618(03/03)

000020

Fluor Hanford Inc.	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F04-015-163	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Tyra/Wiberg	COMPANY CONTACT CS Clearlock	TELEPHONE NO. 372-9638	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N	DATA TURNAROUND
SAMPLING LOCATION 200-E-4; 14-15 ft	PROJECT DESIGNATION 200-MW-1 Characterization Sampling and Analysis - Soil		SAF NO. F04-015	AIR QUALITY ☐	45 Days
ICE CHEST NO.	FIELD LOGBOOK NO.	COA 119144ES10	METHOD OF SHIPMENT Government Vehicle		
SHIPPED TO Waste Sampling & Characterization	OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

SPECIAL INSTRUCTIONS PMG 2/11/05

** The laboratory is to report both kerosene and diesel range compounds from the WTPH-D analysis.

(1)IC Anions - 300.0 (~~Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite,~~ Phosphorous in phosphate, Sulfate) Total Cyanide - 9010; pH (Soil) - 9045;

(2)ICP/MS - 200.8 (TAL) (Cadmium, Chromium, Copper, Silver) ICP/MS - 200.8 (Add-on) (Lead, Uranium) PMG 2/11/05

(3)VOA - 8260A (TCL); VOA - 8260A (Add-On) (1-Butanol, 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, Isotopic Plutonium, Isotopic Uranium, Americium-241, Strontium-89,90~~ -- Total Sr; ASm 4-19-05

A-6003-618(03/03)

Appendix 5

Data Validation Supporting Documentation

PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: 200-MW-1			DATA PACKAGE: 50854		
VALIDATOR: TLT		LAB: WSCF		DATE: 6/16/05	
			SDG: 50854		
ANALYSES PERFORMED					
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082	SW-846 8081 (TCLP)		
SAMPLES/MATRIX					
B1C7D2	B1C7D4				
					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 Yes No N/A
Laboratory blank results acceptable? ..... yes Yes No N/A
Field/trip blanks analyzed? (Levels C, D, E) ..... Yes No N/A
Field/trip blank results acceptable? (Levels C, D, E) ..... Yes No N/A
Transcription/calculation errors? (Levels D, E) ..... Yes No N/A
Comments: ~~NO Tcb Blank - J all~~ Tom NO FB

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

Surrogates analyzed? ..... Yes No N/A
Surrogate recoveries acceptable? ..... Yes No N/A
Surrogates traceable? (Levels D, E) ..... Yes No N/A
Surrogates expired? (Levels D, E) ..... Yes No N/A
MS/MSD samples analyzed? ..... Yes No N/A
MS/MSD results acceptable? ..... Yes No N/A
MS/MSD standards NIST traceable? (Levels D, E) ..... Yes No N/A
MS/MSD standards expired? (Levels D, E) ..... Yes No N/A
LCS/BSS samples analyzed? ..... yes Yes No N/A
LCS/BSS results acceptable? ..... yes 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 LCS J all~~ 7/10/04 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: all ok

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 eheck 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:

Appendix 6

Additional Documentation Requested by Client

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: PCBs complete list

SAF Number: F04-015
Sample Date: 04/13/05
Receive Date:04/19/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050001192									
BATCH QC ASSOCIATED WITH SAMPLE									
SURR	Decachlorobiphenyl	2051-24-3	1077.1	104.000	% Recov	04/21/05	50.000	150.000	
SURR	Tetrachloro-m-xylene	877-09-8	1011.7	97.400	% Recov	04/21/05	50.000	150.000	
Lab ID: W050001195									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Aroclor-1254	11097-69-1	1082.4	105.000	% Recov	04/25/05	75.000	125.000	
MS	Decachlorobiphenyl	2051-24-3	836.72	82.500	% Recov	04/25/05	50.000	150.000	
MS	Tetrachloro-m-xylene	877-09-8	938.00	92.500	% Recov	04/25/05	50.000	150.000	
MSD	Aroclor-1254	11097-69-1	1035.4	104.000	% Recov	04/25/05	75.000	125.000	
MSD	Decachlorobiphenyl	2051-24-3	872.49	88.100	% Recov	04/25/05	50.000	150.000	
MSD	Tetrachloro-m-xylene	877-09-8	971.22	98.000	% Recov	04/25/05	50.000	150.000	
SPK-RPD	Aroclor-1254	11097-69-1	104.000	0.957	RPD	04/25/05	0.000	25.000	
SPK-RPD	Decachlorobiphenyl	2051-24-3	88.100	6.565	RPD	04/25/05	0.000	20.000	
SPK-RPD	Tetrachloro-m-xylene	877-09-8	98.000	5.774	RPD	04/25/05	0.000	20.000	
SURR	Decachlorobiphenyl	2051-24-3	1054.4	103.000	% Recov	04/22/05	50.000	150.000	
SURR	Tetrachloro-m-xylene	877-09-8	1022.6	99.700	% Recov	04/22/05	50.000	150.000	
BATCH QC									
BLANK	Aroclor-1016	12674-11-2	< 50	n/a	UGKG	04/21/05			U
BLANK	Aroclor-1221	11104-28-2	< 100	n/a	ug/Kg	04/21/05			U
BLANK	Aroclor-1232	11141-16-5	< 50	n/a	ug/Kg	04/21/05			U
BLANK	Aroclor-1242	53469-21-9	< 50	n/a	ug/Kg	04/21/05			U
BLANK	Aroclor-1248	12672-29-6	< 50	n/a	ug/Kg	04/21/05			U
BLANK	Aroclor-1254	11097-69-1	< 50	n/a	ug/Kg	04/21/05			U
BLANK	Aroclor-1260	11096-82-5	< 50	n/a	ug/Kg	04/21/05			U
BLANK	Decachlorobiphenyl	2051-24-3	1193.7	119.000	% Recov	04/21/05	50.000	150.000	

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6/28/05

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20050854
Matrix: SOLID
Test: PCBs complete list

SAF Number: F04-015
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Tetrachloro-m-xylene	877-09-8	1046.5	105.000	% Recov	04/21/05	50.000	150.000	
LCS	Aroclor-1254	11097-69-1	1082.0	108.000	% Recov	04/21/05	70.000	130.000	
LCS	Decachlorobiphenyl	2051-24-3	1173.9	117.000	% Recov	04/21/05	50.000	150.000	
LCS	Tetrachloro-m-xylene	877-09-8	1030.2	103.000	% Recov	04/21/05	50.000	150.000	

000029

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