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Data Validation Report for CH2M Hill Plateau Remediation Company

VSR10-011
Project CPP 200 Area, D&D-200 Area

Chemical & Radiochemical Validation - Level C

Validation Performed By: Carl Schlosser **Date:** 3-17-2010

Validation Reviewed By: Cheryl A. Schlosser **Date:** 3-17-2010

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Date: 12 March 2010
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: CPP 200 Area, D&D-200 Area
Subject: Volatile Organics - Sample Data Groups (SDGs) WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 and WSCF20051350

INTRODUCTION

This memorandum presents the results of data validation for SDGs WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 and WSCF20051350 prepared by WSCF. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B17N67	8/23/2004	Soil	C	8260B
B17N70	8/25/2004	Soil	C	8260B
B17N73	9/09/2004	Soil	C	8260B
B17NL5	9/09/2004	Soil	C	8260B
B1D994	6/29/2005	Soil	C	8260B
B1D995	6/30/2005	Soil	C	8260B

Data validation was conducted in accordance with the CHPRC validation statement of work and the Sampling and Analysis Plan for Investigation of Dense, Nonaqueous-Phase Liquid Carbon Tetrachloride at the 216-Z-9 Trench, DOE/RL-2001-01, Rev. 0, Appendix E (SAP). 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. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested By Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The holding time requirements for volatile organics are analysis within 14 days of sample collection. Sample preservation requires chilling to 4 degrees Celsius.

The samples were analyzed within the prescribed holding time and properly preserved,

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable with the following exceptions.

For all SDGs, acetonitrile was not reported in the laboratory blanks. All associated sample results were non-detects and should be qualified as estimates and flagged "UJ."

Trip Blanks

No trip blanks were submitted for analysis.

Field Blanks

No field blanks were submitted for analysis.

Equipment Blanks

No equipment blanks were submitted for analysis.

- **Accuracy**

Accuracy is evaluated by reviewing surrogate results, matrix spike sample results, and laboratory control sample results. According to the SAP, the laboratory control sample accuracy limits are 70% to 130% at a minimum, and the ones established by the analytical laboratory if more stringent. The matrix spike sample accuracy limits are the ones established by the analytical laboratory. The limits for reported analytes not listed in the SAP are specified by the DV procedure.

Surrogates

All surrogate recoveries were acceptable.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples

All MS/MSD recoveries were acceptable with the following exceptions.

For all SDGs, the only 8260B MS/MSD analytes reported were 1,1-dichloroethene, benzene, chlorobenzene, toluene and trichloroethene. Reported analytes not represented in the MS/MSDs were cis-1,3-dichloropropane, trans-1,3-dichloropropane, 4-methyl-2-pentanone, 2-hexanone, acetone, carbon disulfide, bromodichloromethane, 2-butanone, hexane, acetonitrile, 1-butanol

and tetrahydrofuran. These non-represented analytes were non-detects in all samples and should be qualified as estimates and flagged "UJ."

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable with the following exceptions.

For all SDGs, the only 8260B LCS analytes reported were 1,1-dichloroethene, benzene, chlorobenzene, toluene and trichloroethene. Reported analytes not represented in the LCSs were cis-1,3-dichloropropane, trans-1,3-dichloropropane, 4-methyl-2-pentanone, 2-hexanone, acetone, carbon disulfide, bromodichloromethane, 2-butanone, hexane, acetonitrile, 1-butanol and tetrahydrofuran. These non-represented analytes were non-detects in all samples and should be qualified as estimates and flagged "UJ."

For SDG WSCF20041594, the LCS recovery for toluene was above the upper acceptance limit due to sample carryover. The associated sample results were non-detects and should not be qualified for the recovery infraction.

- **Precision**

Precision is evaluated by reviewing MS/MSD results, field duplicate sample results, and field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. According to the SAP, the relative percent difference (RPD) limits are ±30%. The RPD limits for reported analytes not listed in the SAP are specified by the DV procedure. When duplicate RPDs exceed the limits and have associated results <5X the required detection limits with differences <2X the required detection limits no precision infraction occurred.

MS/MSD Samples

All MS/MSD relative percent difference values were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

Field Split Samples

No field splits were submitted for analysis.

- **Detection Limits**

Reported MDLs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDLs were below the CRDLs.

- **Completeness**

SDGs WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 and WSCF20051350 were 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

Minor deficiencies leading to qualification of sample results as estimates were due to non-represented QC data for multiple analytes and lack of laboratory blank data for acetonitrile. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

HNF-20433, Rev. 0, *Data Validation Procedure for Chemical Analyses*, June 2004.

DOE/RL-2001-01, Rev. 0, Appendix E, *Sampling and Analysis Plan for Investigation of Dense, Nonaqueous-Phase Liquid Carbon Tetrachloride at the 216-Z-9 Trench*.

Appendix 1

Glossary of Data Reporting Qualifiers

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

- **U** ─ The constituent was analyzed for and was not detected. The data should be considered usable for decision-making purposes.

- **UJ** ─ The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the MDL. The data should be considered usable for decision-making purposes.

- **J** ─ Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **UR** ─ Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** ─ Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

Volatile Organics Data Qualification Summary			
SDG: See comments	Reviewer: AQA	Project: CPP 200 Area, D&D-200 Area	Page 1 of 1
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
cis-1,3-Dichloropropene trans-1,3-Dichloropropene 4-Methyl-2-pentanone 2-Hexanone Acetone Carbon disulfide Bromodichloromethane 2-Butanone Hexane 1-Butanol	UJ	B17N67, B17N70, B17N73, B17NL5, B1D994, B1D995	Non-represented MS/MSD and LCS data
Acetonitrile	UJ	B17N67, B17N70, B17N73, B17NL5, B1D994, B1D995	Lack of laboratory blank data, and non-represented MS/MSD and LCS data
Tetrahydrofuran	UJ	B1D994, B1D995	Non-represented MS/MSD and LCS data

Comments: SDGs WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 & WSCF20051350

Appendix 3

Annotated Laboratory Reports

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041457

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ		Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001533	B17N67	TRENT	85-01-8	Phenanthrene	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	85-68-7	Butylbenzylphthalate	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	86-30-6	N-Nitrosodiphenylamine	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	86-73-7	Fluorene	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	86-74-8	Carbazole	SOIL	LA-523-456	U	<	82.0	ug/kg	1.00	82	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	87-68-3	Hexachlorobutadiene	SOIL	LA-523-456	U	<	380	ug/kg	1.00	3.8e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	88-74-4	2-Nitroaniline	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	88-75-5	2-Nitrophenol	SOIL	LA-523-456	U	<	180	ug/kg	1.00	1.8e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	91-20-3	Naphthalene	SOIL	LA-523-456	U	<	290	ug/kg	1.00	2.9e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	91-57-6	2-Methylnaphthalene	SOIL	LA-523-456	U	<	180	ug/kg	1.00	1.8e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	91-58-7	2-Chloronaphthalene	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	91-94-1	3,3'-Dichlorobenzidine	SOIL	LA-523-456	U	<	82.0	ug/kg	1.00	82	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	95-48-7	2-Methylphenol (cresol, o-)	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	95-50-1	1,2-Dichlorobenzene	SOIL	LA-523-456	U	<	370	ug/kg	1.00	3.7e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	95-95-4	2,4,5-Trichlorophenol	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	98-95-3	Nitrobenzene	SOIL	LA-523-456	U	<	270	ug/kg	1.00	2.7e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	99-09-2	3-Nitroaniline	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	65794-96-9	3 & 4 Methylphenol Total	SOIL	LA-523-456	U	<	120	ug/kg	1.00	1.2e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	67-72-1	Hexachloroethane	SOIL	LA-523-456	U	<	480	ug/kg	1.00	4.8e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	88-06-2	2,4,6-Trichlorophenol	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	126-73-8	Tributyl phosphate	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	108-94-1	Cyclohexanone	SOIL	LA-523-456	U	<	340	ug/kg	1.00	3.4e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	95-63-6	1,2,4-Trimethylbenzene	SOIL	LA-523-456	U	<	120	ug/kg	1.00	1.2e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	75-35-4	1,1-Dichloroethene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	79-01-6	Trichloroethene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	71-43-2	Benzene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	108-88-3	Toluene	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04

LS
3-12-2010

MDL = Minimum Detection Limit
RQ = Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
X - Other flags and notes described in the comments/narrative.
E - Analyte is an estimate, has potentially larger errors
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

2-4

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041457

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001533	B17N67	TRENT	108-90-7	Chlorobenzene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	75-34-3	1,1-Dichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	100-41-4	Ethylbenzene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	100-42-5	Styrene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	10061-01-5	cis-1,3-Dichloropropene	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	10061-02-6	trans-1,3-Dichloropropene	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	107-06-2	1,2-Dichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	108-10-1	4-Methyl-2-Pentanone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	124-48-1	Dibromochloromethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	127-18-4	Tetrachloroethene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	1330-20-7	Xylenes (total)		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	540-59-0	1,2-Dichloroethene(Total)		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	56-23-5	Carbon tetrachloride		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	591-78-6	2-Hexanone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	67-64-1	Acetone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	67-66-3	Chloroform		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	71-55-6	1,1,1-Trichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	74-83-9	Bromomethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	74-87-3	Chloromethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	75-00-3	Chloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	75-01-4	Vinyl chloride		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	75-09-2	Methylenechloride		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	75-15-0	Carbon disulfide	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	75-25-2	Bromoform		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	75-27-4	Bromodichloromethane	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	78-87-5	1,2-Dichloropropane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	78-93-3	2-Butenone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04

MDL = Minimum Detection Limit
RQ = Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
X - Other flags and notes described in the comments/narrative.
E - Analyte is an estimate, has potentially larger errors
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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041457

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001533	B17N67	TRENT	79-00-5	1,1,2-Trichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	79-34-5	1,1,2,2-Tetrachloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	71-36-3	1-Butanol	UJ	SOIL	LA-523-455	U	< 41.0	ug/kg	1.00	41	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	110-54-3	Hexane	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	104-51-8	n-Butylbenzene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	156-60-5	trans-1,2-Dichloroethylene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	75-05-8	Acetonitrile	UJ	SOIL	LA-523-455	U	< 4.20	ug/kg	1.00	4.2	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	156-59-2	cis-1,2-Dichloroethylene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
~~W040001533~~	~~B17N67~~	~~TRENT~~	~~TPHDIESEL~~	~~Total Pet. Hydrocarbons Diesel~~		~~SOIL~~	~~NWTPH~~	~~U~~	~~< 3.30e+03~~	~~ug/kg~~	~~1.00~~	~~3.3e+03~~	~~09/07/04~~	~~08/23/04~~	~~08/23/04~~
~~W040001533~~	~~B17N67~~	~~TRENT~~	~~TPHKEROSENE~~	~~Kerosene~~		~~SOIL~~	~~NWTPH~~	~~U~~	~~< 3.30e+03~~	~~ug/kg~~	~~1.00~~	~~3.3e+03~~	~~09/07/04~~	~~08/23/04~~	~~08/23/04~~

LS
3-12-2010

MDL = Minimum Detection Limit
RQ = Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
X - Other flags and notes described in the comments/narrative.
E - Analyte is an estimate, has potentially larger errors
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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041487

Sample #	Client ID			CAS #	Test Performed		Matrix	WSCF Method	RQ		Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001543	B17N70	GRP	TRENT	91-57-6	2-Methylnaphthalene		SOIL	LA-523-456	U	<	180	ug/kg	1.00	1.8e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	91-58-7	2-Chloronaphthalene		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	91-94-1	3,3'-Dichlorobenzidine		SOIL	LA-523-456	U	<	82.0	ug/kg	1.00	82	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	95-48-7	2-Methylphenol (cresol, o-)		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	95-50-1	1,2-Dichlorobenzene		SOIL	LA-523-456	U	<	370	ug/kg	1.00	3.7e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	95-95-4	2,4,5-Trichlorophenol		SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	98-95-3	Nitrobenzene		SOIL	LA-523-456	U	<	270	ug/kg	1.00	2.7e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	99-09-2	3-Nitroaniline		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	65794-96-9	3 & 4 Methylphenol Total		SOIL	LA-523-456	U	<	120	ug/kg	1.00	1.2e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	67-72-1	Hexachloroethane		SOIL	LA-523-456	U	<	480	ug/kg	1.00	4.8e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	88-06-2	2,4,6-Trichlorophenol		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	126-73-8	Tributyl phosphate		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	108-94-1	Cyclohexanone		SOIL	LA-523-456	U	<	340	ug/kg	1.00	3.4e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	95-63-6	1,2,4-Trimethylbenzene		SOIL	LA-523-456	U	<	120	ug/kg	1.00	1.2e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-35-4	1,1-Dichloroethene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	79-01-6	Trichloroethene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	71-43-2	Benzene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	108-88-3	Toluene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	108-90-7	Chlorobenzene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-34-3	1,1-Dichloroethane		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	100-41-4	Ethylbenzene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	100-42-5	Styrene		SOIL	LA-523-455	J		3.40	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	10061-01-5	cis-1,3-Dichloropropene	UJ	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	10061-02-6	trans-1,3-Dichloropropene	UJ	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	107-06-2	1,2-Dichloroethane		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	108-10-1	4-Methyl-2-Pentanone	UJ	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	124-48-1	Dibromochloromethane		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041487

Sample #	Client ID			CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001543	B17N70	GRP	TRENT	127-18-4	Tetrachloroethene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	1330-20-7	Xylenes (total)		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	540-59-0	1,2-Dichloroethene(Total)		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	56-23-5	Carbon tetrachloride		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	591-78-6	2-Hexanone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	67-64-1	Acetone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	67-66-3	Chloroform		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	71-55-6	1,1,1-Trichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	74-83-9	Bromomethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	74-87-3	Chloromethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-00-3	Chloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-01-4	Vinyl chloride		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-09-2	Methylenechloride		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-15-0	Carbon disulfide	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-25-2	Bromoform		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-27-4	Bromodichloromethane	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	78-87-5	1,2-Dichloropropane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	78-93-3	2-Butanone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	79-00-5	1,1,2-Trichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	79-34-5	1,1,2,2-Tetrachloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	71-36-3	1-Butanol	UJ	SOIL	LA-523-455	U	< 41.0	ug/kg	1.00	41	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	110-54-3	Hexane	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	104-51-8	n-Butylbenzene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	156-60-5	trans-1,2-Dichloroethylene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-05-8	Acetonitrile	UJ	SOIL	LA-523-455	U	< 4.20	ug/kg	1.00	4.2	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	156-59-2	cis-1,2-Dichloroethylene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
~~W040001543~~	~~B17N70~~	~~GRP~~	~~TRENT~~	~~TPHDIESEL~~	~~Total Pet. Hydrocarbons Diesel~~		~~SOIL~~	~~NWTPH~~	~~U~~	~~< 3.0e+03~~	~~ug/kg~~	~~1.00~~	~~3.0e+03~~	~~08/07/04~~	~~08/25/04~~	~~08/25/04~~

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ		Result	Unit	DF	MDL	Analyze	Sample	Receive
~~W040001610~~	~~B17N73~~	~~TRENT~~	~~91-57-6~~	~~2-Methylnaphthalene~~		~~SOIL~~	~~LA-523-456~~	~~U~~	~~<~~	~~130~~	~~ug/kg~~	~~1.00~~	~~1.3e+02~~	~~09/22/04~~	~~09/09/04~~	~~09/09/04~~
W040001610	B17N73	TRENT	91-58-7	2-Chloronaphthalene		SOIL	LA-523-456	U	<	71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	91-94-1	3,3'-Dichlorobenzidine		SOIL	LA-523-456	U	<	85.0	ug/kg	1.00	85	09/22/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	95-48-7	2-Methylphenol (cresol, o-)		SOIL	LA-523-456	U	<	71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	95-50-1	1,2-Dichlorobenzene		SOIL	LA-523-456	U	<	380	ug/kg	1.00	3.8e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	95-95-4	2,4,5-Trichlorophenol		SOIL	LA-523-456	U	<	78.0	ug/kg	1.00	78	09/22/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	98-95-3	Nitrobenzene		SOIL	LA-523-456	U	<	280	ug/kg	1.00	2.8e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	99-09-2	3-Nitroaniline		SOIL	LA-523-456	U	<	71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	65794-96-9	3 & 4 Methylphenol Total		SOIL	LA-523-456	U	<	120	ug/kg	1.00	1.2e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	67-72-1	Hexachloroethane		SOIL	LA-523-456	U	<	500	ug/kg	1.00	5.0e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	88-06-2	2,4,6-Trichlorophenol		SOIL	LA-523-456	U	<	71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	126-73-8	Tributyl phosphate		SOIL	LA-523-456	U	<	71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	108-94-1	Cyclohexanone		SOIL	LA-523-456	U	<	350	ug/kg	1.00	3.5e+02	09/22/04	09/09/04	09/09/04
~~W040001610~~	~~B17N73~~	~~TRENT~~	~~95-63-6~~	~~1,2,4-Trimethylbenzene~~		~~SOIL~~	~~LA-523-456~~	~~U~~	~~<~~	~~130~~	~~ug/kg~~	~~1.00~~	~~1.3e+02~~	~~09/22/04~~	~~09/09/04~~	~~09/09/04~~
W040001610	B17N73	TRENT	75-35-4	1,1-Dichloroethene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	79-01-6	Trichloroethene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	71-43-2	Benzene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	108-88-3	Toluene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	108-90-7	Chlorobenzene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	75-34-3	1,1-Dichloroethane		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	100-41-4	Ethylbenzene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	100-42-5	Styrene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	10061-01-5	cis-1,3-Dichloropropene	UJ	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	10061-02-6	trans-1,3-Dichloropropene	UJ	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	107-06-2	1,2-Dichloroethane		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	108-10-1	4-Methyl-2-Pentanone	UJ	SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	124-48-1	Dibromochloromethane		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001610	B17N73	TRENT	127-18-4	Tetrachloroethene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	1330-20-7	Xylenes (total)		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	540-59-0	1,2-Dichloroethene(Total)		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	56-23-5	Carbon tetrachloride		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	591-78-6	2-Hexanone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	67-64-1	Acetone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	67-66-3	Chloroform		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	71-55-6	1,1,1-Trichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	74-83-9	Bromomethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	74-87-3	Chloromethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	75-00-3	Chloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	75-01-4	Vinyl chloride		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	75-09-2	Methylenechloride		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	75-15-0	Carbon disulfide	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	75-25-2	Bromoform		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	75-27-4	Bromodichloromethane	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	78-87-5	1,2-Dichloropropane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	78-93-3	2-Butanone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	79-00-5	1,1,2-Trichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	79-34-5	1,1,2,2-Tetrachloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	71-36-3	1-Butanol	UJ	SOIL	LA-523-455	U	< 43.0	ug/kg	1.00	43	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	110-54-3	Hexane	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	104-51-8	n-Butylbenzene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	156-60-5	trans-1,2-Dichloroethylene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	75-05-8	Acetonitrile	UJ	SOIL	LA-523-455	U	< 4.20	ug/kg	1.00	4.2	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	156-59-2	cis-1,2-Dichloroethylene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
~~W040001610~~	~~B17N73~~	~~TRENT~~	~~TPHDIESEL~~	~~Total Pet. Hydrocarbons Diesel~~		~~SOIL~~	~~NWTPH~~	~~U~~	~~< 4.00e+03~~	~~ug/kg~~	~~1.00~~	~~4.0e+03~~	~~09/21/04~~	~~09/09/04~~	~~09/09/04~~

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001612	B17NL5	TRENT	85-01-8	Phenanthrene	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	85-68-7	Butylbenzylphthalate	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	86-30-6	N-Nitrosodiphenylamine	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	86-73-7	Fluorene	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	86-74-8	Carbazole	SOIL	LA-523-456	U	< 90.0	ug/kg	1.00	90	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	87-68-3	Hexachlorobutadiene	SOIL	LA-523-456	U	< 410	ug/kg	1.00	4.1e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	88-74-4	2-Nitroaniline	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	88-75-5	2-Nitrophenol	SOIL	LA-523-456	U	< 200	ug/kg	1.00	2.0e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	91-20-3	Naphthalene	SOIL	LA-523-456	U	< 320	ug/kg	1.00	3.2e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	91-57-6	2-Methylnaphthalene	SOIL	LA-523-456	U	< 200	ug/kg	1.00	2.0e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	91-58-7	2-Chloronaphthalene	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	91-94-1	3,3'-Dichlorobenzidine	SOIL	LA-523-456	U	< 90.0	ug/kg	1.00	90	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	95-48-7	2-Methylphenol (cresol, o-)	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	95-50-1	1,2-Dichlorobenzene	SOIL	LA-523-456	U	< 410	ug/kg	1.00	4.1e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	95-95-4	2,4,5-Trichlorophenol	SOIL	LA-523-456	U	< 83.0	ug/kg	1.00	83	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	98-95-3	Nitrobenzene	SOIL	LA-523-456	U	< 290	ug/kg	1.00	2.9e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	99-09-2	3-Nitroaniline	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	65794-96-9	3 & 4 Methylphenol Total	SOIL	LA-523-456	U	< 130	ug/kg	1.00	1.3e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	67-72-1	Hexachloroethane	SOIL	LA-523-456	U	< 530	ug/kg	1.00	5.3e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	88-06-2	2,4,6-Trichlorophenol	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	126-73-8	Tributyl phosphate	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	108-94-1	Cyclohexanone	SOIL	LA-523-456	U	< 380	ug/kg	1.00	3.8e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	95-63-6	1,2,4-Trimethylbenzene	SOIL	LA-523-456	U	< 140	ug/kg	1.00	1.4e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	75-35-4	1,1-Dichloroethene	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	79-01-6	Trichloroethene	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	71-43-2	Benzene	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	108-88-3	Toluene	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04

LS 3-12-2010

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001612	B17NL5	TRENT	108-90-7	Chlorobenzene		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	75-34-3	1,1-Dichloroethane		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	100-41-4	Ethylbenzene		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	100-42-5	Styrene		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	10061-01-5	cis-1,3-Dichloropropene	UJ	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	10061-02-6	trans-1,3-Dichloropropene	UJ	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	107-06-2	1,2-Dichloroethane		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	108-10-1	4-Methyl-2-Pentanone	UJ	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	124-48-1	Dibromochloromethane		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	127-18-4	Tetrachloroethene		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	1330-20-7	Xylenes (total)		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	540-59-0	1,2-Dichloroethene(Total)		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	56-23-5	Carbon tetrachloride		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	591-78-6	2-Hexanone	UJ	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	67-64-1	Acetone	UJ	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	67-66-3	Chloroform		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	71-55-6	1,1,1-Trichloroethane		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	74-83-9	Bromomethane		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	74-87-3	Chloromethane		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	75-00-3	Chloroethane		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	75-01-4	Vinyl chloride		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	75-09-2	Methylenechloride		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	75-15-0	Carbon disulfide	UJ	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	75-25-2	Bromoform		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	75-27-4	Bromodichloromethane	UJ	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	78-87-5	1,2-Dichloropropane		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	78-93-3	2-Butanone	UJ	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID	CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001612	B17NL5 TRENT	79-00-5	1,1,2-Trichloroethane		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	79-34-5	1,1,2,2-Tetrachloroethane		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	71-36-3	1-Butanol	UJ	SOIL	LA-523-455	U	< 38.0	ug/kg	1.00	38	09/16/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	110-54-3	Hexane	UJ	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	104-51-8	n-Butylbenzene		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	156-60-5	trans-1,2-Dichloroethylene		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	75-05-8	Acetonitrile	UJ	SOIL	LA-523-455	U	< 3.80	ug/kg	1.00	3.8	09/16/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	156-59-2	cis-1,2-Dichloroethylene		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
~~W040001612~~	~~B17NL5 TRENT~~	~~TPHDIESEL~~	~~Total Pet. Hydrocarbons-Diesel~~		~~SOIL~~	~~NWTPH~~	~~U~~	~~< 4.20e+03~~	~~ug/kg~~	~~1.00~~	~~4.2e+03~~	~~09/21/04~~	~~09/09/04~~	~~09/09/04~~
~~W040001612~~	~~B17NL5 TRENT~~	~~TPHKEROSENE~~	~~Kerosene~~		~~SOIL~~	~~NWTPH~~	~~U~~	~~< 4.20e+03~~	~~ug/kg~~	~~1.00~~	~~4.2e+03~~	~~09/21/04~~	~~09/09/04~~	~~09/09/04~~

LS
3-12-2010

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051337

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
~~W050002028~~	~~B1D994~~	~~TRENT~~	~~95-63-6~~	~~1,2,4-Trimethylbenzene~~		~~SOIL~~	~~LA-523-455~~	~~U~~	~~< 150~~	~~ug/kg~~	~~1.00~~	~~1.3e+02~~	~~07/06/05~~	~~06/29/05~~	~~06/29/05~~
W050002028	B1D994	TRENT	75-35-4	1,1-Dichloroethene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	79-01-6	Trichloroethene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	71-43-2	Benzene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	108-88-3	Toluene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	108-90-7	Chlorobenzene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	75-34-3	1,1-Dichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	100-41-4	Ethylbenzene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	100-42-5	Styrene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	10061-01-5	cis-1,3-Dichloropropene	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	10061-02-6	trans-1,3-Dichloropropene	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	107-06-2	1,2-Dichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	108-10-1	4-Methyl-2-Pentanone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	124-48-1	Dibromochloromethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	127-18-4	Tetrachloroethene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	1330-20-7	Xylenes (total)		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	540-59-0	1,2-Dichloroethene(Total)		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	56-23-5	Carbon tetrachloride		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	591-78-6	2-Hexanone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	67-64-1	Acetone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	67-66-3	Chloroform		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	71-55-6	1,1,1-Trichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	74-83-9	Bromomethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	74-87-3	Chloromethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	75-00-3	Chloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	75-01-4	Vinyl chloride		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	75-09-2	Methylenechloride		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051337

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W050002028	B1D994	TRENT	75-15-0	Carbon disulfide	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	75-25-2	Bromoform		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	75-27-4	Bromodichloromethane	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	78-87-5	1,2-Dichloropropane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	78-93-3	2-Butanone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	79-00-5	1,1,2-Trichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	79-34-5	1,1,2,2-Tetrachloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	71-36-3	1-Butanol	UJ	SOIL	LA-523-455	U	< 41.0	ug/kg	1.00	41	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	107-87-9	2-Pentanone		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	110-82-7	Cyclohexane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	110-54-3	Hexana	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	109-99-9	Tetrahydrofuran	UJ	SOIL	LA-523-455	U	< 4.10	ug/kg	1.00	4.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	75-69-4	Trichloromonofluoromethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	104-51-8	n-Butylbenzana		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	156-60-5	trans-1,2-Dichloroethylene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	75-05-8	Acetonitrile	UJ	SOIL	LA-523-455	U	< 4.10	ug/kg	1.00	4.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	156-59-2	cis-1,2-Dichloroethylene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
~~W050002028~~	~~B1D994~~	~~TRENT~~	~~TPHDIESEL~~	~~Total Pet. Hydrocarbons Diesel~~		~~SOIL~~	~~NWTPH~~	~~U~~	~~< 3.80e+03~~	~~ug/kg~~	~~1.00~~	~~3.8e+03~~	~~07/21/05~~	~~06/29/05~~	~~06/29/05~~
~~W050002028~~	~~B1D994~~	~~TRENT~~	~~TPHKEROSENE~~	~~Kerosene~~		~~SOIL~~	~~NWTPH~~	~~U~~	~~< 3.80e+03~~	~~ug/kg~~	~~1.00~~	~~3.8e+03~~	~~07/21/05~~	~~06/29/05~~	~~06/29/05~~

LS
3-12-2010

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051350

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
~~W050002036~~	~~B1D995~~	~~TRENT~~	~~95-63-6~~	~~1,2,4-Trimethylbenzene~~		~~SOIL~~	~~LA-523-455~~	~~U~~	~~< 100~~	~~ug/kg~~	~~1.00~~	~~1.6e+02~~	~~07/20/05~~	~~06/30/05~~	~~06/30/05~~
W050002036	B1D995	TRENT	75-35-4	1,1-Dichloroethene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	79-01-6	Trichloroethene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	71-43-2	Benzene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	108-88-3	Toluene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	108-90-7	Chlorobenzene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-34-3	1,1-Dichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	100-41-4	Ethylbenzene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	100-42-5	Styrene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	10061-01-5	cis-1,3-Dichloropropene	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	10061-02-6	trans-1,3-Dichloropropene	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	107-06-2	1,2-Dichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	108-10-1	4-Methyl-2-Pentanone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	124-48-1	Dibromochloromethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	127-18-4	Tetrachloroethene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	1330-20-7	Xylenes (total)		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	540-59-0	1,2-Dichloroethene(Total)		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	56-23-5	Carbon tetrachloride		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	591-78-6	2-Hexanone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	67-64-1	Acetone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	67-66-3	Chloroform		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	71-55-6	1,1,1-Trichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	74-83-9	Bremomethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	74-87-3	Chloromethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-00-3	Chloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-01-4	Vinyl chloride		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-09-2	Methylenechloride		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05

MDL=Minimum Detection Limit 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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051350

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W050002036	B1D995	TRENT	75-15-0	Carbon disulfide	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-25-2	Bromoform		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-27-4	Bromodichloromethane	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	78-87-5	1,2-Dichloropropane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	78-93-3	2-Butanone	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	79-00-5	1,1,2-Trichloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	79-34-5	1,1,2,2-Tetrachloroethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	71-36-3	1-Butanol	UJ	SOIL	LA-523-455	U	< 43.0	ug/kg	1.00	43	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	107-87-9	2-Pentanone		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	110-82-7	Cyclohexane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	110-54-3	Hexane	UJ	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	109-99-9	Tetrahydrofuran	UJ	SOIL	LA-523-455	U	< 4.30	ug/kg	1.00	4.3	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-69-4	Trichloromonofluoromethane		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	104-51-8	n-Butylbenzene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	156-60-5	trans-1,2-Dichloroethylene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-05-8	Acetonitrile	UJ	SOIL	LA-523-455	U	< 4.30	ug/kg	1.00	4.3	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	156-59-2	cis-1,2-Dichloroethylene		SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
~~W050002036~~	~~B1D995~~	~~TRENT~~	~~TPHDIESEL~~	~~Total Pet. Hydrocarbons Diesel~~		~~SOIL~~	~~NWTPH~~	~~U~~	~~< 4.00e+03~~	~~ug/kg~~	~~1.00~~	~~4.0e+03~~	~~07/21/05~~	~~06/30/05~~	~~06/30/05~~
~~W050002036~~	~~B1D995~~	~~TRENT~~	~~TPHKEROSENE~~	~~Kerosene~~		~~SOIL~~	~~NWTPH~~	~~U~~	~~< 4.00e+03~~	~~ug/kg~~	~~1.00~~	~~4.0e+03~~	~~07/21/05~~	~~06/30/05~~	~~06/30/05~~

LS
3-12-2010

MDL=Minimum Detection Limit U - Analyzed for but not detected above limiting criteria.
RQ=Result Qualifier

DF=Dilution Factor
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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041457**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-Z-9/C3426 – Interval 174'-176-5' Trench Characterization Borehole - Soil (B17N67) was received at the WSCF Laboratory on August 23, 2004. The sample was 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- ICP-AES Metals by EPA Method 6010. Analytical work was performed with no deviations to the approved method.
- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- PCB by EPA Method 8080. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. 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.

- Ammonia by EPA Method 300.7. 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.

- Percent Solids by Method 160.3. Analytical work was performed with no deviations to the approved method.

- All RadChem analyses (AEA (Plutonium, Americium, Uranium and Neptunium), GEA, and Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Comments

ICP-MS Metals (Mercury and Uranium only) – 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 GRP Letter of Instruction. See pages 2-18 through 2-19 for QC details. All QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See page(s) 2-17 through 2-20 for QC details. Analytical Notes:

- Sodium – Matrix spike and spike duplicates exceeded the established laboratory limits. Sample result was E (estimate) flagged.

- Aluminum, Iron, Calcium and Magnesium – the spike concentration was insufficient for the sample concentration.

- Aluminum – laboratory control sample exceeds the established laboratory limits, but is within manufacturer's limits. Sample result was not flagged.

All other QC controls are within the established limits.

Anions - 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 GRP Letter of Instruction. See pages 2-20 through 2-21 for QC details. Analytical Notes:

- Chloride - Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

- Sulfate – Duplicate Relative Percent Difference exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

PCB – 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 GRP Letter of Instruction. See pages 2-29 through 2-30 for QC details. Analytical Notes:

- Sample results are moisture corrected and reported on a dry weight basis.
- Decachlorobiphenyl surrogate spike Relative Percent Difference slightly exceeded established limits. Matrix Spike and Matrix Spike Duplicate recoveries were within limit; sample results were not flagged.

All other QC controls are within the established limits

Semi-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 GRP Letter of Instruction. See pages 2-32 through 2-38 for QC details. Analytical Notes:

- Sample results are moisture corrected and reported on a dry weight basis.
- Pentachlorophenol – laboratory control sample recovery was below established laboratory limits. Matrix spike duplicate recoveries are below established limits. Sample result was J (estimate) flagged.
- N-Nitrosodi-n-dipropylamine – The matrix spike duplicate exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.
- Di-n-butylphthalate – Sample result J flagged; the target compound indicates that it was found at a concentration below that of the lowest calibration standard but above the detection limit.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 2-28 for QC details. Analytical Note:

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

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 GRP Letter of Instruction. See pages 2-25 through 2-27 for QC details. Analytical Note:

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

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 the GRP Letter of Instruction. See page 2-22 for QC details. Analytical Note:

- The matrix spike recovery is below established limits. The laboratory control sample is within established limits. The sample result is not flagged.

All QC controls are within the established limits.

Ammonia - 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 GRP Letter of Instruction. See pages 2-31 for QC details. Analytical Notes:

- Matrix spike and matrix spike duplicate were analyzed on sample delivery group 20041487, sample B17N70 for this batch.

- Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

All other QC controls are within the established limits.

pH - All laboratory QC controls were within the established limits.

Percent Solid – Analyzed for organic moisture correction only.

RadChem – There are no hold times associated with these WDOE accredited methods. A Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 2-23, 2-24 and 2-45 through 48 for QC details. Analytical Notes:

- Gross Alpha and Gross Beta – The duplicate Relative Percent Differences exceeded the established limits; sample results were not flagged since the sample had low activity and the RPD criteria does not apply.

- Neptunium-237 – the laboratory control sample recovery was below the established laboratory limits. Duplicate relative percent difference exceeded established laboratory limits. Sample result is X (estimated) flagged.

- Americium-241 – duplicate relative percent difference exceeded established laboratory limits; sample result was not flagged since the sample had low activity and the RPD criterion does not apply.

- Pu-239/240 - duplicate relative percent difference exceeded established laboratory limits; sample result was not flagged since the sample had low activity and the RPD criterion does not apply.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		Am-243	65.0
LCS		Am-243	80.14
B17N57	W040001533	Am-243	78.2
DUPLICATE	W040001533	Am-243	68.8
BLANK		Pu-242	77.3
LCS		Pu-242	71.9
B17N57	W040001533	Pu-242	81.0
DUPLICATE	W040001533	Pu-242	70.7
BLANK		U-232	83.1
LCS		U-232	71.7
B17N57	W040001533	U-232	80.7
DUPLICATE	W040001533	U-232	82.4

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.

Herlene S. Rich
WSCF Production Control

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

0000007

9/22

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-019	Page 1 of 1
Collector: Pope/Pfister/Hughes	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location: 216-Z-9/C3426 - Interval 174'-176.5'	SAF No.: F03-018	
Ice Chest No.	Field Logbook No.: HNF-~~N-9361~~ 360-1 (1st 9/14/04); COA: 119152ES10	Method of Shipment: Government Vehicle	
Shipped To: Waste Sampling & Characterization 20041457	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage
RADIOACTIVE TIE TO: B17NN7

Preservation	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None					
Type of Container	aGs*	P	aG	aG	aG	aG					
No. of Container(s)	3	1	1	1	1	1					
Volume	40mL	500mL	60mL	120mL	60mL	60mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	See item (5) in Special Instructions.					

Sample No.	Matrix *	Sample Date	Sample Time										
B17N67	SOIL	8/23/04	1309	X	X	X	X	X	X				
W04000153 3													

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Lorraine Wolfe Wolfe	Date/Time: 14:12 8/23/04	Received By/Stored In: Victor Bins	Date/Time: 8/23/04 14:12
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** The laboratory is to achieve a detection limit of 5 pCi/g and 10 pCi/g for gross alpha and gross beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

CCC 10/11/04 3-2

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041487**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-Z-9/C3426 – Interval 184'-186.5' Trench Characterization Borehole - Soil GRP sample (B17N70) was received at the WSCF Laboratory on August 25, 2004. The sample was 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- ICP-AES Metals by EPA Method 6010. Analytical work was performed with no deviations to the approved method.
- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. 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.

- Ammonia by EPA Method 300.7. 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.

- Percent Solids by EPA Method 160.3. Analytical work was performed with no deviations to the approved method.

- All RadChem analyses (AEA (Plutonium, Americium, Uranium, Neptunium) GEA, Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Comments

ICP-MS Metals (Uranium and Mercury only) – 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 GRP Letter of Instruction. See page 2-18 through 2-19 for QC details. All GRP sample delivery groups associated with this batch QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See pages 2-37 through 2-42 for QC details. Analytical Notes:

- Sodium – The matrix spike and matrix spike duplicate for sample B190V5 (SDG# 20041417) associated with this batch exceeded established laboratory limits. The sample result was E (estimate) flagged.

- Potassium - The matrix spike duplicate for sample B190V5 (SDG# 20041417) associated with this batch exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.

- Aluminum, Iron, Magnesium and Calcium - the spike concentration was insufficient for the sample concentration.

- Aluminum – the Laboratory Control Sample recovery exceeded established laboratory limits but was within the manufacturer's limits. Sample result was not flagged.

All other QC controls are within the established limits.

Anions - The hold times for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 2-20 through 2-21 for QC details. Analytical Notes:

- Chloride – Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

- Sulfate - Duplicate Relative Percent Difference for the batch exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 2-30 through 2-36 for QC details. Analytical Notes:

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

- Pentachlorophenol - laboratory control sample recovery was below established laboratory limits. The sample result was less than the detection limit and not flagged.

- N-Nitrosodi-n-dipropylamine - The matrix spike duplicate for sample B17N67 (SDG# 20041457) associated with this batch exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 2-26 for QC details. Analytical Note:

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

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 GRP Letter of Instruction. See page(s) 2-22 through 2-24 for QC details. Analytical Notes:

- Styrene – Sample result J flagged; the target compound indicates that it was found at a concentration below that of the lowest calibration standard but above the detection limit.

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

All other 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 the GRP Letter of Instruction. See page 2-27 for QC details. Analytical Note:

- The matrix spike recovery was below established laboratory limits. The matrix spike duplicate was within limits and all other QC controls were within limits. The sample result was not flagged.

All other QC controls are within the established limits.

Ammonia - 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 GRP Letter of Instruction. See page 2-28 for QC details. Analytical Note:

- Duplicate Relative Percent Difference for the batch exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

pH - All laboratory QC controls are within the established limits.

Percent Solids – run for organic analysis moisture correction only.

RadChem – There are no hold times associated with these WDOE accredited methods. A Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 2-25, 2-29, 2-43 through 2-46 for QC details. Analytical Notes:

- Neptunium-237 – The Duplicate Relative Percent Difference is below the established laboratory limit. The RPD criterion is not applicable to sample activity below the detection limit.

- Americium-241 and Plutonium-239-240 – Duplicate Relative Percent Differences are above the established laboratory limits. The sample was in a soil matrix and non-homogeneous. Sample results were not flagged.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery

Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		Pu-242	64.3
LCS		Pu-242	72.6
B17N70	W040001543	Pu-242	77.4
DUPLICATE	W040001543	Pu-242	72.3
BLANK		Am-243	80.1
LCS		Am-243	88.7
B17N70	W040001543	Am-243	70.4

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
DUPLICATE	W040001543	Am-243	89.1
BLANK		U-232	86.1
LCS		U-232	80.1
B17N70	W040001543	U-232	84.3
DUPLICATE	W040001543	U-232	89.2

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.

Herlene S. Rich
WSCF Production Control

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

9/23/04

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-021	Page 1 of 1
Collector: Pope/Pfister/Hughes	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location: 216-Z-9/C3426 - Interval 184'-186.5'	SAF No.: F03-018	
Ice Chest No.	Field Logbook No.: HNF-~~N3361~~ 7 4/8/04 360-1; COA: 119152ES10	Method of Shipment: Government Vehicle	
Shipped To: Waste Sampling & Characterization	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NN8

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None						
Type of Container	aGs*	P	aG	aG	aG						
No. of Container(s)	3	1	1	1	1						
Volume	40mL	500mL	60mL	120mL	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.						

SDG # 20041487

Sample No.	Matrix *	Sample Date	Sample Time										
B17N70 W04000543	SOIL	8/25/04	1135	X	X	X	X	X					

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[illegible] / David Tyler	8/25/04 1300	[illegible] / [illegible]	8/25/04 1300

SPECIAL INSTRUCTIONS

** The laboratory is to achieve a detection limit of 5 pCi/g and 10 pCi/g for gross alpha and gross beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA – 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

010057

3 - 2

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041594**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

Two (2) 216-Z-9/C3426 – Interval 224'-226.5' Trench Characterization Borehole - Soil GRP samples (B17N73 and B17NL5) were received at the WSCF Laboratory on September 9, 2004. 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

Inorganic

- Ammonia by EPA Method 300.7. Analytical work was performed with no deviations to the approved method.
- 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-AES Metals by EPA Method 6010. 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

- PCBs by EPA Method 8082. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. Analytical work was performed with no deviations to the approved method.

Radiochemistry

- All RadChem analyses (AEA (Plutonium, Americium, Uranium, Neptunium) GEA, Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 13 for QC details. Analytical Note:

- The sample results were less than the reporting detection limit, but greater than the method detection limit. The sample results were B flagged.

All QC controls are within the established limits.

Anions - The hold times for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 14 through 15 for QC details. Analytical Note:

- Chloride - The sample results for B17N73 and B17NL5 were less than the reporting detection limit, but greater than the method detection limit. The sample results were B flagged.
- Sulfate - The sample result for B17N73 was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.
- Nitrate - The sample result for B17NL5 was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

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 the GRP Letter of Instruction. See page 16 for QC details. Analytical Note:

- The Matrix and Matrix Spike Duplicate recoveries were below established laboratory limits. Sample results were below the detection limit and not flagged.

All other QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See pages 17 through 21 for QC details. Analytical Notes:

- Potassium – The Matrix Spike exceeded established laboratory limits. All other QC samples were within limits and the sample results were not flagged.

- Sodium – The Matrix Spike, Matrix Spike Duplicate and Relative Percent Difference were above established laboratory limits. Sample results were E (estimate) flagged.

- Silver – The Matrix Spike Duplicate was below established laboratory limits, making the Matrix Spike and Matrix Spike Duplicate Relative Percent Difference above established limits. The Laboratory Control Sample recovery was low. Sample B17N73 result was E (estimate) flagged.

- Phosphorus – The Matrix Spike Duplicate was below established laboratory limits. All other QC samples were within limits and the sample results were not flagged.

- Aluminum – the Laboratory Control Sample recovery exceeded established limits. The recovery was within manufacturer's limits and the sample results were not flagged.

- Iron and Strontium – the Laboratory Control Sample recoveries were above established limits. The recoveries were within manufacturer's limits and the sample results were not flagged.

All other QC controls are within the established limits.

ICP-MS Metals (Mercury and Uranium) – 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 GRP Letter of Instruction. See page 22 for QC details. Analytical Note:

- Mercury – The Laboratory Control Sample recovery exceeded established laboratory limits. All other QC controls were within limits, sample results were not flagged.

All other QC controls are within the established limits.

Percent Solids – analyzed for organic analysis correction only.

pH - The hold time for this analysis was met. All laboratory QC controls are within the established limits.

Organic Comments

- Organic sample results are moisture corrected and reported on dry weight basis.

PCBs – 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 GRP Letter of Instruction. See pages 32 through 33 for QC details. All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 34 through 41 for QC details. Analytical Note:

- Diethylphthalate and Di-n-butylphthalate- sample results were J flagged; results were less than the lowest calibration standard but greater than the detection limit.

All QC controls are within the established limits.

TPHD/G-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 42 through 43 for QC details. 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 GRP Letter of Instruction. See pages 44 through 47 for QC details. Analytical Notes:

- A Matrix Spike and Matrix Spike Duplicate were analyzed on sample B191F8 (SDG#20041555, SAF#F03-025). All recoveries were within established laboratory limits.

- Toluene – Laboratory Control Sample Recovery was above established limits due to column carry over from sample W04DC00159. All other QC controls were within limits and the sample results were not flagged.

All other QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with these WDOE accredited methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 48 through 56 for QC details. Analytical Note:

- Americium-241 - The Duplicate Relative Percent Difference exceeded the established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

- Europium-155, Gross Alpha, Gross Beta and Plutonium-239/240 - The Duplicate Relative Percent Difference exceeded established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

- Neptunium-137 - The Duplicate Relative Percent Difference and Laboratory Control Sample recovery exceeded established limits. The sample results were under the detection limit and not flagged. Sample results should be considered suspect.

- Gross Alpha and Gross Beta - The Duplicate Relative Percent Difference exceeded the established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery

Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		U-232	74.6
LCS		U-232	73.2
B1B625	W040001577	U-232	79.1
DUPLICATE	W040001577	U-232	90.1
B07N73	W040001610	U-232	82.2
B17NL5	W040001612	U-232	88.3
BLANK		Sr-85	90.0
LCS		Sr-85	86.9
B1B625	W040001577	Sr-85	101.7
DUPLICATE	W040001577	Sr-85	89.5
BLANK		Pu-242	75.6
LCS		Pu-242	79.3
B1B625	W040001577	Pu-242	74.0

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
DUPLICATE	W040001577	Pu-242	78.6
B07N73	W040001610	Pu-242	71.7
B17NL5	W040001612	Pu-242	86.2
BLANK		Am-243	89.6
LCS		Am-243	68.7
B1B625	W040001577	Am-243	84.2
DUPLICATE	W040001577	Am-243	77.4
B07N73	W040001610	Am-243	79.0
B17NL5	W040001612	Am-243	83.3

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.

Herlene S. Rich
WSCF Production Control

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

10/7

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-023	Page 1 of 1
Collector: Pope/Pfister/Hughes	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Air Quality ☐; Data Turnaround: 45 Days
Project Designation: 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location: 216-Z-9/C3426 - Interval 224'-226.5'	SAF No.: F03-018	
Ice Chest No.	Field Logbook No.: HNF-N-~~3361~~ 361-1 4/8/04; COA: 119152ES10	Method of Shipment: Government Vehicle	
Shipped To: Waste Sampling & Characterization	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NN9

20041594

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None						
Type of Container	aGs*	P	aG	aG	aG						
No. of Container(s)	3	1	1	1	1						
Volume	40mL	500mL	60mL	120mL	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	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										
B17N73	SOIL	9/9/04	0820	X	X	X	X	X					
W04000160													

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Dana Wikoy Wanning	Date/Time: 9/9/04 1005	Received By/Stored In: [illegible]	Date/Time: 9/9/04 1005
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

The lab is to achieve a detection limit of 5 pCi/g & 10 pCi/g for gross alpha and beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237

(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}

(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}

(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-026	Page 1 of 1
Collector Pope/Pfister/Hughes	Company Contact Steve Trent Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code 8N Data Turnaround 45 Days Air Quality ☐
Project Designation 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location 216-Z-9/C3426 - Interval 228.5'-233'	SAF No. F03-018	
Ice Chest No.	Field Logbook No. HNF-N-~~9361~~ 361-1 4/19/04 COA 117506ES10	Method of Shipment Government Vehicle	
Shipped To Waste Sampling & Characterization	Offsite Property No. N/A	Bill of Lading/Air Bill No. N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NP0

Preservation	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None				
Type of Container	aGs*	P	aG	aG	aG	aG				
No. of Container(s)	3	1	1	1	1	1				
Volume	40mL	500mL	60mL	120mL	60mL	60mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	See item (5) in Special Instructions.				

Sample No.	Matrix *	Sample Date	Sample Time										
B17NL5	SOIL	9/9/04	0858	X	X	X	X	X	X				
WO4000161Z													

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Pfister [signature]	9/9/04 1000	[signature]	9/9/04 1000

SPECIAL INSTRUCTIONS

The lab is to achieve a detection limit of 5 pCi/g & 10 pCi/g for gross alpha and beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA – 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

Attachment 1
Narrative

Sample Delivery Group	**WSCF20051337**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F05-023**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-A-8 Crib Characterization Borehole sample/I-7 (B1D994) was received at the WSCF Laboratory on June 29, 2005. The sample was 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

Refer to *WSCF Method References Report,* pages 45 through 46, for a complete listing of approved analytical methods.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 11 for QC details. Analytical Notes:

- Sample B1D994 result was B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.
- Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. RPD criterion not applicable to low level sample.

All other QC controls are within the established limits.

Anions - The hold times for this analysis were met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 12 through 13 for QC details. Analytical Note:

- Preparation Date: 07-jul-2005.

All QC controls are within the established limits.

ICP-AES Metals (Bismuth and Phosphorus) – 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 GRP Letter of Instruction. See page 14 for QC details. Analytical Notes:

- Preparation Date: 18-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D7D0 (SDG# 20051234, F05-023).
- Phosphorus: insufficient spike concentration. Sample concentration was greater than four times the spike concentration.
- Bismuth: The analyte detected in the associated preparation Blank sample was evaluated and there was no significant effect on the sample result.

All other 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 GRP Letter of Instruction. See pages 15 through 17 for QC details. Analytical Notes:

- Preparation Date: 06-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D993 (SDG# 20051319, SAF# F05-023).

All QC controls are within the established limits.

Percent Solids – analyzed for organic moisture correction.

pH - See page 18 for QC details.

Organic Comments

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

PCBs – 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 GRP Letter of Instruction. See pages 24 through 25 for QC details. Analytical Note:

- Preparation Date: 08-jul-2005.

All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 26 through 31 for QC details. Analytical Note:

- Preparation Date: 08-jul-2005.

TPHD-WA - 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 GRP Letter of Instruction. See page 32 for QC details. Analytical Note:

- Preparation Date: 08-jul-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 GRP Letter of Instruction. See pages 33 through 36 for QC details. Analytical Note:

- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).

All QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with WSCF's radiochemical methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 38 through 42 for QC details. Analytical Notes:

- GEA – Duplicate QC sample was analyzed on sample# B1DCK1 (SDG# 20051304, F05-026).

- Americium-241, Plutonium-238, Plutonium-239/240, Uranium-233/234, Uranium-235 and Uranium-238 – Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).

- Uranium-235 and Uranium-238– Duplicate Relative Percent Difference (RPD) was above established limits due to batch sample and duplicate were not homogeneous.

All other QC controls are within the established limits.

Plutonium-242, Americium-243 and Uranium-232 – Radiochemical Tracer Recovery Data are summarized below:

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
Americium-243			
BLANK		Am-243	90.1%

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
LCS		Am-243	99.6%
B1D992	W050001997	Am-243	90.7%
DUPLICATE	W050001997	Am-243	88.3%
B1D994	W050002028	Am-243	91.7%
Plutonium-242			
BLANK		Pu-242	81.9%
LCS		Pu-242	89.4%
B1D992	W050001997	Pu-242	78.6%
DUPLICATE	W050001997	Pu-242	83.9%
B1D994	W050002028	Pu-242	89.5%
Strontium-85			
BLANK		Sr-85	89.6%
LCS		Sr-85	94.1%
B1D994	W050002028	Sr-85	87.0%
DUPLICATE	W050002028	Sr-85	95.7%
Uranium-232			
BLANK		U-232	64.1%
LCS		U-232	71.3%
B1D992	W050001997	U-232	92.1%
DUPLICATE	W050001997	U-232	75.6%
B1D994	W050002028	U-232	82.0%

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

F05-023-027

COLLECTOR Pope/Pfister/Mokler/Weis/Tyra 7/25	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ
PRICE CODE 8N	**DATA TURNAROUND** 45 Days / ~~45 Days~~ 4/29/5		
SAMPLING LOCATION 216-A-8, I-7	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole	**SAF NO.** F05-023	**AIR QUALITY** ☐
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 119152ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**

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

SPECIAL HANDLING AND/OR STORAGE

Z0051357

PRESERVATION			Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None				
TYPE OF CONTAINER			aGs*	aG	G/P	aG	G/P	Square Bottle - Poly				
NO. OF CONTAINER(S)			3	1	1	1	1	1				
VOLUME			40mL	120mL	120mL	120mL	120mL	500mL				
SAMPLE ANALYSIS			SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS				
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**									
B1D994	SOIL	6/29/5	0905	X	X	X	X	X	X			
W05C002028												

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[illegible]	6/29/05 1000	TA FRAZIER [illegible]	6/29/05 1000

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

B1D989 IS TIED TO THIS CHAIN

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			F05-023-027	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Mokler/Weis/Tyra	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ	**PRICE CODE** 8N	**DATA TURNAROUND**
SAMPLING LOCATION 216-A-8, I-7	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole		**SAF NO.** F05-023	**AIR QUALITY** ☐	**45 Days**
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 119152ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE		
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

P.D.M P.D.Mix 7/5/2005 P.D.M P.D.Mix 7/5/2005

(1)VOA - 8260B (TCL); VOA - 8260B (Add-On) {1-Butanol, 1-Propanol, 2-Pentanone, Acetonitrile, Cyclohexane, Ethanol, Hexane, Tetrahydrofuran, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2)Semi-VOA - 8270A (TCL); Semi-VOA - 8270B (Add-On) {1,2,4-Trimethylbenzene, 2-Butoxyethanol, 2-Naphthylamine, 3+4 Methylphenol (cresol, m+p), Benzyl alcohol, Cyclohexanone, Decane, Pyridine, Tributyl phosphate} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(3)ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Nickel, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8_HG - ICPMS; ICP Metals - 6010B (Add-On) {Bismuth, Phosphorus}
(4)IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate} Cations (IC) - 300.7 {Nitrogen in ammonium} pH - 150.1;
(5)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} ~~Gamma Spec - Add-on {Antimony-125, Cesium-134} Gross Alpha; Gross Beta;~~ Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr;

MAB 6/6/05

A-6003-618(03/03)

Attachment 1
Narrative

Sample Delivery Group	**WSCF20051350**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F05-023**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-A-8 Crib Characterization Borehole sample/I-8 (B1D995) was received at the WSCF Laboratory on June 30, 2005. The sample was 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

Refer to *WSCF Method References Report,* pages 45 through 46, for a complete listing of approved analytical methods.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 11 for QC details. Analytical Notes:

- Duplicate, Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).
- Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. However, all other QC controls are within the established limits.

Anions - The hold times for this analysis were met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 12 through 13 for QC details. Analytical Notes:

- Preparation Date: 07-jul-2005.
- Duplicate, Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

All QC controls are within the established limits.

ICP-AES Metals (Bismuth and Phosphorus) – 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 GRP Letter of Instruction. See page 14 for QC details. Analytical Notes:

- Preparation Date: 18-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D7D0 (SDG# 20051234, SAF# F05-023).
- Phosphorus: insufficient spike concentration. Sample concentration was greater than four times the spike concentration.
- Bismuth: The analyte detected in the associated preparation Blank sample was evaluated and there was no significant effect on the sample result.

All other 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 GRP Letter of Instruction. See pages 15 through17 for QC details. Analytical Notes:

- Preparation Date: 06-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D993 (SDG# 20051319, SAF# F05-023).

All QC controls are within the established limits.

Percent Solids – analyzed for organic moisture correction.

pH - Duplicate QC sample was analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023). See page 18 for QC details.

Organic Comments

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

PCBs – 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 GRP Letter of Instruction. See pages 24 through 25 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 26 through 31 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

TPHD-WA - 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 GRP Letter of Instruction. See page 32 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

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 GRP Letter of Instruction. See pages 33 through 35for QC details.

All QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with WSCF's radiochemical methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 37 through 41 for QC details. Analytical Notes:

- Americium-241, Plutonium-238, Plutonium-239/240, Uranium-233/234, Uranium-235 and Uranium-238 – Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).
- Strontium-90 – Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).
- Uranium-235 and Uranium-238– Duplicate Relative Percent Difference (RPD) was above established limits due to batch sample and duplicate were not homogeneous.

All other QC controls are within the established limits.

Americium-243, Plutonium-242, Strontium-85 and Uranium-232 – Radiochemical Tracer Recovery Data are summarized below:

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
Americium-243			
BLANK		Am-243	90.1%
LCS		Am-243	99.6%
B1D992	W050001997	Am-243	90.7%
DUPLICATE	W050001997	Am-243	88.3%
B1D995	W050002036	Am-243	91.7%
Plutonium-242			
BLANK		Pu-242	81.9%
LCS		Pu-242	89.4%
B1D992	W050001997	Pu-242	78.6%
DUPLICATE	W050001997	Pu-242	83.9%
B1D995	W050002036	Pu-242	89.5%
Strontium-85			
BLANK		Sr-85	89.6%
LCS		Sr-85	94.1%
B1D994	W050002028	Sr-85	87.0%
DUPLICATE	W050002028	Sr-85	95.7%
B1D995	W050002036	Sr-85	92.6%
Uranium-232			
BLANK		U-232	64.1%
LCS		U-232	71.3%
B1D992	W050001997	U-232	92.1%
DUPLICATE	W050001997	U-232	75.6%
B1D995	W050002036	U-232	82.0%

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	F05-023-028	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8N	DATA TURNAROUND
Pope/Pfister/Mokler/Weis/Tyra	TRENT, SJ	373-5869	TRENT, SJ		45 Days / ~~45 Days~~ 6/30/05
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY** ☐	
216-A-8, I-8	216-A-8 Crib Characterization Borehole		F05-023		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**COA**	**METHOD OF SHIPMENT**		
	HNF-N-336-1	119152ES10	GOVERNMENT VEHICLE		
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
Waste Sampling & Characterization					

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

POSSI8LE SAMPLE HAZARDS/ REMARKS

SPECIAL HANDLING AND/OR STORAGE

20051350

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

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME									
B1D995	SOIL	6/30/5	0705	X	X	X	X	X	X			
1005 0002036												

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
J.W. [illegible]	6/30/5 0820	[illegible]	6/30/05 0820

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

TIE TO COC # B1D990

~~B1D~~ 6/30/05

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		F05-023-028	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Mokler/Weis/Tyra	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-S869	**PROJECT COORDINATOR** TRENT, SJ	**PRICE CODE** 8N **AIR QUALITY** ☐	**DATA TURNAROUND** **45 Days**
SAMPLING LOCATION 216-A-8, I-8	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole		**SAF NO.** F05-023	
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 1191S2ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**	

SPECIAL INSTRUCTIONS

(1)VOA - 8260B (TCL); VOA - 8260B (Add-On) {1-Butanol, 1-Propanol, 2-Pentanone, Acetonitrile, Cyclohexane, Ethanol, Hexane, Tetrahydrofuran, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2)Semi-VOA - 8270A (TCL); Semi-VOA - 8270B (Add-On) {1,2,4-Trimethylbenzene, 2-Butoxyethanol, 2-Naphthylamine, 3+4 Methylphenol (cresol, m+p), Benzyl alcohol, Cyclohexanone, Decane, Pyridine, Tributyl phosphate} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(3)ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Nickel, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8 HG - ICPMS; ICP Metals - 6010B (Add-On) {Bismuth, Phosphorus}
(4)IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate} Cations (IC) - 300.7 {Nitrogen in ammonium} pH - 150.1;
(5)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} ~~Gamma Spec - Add-on {Antimony-125, Cesium-134} Gross Alpha; Gross Beta~~; Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr;

MAB 6/6/05

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: CPP 200 Area, D&D-200 Area			DATA PACKAGE: VSR10-011		
VALIDATOR: Carl Schloesslin		LAB: WSCF		DATE: 3-12-2010	
SDG: WSCF2005-1337 & -1350			SDG: WSCF2004-1457, -1487 & -1594		
ANALYSES PERFORMED					
SW-846 8260 X		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)

SAMPLES/MATRIX Soil samples
SDG WSCF20041457: B17N67
SDG WSCF20041487: B17N70
SDG WSCF20041594: B17N73 & B17NL5
SDG WSCF20051337: B1D994
SDG WSCF20051350: B1D995

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

Technical verification documentation present for SDG WSCF20041457 only.

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:

All SDGs: MB data for acetonitrile not provided.

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:

For all SDGs, 5 common analytes spiked only for MS/MSDs and LCSs. 11 target analytes not represented in WSCF2004-1457, -1487 & -1594. 12 target analytes not represented in WSCF2005-1337 & -1350.

WSCF20041594: Toluene LCS %R = 4320% due to sample carryover

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: None

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: None

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: None

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: WSCF20041457
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

Lab ID: W040001533
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	22.200	88.800	% Recov	08/25/04	63.000	117.000	
MS	Benzene	71-43-2	27.160	109.000	% Recov	08/25/04	75.000	129.000	
MS	4-Bromofluorobenzene	460-00-4	49.300	98.600	% Recov	08/25/04	84.000	116.000	
MS	Chlorobenzene	108-90-7	26.350	105.000	% Recov	08/25/04	79.000	119.000	
MS	1,2-Dichloroethane-d4	17060-07-0	59.440	119.000	% Recov	08/25/04	82.000	136.000	
MS	Toluene-d8	2037-26-5	56.570	113.000	% Recov	08/25/04	89.000	119.000	
MS	Toluene	108-88-3	27.540	110.000	% Recov	08/25/04	76.000	120.000	
MS	Trichloroethene	79-01-6	25.800	103.000	% Recov	08/25/04	73.000	123.000	
MSD	1,1-Dichloroethene	75-35-4	20.700	82.800	% Recov	08/25/04	63.000	117.000	
MSD	Benzene	71-43-2	26.900	108.000	% Recov	08/25/04	75.000	129.000	
MSD	4-Bromofluorobenzene	460-00-4	48.310	96.600	% Recov	08/25/04	84.000	116.000	
MSD	Chlorobenzene	108-90-7	27.780	111.000	% Recov	08/25/04	79.000	119.000	
MSD	1,2-Dichloroethane-d4	17060-07-0	59.530	119.000	% Recov	08/25/04	82.000	136.000	
MSD	Toluene-d8	2037-26-5	56.130	112.000	% Recov	08/25/04	89.000	119.000	
MSD	Toluene	108-88-3	26.710	107.000	% Recov	08/25/04	76.000	120.000	
MSD	Trichloroethene	79-01-6	25.500	102.000	% Recov	08/25/04	73.000	123.000	
SPK-RPD	1,1-Dichloroethene	75-35-4	82.800	6.993	RPD	08/25/04	0.000	25.000	
SPK-RPD	Benzene	71-43-2	108.000	0.922	RPD	08/25/04	0.000	25.000	
SPK-RPD	4-Bromofluorobenzene	460-00-4	96.600	2.049	RPD	08/25/04	0.000	25.000	
SPK-RPD	Chlorobenzene	108-90-7	111.000	5.556	RPD	08/25/04	0.000	25.000	
SPK-RPD	1,2-Dichloroethane-d4	17060-07-0	119.000	0.000	RPD	08/25/04	0.000	25.000	
SPK-RPD	Toluene-d8	2037-26-5	112.000	0.889	RPD	08/25/04	0.000	25.000	
SPK-RPD	Toluene	108-88-3	107.000	2.765	RPD	08/25/04	0.000	25.000	
SPK-RPD	Trichloroethene	79-01-6	102.000	0.976	RPD	08/25/04	0.000	25.000	
SURR	4-Bromofluorobenzene	460-00-4	48.860	97.700	% Recov	08/25/04	71.000	125.000	
SURR	1,2-Dichloroethane-d4	17060-07-0	57.960	116.000	% Recov	08/25/04	80.000	134.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SURR	Toluene-d8	2037-26-5	55.830	112.000	% Recov	08/25/04	80.000	126.000	

BATCH QC

BLANK	1,1-Dichloroethane	75-34-3	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1,1,1-Trichloroethane	71-55-6	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1,1,2-Trichloroethane	79-00-5	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1,1,2,2-Tetrachloroethane	79-34-5	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1,1-Dichloroethene	75-35-4	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1,2-Dichloroethane	107-06-2	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1,2-Dichloroethene(Total)	540-59-0	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1-Butanol	71-36-3	< 40	n/a	ug/Kg	08/25/04			U
BLANK	2-Hexanone	591-78-6	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	4-Methyl-2-Pentanone	108-10-1	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Acetone	67-64-1	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Bromodichloromethane	75-27-4	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Benzene	71-43-2	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	4-Bromofluorobenzene	460-00-4	101.50	102.000	% Recov	08/25/04	71.000	125.000	
BLANK	Bromoform	75-25-2	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	n-Butylbenzene	104-51-8	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Carbon disulfide	75-15-0	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Carbon tetrachloride	56-23-5	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Dibromochloromethane	124-48-1	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Chloroform	67-66-3	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Chlorobenzene	108-90-7	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	cis-1,3-Dichloropropene	10061-01-5	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Chloroethane	75-00-3	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1,2-Dichloroethane-d4	17060-07-0	118.20	118.000	% Recov	08/25/04	80.000	134.000	
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1,2-Dichloropropane	78-87-5	< 2.0	n/a	ug/Kg	08/25/04			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Ethylbenzene	100-41-4	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Hexane	110-54-3	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Bromomethane	74-83-9	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Chloromethane	74-87-3	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	2-Butanone	78-93-3	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Methylenechloride	75-09-2	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Tetrachloroethene	127-18-4	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Styrene	100-42-5	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Xylenes (total)	1330-20-7	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Toluene-d8	2037-26-5	112.00	112.000	% Recov	08/25/04	80.000	126.000	
BLANK	Toluene	108-88-3	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	trans-1,3-Dichloropropene	10061-02-6	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Trichloroethene	79-01-6	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Vinyl chloride	75-01-4	< 2.0	n/a	ug/Kg	08/25/04			U
LCS	1,1-Dichloroethene	75-35-4	41.670	83.300	% Recov	08/25/04	70.000	130.000	
LCS	Benzene	71-43-2	53.960	108.000	% Recov	08/25/04	70.000	130.000	
LCS	4-Bromofluorobenzene	460-00-4	98.130	98.100	% Recov	08/25/04	71.000	125.000	
LCS	Chlorobenzene	108-90-7	54.220	108.000	% Recov	08/25/04	70.000	130.000	
LCS	1,2-Dichloroethane-d4	17060-07-0	118.80	119.000	% Recov	08/25/04	80.000	134.000	
LCS	Toluene-d8	2037-26-5	113.60	114.000	% Recov	08/25/04	80.000	126.000	
LCS	Toluene	108-88-3	55.060	110.000	% Recov	08/25/04	70.000	130.000	
LCS	Trichloroethene	79-01-6	51.040	102.000	% Recov	08/25/04	70.000	130.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001533									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	1,1-Dichloroethene	75-35-4	22.200	88.800	% Recov	08/25/04	63.000	117.000	
MS	Benzene	71-43-2	27.160	109.000	% Recov	08/25/04	75.000	129.000	
MS	4-Bromofluorobenzene	460-00-4	49.300	98.600	% Recov	08/25/04	84.000	116.000	
MS	Chlorobenzene	108-90-7	26.350	105.000	% Recov	08/25/04	79.000	119.000	
MS	1,2-Dichloroethane-d4	17060-07-0	59.440	119.000	% Recov	08/25/04	82.000	136.000	
MS	Toluene-d8	2037-26-5	56.570	113.000	% Recov	08/25/04	89.000	119.000	
MS	Toluene	108-88-3	27.540	110.000	% Recov	08/25/04	76.000	120.000	
MS	Trichloroethene	79-01-6	25.800	103.000	% Recov	08/25/04	73.000	123.000	
MSD	1,1-Dichloroethene	75-35-4	20.700	82.800	% Recov	08/25/04	63.000	117.000	
MSD	Benzene	71-43-2	26.900	108.000	% Recov	08/25/04	75.000	129.000	
MSD	4-Bromofluorobenzene	460-00-4	48.310	96.600	% Recov	08/25/04	84.000	116.000	
MSD	Chlorobenzene	108-90-7	27.780	111.000	% Recov	08/25/04	79.000	119.000	
MSD	1,2-Dichloroethane-d4	17060-07-0	59.530	119.000	% Recov	08/25/04	82.000	136.000	
MSD	Toluene-d8	2037-26-5	56.130	112.000	% Recov	08/25/04	89.000	119.000	
MSD	Toluene	108-88-3	26.710	107.000	% Recov	08/25/04	76.000	120.000	
MSD	Trichloroethene	79-01-6	25.500	102.000	% Recov	08/25/04	73.000	123.000	
SPK-RPD	1,1-Dichloroethene	75-35-4	82.800	6.993	RPD	08/25/04	0.000	25.000	
SPK-RPD	Benzene	71-43-2	108.000	0.922	RPD	08/25/04	0.000	25.000	
SPK-RPD	4-Bromofluorobenzene	460-00-4	96.600	2.049	RPD	08/25/04	0.000	25.000	
SPK-RPD	Chlorobenzene	108-90-7	111.000	5.556	RPD	08/25/04	0.000	25.000	
SPK-RPD	1,2-Dichloroethane-d4	17060-07-0	119.000	0.000	RPD	08/25/04	0.000	25.000	
SPK-RPD	Toluene-d8	2037-26-5	112.000	0.889	RPD	08/25/04	0.000	25.000	
SPK-RPD	Toluene	108-88-3	107.000	2.765	RPD	08/25/04	0.000	25.000	
SPK-RPD	Trichloroethene	79-01-6	102.000	0.976	RPD	08/25/04	0.000	25.000	

Lab ID: W040001543

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F03-018
Sample Date: 08/25/04
Receive Date:08/25/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BATCH QC ASSOCIATED WITH SAMPLE									
SURR	4-Bromofluorobenzene	460-00-4	98.380	95.500	% Recov	08/25/04	71.000	125.000	
SURR	1,2-Dichloroethane-d4	17060-07-0	122.20	119.000	% Recov	08/25/04	80.000	134.000	
SURR	Toluene-d8	2037-26-5	115.50	112.000	% Recov	08/25/04	80.000	126.000	
BATCH QC									
BLANK	1,1-Dichloroethane	75-34-3	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1,1,1-Trichloroethane	71-55-6	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1,1,2-Trichloroethane	79-00-5	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1,1,2,2-Tetrachloroethane	79-34-5	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1,1-Dichloroethene	75-35-4	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1,2-Dichloroethane	107-06-2	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1,2-Dichloroethene(Total)	540-59-0	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1-Butanol	71-36-3	< 40	n/a	ug/Kg	08/25/04			U
BLANK	2-Hexanone	591-78-6	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	4-Methyl-2-Pentanone	108-10-1	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Acetone	67-64-1	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Bromodichloromethane	75-27-4	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Benzene	71-43-2	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	4-Bromofluorobenzene	460-00-4	101.50	102.000	% Recov	08/25/04	71.000	125.000	
BLANK	Bromoform	75-25-2	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	n-Butylbenzene	104-51-8	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Carbon disulfide	75-15-0	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Carbon tetrachloride	56-23-5	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Dibromochloromethane	124-48-1	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Chloroform	67-66-3	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Chlorobenzene	108-90-7	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	cis-1,3-Dichloropropene	10061-01-5	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Chloroethane	75-00-3	< 2.0	n/a	ug/Kg	08/25/04			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	1,2-Dichloroethane-d4	17060-07-0	118.20	118.000	% Recov	08/25/04	80.000	134.000	
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	1,2-Dichloropropane	78-87-5	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Ethylbenzene	100-41-4	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Hexane	110-54-3	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Bromomethane	74-83-9	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Chloromethane	74-87-3	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	2-Butanone	78-93-3	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Methylenechloride	75-09-2	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Tetrachloroethene	127-18-4	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Styrene	100-42-5	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Xylenes (total)	1330-20-7	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Toluene-d8	2037-26-5	112.00	112.000	% Recov	08/25/04	80.000	126.000	
BLANK	Toluene	108-88-3	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	trans-1,3-Dichloropropene	10061-02-6	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Trichloroethene	79-01-6	< 2.0	n/a	ug/Kg	08/25/04			U
BLANK	Vinyl chloride	75-01-4	< 2.0	n/a	ug/Kg	08/25/04			U
LCS	1,1-Dichloroethene	75-35-4	41.670	83.300	% Recov	08/25/04	70.000	130.000	
LCS	Benzene	71-43-2	53.960	108.000	% Recov	08/25/04	70.000	130.000	
LCS	4-Bromofluorobenzene	460-00-4	98.130	98.100	% Recov	08/25/04	71.000	125.000	
LCS	Chlorobenzene	108-90-7	54.220	108.000	% Recov	08/25/04	70.000	130.000	
LCS	1,2-Dichloroethane-d4	17060-07-0	118.80	119.000	% Recov	08/25/04	80.000	134.000	
LCS	Toluene-d8	2037-26-5	113.60	114.000	% Recov	08/25/04	80.000	126.000	
LCS	Toluene	108-88-3	55.060	110.000	% Recov	08/25/04	70.000	130.000	
LCS	Trichloroethene	79-01-6	51.040	102.000	% Recov	08/25/04	70.000	130.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F03-018
Sample Date: 09/07/04
Receive Date:09/07/04

Lab ID: W040001570
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	24.020	96.100	% Recov	09/16/04	63.000	117.000	
MS	Benzene	71-43-2	27.660	111.000	% Recov	09/16/04	75.000	129.000	
MS	4-Bromofluorobenzene	460-00-4	49.760	99.500	% Recov	09/16/04	84.000	116.000	
MS	Chlorobenzene	108-90-7	27.140	109.000	% Recov	09/16/04	79.000	119.000	
MS	1,2-Dichloroethane-d4	17060-07-0	58.150	116.000	% Recov	09/16/04	82.000	136.000	
MS	Toluene-d8	2037-26-5	54.290	109.000	% Recov	09/16/04	89.000	119.000	
MS	Toluene	108-88-3	27.180	109.000	% Recov	09/16/04	76.000	120.000	
MS	Trichloroethene	79-01-6	26.660	107.000	% Recov	09/16/04	73.000	123.000	
MSD	1,1-Dichloroethene	75-35-4	23.930	95.700	% Recov	09/16/04	63.000	117.000	
MSD	Benzene	71-43-2	27.610	110.000	% Recov	09/16/04	75.000	129.000	
MSD	4-Bromofluorobenzene	460-00-4	49.670	99.300	% Recov	09/16/04	84.000	116.000	
MSD	Chlorobenzene	108-90-7	27.770	111.000	% Recov	09/16/04	79.000	119.000	
MSD	1,2-Dichloroethane-d4	17060-07-0	59.350	119.000	% Recov	09/16/04	82.000	136.000	
MSD	Toluene-d8	2037-26-5	54.750	110.000	% Recov	09/16/04	89.000	119.000	
MSD	Toluene	108-88-3	27.520	110.000	% Recov	09/16/04	76.000	120.000	
MSD	Trichloroethene	79-01-6	26.670	107.000	% Recov	09/16/04	73.000	123.000	
SPK-RPD	1,1-Dichloroethene	75-35-4	95.700	0.417	RPD	09/16/04	0.000	25.000	
SPK-RPD	Benzene	71-43-2	110.000	0.905	RPD	09/16/04	0.000	25.000	
SPK-RPD	4-Bromofluorobenzene	460-00-4	99.300	0.201	RPD	09/16/04	0.000	25.000	
SPK-RPD	Chlorobenzene	108-90-7	111.000	1.818	RPD	09/16/04	0.000	25.000	
SPK-RPD	1,2-Dichloroethane-d4	17060-07-0	119.000	2.553	RPD	09/16/04	0.000	25.000	
SPK-RPD	Toluene-d8	2037-26-5	110.000	0.913	RPD	09/16/04	0.000	25.000	
SPK-RPD	Toluene	108-88-3	110.000	0.913	RPD	09/16/04	0.000	25.000	
SPK-RPD	Trichloroethene	79-01-6	107.000	0.000	RPD	09/16/04	0.000	25.000	

Lab ID: W040001610

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F03-018
Sample Date: 09/09/04
Receive Date:09/09/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BATCH QC ASSOCIATED WITH SAMPLE									
SURR	4-Bromofluorobenzene	460-00-4	50.990	102.000	% Recov	09/16/04	71.000	125.000	
SURR	1,2-Dichloroethane-d4	17060-07-0	59.460	119.000	% Recov	09/16/04	80.000	134.000	
SURR	Toluene-d8	2037-26-5	54.280	109.000	% Recov	09/16/04	80.000	126.000	
Lab ID: W040001612									
BATCH QC ASSOCIATED WITH SAMPLE									
SURR	4-Bromofluorobenzene	460-00-4	48.580	97.200	% Recov	09/16/04	71.000	125.000	
SURR	1,2-Dichloroethane-d4	17060-07-0	57.150	114.000	% Recov	09/16/04	80.000	134.000	
SURR	Toluene-d8	2037-26-5	54.610	109.000	% Recov	09/16/04	80.000	126.000	
BATCH QC									
BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	1,1,2,2-Tetrachloroethane	79-34-5	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	1,2-Dichloroethene(Total)	540-59-0	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	1-Butanol	71-36-3	< 20	n/a	ug/Kg	09/16/04			U
BLANK	2-Hexanone	591-78-6	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Acetone	67-64-1	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Bromodichloromethane	75-27-4	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	4-Bromofluorobenzene	460-00-4	49.340	98.700	% Recov	09/16/04	71.000	125.000	
BLANK	Bromoform	75-25-2	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	n-Butylbenzene	104-51-8	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/Kg	09/16/04			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Dibromochloromethane	124-48-1	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	cis-1,3-Dichloropropene	10061-01-5	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Chloroethane	75-00-3	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	1,2-Dichloroethane-d4	17060-07-0	60.160	120.000	% Recov	09/16/04	80.000	134.000	
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	1,2-Dichloropropane	78-87-5	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Ethylbenzene	100-41-4	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Hexane	110-54-3	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Bromomethane	74-83-9	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Chloromethane	74-87-3	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	2-Butanone	78-93-3	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Methylenechloride	75-09-2	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Styrene	100-42-5	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Toluene-d8	2037-26-5	54.630	109.000	% Recov	09/16/04	80.000	126.000	
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	trans-1,3-Dichloropropene	10061-02-6	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/Kg	09/16/04			U
BLANK	Vinyl chloride	75-01-4	< 1.0	n/a	ug/Kg	09/16/04			U
LCS	1,1-Dichloroethene	75-35-4	53.950	108.000	% Recov	09/16/04	70.000	130.000	
LCS	Benzene	71-43-2	54.930	110.000	% Recov	09/16/04	70.000	130.000	
LCS	4-Bromofluorobenzene	460-00-4	112.90	113.000	% Recov	09/16/04	71.000	125.000	
LCS	Chlorobenzene	108-90-7	54.970	110.000	% Recov	09/16/04	70.000	130.000	
LCS	1,2-Dichloroethane-d4	17060-07-0	115.00	115.000	% Recov	09/16/04	80.000	134.000	
LCS	Toluene-d8	2037-26-5	111.00	111.000	% Recov	09/16/04	80.000	126.000	
LCS	Toluene	108-88-3	2160.0	4320.000	% Recov	09/16/04	70.000	130.000	*

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Trichloroethene	79-01-6	51.150	102.000	% Recov	09/16/04	70.000	130.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F05-023
Sample Date: 06/23/05
Receive Date:06/23/05

Lab ID: W050001997
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	23.090	92.400	% Recov	07/06/05	63.000	117.000	
MS	Benzene	71-43-2	22.310	89.200	% Recov	07/06/05	75.000	129.000	
MS	4-Bromofluorobenzene	460-00-4	52.070	104.000	% Recov	07/06/05	84.000	116.000	
MS	Chlorobenzene	108-90-7	24.190	96.800	% Recov	07/06/05	79.000	119.000	
MS	1,2-Dichloroethane-d4	17060-07-0	48.900	97.800	% Recov	07/06/05	82.000	136.000	
MS	Toluene-d8	2037-26-5	53.520	107.000	% Recov	07/06/05	89.000	119.000	
MS	Toluene	108-88-3	24.630	98.500	% Recov	07/06/05	76.000	120.000	
MS	Trichloroethene	79-01-6	24.260	97.000	% Recov	07/06/05	73.000	123.000	
MSD	1,1-Dichloroethene	75-35-4	36.950	87.100	% Recov	07/06/05	63.000	117.000	
MSD	Benzene	71-43-2	40.740	96.000	% Recov	07/06/05	75.000	129.000	
MSD	4-Bromofluorobenzene	460-00-4	86.860	102.000	% Recov	07/06/05	84.000	116.000	
MSD	Chlorobenzene	108-90-7	41.540	97.900	% Recov	07/06/05	79.000	119.000	
MSD	1,2-Dichloroethane-d4	17060-07-0	83.950	98.900	% Recov	07/06/05	82.000	136.000	
MSD	Toluene-d8	2037-26-5	92.820	109.000	% Recov	07/06/05	89.000	119.000	
MSD	Toluene	108-88-3	44.180	104.000	% Recov	07/06/05	76.000	120.000	
MSD	Trichloroethene	79-01-6	40.440	95.300	% Recov	07/06/05	73.000	123.000	
SPK-RPD	1,1-Dichloroethene	75-35-4	87.100	5.905	RPD	07/06/05	0.000	20.000	
SPK-RPD	Benzene	71-43-2	96.000	7.343	RPD	07/06/05	0.000	20.000	
SPK-RPD	4-Bromofluorobenzene	460-00-4	102.000	1.942	RPD	07/06/05	0.000	20.000	
SPK-RPD	Chlorobenzene	108-90-7	97.900	1.130	RPD	07/06/05	0.000	20.000	
SPK-RPD	1,2-Dichloroethane-d4	17060-07-0	98.900	1.118	RPD	07/06/05	0.000	20.000	
SPK-RPD	Toluene-d8	2037-26-5	109.000	1.852	RPD	07/06/05	0.000	20.000	
SPK-RPD	Toluene	108-88-3	104.000	5.432	RPD	07/06/05	0.000	20.000	
SPK-RPD	Trichloroethene	79-01-6	95.300	1.768	RPD	07/06/05	0.000	20.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050002028									
BATCH QC ASSOCIATED WITH SAMPLE									
SURR	4-Bromofluorobenzene	460-00-4	50.060	100.000	% Recov	07/06/05	71.000	125.000	
SURR	1,2-Dichloroethane-d4	17060-07-0	51.180	102.000	% Recov	07/06/05	80.000	134.000	
SURR	Toluene-d8	2037-26-5	51.860	104.000	% Recov	07/06/05	80.000	126.000	
BATCH QC									
BLANK	1,1-Dichloroethane	75-34-3	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	1,1,1-Trichloroethane	71-55-6	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	1,1,2-Trichloroethane	79-00-5	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	1,1,2,2-Tetrachloroethane	79-34-5	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	1,1-Dichloroethene	75-35-4	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	1,2-Dichloroethane	107-06-2	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	1,2-Dichloroethene(Total)	540-59-0	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	1-Butanol	71-36-3	< 40	n/a	ug/Kg	07/06/05			U
BLANK	2-Hexanone	591-78-6	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	2-Pentanone	107-87-9	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	4-Methyl-2-Pentanone	108-10-1	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Acetone	67-64-1	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Bromodichloromethane	75-27-4	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Benzene	71-43-2	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	4-Bromofluorobenzene	460-00-4	52.910	106.000	% Recov	07/06/05	71.000	125.000	
BLANK	Bromoform	75-25-2	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	n-Butylbenzene	104-51-8	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Carbon disulfide	75-15-0	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Carbon tetrachloride	56-23-5	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Dibromochloromethane	124-48-1	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Cyclohexane	110-82-7	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Chloroform	67-66-3	< 2.0	n/a	ug/Kg	07/06/05			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F05-023
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Chlorobenzene	108-90-7	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	cis-1,3-Dichloropropene	10061-01-5	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Chloroethane	75-00-3	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	1,2-Dichloroethane-d4	17060-07-0	49.420	98.800	% Recov	07/06/05	80.000	134.000	
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	1,2-Dichloropropane	78-87-5	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Ethylbenzene	100-41-4	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Hexane	110-54-3	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Bromomethane	74-83-9	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Chloromethane	74-87-3	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	2-Butanone	78-93-3	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Methylenechloride	75-09-2	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Tetrachloroethene	127-18-4	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Styrene	100-42-5	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Xylenes (total)	1330-20-7	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Tetrahydrofuran	109-99-9	< 4.0	n/a	ug/Kg	07/06/05			U
BLANK	Toluene-d8	2037-26-5	52.360	105.000	% Recov	07/06/05	80.000	126.000	
BLANK	Toluene	108-88-3	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	trans-1,3-Dichloropropene	10061-02-6	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Trichloromonofluoromethane	75-69-4	< 2.0	n/a	ug/Kg	07/06/05	0.000	5.000	U
BLANK	Trichloroethene	79-01-6	< 2.0	n/a	ug/Kg	07/06/05			U
BLANK	Vinyl chloride	75-01-4	< 2.0	n/a	ug/Kg	07/06/05			U
LCS	1,1-Dichloroethene	75-35-4	23.510	94.000	% Recov	07/06/05	70.000	130.000	
LCS	Benzene	71-43-2	24.730	98.900	% Recov	07/06/05	70.000	130.000	
LCS	4-Bromofluorobenzene	460-00-4	51.220	102.000	% Recov	07/06/05	71.000	125.000	
LCS	Chlorobenzene	108-90-7	25.360	101.000	% Recov	07/06/05	70.000	130.000	
LCS	1,2-Dichloroethane-d4	17060-07-0	53.280	107.000	% Recov	07/06/05	80.000	134.000	
LCS	Toluene-d8	2037-26-5	53.280	107.000	% Recov	07/06/05	80.000	126.000	
LCS	Toluene	108-88-3	27.010	108.000	% Recov	07/06/05	70.000	130.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F05-023
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Trichloroethene	79-01-6	25.570	102.000	% Recov	07/06/05	70.000	130.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F05-023
Sample Date: 06/30/05
Receive Date:06/30/05

Lab ID: W050002036
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	22.800	91.200	% Recov	07/13/05	63.000	117.000	
MS	Benzene	71-43-2	23.560	94.200	% Recov	07/13/05	75.000	129.000	
MS	4-Bromofluorobenzene	460-00-4	49.730	99.500	% Recov	07/13/05	84.000	116.000	
MS	Chlorobenzene	108-90-7	23.980	95.900	% Recov	07/13/05	79.000	119.000	
MS	1,2-Dichloroethane-d4	17060-07-0	52.320	105.000	% Recov	07/13/05	82.000	136.000	
MS	Toluene-d8	2037-26-5	52.240	104.000	% Recov	07/13/05	89.000	119.000	
MS	Toluene	108-88-3	24.480	97.900	% Recov	07/13/05	76.000	120.000	
MS	Triehloroethene	79-01-6	23.320	93.300	% Recov	07/13/05	73.000	123.000	
MSD	1,1-Dichloroethene	75-35-4	22.860	91.400	% Recov	07/13/05	63.000	117.000	
MSD	Benzene	71-43-2	24.510	98.000	% Recov	07/13/05	75.000	129.000	
MSD	4-Bromofluorobenzene	460-00-4	51.240	102.000	% Recov	07/13/05	84.000	116.000	
MSD	Chlorobenzene	108-90-7	24.900	99.600	% Recov	07/13/05	79.000	119.000	
MSD	1,2-Diehloroethane-d4	17060-07-0	52.330	105.000	% Recov	07/13/05	82.000	136.000	
MSD	Toluene-d8	2037-26-5	53.620	107.000	% Recov	07/13/05	89.000	119.000	
MSD	Toluene	108-88-3	26.620	106.000	% Recov	07/13/05	76.000	120.000	
MSD	Trichloroethene	79-01-6	24.790	99.200	% Recov	07/13/05	73.000	123.000	
SPK-RPD	1,1-Dichloroethene	75-35-4	91.400	0.219	RPD	07/13/05	0.000	20.000	
SPK-RPD	Benzene	71-43-2	98.000	3.954	RPD	07/13/05	0.000	20.000	
SPK-RPD	4-Bromofluorobenzene	460-00-4	102.000	2.481	RPD	07/13/05	0.000	20.000	
SPK-RPD	Chlorobenzene	108-90-7	99.600	3.785	RPD	07/13/05	0.000	20.000	
SPK-RPD	1,2-Dichloroethane-d4	17060-07-0	105.000	0.000	RPD	07/13/05	0.000	20.000	
SPK-RPD	Toluene-d8	2037-26-5	107.000	2.844	RPD	07/13/05	0.000	20.000	
SPK-RPD	Toluene	108-88-3	106.000	7.945	RPD	07/13/05	0.000	20.000	
SPK-RPD	Trichloroethene	79-01-6	99.200	6.130	RPD	07/13/05	0.000	20.000	
SURR	4-Bromofluorobenzene	460-00-4	52.800	106.000	% Recov	07/13/05	71.000	125.000	
SURR	1,2-Dichloroethane-d4	17060-07-0	50.780	102.000	% Recov	07/13/05	80.000	134.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F05-023
Sample Date: 06/30/05
Receive Date:06/30/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SURR	Toluene-d8	2037-26-5	50.430	101.000	% Recov	07/13/05	80.000	126.000	
BATCH QC									
BLANK	1,1-Dichloroethane	75-34-3	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	1,1,1-Trichloroethane	71-55-6	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	1,1,2-Trichloroethane	79-00-5	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	1,1,2,2-Tetrachloroethane	79-34-5	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	1,1-Dichloroethene	75-35-4	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	1,2-Dichloroethane	107-06-2	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	1,2-Dichloroethene(Total)	540-59-0	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	1-Butanol	71-36-3	< 40	n/a	ug/Kg	07/13/05			U
BLANK	2-Hexanone	591-78-6	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	2-Pentanone	107-87-9	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	4-Methyl-2-Pentanone	108-10-1	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Acetone	67-64-1	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Bromodichloromethane	75-27-4	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Benzene	71-43-2	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	4-Bromofluorobenzene	460-00-4	52.270	105.000	% Recov	07/13/05	71.000	125.000	
BLANK	Bromoform	75-25-2	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	n-Butylbenzene	104-51-8	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Carbon disulfide	75-15-0	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Carbon tetrachloride	56-23-5	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Dibromochloromethane	124-48-1	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Cyclohexane	110-82-7	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Chloroform	67-66-3	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Chlorobenzene	108-90-7	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	cis-1,3-Dichloropropene	10061-01-5	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Chloroethane	75-00-3	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	1,2-Dichloroethane-d4	17060-07-0	51.010	102.000	% Recov	07/13/05	80.000	134.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: VOA Ground Water Protection

SAF Number: F05-023
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	1,2-Dichloropropane	78-87-5	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Ethylbenzene	100-41-4	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Hexane	110-54-3	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Bromomethane	74-83-9	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Chloromethane	74-87-3	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	2-Butanone	78-93-3	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Methylenechloride	75-09-2	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Tetrachloroethene	127-18-4	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Styrene	100-42-5	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Xylenes (total)	1330-20-7	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Tetrahydrofuran	109-99-9	< 4.0	n/a	ug/Kg	07/13/05			U
BLANK	Toluene-d8	2037-26-5	53.300	107.000	% Recov	07/13/05	80.000	126.000	
BLANK	Toluene	108-88-3	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	trans-1,3-Dichloropropene	10061-02-6	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Trichloromonofluoromethane	75-69-4	< 2.0	n/a	ug/Kg	07/13/05	0.000	5.000	U
BLANK	Trichloroethene	79-01-6	< 2.0	n/a	ug/Kg	07/13/05			U
BLANK	Vinyl chloride	75-01-4	< 2.0	n/a	ug/Kg	07/13/05			U
LCS	1,1-Dichloroethene	75-35-4	22.810	91.200	% Recov	07/13/05	70.000	130.000	
LCS	Benzene	71-43-2	22.880	91.500	% Recov	07/13/05	70.000	130.000	
LCS	4-Bromofluorobenzene	460-00-4	51.910	104.000	% Recov	07/13/05	71.000	125.000	
LCS	Chlorobenzene	108-90-7	24.670	98.700	% Recov	07/13/05	70.000	130.000	
LCS	1,2-Dichloroethane-d4	17060-07-0	53.530	107.000	% Recov	07/13/05	80.000	134.000	
LCS	Toluene-d8	2037-26-5	52.440	105.000	% Recov	07/13/05	80.000	126.000	
LCS	Toluene	108-88-3	26.070	104.000	% Recov	07/13/05	70.000	130.000	
LCS	Trichloroethene	79-01-6	24.420	97.700	% Recov	07/13/05	70.000	130.000	

Date: 12 March 2010
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: CPP 200 Area, D&D-200 Area
Subject: Semivolatile Organics - Sample Data Groups (SDGs) WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 and WSCF20051350

INTRODUCTION

This memorandum presents the results of data validation for SDGs WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 and WSCF20051350 prepared by WSCF. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B17N67	8/23/2004	Soil	C	8270C & NWTPH-D
B17N70	8/25/2004	Soil	C	8270C & NWTPH-D
B17N73	9/09/2004	Soil	C	8270C & NWTPH-D
B17NL5	9/09/2004	Soil	C	8270C & NWTPH-D
B1D994	6/29/2005	Soil	C	8270C & NWTPH-D
B1D995	6/30/2005	Soil	C	8270C & NWTPH-D

Data validation was conducted in accordance with the CHPRC validation statement of work and the Sampling and Analysis Plan for Investigation of Dense, Nonaqueous-Phase Liquid Carbon Tetrachloride at the 216-Z-9 Trench, DOE/RL-2001-01, Rev. 0, Appendix E (SAP). 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. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested By Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The holding time requirements for methods 8270C and WTPH-D are extraction within 14 days of sample collection and analysis within 40 days of sample extraction. Sample preservation requires chilling to 4 degrees Celsius.

The samples were extracted and analyzed within the prescribed holding times and properly preserved. It should be noted for SDG WSCF20041457 that semivolatile and WTPH-D sample extraction dates were not provided in the data package. The lab narrative stated that all holding

times were met, and it is assumed for validation that sample extractions took place within 14 days of sample collection.

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable.

Trip Blanks

No trip blanks were submitted for analysis.

Field Blanks

No field blanks were submitted for analysis.

Equipment Blanks

No equipment blanks were submitted for analysis.

- **Accuracy**

Accuracy is evaluated by reviewing surrogate results, matrix spike sample results, and laboratory control sample results. According to the SAP, the laboratory control sample accuracy limits are 70% to 130% at a minimum, and the ones established by the analytical laboratory if more stringent. The matrix spike sample accuracy limits are the ones established by the analytical laboratory. The limits for reported analytes not listed in the SAP are specified by the DV procedure.

Surrogates

All surrogate recoveries were acceptable.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples

All MS/MSD recoveries were acceptable with the following exceptions.

For all SDGs, only eleven 8270C MS/MSD analytes were reported. The reported analyte not represented in the MS/MSDs was tributyl phosphate. Tributyl phosphate was non-detect in all samples and should be qualified as an estimate and flagged “UJ.”

For SDG WSCF20041457, the MSD recovery for pentachlorophenol was below the lower acceptance limit. The associated class of results (pentachlorophenol, 2,3,5-trichlorophenol and 2,4,6-trichlorophenol) for sample B17N67 were non-detects and should be qualified as estimates and flagged "UJ."

For SDG WSCF20041487, the MS and MSD recoveries for pentachlorophenol were below the lower acceptance limit. The associated class of results (pentachlorophenol, 2,3,5-trichlorophenol and 2,4,6-trichlorophenol) for sample B17N70 were non-detects and should be qualified as estimates and flagged "UJ."

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable with the following exceptions.

For all SDGs, only eleven 8270C LCS analytes were reported. The reported analyte not represented in the LCSs was tributyl phosphate. Tributyl phosphate was non-detect in all samples and should be qualified as an estimate and flagged "UJ."

For SDGs WSCF20041457 and WSCF20041457, the LCS recoveries for pentachlorophenol were below the lower acceptance limit. The associated class of results (pentachlorophenol, 2,3,5-trichlorophenol and 2,4,6-trichlorophenol) for samples B17N67 and B17N70 were non-detects and should be qualified as estimates and flagged "UJ."

- **Precision**

Precision is evaluated by reviewing MS/MSD results, field duplicate sample results, and field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. According to the SAP, the relative percent difference (RPD) limits are ±30%. The RPD limits for reported analytes not listed in the SAP are specified by the DV procedure. When duplicate RPDs exceed the limits and have associated results <5X the required detection limits with differences <2X the required detection limits no precision infraction occurred.

MS/MSD Samples

All MS/MSD relative percent difference values were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

Field Split Samples

No field splits were submitted for analysis.

- **Detection Limits**

Reported MDLs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDLs were below the CRDLs.

- **Completeness**

SDGs WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 and WSCF20051350 were 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

Minor deficiencies leading to qualification of sample results as estimates were due to non-represented QC data for tributyl phosphate and low MS/MSD and LCS recoveries. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

HNF-20433, Rev. 0, *Data Validation Procedure for Chemical Analyses*, June 2004.

DOE/RL-2001-01, Rev. 0, Appendix E, *Sampling and Analysis Plan for Investigation of Dense, Nonaqueous-Phase Liquid Carbon Tetrachloride at the 216-Z-9 Trench*.

Appendix 1

Glossary of Data Reporting Qualifiers

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

- **U** ─ The constituent was analyzed for and was not detected. The data should be considered usable for decision-making purposes.

- **UJ** ─ The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the MDL. The data should be considered usable for decision-making purposes.

- **J** ─ Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **UR** ─ Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** ─ Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

Semivolatile Organics Data Qualification Summary			
SDG: See comments	Reviewer: AQA	Project: CPP 200 Area, D&D-200 Area	Page 1 of 1
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
Tributyl phosphate	UJ	B17N67, B17N70, B17N73, B17NL5 B1D994, B1D995	Non-represented MS/MSD and LCS data
Pentachlorophenol 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	UJ	B17N67, B17N70	Low MS/MSD and LCS recoveries

Comments: SDGs WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 & WSCF20051350

Appendix 3

Annotated Laboratory Reports

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041457

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ		Result	Unit	DF	MDL	Analyze	Sample	Receive
Organic															
~~W040001533~~	~~B17N67~~	~~TRENT~~	~~12674-11-2~~	~~Aroclor-1016~~	~~SOIL~~	~~LA-523-427~~	~~U~~	~~<~~	~~49.0~~	~~ug/kg~~	~~1.00~~	~~49~~	~~09/01/04~~	~~08/23/04~~	~~08/23/04~~
W040001533	B17N67	TRENT	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	<	98.0	ug/kg	1.00	98	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	<	49.0	ug/kg	1.00	49	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	<	49.0	ug/kg	1.00	49	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	<	49.0	ug/kg	1.00	49	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	11097-69-1	Aroclor-1254	SOIL	LA-523-427	U	<	49.0	ug/kg	1.00	49	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	<	49.0	ug/kg	1.00	49	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	<	49.0	ug/kg	1.00	49	09/01/04	08/23/04	08/23/04
~~W040001533~~	~~B17N67~~	~~TRENT~~	~~11100-14-4~~	~~Aroclor-1268~~	~~SOIL~~	~~LA-523-427~~	~~U~~	~~<~~	~~49.0~~	~~ug/kg~~	~~1.00~~	~~49~~	~~09/01/04~~	~~08/23/04~~	~~08/23/04~~
W040001533	B17N67	TRENT	100-02-7	4-Nitrophenol	SOIL	LA-523-456	U	<	660	ug/kg	1.00	6.6e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	<	320	ug/kg	1.00	3.2e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	108-95-2	Phenol	SOIL	LA-523-456	U	<	100	ug/kg	1.00	1.0e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	<	300	ug/kg	1.00	3.0e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	129-00-0	Pyrene	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	83-32-9	Acenaphthene	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	87-86-5	Pentachlorophenol UJ	SOIL	LA-523-456	JU	<	310	ug/kg	1.00	3.1e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	<	150	ug/kg	1.00	1.5e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	100-01-6	4-Nitroaniline	SOIL	LA-523-456	U	<	250	ug/kg	1.00	2.5e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	101-55-3	4-Bromophenylphenyl ether	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	105-67-9	2,4-Dimethylphenol	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	106-47-8	4-Chloroaniline	SOIL	LA-523-456	U	<	96.0	ug/kg	1.00	96	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	108-60-1	Bis(2-chloro-1-methylethyl)eth	SOIL	LA-523-456	U	<	260	ug/kg	1.00	2.6e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	111-44-4	Bis(2-chloroethyl) ether	SOIL	LA-523-456	U	<	250	ug/kg	1.00	2.5e+02	09/08/04	08/23/04	08/23/04

MDL = Minimum Detection Limit
RQ = Result Qualifier
DF = Dilution Factor

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
X - Other flags and notes described in the comments/narrative.
E - Analyte is an estimate, has potentially larger errors
U - Analyzed for but not detected above limiting criteria.

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

2-2

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041457

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001533	B17N67 TRENT	111-91-1	Bis(2-Chloroethoxy)methane	SOIL	LA-523-456	U	< 120	ug/kg	1.00	1.2e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	117-81-7	Bis(2-ethylhexyl) phthalate	SOIL	LA-523-456	U	< 580	ug/kg	1.00	5.8e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	117-84-0	Di-n-octylphthalate	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	118-74-1	Hexachlorobenzene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	120-12-7	Anthracene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	120-83-2	2,4-Dichlorophenol	SOIL	LA-523-456	U	< 82.0	ug/kg	1.00	82	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	131-11-3	Dimethyl phthalate	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	132-64-9	Dibenzofuran	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	191-24-2	Benzo(ghi)perylene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	193-39-5	Indeno(1,2,3-cd)pyrene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	205-99-2	Benzo(b)fluoranthene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	206-44-0	Fluoranthene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	207-08-9	Benzo(k)fluoranthene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	208-96-8	Acenaphthylene	SOIL	LA-523-456	U	< 82.0	ug/kg	1.00	82	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	218-01-9	Chrysene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	50-32-8	Benzo(a)pyrene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	51-28-5	2,4-Dinitrophenol	SOIL	LA-523-456	U	< 680	ug/kg	1.00	6.8e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	53-70-3	Dibenz[a,h]anthracene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	534-52-1	4,6-Dinitro-2-methylphenol	SOIL	LA-523-456	U	< 680	ug/kg	1.00	6.8e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	541-73-1	1,3-Dichlorobenzene	SOIL	LA-523-456	U	< 330	ug/kg	1.00	3.3e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	56-55-3	Benzo(a)anthracene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	606-20-2	2,6-Dinitrotoluene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	7005-72-3	4-Chlorophenylphenyl ether	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	77-47-4	Hexachlorocyclopentadiene	SOIL	LA-523-456	U	< 320	ug/kg	1.00	3.2e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	78-59-1	Isophorone	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	84-66-2	Diethylphthalate	SOIL	LA-523-456	U	< 190	ug/kg	1.00	1.9e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	84-74-2	Di-n-butylphthalate	SOIL	LA-523-456	J	94.0	ug/kg	1.00	89	09/08/04	08/23/04	08/23/04

MDL=Minimum Detection Limit
RQ=Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
X - Other flags and notes described in the comments/narrative.
E - Analyte is an estimate, has potentially larger errors
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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041457

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ		Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001533	B17N67	TRENT	85-01-8	Phenanthrene		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	85-68-7	Butylbenzylphthalate		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	86-30-6	N-Nitrosodiphenylamine		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	86-73-7	Fluorene		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	86-74-8	Carbazole		SOIL	LA-523-456	U	<	82.0	ug/kg	1.00	82	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	87-68-3	Hexachlorobutadiene		SOIL	LA-523-456	U	<	380	ug/kg	1.00	3.8e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	88-74-4	2-Nitroaniline		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	88-75-5	2-Nitrophenol		SOIL	LA-523-456	U	<	180	ug/kg	1.00	1.8e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	91-20-3	Naphthalene		SOIL	LA-523-456	U	<	290	ug/kg	1.00	2.9e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	91-57-6	2-Methylnaphthalene		SOIL	LA-523-456	U	<	180	ug/kg	1.00	1.8e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	91-58-7	2-Chloronaphthalene		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	91-94-1	3,3'-Dichlorobenzidine		SOIL	LA-523-456	U	<	82.0	ug/kg	1.00	82	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	95-48-7	2-Methylphenol (cresol, o-)		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	95-50-1	1,2-Dichlorobenzene		SOIL	LA-523-456	U	<	370	ug/kg	1.00	3.7e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	95-95-4	2,4,5-Trichlorophenol	UJ	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	98-95-3	Nitrobenzene		SOIL	LA-523-456	U	<	270	ug/kg	1.00	2.7e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	99-09-2	3-Nitroaniline		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	65794-96-9	3 & 4 Methylphenol Total		SOIL	LA-523-456	U	<	120	ug/kg	1.00	1.2e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	67-72-1	Hexachloroethane		SOIL	LA-523-456	U	<	480	ug/kg	1.00	4.8e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	88-06-2	2,4,6-Trichlorophenol	UJ	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	126-73-8	Tributyl phosphate	UJ	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	108-94-1	Cyclohexanone		SOIL	LA-523-456	U	<	340	ug/kg	1.00	3.4e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	95-63-6	1,2,4-Trimethylbenzene		SOIL	LA-523-456	U	<	120	ug/kg	1.00	1.2e+02	09/08/04	08/23/04	08/23/04
~~W040001533~~	~~B17N67~~	~~TRENT~~	~~75-35-4~~	~~1,1-Dichloroethene~~		~~SOIL~~	~~LA-523-455~~	~~U~~	~~<~~	~~2.10~~	~~ug/kg~~	~~1.00~~	~~2.1~~	~~08/25/04~~	~~08/23/04~~	~~08/23/04~~
W040001533	B17N67	TRENT	79-01-6	Trichloroethene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	71-43-2	Benzene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
~~W040001533~~	~~B17N67~~	~~TRENT~~	~~108-88-3~~	~~Toluene~~		~~SOIL~~	~~LA-523-455~~	~~U~~	~~<~~	~~2.10~~	~~ug/kg~~	~~1.00~~	~~2.1~~	~~08/25/04~~	~~08/23/04~~	~~08/23/04~~

MDL = Minimum Detection Limit
RQ = Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
X - Other flags and notes described in the comments/narrative.
E - Analyte is an estimate, has potentially larger errors
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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041457

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001533	B17N67	TRENT	79-00-5	1,1,2-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	79-34-5	1,1,2,2-Tetrachloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	71-36-3	1-Butanol	SOIL	LA-523-455	U	< 41.0	ug/kg	1.00	41	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	110-54-3	Hexane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	104-51-8	n-Butylbenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	156-60-5	trans-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	75-05-8	Acetonitrile	SOIL	LA-523-455	U	< 4.20	ug/kg	1.00	4.2	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	156-59-2	cis-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	TPHDIESEL	Total Pet. Hydrocarbons Diesel	SOIL	NWTPH	U	< 3.90e+03	ug/kg	1.00	3.9e+03	09/07/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	TPHKEROSENE	Kerosene	SOIL	NWTPH	U	< 3.90e+03	ug/kg	1.00	3.9e+03	09/07/04	08/23/04	08/23/04

LS
3-12-2010

MDL = Minimum Detection Limit
RQ = Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
X - Other flags and notes described in the comments/narrative.
E - Analyte is an estimate, has potentially larger errors
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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041487

Sample #	Client ID			CAS #	Test Performed		Matrix	WSCF Method	RQ		Result	Unit	DF	MDL	Analyze	Sample	Receive
Organic																	
W040001543	B17N70	GRP	TRENT	100-02-7	4-Nitrophenol		SOIL	LA-523-456	U	<	660	ug/kg	1.00	6.6e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	106-46-7	1,4-Dichlorobenzene		SOIL	LA-523-456	U	<	320	ug/kg	1.00	3.2e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	108-95-2	Phenol		SOIL	LA-523-456	U	<	100	ug/kg	1.00	1.0e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	120-82-1	1,2,4-Trichlorobenzene		SOIL	LA-523-456	U	<	300	ug/kg	1.00	3.0e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	121-14-2	2,4-Dinitrotoluene		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	129-00-0	Pyrene		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	59-50-7	4-Chloro-3-methylphenol		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	621-64-7	N-Nitrosodi-n-dipropylamine		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	83-32-9	Acenaphthene		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	87-86-5	Pentachlorophenol	UJ	SOIL	LA-523-456	U	<	310	ug/kg	1.00	3.1e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	95-57-8	2-Chlorophenol		SOIL	LA-523-456	U	<	150	ug/kg	1.00	1.5e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	100-01-6	4-Nitroaniline		SOIL	LA-523-456	U	<	250	ug/kg	1.00	2.5e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	101-55-3	4-Bromophenylphenyl ether		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	105-67-9	2,4-Dimethylphenol		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	106-47-8	4-Chloroaniline		SOIL	LA-523-456	U	<	96.0	ug/kg	1.00	96	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	108-60-1	Bis(2-chloro-1-methylethyl)eth		SOIL	LA-523-456	U	<	260	ug/kg	1.00	2.6e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	111-44-4	Bis(2-chloroethyl) ether		SOIL	LA-523-456	U	<	250	ug/kg	1.00	2.5e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	111-91-1	Bis(2-Chloroethoxy)methane		SOIL	LA-523-456	U	<	120	ug/kg	1.00	1.2e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	117-81-7	Bis(2-ethylhexyl) phthalate		SOIL	LA-523-456	U	<	570	ug/kg	1.00	5.7e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	117-84-0	Di-n-octylphthalate		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	118-74-1	Hexachlorobenzene		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	120-12-7	Anthracene		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	120-83-2	2,4-Dichlorophenol		SOIL	LA-523-456	U	<	82.0	ug/kg	1.00	82	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	131-11-3	Dimethyl phthalate		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	132-64-9	Dibenzofuran		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	191-24-2	Benzo(ghi)perylene		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041487

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001543	B17N70 GRP TRENT	193-39-5	Indeno(1,2,3-cd)pyrene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	205-99-2	Benzo(b)fluoranthene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	206-44-0	Fluoranthene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	207-08-9	Benzo(k)fluoranthene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	208-96-8	Acenaphthylene	SOIL	LA-523-456	U	< 82.0	ug/kg	1.00	82	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	218-01-9	Chrysene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	50-32-8	Benzo(a)pyrene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	51-28-5	2,4-Dinitrophenol	SOIL	LA-523-456	U	< 680	ug/kg	1.00	6.8e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	53-70-3	Dibenz[a,h]anthracene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	534-52-1	4,6-Dinitro-2-methylphenol	SOIL	LA-523-456	U	< 680	ug/kg	1.00	6.8e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	541-73-1	1,3-Dichlorobenzene	SOIL	LA-523-456	U	< 330	ug/kg	1.00	3.3e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	56-55-3	Benzo(a)anthracene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	606-20-2	2,6-Dinitrotoluene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7005-72-3	4-Chlorophenylphenyl ether	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	77-47-4	Hexachlorocyclopentadiene	SOIL	LA-523-456	U	< 320	ug/kg	1.00	3.2e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	78-59-1	Isophorone	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	84-66-2	Diethylphthalate	SOIL	LA-523-456	U	< 190	ug/kg	1.00	1.9e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	84-74-2	Di-n-butylphthalate	SOIL	LA-523-456	U	< 89.0	ug/kg	1.00	89	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	85-01-8	Phenanthrene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	85-68-7	Butylbenzylphthalate	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	86-30-6	N-Nitrosodiphenylamine	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	86-73-7	Fluorene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	86-74-8	Carbazole	SOIL	LA-523-456	U	< 82.0	ug/kg	1.00	82	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	87-68-3	Hexachlorobutadiene	SOIL	LA-523-456	U	< 380	ug/kg	1.00	3.8e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	88-74-4	2-Nitroaniline	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	88-75-5	2-Nitrophenol	SOIL	LA-523-456	U	< 180	ug/kg	1.00	1.8e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	91-20-3	Naphthalene	SOIL	LA-523-456	U	< 290	ug/kg	1.00	2.9e+02	09/08/04	08/25/04	08/25/04

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041487

Sample #	Client ID			CAS #	Test Performed		Matrix	WSCF Method	RQ		Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001543	B17N70	GRP	TRENT	91-57-6	2-Methylnaphthalene		SOIL	LA-523-456	U	<	180	ug/kg	1.00	1.8e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	91-58-7	2-Chloronaphthalene		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	91-94-1	3,3'-Dichlorobenzidine		SOIL	LA-523-456	U	<	82.0	ug/kg	1.00	82	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	95-48-7	2-Methylphenol (cresol, o-)		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	95-50-1	1,2-Dichlorobenzene		SOIL	LA-523-456	U	<	370	ug/kg	1.00	3.7e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	95-95-4	2,4,5-Trichlorophenol	UJ	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	98-95-3	Nitrobenzene		SOIL	LA-523-456	U	<	270	ug/kg	1.00	2.7e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	99-09-2	3-Nitroaniline		SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	65794-96-9	3 & 4 Methylphenol Total		SOIL	LA-523-456	U	<	120	ug/kg	1.00	1.2e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	67-72-1	Hexachloroethane		SOIL	LA-523-456	U	<	480	ug/kg	1.00	4.8e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	88-06-2	2,4,6-Trichlorophenol	UJ	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	126-73-8	Tributyl phosphate	UJ	SOIL	LA-523-456	U	<	68.0	ug/kg	1.00	68	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	108-94-1	Cyclohexanone		SOIL	LA-523-456	U	<	340	ug/kg	1.00	3.4e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	95-63-6	1,2,4-Trimethylbenzene		SOIL	LA-523-456	U	<	120	ug/kg	1.00	1.2e+02	09/08/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-35-4	1,1-Dichloroethene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	79-01-6	Trichloroethene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	71-43-2	Benzene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	108-88-3	Toluene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	108-90-7	Chlorobenzene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-34-3	1,1-Dichloroethane		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	100-41-4	Ethylbenzene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	100-42-5	Styrene		SOIL	LA-523-455	J		3.40	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	10061-01-5	cis-1,3-Dichloropropene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	10061-02-6	trans-1,3-Dichloropropene		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	107-06-2	1,2-Dichloroethane		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	108-10-1	4-Methyl-2-Pentanone		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	124-48-1	Dibromochloromethane		SOIL	LA-523-455	U	<	2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041487

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001543	B17N70	GRP	TRENT	127-18-4	Tetrachloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	1330-20-7	Xylenes (total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	540-59-0	1,2-Dichloroethene(Total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	56-23-5	Carbon tetrachloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	591-78-6	2-Hexanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	67-64-1	Acetone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	67-66-3	Chloroform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	71-55-6	1,1,1-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	74-83-9	Bromomethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	74-87-3	Chloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-00-3	Chloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-01-4	Vinyl chloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-09-2	Methylenechloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-15-0	Carbon disulfide	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-25-2	Bromoform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-27-4	Bromodichloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	78-87-5	1,2-Dichloropropane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	78-93-3	2-Butanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	79-00-5	1,1,2-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	79-34-5	1,1,2,2-Tetrachloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	71-36-3	1-Butanol	SOIL	LA-523-455	U	< 41.0	ug/kg	1.00	41	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	110-54-3	Hexane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	104-51-8	n-Butylbenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	156-60-5	trans-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	75-05-8	Acetonitrile	SOIL	LA-523-455	U	< 4.20	ug/kg	1.00	4.2	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	156-59-2	cis-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	08/25/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	TPHDIESEL	Total Pet. Hydrocarbons Diesel	SOIL	NWTPH	U	< 3.90e+03	ug/kg	1.00	3.9e+03	09/07/04	08/25/04	08/25/04

LS
3-12-2010

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041487

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001543	B17N70 GRP TRENT	TPHKEROSENE	Kerosene	SOIL	NWTPH	U	< 3.90e+03	ug/kg	1.00	3.9e+03	09/07/04	08/25/04	08/25/04

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Organic													
W040001610	B17N73 TRENT	100-02-7	4-Nitrophenol	SOIL	LA-523-456	U	< 690	ug/kg	1.00	6.9e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	< 330	ug/kg	1.00	3.3e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	108-95-2	Phenol	SOIL	LA-523-456	U	< 110	ug/kg	1.00	1.1e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	< 310	ug/kg	1.00	3.1e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	129-00-0	Pyrene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	83-32-9	Acenaphthene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	87-86-5	Pentachlorophenol	SOIL	LA-523-456	U	< 320	ug/kg	1.00	3.2e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	< 160	ug/kg	1.00	1.6e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	100-01-6	4-Nitroaniline	SOIL	LA-523-456	U	< 260	ug/kg	1.00	2.6e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	101-55-3	4-Bromophenylphenyl ether	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	105-67-9	2,4-Dimethylphenol	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	106-47-8	4-Chloroaniline	SOIL	LA-523-456	U	< 99.0	ug/kg	1.00	99	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	108-60-1	Bis(2-chloro-1-methylethyl)eth	SOIL	LA-523-456	U	< 270	ug/kg	1.00	2.7e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	111-44-4	Bis(2-chloroethyl) ether	SOIL	LA-523-456	U	< 260	ug/kg	1.00	2.6e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	111-91-1	Bis(2-Chloroethoxy)methane	SOIL	LA-523-456	U	< 120	ug/kg	1.00	1.2e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	117-81-7	Bis(2-ethylhexyl) phthalate	SOIL	LA-523-456	U	< 590	ug/kg	1.00	5.9e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	117-84-0	Di-n-octylphthalate	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	118-74-1	Hexachlorobenzene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	120-12-7	Anthracene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	120-83-2	2,4-Dichlorophenol	SOIL	LA-523-456	U	< 85.0	ug/kg	1.00	85	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	131-11-3	Dimethyl phthalate	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	132-64-9	Dibenzofuran	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	191-24-2	Benzo(ghi)perylene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001610	B17N73 TRENT	193-39-5	Indeno(1,2,3-cd)pyrene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	205-99-2	Benzo(b)fluoranthene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	206-44-0	Fluoranthene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	207-08-9	Benzo(k)fluoranthene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	208-96-8	Acenaphthylene	SOIL	LA-523-456	U	< 85.0	ug/kg	1.00	85	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	218-01-9	Chrysene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	50-32-8	Benzo(a)pyrene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	51-28-5	2,4-Dinitrophenol	SOIL	LA-523-456	U	< 710	ug/kg	1.00	7.1e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	53-70-3	Dibenz[a,h]anthracene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	534-52-1	4,6-Dinitro-2-methylphenol	SOIL	LA-523-456	U	< 710	ug/kg	1.00	7.1e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	541-73-1	1,3-Dichlorobenzene	SOIL	LA-523-456	U	< 340	ug/kg	1.00	3.4e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	56-55-3	Benzo(a)anthracene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	606-20-2	2,6-Dinitrotoluene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	7005-72-3	4-Chlorophenylphenyl ether	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	77-47-4	Hexachlorocyclopentadiene	SOIL	LA-523-456	U	< 330	ug/kg	1.00	3.3e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	78-59-1	Isophorone	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	84-66-2	Diethylphthalate	SOIL	LA-523-456	J	230	ug/kg	1.00	2.0e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	84-74-2	Di-n-butylphthalate	SOIL	LA-523-456	J	220	ug/kg	1.00	92	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	85-01-8	Phenanthrene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	85-68-7	Butylbenzylphthalate	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	86-30-6	N-Nitrosodiphenylamine	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	86-73-7	Fluorene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	86-74-8	Carbazole	SOIL	LA-523-456	U	< 85.0	ug/kg	1.00	85	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	87-68-3	Hexachlorobutadiene	SOIL	LA-523-456	U	< 390	ug/kg	1.00	3.9e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	88-74-4	2-Nitroaniline	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	88-75-5	2-Nitrophenol	SOIL	LA-523-456	U	< 180	ug/kg	1.00	1.8e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	91-20-3	Naphthalene	SOIL	LA-523-456	U	< 300	ug/kg	1.00	3.0e+02	09/22/04	09/09/04	09/09/04

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001610	B17N73 TRENT	91-57-6	2-Methylnaphthalene	SOIL	LA-523-456	U	< 190	ug/kg	1.00	1.9e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	91-58-7	2-Chloronaphthalene	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	91-94-1	3,3'-Dichlorobenzidine	SOIL	LA-523-456	U	< 85.0	ug/kg	1.00	85	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	95-48-7	2-Methylphenol (cresol, o-)	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	95-50-1	1,2-Dichlorobenzene	SOIL	LA-523-456	U	< 380	ug/kg	1.00	3.8e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	95-95-4	2,4,5-Trichlorophenol	SOIL	LA-523-456	U	< 78.0	ug/kg	1.00	78	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	98-95-3	Nitrobenzene	SOIL	LA-523-456	U	< 280	ug/kg	1.00	2.8e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	99-09-2	3-Nitroaniline	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	65794-96-9	3 & 4 Methylphenol Total	SOIL	LA-523-456	U	< 120	ug/kg	1.00	1.2e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	67-72-1	Hexachloroethane	SOIL	LA-523-456	U	< 500	ug/kg	1.00	5.0e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	88-06-2	2,4,6-Trichlorophenol	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	126-73-8	Tributyl phosphate UJ	SOIL	LA-523-456	U	< 71.0	ug/kg	1.00	71	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	108-94-1	Cyclohexanone	SOIL	LA-523-456	U	< 350	ug/kg	1.00	3.5e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	95-63-6	1,2,4-Trimethylbenzene	SOIL	LA-523-456	U	< 130	ug/kg	1.00	1.3e+02	09/22/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	75-35-4	1,1-Dichloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	79-01-6	Trichloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	71-43-2	Benzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	108-88-3	Toluene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	108-90-7	Chlorobenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	75-34-3	1,1-Dichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	100-41-4	Ethylbenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	100-42-5	Styrene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	10061-01-5	cis-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	10061-02-6	trans-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	107-06-2	1,2-Dichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	108-10-1	4-Methyl-2-Pentanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73 TRENT	124-48-1	Dibromochloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04

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E - Analyte is an estimate, has potentially larger errors
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DF = Dilution Factor

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001610	B17N73	TRENT	127-18-4	Tetrachloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	1330-20-7	Xylenes (total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	540-59-0	1,2-Dichloroethene(Total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	56-23-5	Carbon tetrachloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	591-78-6	2-Hexanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	67-64-1	Acetone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	67-66-3	Chloroform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	71-55-6	1,1,1-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	74-83-9	Bromomethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	74-87-3	Chloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	75-00-3	Chloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	75-01-4	Vinyl chloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	75-09-2	Methylenechloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	75-15-0	Carbon disulfide	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	75-25-2	Bromoform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	75-27-4	Bromodichloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	78-87-5	1,2-Dichloropropane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	78-93-3	2-Butanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	79-00-5	1,1,2-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	79-34-5	1,1,2,2-Tetrachloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	71-36-3	1-Butanol	SOIL	LA-523-455	U	< 43.0	ug/kg	1.00	43	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	110-54-3	Hexane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	104-51-8	n-Butylbenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	156-60-5	trans-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	75-05-8	Acetonitrile	SOIL	LA-523-455	U	< 4.20	ug/kg	1.00	4.2	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	156-59-2	cis-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	09/16/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	TPHDIESEL	Total Pet. Hydrocarbons Diesel	SOIL	NWTPH	U	< 4.00e+03	ug/kg	1.00	4.0e+03	09/21/04	09/09/04	09/09/04

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001610	B17N73	TRENT	TPHKEROSENE	Kerosene	SOIL	NWTPH	U	< 4.00e+03	ug/kg	1.00	4.0e+03	09/21/04	09/09/04	09/09/04
~~W040001612~~	~~B17NL5~~	~~TRENT~~	~~12674-11-2~~	~~Aroclor-1016~~	~~SOIL~~	~~LA-523-427~~	~~U~~	~~< 56.0~~	~~ug/kg~~	~~1.00~~	~~56~~	~~09/22/04~~	~~09/09/04~~	~~09/09/04~~
W040001612	B17NL5	TRENT	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	< 110	ug/kg	1.00	1.1e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	< 56.0	ug/kg	1.00	56	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	< 56.0	ug/kg	1.00	56	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	< 56.0	ug/kg	1.00	56	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	11097-69-1	Aroclor-1254	SOIL	LA-523-427	U	< 56.0	ug/kg	1.00	56	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	< 56.0	ug/kg	1.00	56	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	< 56.0	ug/kg	1.00	56	09/22/04	09/09/04	09/09/04
~~W040001612~~	~~B17NL5~~	~~TRENT~~	~~11100-14-4~~	~~Aroclor-1268~~	~~SOIL~~	~~LA-523-427~~	~~U~~	~~< 56.0~~	~~ug/kg~~	~~1.00~~	~~56~~	~~09/22/04~~	~~09/09/04~~	~~09/09/04~~
W040001612	B17NL5	TRENT	100-02-7	4-Nitrophenol	SOIL	LA-523-456	U	< 730	ug/kg	1.00	7.3e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	< 350	ug/kg	1.00	3.5e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	108-95-2	Phenol	SOIL	LA-523-456	U	< 110	ug/kg	1.00	1.1e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	< 330	ug/kg	1.00	3.3e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	129-00-0	Pyrene	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	83-32-9	Acenaphthene	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	87-86-5	Pentachlorophenol	SOIL	LA-523-456	U	< 340	ug/kg	1.00	3.4e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	< 170	ug/kg	1.00	1.7e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	100-01-6	4-Nitroaniline	SOIL	LA-523-456	U	< 280	ug/kg	1.00	2.8e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	101-55-3	4-Bromophenylphenyl ether	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	105-67-9	2,4-Dimethylphenol	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	106-47-8	4-Chloroaniline	SOIL	LA-523-456	U	< 110	ug/kg	1.00	1.1e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	108-60-1	Bis(2-chloro-1-methylethyl)eth	SOIL	LA-523-456	U	< 290	ug/kg	1.00	2.9e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	111-44-4	Bis(2-chloroethyl) ether	SOIL	LA-523-456	U	< 280	ug/kg	1.00	2.8e+02	09/22/04	09/09/04	09/09/04

L5
3-12-2010

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ		Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001612	B17NL5	TRENT	111-91-1	Bis(2-Chloroethoxy)methane	SOIL	LA-523-456	U	<	130	ug/kg	1.00	1.3e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	117-81-7	Bis(2-ethylhexyl) phthalate	SOIL	LA-523-456	U	<	630	ug/kg	1.00	6.3e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	117-84-0	Di-n-octylphthalate	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	118-74-1	Hexachlorobenzene	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	120-12-7	Anthracene	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	120-83-2	2,4-Dichlorophenol	SOIL	LA-523-456	U	<	90.0	ug/kg	1.00	90	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	131-11-3	Dimethyl phthalate	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	132-64-9	Dibenzofuran	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	191-24-2	Benzo(ghi)perylene	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	193-39-5	Indeno(1,2,3-cd)pyrene	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	205-99-2	Benzo(b)fluoranthene	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	206-44-0	Fluoranthene	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	207-08-9	Benzo(k)fluoranthene	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	208-96-8	Acenaphthylene	SOIL	LA-523-456	U	<	90.0	ug/kg	1.00	90	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	218-01-9	Chrysene	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	50-32-8	Benzo(a)pyrene	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	51-28-5	2,4-Dinitrophenol	SOIL	LA-523-456	U	<	750	ug/kg	1.00	7.5e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	53-70-3	Dibenz[a,h]anthracene	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	534-52-1	4,6-Dinitro-2-methylphenol	SOIL	LA-523-456	U	<	750	ug/kg	1.00	7.5e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	541-73-1	1,3-Dichlorobenzene	SOIL	LA-523-456	U	<	360	ug/kg	1.00	3.6e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	56-55-3	Benzo(a)anthracene	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	606-20-2	2,6-Dinitrotoluene	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7005-72-3	4-Chlorophenylphenyl ether	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	77-47-4	Hexachlorocyclopentadiene	SOIL	LA-523-456	U	<	350	ug/kg	1.00	3.5e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	78-59-1	Isophorone	SOIL	LA-523-456	U	<	75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	84-66-2	Diethylphthalate	SOIL	LA-523-456	J		220	ug/kg	1.00	2.1e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	84-74-2	Di-n-butylphthalate	SOIL	LA-523-456	J		120	ug/kg	1.00	98	09/22/04	09/09/04	09/09/04

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID	CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001612	B17NL5 TRENT	85-01-8	Phenanthrene		SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	85-68-7	Butylbenzylphthalate		SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	86-30-6	N-Nitrosodiphenylamine		SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	86-73-7	Fluorene		SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	86-74-8	Carbazole		SOIL	LA-523-456	U	< 90.0	ug/kg	1.00	90	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	87-68-3	Hexachlorobutadiene		SOIL	LA-523-456	U	< 410	ug/kg	1.00	4.1e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	88-74-4	2-Nitroaniline		SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	88-75-5	2-Nitrophenol		SOIL	LA-523-456	U	< 200	ug/kg	1.00	2.0e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	91-20-3	Naphthalene		SOIL	LA-523-456	U	< 320	ug/kg	1.00	3.2e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	91-57-6	2-Methylnaphthalene		SOIL	LA-523-456	U	< 200	ug/kg	1.00	2.0e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	91-58-7	2-Chloronaphthalene		SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	91-94-1	3,3'-Dichlorobenzidine		SOIL	LA-523-456	U	< 90.0	ug/kg	1.00	90	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	95-48-7	2-Methylphenol (cresol, o-)		SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	95-50-1	1,2-Dichlorobenzene		SOIL	LA-523-456	U	< 410	ug/kg	1.00	4.1e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	95-95-4	2,4,5-Trichlorophenol		SOIL	LA-523-456	U	< 83.0	ug/kg	1.00	83	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	98-95-3	Nitrobenzene		SOIL	LA-523-456	U	< 290	ug/kg	1.00	2.9e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	99-09-2	3-Nitroaniline		SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	65794-96-9	3 & 4 Methylphenol Total		SOIL	LA-523-456	U	< 130	ug/kg	1.00	1.3e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	67-72-1	Hexachloroethane		SOIL	LA-523-456	U	< 530	ug/kg	1.00	5.3e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	88-06-2	2,4,6-Trichlorophenol		SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	126-73-8	Tributyl phosphate	UJ	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	108-94-1	Cyclohexanone		SOIL	LA-523-456	U	< 380	ug/kg	1.00	3.8e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	95-63-6	1,2,4-Trimethylbenzene		SOIL	LA-523-456	U	< 140	ug/kg	1.00	1.4e+02	09/22/04	09/09/04	09/09/04
~~W040001612~~	~~B17NL5 TRENT~~	~~75-35-4~~	~~1,1-Dichloroethene~~		~~SOIL~~	~~LA-523-455~~	~~U~~	~~< 1.90~~	~~ug/kg~~	~~1.00~~	~~1.9~~	~~09/16/04~~	~~09/09/04~~	~~09/09/04~~
W040001612	B17NL5 TRENT	79-01-6	Trichloroethene		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5 TRENT	71-43-2	Benzene		SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
~~W040001612~~	~~B17NL5 TRENT~~	~~108-88-3~~	~~Toluene~~		~~SOIL~~	~~LA-523-455~~	~~U~~	~~< 1.90~~	~~ug/kg~~	~~1.00~~	~~1.9~~	~~09/16/04~~	~~09/09/04~~	~~09/09/04~~

MDL = Minimum Detection Limit
RQ = Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
E - Analyte is an estimate, has potentially larger errors
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DF = Dilution Factor

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
~~W040001612~~	~~B17NL5~~	~~TRENT~~	~~79-00-5~~	~~1,1,2-Trichloroethane~~	~~SOIL~~	~~LA-523-455~~	~~U~~	~~< 1.90~~	~~ug/kg~~	~~1.00~~	~~1.9~~	~~09/16/04~~	~~09/09/04~~	~~09/09/04~~
W040001612	B17NL5	TRENT	79-34-5	1,1,2,2-Tetrachloroethane	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	71-36-3	1-Butanol	SOIL	LA-523-455	U	< 38.0	ug/kg	1.00	38	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	110-54-3	Hexane	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	104-51-8	n-Butylbenzene	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	156-60-5	trans-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 1.90	ug/kg	1.00	1.9	09/16/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	75-05-8	Acetonitrile	SOIL	LA-523-455	U	< 3.80	ug/kg	1.00	3.8	09/16/04	09/09/04	09/09/04
~~W040001612~~	~~B17NL5~~	~~TRENT~~	~~156-59-2~~	~~cis-1,2-Dichloroethylene~~	~~SOIL~~	~~LA-523-455~~	~~U~~	~~< 1.90~~	~~ug/kg~~	~~1.00~~	~~1.9~~	~~09/16/04~~	~~09/09/04~~	~~09/09/04~~
W040001612	B17NL5	TRENT	TPHDIESEL	Total Pet. Hydrocarbons Diesel	SOIL	NWTPH	U	< 4.20e+03	ug/kg	1.00	4.2e+03	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	TPHKEROSENE	Kerosene	SOIL	NWTPH	U	< 4.20e+03	ug/kg	1.00	4.2e+03	09/21/04	09/09/04	09/09/04

LS
3-12-2010

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DF=Dilution Factor

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051337

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Organic														
W050002028	B1D994	TRENT	12674-11-2	Aroclor-1016	SOIL	LA-523-427	U	< 10.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	< 20.0	ug/kg	1.00	20	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	< 10.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	< 10.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	< 10.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	11097-69-1	Aroclor-1254	SOIL	LA-523-427		39.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	< 10.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	< 10.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	11100-14-4	Aroclor-1268	SOIL	LA-523-427	U	< 10.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	100-02-7	4-Nitrophenol	SOIL	LA-523-456	U	< 88.0	ug/kg	1.00	88	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	< 140	ug/kg	1.00	1.4e+02	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	108-95-2	Phenol	SOIL	LA-523-456	U	< 70.0	ug/kg	1.00	70	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	< 94.0	ug/kg	1.00	94	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	< 55.0	ug/kg	1.00	55	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	129-00-0	Pyrene	SOIL	LA-523-456	U	< 80.0	ug/kg	1.00	80	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	< 48.0	ug/kg	1.00	48	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	< 76.0	ug/kg	1.00	76	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	83-32-9	Acenaphthene	SOIL	LA-523-456	U	< 70.0	ug/kg	1.00	70	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	87-86-5	Pentachlorophenol	SOIL	LA-523-456	U	< 74.0	ug/kg	1.00	74	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	< 78.0	ug/kg	1.00	78	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	100-01-6	4-Nitroaniline	SOIL	LA-523-456	U	< 89.0	ug/kg	1.00	89	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	101-55-3	4-Bromophenylphenyl ether	SOIL	LA-523-456	U	< 53.0	ug/kg	1.00	53	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	105-67-9	2,4-Dimethylphenol	SOIL	LA-523-456	U	< 91.0	ug/kg	1.00	91	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	106-47-8	4-Chloroaniline	SOIL	LA-523-456	U	< 150	ug/kg	1.00	1.5e+02	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	108-60-1	Bis(2-chloro-1-methylethyl)eth	SOIL	LA-523-456	U	< 90.0	ug/kg	1.00	90	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	111-44-4	Bis(2-chloroethyl) ether	SOIL	LA-523-456	U	< 100	ug/kg	1.00	1.0e+02	07/20/05	06/29/05	06/29/05

LS
3-12-2010

MDL = Minimum Detection Limit
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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051337

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W05000202B	B1D994	TRENT	111-91-1	Bis(2-Chloroethoxy)methane	SOIL	LA-523-456	U	< 63.0	ug/kg	1.00	63	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	117-81-7	Bis(2-ethylhexyl) phthalete	SOIL	LA-523-456	U	< 73.0	ug/kg	1.00	73	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	117-84-0	Di-n-octylphthalate	SOIL	LA-523-456	U	< 87.0	ug/kg	1.00	87	07/20/05	06/29/05	06/29/05
W05000202B	81D994	TRENT	118-74-1	Hexachlorobenzene	SOIL	LA-523-456	U	< 70.0	ug/kg	1.00	70	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	120-12-7	Anthracene	SOIL	LA-523-456	U	< 79.0	ug/kg	1.00	79	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	120-83-2	2,4-Dichlorophenol	SOIL	LA-523-456	U	< 46.0	ug/kg	1.00	46	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	131-11-3	Dimethyl phthalate	SOIL	LA-523-456	U	< 66.0	ug/kg	1.00	66	07/20/05	06/29/05	06/29/05
W05000202B	81D994	TRENT	132-64-9	Dibenzofuran	SOIL	LA-523-456	U	< 63.0	ug/kg	1.00	63	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	191-24-2	Benzo(ghi)perylene	SOIL	LA-523-456	U	< 79.0	ug/kg	1.00	79	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	193-39-5	Indeno(1,2,3-cd)pyrene	SOIL	LA-523-456	U	< 84.0	ug/kg	1.00	84	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	205-99-2	Benzo(b)fluoranthene	SOIL	LA-523-456	U	< 76.0	ug/kg	1.00	76	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	206-44-0	Fluoranthene	SOIL	LA-523-456	U	< 82.0	ug/kg	1.00	82	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	207-08-9	Benzo(k)fluoranthene	SOIL	LA-523-456	U	< 55.0	ug/kg	1.00	55	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	208-96-8	Acenaphthylene	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	218-01-9	Chrysene	SOIL	LA-523-456	U	< 72.0	ug/kg	1.00	72	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	50-32-8	Benzo(a)pyrene	SOIL	LA-523-456	U	< 62.0	ug/kg	1.00	62	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	51-28-5	2,4-Dinitrophenol	SOIL	LA-523-456	U	< 180	ug/kg	1.00	1.8e+02	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	53-70-3	Dibenz[a,h]anthracene	SOIL	LA-523-456	U	< 96.0	ug/kg	1.00	96	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	534-52-1	4,6-Dinitro-2-methylphenol	SOIL	LA-523-456	U	< 130	ug/kg	1.00	1.3e+02	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	541-73-1	1,3-Dichlorobenzene	SOIL	LA-523-456	U	< 160	ug/kg	1.00	1.6e+02	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	56-55-3	Benzo(a)anthracene	SOIL	LA-523-456	U	< 65.0	ug/kg	1.00	65	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	606-20-2	2,6-Dinitrotoluene	SOIL	LA-523-456	U	< 70.0	ug/kg	1.00	70	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7005-72-3	4-Chlorophenylphenyl ether	SOIL	LA-523-456	U	< 53.0	ug/kg	1.00	53	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	77-47-4	Hexachlorocyclopentadiene	SOIL	LA-523-456	U	< 170	ug/kg	1.00	1.7e+02	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	78-59-1	Isophorone	SOIL	LA-523-456	U	< 85.0	ug/kg	1.00	85	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	84-66-2	Diethylphthalete	SOIL	LA-523-456	U	< 140	ug/kg	1.00	1.4e+02	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	84-74-2	Di-n-butylphthalate	SOIL	LA-523-456		340	ug/kg	1.00	1.7e+02	07/20/05	06/29/05	06/29/05

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051337

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W05000202B	B1D994	TRENT	85-01-8	Phenanthrene		SOIL	LA-523-456	U	< 72.0	ug/kg	1.00	72	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	85-68-7	Butylbenzylphthalate		SOIL	LA-523-456	U	< 76.0	ug/kg	1.00	76	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	86-30-6	N-Nitrosodiphenylamine		SOIL	LA-523-456	U	< 74.0	ug/kg	1.00	74	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	86-73-7	Fluorene		SOIL	LA-523-456	U	< 70.0	ug/kg	1.00	70	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	86-74-8	Carbazole		SOIL	LA-523-456	U	< 80.0	ug/kg	1.00	80	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	87-68-3	Hexachlorobutadiene		SOIL	LA-523-456	U	< 85.0	ug/kg	1.00	85	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	88-74-4	2-Nitroaniline		SOIL	LA-523-456	U	< 53.0	ug/kg	1.00	53	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	88-75-5	2-Nitrophenol		SOIL	LA-523-456	U	< 93.0	ug/kg	1.00	93	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	91-20-3	Naphthalene		SOIL	LA-523-456	U	< 84.0	ug/kg	1.00	84	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	91-57-6	2-Methylnaphthalene		SOIL	LA-523-456	U	< 76.0	ug/kg	1.00	76	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	91-58-7	2-Chloronaphthalene		SOIL	LA-523-456	U	< 67.0	ug/kg	1.00	67	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	91-94-1	3,3'-Dichlorobenzidine		SOIL	LA-523-456	U	< 200	ug/kg	1.00	2.0e+02	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	95-48-7	2-Methylphenol (cresol, o-)		SOIL	LA-523-456	U	< 83.0	ug/kg	1.00	83	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	95-50-1	1,2-Dichlorobenzene		SOIL	LA-523-456	U	< 130	ug/kg	1.00	1.3e+02	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	95-95-4	2,4,5-Trichlorophenol		SOIL	LA-523-456	U	< 46.0	ug/kg	1.00	46	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	98-95-3	Nitrobenzene		SOIL	LA-523-456	U	< 85.0	ug/kg	1.00	85	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	99-09-2	3-Nitroaniline		SOIL	LA-523-456	U	< 59.0	ug/kg	1.00	59	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	65794-96-9	3 & 4 Methylphenol Total		SOIL	LA-523-456	U	< 110	ug/kg	1.00	1.1e+02	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	67-72-1	Hexachloroethane		SOIL	LA-523-456	U	< 120	ug/kg	1.00	1.2e+02	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	88-06-2	2,4,6-Trichlorophanol		SOIL	LA-523-456	U	< 43.0	ug/kg	1.00	43	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	124-18-5	Decane		SOIL	LA-523-456	U	< 180	ug/kg	1.00	1.8e+02	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	100-51-6	Benzyl alcohol		SOIL	LA-523-456	U	< 58.0	ug/kg	1.00	58	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	111-76-2	2-Butoxyethanol		SOIL	LA-523-456	U	< 85.0	ug/kg	1.00	85	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	126-73-8	Tributyl phosphate	UJ	SOIL	LA-523-456	U	< 72.0	ug/kg	1.00	72	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	91-59-8	2-Naphthylamine		SOIL	LA-523-456	U	< 170	ug/kg	1.00	1.7e+02	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	108-94-1	Cyclohexanone		SOIL	LA-523-456	U	< 89.0	ug/kg	1.00	89	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	110-86-1	Pyridine		SOIL	LA-523-456	U	< 97.0	ug/kg	1.00	97	07/20/05	06/29/05	06/29/05

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051337

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W050002028	B1D994	TRENT	95-63-6	1,2,4-Trimethylbenzene	SOIL	LA-523-456	U	< 150	ug/kg	1.00	1.5e+02	07/20/05	06/29/05	06/29/05
~~W050002028~~	~~B1D994~~	~~TRENT~~	~~75-35-4~~	~~1,1-Dichloroethene~~	~~SOIL~~	~~LA-523-455~~	~~U~~	~~< 2.10~~	~~ug/kg~~	~~1.00~~	~~2.1~~	~~07/06/05~~	~~06/29/05~~	~~06/29/05~~
W05000202B	B1D994	TRENT	79-01-6	Trichloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	71-43-2	Benzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	108-88-3	Toluene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	108-90-7	Chlorobenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	75-34-3	1,1-Dichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	100-41-4	Ethylbenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	100-42-5	Styrene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	10061-01-5	cis-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	10061-02-6	trans-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	107-06-2	1,2-Dichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	108-10-1	4-Methyl-2-Pentanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	124-48-1	Dibromochloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	127-18-4	Tetrachloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	1330-20-7	Xylenes (total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	540-59-0	1,2-Dichloroethene(Total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	56-23-5	Carbon tetrachloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	591-78-6	2-Hexanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	67-64-1	Acetone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	67-66-3	Chloroform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	71-55-6	1,1,1-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	74-83-9	Bromomethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	74-87-3	Chloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	75-00-3	Chloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	75-01-4	Vinyl chloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
~~W05000202B~~	~~B1D994~~	~~TRENT~~	~~75-09-2~~	~~Methylenechloride~~	~~SOIL~~	~~LA-523-455~~	~~U~~	~~< 2.10~~	~~ug/kg~~	~~1.00~~	~~2.1~~	~~07/06/05~~	~~06/29/05~~	~~06/29/05~~

LS
3-12-2010

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051337

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
~~W050002028~~	~~B1D994~~	~~TRENT~~	~~75-15-0~~	~~Carbon disulfide~~	~~SOIL~~	~~LA-523-455~~	~~U~~	~~< 2.10~~	~~ug/kg~~	~~1.00~~	~~2.1~~	~~07/06/05~~	~~06/29/05~~	~~06/29/05~~
W050002028	B1D994	TRENT	75-25-2	Bromoform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	75-27-4	Bromodichloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	78-87-5	1,2-Dichloropropane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	78-93-3	2-Butanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	79-00-5	1,1,2-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	79-34-5	1,1,2,2-Tetrachloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	71-36-3	1-Butanol	SOIL	LA-523-455	U	< 41.0	ug/kg	1.00	41	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	107-87-9	2-Pentanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	110-82-7	Cyclohexane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	110-54-3	Hexana	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	109-99-9	Tetrahydrofuran	SOIL	LA-523-455	U	< 4.10	ug/kg	1.00	4.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	75-69-4	Trichloromonofluoromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	104-51-8	n-Butylbenzana	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	156-60-5	trans-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	75-05-8	Acetonitrile	SOIL	LA-523-455	U	< 4.10	ug/kg	1.00	4.1	07/06/05	06/29/05	06/29/05
~~W050002028~~	~~B1D994~~	~~TRENT~~	~~156-59-2~~	~~cis-1,2-Dichloroethylene~~	~~SOIL~~	~~LA-523-455~~	~~U~~	~~< 2.10~~	~~ug/kg~~	~~1.00~~	~~2.1~~	~~07/06/05~~	~~06/29/05~~	~~06/29/05~~
W050002028	B1D994	TRENT	TPHDIESEL	Total Pet. Hydrocarbons Diesel	SOIL	NWTPH	U	< 3.80e+03	ug/kg	1.00	3.8e+03	07/21/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	TPHKEROSENE	Kerosene	SOIL	NWTPH	U	< 3.80e+03	ug/kg	1.00	3.8e+03	07/21/05	06/29/05	06/29/05

LS
3-12-2010

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051350

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Organic														
~~W050002036~~	~~B1D995~~	~~TRENT~~	~~12674-11-2~~	~~Aroclor-1016~~	~~SOIL~~	~~LA-523-427~~	~~U~~	~~< 11.0~~	~~ug/kg~~	~~1.00~~	~~11~~	~~07/20/05~~	~~06/30/05~~	~~06/30/05~~
W050002036	B1D995	TRENT	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	< 21.0	ug/kg	1.00	21	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	< 11.0	ug/kg	1.00	11	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	< 11.0	ug/kg	1.00	11	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	< 11.0	ug/kg	1.00	11	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	11097-69-1	Aroclor-1254	SOIL	LA-523-427	U	< 11.0	ug/kg	1.00	11	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	< 11.0	ug/kg	1.00	11	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	< 11.0	ug/kg	1.00	11	07/20/05	06/30/05	06/30/05
~~W050002036~~	~~B1D995~~	~~TRENT~~	~~11100-14-4~~	~~Aroclor-1268~~	~~SOIL~~	~~LA-523-427~~	~~U~~	~~< 11.0~~	~~ug/kg~~	~~1.00~~	~~11~~	~~07/20/05~~	~~06/30/05~~	~~06/30/05~~
W050002036	B1D995	TRENT	100-02-7	4-Nitrophenol	SOIL	LA-523-456	U	< 92.0	ug/kg	1.00	92	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	< 140	ug/kg	1.00	1.4e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	108-95-2	Phenol	SOIL	LA-523-456	U	< 73.0	ug/kg	1.00	73	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	< 98.0	ug/kg	1.00	98	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	< 58.0	ug/kg	1.00	58	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	129-00-0	Pyrene	SOIL	LA-523-456	U	< 83.0	ug/kg	1.00	83	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	< 50.0	ug/kg	1.00	50	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	< 80.0	ug/kg	1.00	80	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	83-32-9	Acenaphthene	SOIL	LA-523-456	U	< 73.0	ug/kg	1.00	73	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	87-86-5	Pentachlorophenol	SOIL	LA-523-456	U	< 78.0	ug/kg	1.00	78	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	< 81.0	ug/kg	1.00	81	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	100-01-6	4-Nitroaniline	SOIL	LA-523-456	U	< 93.0	ug/kg	1.00	93	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	101-55-3	4-Bromophenylphenyl ether	SOIL	LA-523-456	U	< 55.0	ug/kg	1.00	55	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	105-67-9	2,4-Dimethylphenol	SOIL	LA-523-456	U	< 96.0	ug/kg	1.00	96	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	106-47-8	4-Chloroaniline	SOIL	LA-523-456	U	< 160	ug/kg	1.00	1.6e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	108-60-1	Bis(2-chloro-1-methylethyl)eth	SOIL	LA-523-456	U	< 94.0	ug/kg	1.00	94	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	111-44-4	Bis(2-chloroethyl) ether	SOIL	LA-523-456	U	< 110	ug/kg	1.00	1.1e+02	07/20/05	06/30/05	06/30/05

LS
3-12-2010

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051350

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W050002036	B1D995	TRENT	111-91-1	Bis(2-Chloroethoxy)methane	SOIL	LA-523-456	U	< 66.0	ug/kg	1.00	66	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	117-81-7	Bis(2-ethylhexyl) phthalate	SOIL	LA-523-456	U	< 76.0	ug/kg	1.00	76	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	117-84-0	Di-n-octylphthalate	SOIL	LA-523-456	U	< 91.0	ug/kg	1.00	91	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	118-74-1	Hexachlorobenzene	SOIL	LA-523-456	U	< 73.0	ug/kg	1.00	73	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	120-12-7	Anthracene	SOIL	LA-523-456	U	< 82.0	ug/kg	1.00	82	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	120-83-2	2,4-Dichlorophenol	SOIL	LA-523-456	U	< 48.0	ug/kg	1.00	48	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	131-11-3	Dimethyl phthalate	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	132-64-9	Dibenzofuran	SOIL	LA-523-456	U	< 66.0	ug/kg	1.00	66	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	191-24-2	Benzo(ghi)perylene	SOIL	LA-523-456	U	< 82.0	ug/kg	1.00	82	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	193-39-5	Indeno(1,2,3-cd)pyrene	SOIL	LA-523-456	U	< 88.0	ug/kg	1.00	88	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	205-99-2	Benzo(b)fluoranthene	SOIL	LA-523-456	U	< 79.0	ug/kg	1.00	79	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	206-44-0	Fluoranthene	SOIL	LA-523-456	U	< 86.0	ug/kg	1.00	86	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	207-08-9	Benzo(k)fluoranthene	SOIL	LA-523-456	U	< 58.0	ug/kg	1.00	58	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	208-96-8	Acenaphthylene	SOIL	LA-523-456	U	< 78.0	ug/kg	1.00	78	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	218-01-9	Chrysene	SOIL	LA-523-456	U	< 76.0	ug/kg	1.00	76	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	50-32-8	Benzo(a)pyrene	SOIL	LA-523-456	U	< 65.0	ug/kg	1.00	65	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	51-28-5	2,4-Dinitrophenol	SOIL	LA-523-456	U	< 190	ug/kg	1.00	1.9e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	53-70-3	Dibenz[a,h]anthracene	SOIL	LA-523-456	U	< 100	ug/kg	1.00	1.0e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	534-52-1	4,6-Dinitro-2-methylphenol	SOIL	LA-523-456	U	< 140	ug/kg	1.00	1.4e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	541-73-1	1,3-Dichlorobenzene	SOIL	LA-523-456	U	< 170	ug/kg	1.00	1.7e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	56-55-3	Benzo(a)anthracene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	606-20-2	2,6-Dinitrotoluene	SOIL	LA-523-456	U	< 73.0	ug/kg	1.00	73	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7005-72-3	4-Chlorophenylphenyl ether	SOIL	LA-523-456	U	< 55.0	ug/kg	1.00	55	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	77-47-4	Hexachlorocyclopentadiene	SOIL	LA-523-456	U	< 170	ug/kg	1.00	1.7e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	78-59-1	Isophorone	SOIL	LA-523-456	U	< 89.0	ug/kg	1.00	89	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	84-66-2	Diethylphthalate	SOIL	LA-523-456	U	< 140	ug/kg	1.00	1.4e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	84-74-2	Di-n-butylphthalate	SOIL	LA-523-456		270	ug/kg	1.00	1.7e+02	07/20/05	06/30/05	06/30/05

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051350

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W050002036	B1D995	TRENT	85-01-8	Phenanthrene		SOIL	LA-523-456	U	< 76.0	ug/kg	1.00	76	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	85-68-7	Butylbenzylphthalate		SOIL	LA-523-456	U	< 79.0	ug/kg	1.00	79	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	86-30-6	N-Nitrosodiphenylamine		SOIL	LA-523-456	U	< 77.0	ug/kg	1.00	77	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	86-73-7	Fluorene		SOIL	LA-523-456	U	< 73.0	ug/kg	1.00	73	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	86-74-8	Carbazole		SOIL	LA-523-456	U	< 83.0	ug/kg	1.00	83	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	87-68-3	Hexachlorobutadiene		SOIL	LA-523-456	U	< 89.0	ug/kg	1.00	89	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	88-74-4	2-Nitroaniline		SOIL	LA-523-456	U	< 55.0	ug/kg	1.00	55	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	88-75-5	2-Nitrophenol		SOIL	LA-523-456	U	< 97.0	ug/kg	1.00	97	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	91-20-3	Naphthalene		SOIL	LA-523-456	U	< 88.0	ug/kg	1.00	88	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	91-57-6	2-Methylnaphthalene		SOIL	LA-523-456	U	< 80.0	ug/kg	1.00	80	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	91-58-7	2-Chloronaphthalene		SOIL	LA-523-456	U	< 70.0	ug/kg	1.00	70	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	91-94-1	3,3'-Dichlorobenzidine		SOIL	LA-523-456	U	< 210	ug/kg	1.00	2.1e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	95-48-7	2-Methylphenol (cresol, o-)		SOIL	LA-523-456	U	< 87.0	ug/kg	1.00	87	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	95-50-1	1,2-Dichlorobenzene		SOIL	LA-523-456	U	< 130	ug/kg	1.00	1.3e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	95-95-4	2,4,5-Trichlorophenol		SOIL	LA-523-456	U	< 48.0	ug/kg	1.00	48	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	98-95-3	Nitrobenzene		SOIL	LA-523-456	U	< 89.0	ug/kg	1.00	89	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	99-09-2	3-Nitroaniline		SOIL	LA-523-456	U	< 62.0	ug/kg	1.00	62	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	65794-96-9	3 & 4 Methylphenol Total		SOIL	LA-523-456	U	< 110	ug/kg	1.00	1.1e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	67-72-1	Hexachloroethane		SOIL	LA-523-456	U	< 130	ug/kg	1.00	1.3e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	88-06-2	2,4,6-Trichlorophenol		SOIL	LA-523-456	U	< 45.0	ug/kg	1.00	45	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	124-18-5	Decane		SOIL	LA-523-456	U	< 190	ug/kg	1.00	1.9e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	100-51-6	Benzyl alcohol		SOIL	LA-523-456	U	< 61.0	ug/kg	1.00	61	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	111-76-2	2-Butoxyethanol		SOIL	LA-523-456	U	< 88.0	ug/kg	1.00	88	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	126-73-8	Tributyl phosphate	UJ	SOIL	LA-523-456	U	< 76.0	ug/kg	1.00	76	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	91-59-8	2-Naphthylamine		SOIL	LA-523-456	U	< 180	ug/kg	1.00	1.8e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	108-94-1	Cyclohexanone		SOIL	LA-523-456	U	< 93.0	ug/kg	1.00	93	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	110-86-1	Pyridine		SOIL	LA-523-456	U	< 100	ug/kg	1.00	1.0e+02	07/20/05	06/30/05	06/30/05

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051350

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W050002036	B1D995	TRENT	95-63-6	1,2,4-Trimethylbenzene	SOIL	LA-523-456	U	< 160	ug/kg	1.00	1.6e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-35-4	1,1-Dichloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	79-01-6	Trichloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	71-43-2	Benzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	108-88-3	Toluene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	108-90-7	Chlorobenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-34-3	1,1-Dichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	100-41-4	Ethylbenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	100-42-5	Styrene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	10061-01-5	cis-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	10061-02-6	trans-1,3-Dichloropropene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	107-06-2	1,2-Dichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	108-10-1	4-Methyl-2-Pentanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	124-48-1	Dibromochloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	127-18-4	Tetrachloroethene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	1330-20-7	Xylenes (total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	540-59-0	1,2-Dichloroethene(Total)	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	56-23-5	Carbon tetrachloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	591-78-6	2-Hexanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	67-64-1	Acetone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	67-66-3	Chloroform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	71-55-6	1,1,1-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	74-83-9	Bremomethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	74-87-3	Chloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-00-3	Chloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-01-4	Vinyl chloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-09-2	Methylenechloride	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05

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3-12-2010

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051350

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
~~W050002036~~	~~B1D995~~	~~TRENT~~	~~75-15-0~~	~~Carbon disulfide~~	~~SOIL~~	~~LA-523-455~~	~~U~~	~~< 2.10~~	~~ug/kg~~	~~1.00~~	~~2.1~~	~~07/13/05~~	~~06/30/05~~	~~06/30/05~~
W050002036	B1D995	TRENT	75-25-2	Bromoform	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-27-4	Bromodichloromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	78-87-5	1,2-Dichloropropane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	78-93-3	2-Butanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	79-00-5	1,1,2-Trichloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	79-34-5	1,1,2,2-Tetrachloroethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	71-36-3	1-Butanol	SOIL	LA-523-455	U	< 43.0	ug/kg	1.00	43	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	107-87-9	2-Pentanone	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	110-82-7	Cyclohexane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	110-54-3	Hexane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	109-99-9	Tetrahydrofuran	SOIL	LA-523-455	U	< 4.30	ug/kg	1.00	4.3	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-69-4	Trichloromonofluoromethane	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	104-51-8	n-Butylbenzene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	156-60-5	trans-1,2-Dichloroethylene	SOIL	LA-523-455	U	< 2.10	ug/kg	1.00	2.1	07/13/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	75-05-8	Acetonitrile	SOIL	LA-523-455	U	< 4.30	ug/kg	1.00	4.3	07/13/05	06/30/05	06/30/05
~~W050002036~~	~~B1D995~~	~~TRENT~~	~~156-59-2~~	~~cis-1,2-Dichloroethylene~~	~~SOIL~~	~~LA-523-455~~	~~U~~	~~< 2.10~~	~~ug/kg~~	~~1.00~~	~~2.1~~	~~07/13/05~~	~~06/30/05~~	~~06/30/05~~
W050002036	B1D995	TRENT	TPHDIESEL	Total Pet. Hydrocarbons Diesel	SOIL	NWTPH	U	< 4.00e+03	ug/kg	1.00	4.0e+03	07/21/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	TPHKEROSENE	Kerosene	SOIL	NWTPH	U	< 4.00e+03	ug/kg	1.00	4.0e+03	07/21/05	06/30/05	06/30/05

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3-12-2010

MDL=Minimum Detection Limit U - Analyzed for but not detected above limiting criteria.
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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041457**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-Z-9/C3426 – Interval 174'-176-5' Trench Characterization Borehole - Soil (B17N67) was received at the WSCF Laboratory on August 23, 2004. The sample was 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- ICP-AES Metals by EPA Method 6010. Analytical work was performed with no deviations to the approved method.
- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- PCB by EPA Method 8080. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. 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.

- Ammonia by EPA Method 300.7. 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.

- Percent Solids by Method 160.3. Analytical work was performed with no deviations to the approved method.

- All RadChem analyses (AEA (Plutonium, Americium, Uranium and Neptunium), GEA, and Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Comments

ICP-MS Metals (Mercury and Uranium only) – 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 GRP Letter of Instruction. See pages 2-18 through 2-19 for QC details. All QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See page(s) 2-17 through 2-20 for QC details. Analytical Notes:

- Sodium – Matrix spike and spike duplicates exceeded the established laboratory limits. Sample result was E (estimate) flagged.

- Aluminum, Iron, Calcium and Magnesium – the spike concentration was insufficient for the sample concentration.

- Aluminum – laboratory control sample exceeds the established laboratory limits, but is within manufacturer's limits. Sample result was not flagged.

All other QC controls are within the established limits.

Anions - 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 GRP Letter of Instruction. See pages 2-20 through 2-21 for QC details. Analytical Notes:

- Chloride - Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

- Sulfate – Duplicate Relative Percent Difference exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

PCB – 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 GRP Letter of Instruction. See pages 2-29 through 2-30 for QC details. Analytical Notes:

- Sample results are moisture corrected and reported on a dry weight basis.
- Decachlorobiphenyl surrogate spike Relative Percent Difference slightly exceeded established limits. Matrix Spike and Matrix Spike Duplicate recoveries were within limit; sample results were not flagged.

All other QC controls are within the established limits

Semi-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 GRP Letter of Instruction. See pages 2-32 through 2-38 for QC details. Analytical Notes:

- Sample results are moisture corrected and reported on a dry weight basis.
- Pentachlorophenol – laboratory control sample recovery was below established laboratory limits. Matrix spike duplicate recoveries are below established limits. Sample result was J (estimate) flagged.
- N-Nitrosodi-n-dipropylamine – The matrix spike duplicate exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.
- Di-n-butylphthalate – Sample result J flagged; the target compound indicates that it was found at a concentration below that of the lowest calibration standard but above the detection limit.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 2-28 for QC details. Analytical Note:

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

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 GRP Letter of Instruction. See pages 2-25 through 2-27 for QC details. Analytical Note:

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

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 the GRP Letter of Instruction. See page 2-22 for QC details. Analytical Note:

- The matrix spike recovery is below established limits. The laboratory control sample is within established limits. The sample result is not flagged.

All QC controls are within the established limits.

Ammonia - 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 GRP Letter of Instruction. See pages 2-31 for QC details. Analytical Notes:

- Matrix spike and matrix spike duplicate were analyzed on sample delivery group 20041487, sample B17N70 for this batch.

- Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

All other QC controls are within the established limits.

pH - All laboratory QC controls were within the established limits.

Percent Solid – Analyzed for organic moisture correction only.

RadChem – There are no hold times associated with these WDOE accredited methods. A Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 2-23, 2-24 and 2-45 through 48 for QC details. Analytical Notes:

- Gross Alpha and Gross Beta – The duplicate Relative Percent Differences exceeded the established limits; sample results were not flagged since the sample had low activity and the RPD criteria does not apply.

- Neptunium-237 – the laboratory control sample recovery was below the established laboratory limits. Duplicate relative percent difference exceeded established laboratory limits. Sample result is X (estimated) flagged.

- Americium-241 – duplicate relative percent difference exceeded established laboratory limits; sample result was not flagged since the sample had low activity and the RPD criterion does not apply.

- Pu-239/240 - duplicate relative percent difference exceeded established laboratory limits; sample result was not flagged since the sample had low activity and the RPD criterion does not apply.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		Am-243	65.0
LCS		Am-243	80.14
B17N57	W040001533	Am-243	78.2
DUPLICATE	W040001533	Am-243	68.8
BLANK		Pu-242	77.3
LCS		Pu-242	71.9
B17N57	W040001533	Pu-242	81.0
DUPLICATE	W040001533	Pu-242	70.7
BLANK		U-232	83.1
LCS		U-232	71.7
B17N57	W040001533	U-232	80.7
DUPLICATE	W040001533	U-232	82.4

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.

Herlene S. Rich
WSCF Production Control

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

0000007

9/22

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-019	Page 1 of 1
Collector: Pope/Pfister/Hughes	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location: 216-Z-9/C3426 - Interval 174'-176.5'	SAF No.: F03-018	
Ice Chest No.	Field Logbook No.: HNF-~~N-9361~~ 361-1 1st 9/14/04; COA: 119152ES10	Method of Shipment: Government Vehicle	
Shipped To: Waste Sampling & Characterization 20041457	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage
RADIOACTIVE TIE TO: B17NN7

Preservation	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None					
Type of Container	aGs*	P	aG	aG	aG	aG					
No. of Container(s)	3	1	1	1	1	1					
Volume	40mL	500mL	60mL	120mL	60mL	60mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	See item (5) in Special Instructions.					

Sample No.	Matrix *	Sample Date	Sample Time										
B17N67	SOIL	8/23/04	1309	X	X	X	X	X	X				
W04000153 3													

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Lorraine Wolfe Wolfe	Date/Time: 14:12 8/23/04	Received By/Stored In: Victor Bins	Date/Time: 8/23/04 14:12
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** The laboratory is to achieve a detection limit of 5 pCi/g and 10 pCi/g for gross alpha and gross beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

CCC 10/11/04 3-2

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041487**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-Z-9/C3426 – Interval 184'-186.5' Trench Characterization Borehole - Soil GRP sample (B17N70) was received at the WSCF Laboratory on August 25, 2004. The sample was 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- ICP-AES Metals by EPA Method 6010. Analytical work was performed with no deviations to the approved method.
- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. 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.

- Ammonia by EPA Method 300.7. 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.

- Percent Solids by EPA Method 160.3. Analytical work was performed with no deviations to the approved method.

- All RadChem analyses (AEA (Plutonium, Americium, Uranium, Neptunium) GEA, Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Comments

ICP-MS Metals (Uranium and Mercury only) – 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 GRP Letter of Instruction. See page 2-18 through 2-19 for QC details. All GRP sample delivery groups associated with this batch QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See pages 2-37 through 2-42 for QC details. Analytical Notes:

- Sodium – The matrix spike and matrix spike duplicate for sample B190V5 (SDG# 20041417) associated with this batch exceeded established laboratory limits. The sample result was E (estimate) flagged.

- Potassium - The matrix spike duplicate for sample B190V5 (SDG# 20041417) associated with this batch exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.

- Aluminum, Iron, Magnesium and Calcium - the spike concentration was insufficient for the sample concentration.

- Aluminum – the Laboratory Control Sample recovery exceeded established laboratory limits but was within the manufacturer's limits. Sample result was not flagged.

All other QC controls are within the established limits.

Anions - The hold times for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 2-20 through 2-21 for QC details. Analytical Notes:

- Chloride – Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

- Sulfate - Duplicate Relative Percent Difference for the batch exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 2-30 through 2-36 for QC details. Analytical Notes:

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

- Pentachlorophenol - laboratory control sample recovery was below established laboratory limits. The sample result was less than the detection limit and not flagged.

- N-Nitrosodi-n-dipropylamine - The matrix spike duplicate for sample B17N67 (SDG# 20041457) associated with this batch exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 2-26 for QC details. Analytical Note:

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

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 GRP Letter of Instruction. See page(s) 2-22 through 2-24 for QC details. Analytical Notes:

- Styrene – Sample result J flagged; the target compound indicates that it was found at a concentration below that of the lowest calibration standard but above the detection limit.

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

All other 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 the GRP Letter of Instruction. See page 2-27 for QC details. Analytical Note:

- The matrix spike recovery was below established laboratory limits. The matrix spike duplicate was within limits and all other QC controls were within limits. The sample result was not flagged.

All other QC controls are within the established limits.

Ammonia - 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 GRP Letter of Instruction. See page 2-28 for QC details. Analytical Note:

- Duplicate Relative Percent Difference for the batch exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

pH - All laboratory QC controls are within the established limits.

Percent Solids – run for organic analysis moisture correction only.

RadChem – There are no hold times associated with these WDOE accredited methods. A Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 2-25, 2-29, 2-43 through 2-46 for QC details. Analytical Notes:

- Neptunium-237 – The Duplicate Relative Percent Difference is below the established laboratory limit. The RPD criterion is not applicable to sample activity below the detection limit.

- Americium-241 and Plutonium-239-240 – Duplicate Relative Percent Differences are above the established laboratory limits. The sample was in a soil matrix and non-homogeneous. Sample results were not flagged.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery

Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		Pu-242	64.3
LCS		Pu-242	72.6
B17N70	W040001543	Pu-242	77.4
DUPLICATE	W040001543	Pu-242	72.3
BLANK		Am-243	80.1
LCS		Am-243	88.7
B17N70	W040001543	Am-243	70.4

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
DUPLICATE	W040001543	Am-243	89.1
BLANK		U-232	86.1
LCS		U-232	80.1
B17N70	W040001543	U-232	84.3
DUPLICATE	W040001543	U-232	89.2

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.

Herlene S. Rich
WSCF Production Control

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

9/23/04

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-021	Page 1 of 1

Collector Pope/Pfister/Hughes	**Company Contact** Steve Trent **Telephone No.** 373-5869	**Project Coordinator** TRENT, SJ	**Price Code** 8N **Data Turnaround** 45 Days
Project Designation 216-Z-9 Trench Characterization Borehole - Soil	**Sampling Location** 216-Z-9/C3426 - Interval 184'-186.5'	**SAF No.** F03-018	**Air Quality** ☐
Ice Chest No.	**Field Logbook No.** HNF-~~N3361~~ 360-1 4/8/04 **COA** 119152ES10	**Method of Shipment** Government Vehicle	
Shipped To Waste Sampling & Characterization	**Offsite Property No.** N/A	**Bill of Lading/Air Bill No.** N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage
RADIOACTIVE TIE TO: B17NN8

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None						
Type of Container	aGs*	P	aG	aG	aG						
No. of Container(s)	3	1	1	1	1						
Volume	40mL	500mL	60mL	120mL	60mL						

SAMPLE ANALYSIS

SDG # 20041487

Sample No.	Matrix *	Sample Date	Sample Time	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.					
B17N70 W04000543	SOIL	8/25/04	1135	X	X	X	X	X					

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / David Tyler	8/25/04 1300	[signature] / Bobbs	8/25/04 1300

SPECIAL INSTRUCTIONS

** The laboratory is to achieve a detection limit of 5 pCi/g and 10 pCi/g for gross alpha and gross beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

010057

3 - 2

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041594**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

Two (2) 216-Z-9/C3426 – Interval 224'-226.5' Trench Characterization Borehole - Soil GRP samples (B17N73 and B17NL5) were received at the WSCF Laboratory on September 9, 2004. 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

Inorganic

- Ammonia by EPA Method 300.7. Analytical work was performed with no deviations to the approved method.
- 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-AES Metals by EPA Method 6010. 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

- PCBs by EPA Method 8082. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. Analytical work was performed with no deviations to the approved method.

Radiochemistry

- All RadChem analyses (AEA (Plutonium, Americium, Uranium, Neptunium) GEA, Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 13 for QC details. Analytical Note:

- The sample results were less than the reporting detection limit, but greater than the method detection limit. The sample results were B flagged.

All QC controls are within the established limits.

Anions - The hold times for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 14 through 15 for QC details. Analytical Note:

- Chloride - The sample results for B17N73 and B17NL5 were less than the reporting detection limit, but greater than the method detection limit. The sample results were B flagged.
- Sulfate - The sample result for B17N73 was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.
- Nitrate - The sample result for B17NL5 was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

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 the GRP Letter of Instruction. See page 16 for QC details. Analytical Note:

- The Matrix and Matrix Spike Duplicate recoveries were below established laboratory limits. Sample results were below the detection limit and not flagged.

All other QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See pages 17 through 21 for QC details. Analytical Notes:

- Potassium – The Matrix Spike exceeded established laboratory limits. All other QC samples were within limits and the sample results were not flagged.

- Sodium – The Matrix Spike, Matrix Spike Duplicate and Relative Percent Difference were above established laboratory limits. Sample results were E (estimate) flagged.

- Silver – The Matrix Spike Duplicate was below established laboratory limits, making the Matrix Spike and Matrix Spike Duplicate Relative Percent Difference above established limits. The Laboratory Control Sample recovery was low. Sample B17N73 result was E (estimate) flagged.

- Phosphorus – The Matrix Spike Duplicate was below established laboratory limits. All other QC samples were within limits and the sample results were not flagged.

- Aluminum – the Laboratory Control Sample recovery exceeded established limits. The recovery was within manufacturer's limits and the sample results were not flagged.

- Iron and Strontium – the Laboratory Control Sample recoveries were above established limits. The recoveries were within manufacturer's limits and the sample results were not flagged.

All other QC controls are within the established limits.

ICP-MS Metals (Mercury and Uranium) – 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 GRP Letter of Instruction. See page 22 for QC details. Analytical Note:

- Mercury – The Laboratory Control Sample recovery exceeded established laboratory limits. All other QC controls were within limits, sample results were not flagged.

All other QC controls are within the established limits.

Percent Solids – analyzed for organic analysis correction only.

pH - The hold time for this analysis was met. All laboratory QC controls are within the established limits.

Organic Comments

- Organic sample results are moisture corrected and reported on dry weight basis.

PCBs – 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 GRP Letter of Instruction. See pages 32 through 33 for QC details. All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 34 through 41 for QC details. Analytical Note:

- Diethylphthalate and Di-n-butylphthalate- sample results were J flagged; results were less than the lowest calibration standard but greater than the detection limit.

All QC controls are within the established limits.

TPHD/G-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 42 through 43 for QC details. 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 GRP Letter of Instruction. See pages 44 through 47 for QC details. Analytical Notes:

- A Matrix Spike and Matrix Spike Duplicate were analyzed on sample B191F8 (SDG#20041555, SAF#F03-025). All recoveries were within established laboratory limits.

- Toluene – Laboratory Control Sample Recovery was above established limits due to column carry over from sample W04DC00159. All other QC controls were within limits and the sample results were not flagged.

All other QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with these WDOE accredited methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 48 through 56 for QC details. Analytical Note:

- Americium-241 - The Duplicate Relative Percent Difference exceeded the established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

- Europium-155, Gross Alpha, Gross Beta and Plutonium-239/240 - The Duplicate Relative Percent Difference exceeded established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

- Neptunium-137 - The Duplicate Relative Percent Difference and Laboratory Control Sample recovery exceeded established limits. The sample results were under the detection limit and not flagged. Sample results should be considered suspect.

- Gross Alpha and Gross Beta - The Duplicate Relative Percent Difference exceeded the established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery

Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		U-232	74.6
LCS		U-232	73.2
B1B625	W040001577	U-232	79.1
DUPLICATE	W040001577	U-232	90.1
B07N73	W040001610	U-232	82.2
B17NL5	W040001612	U-232	88.3
BLANK		Sr-85	90.0
LCS		Sr-85	86.9
B1B625	W040001577	Sr-85	101.7
DUPLICATE	W040001577	Sr-85	89.5
BLANK		Pu-242	75.6
LCS		Pu-242	79.3
B1B625	W040001577	Pu-242	74.0

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
DUPLICATE	W040001577	Pu-242	78.6
B07N73	W040001610	Pu-242	71.7
B17NL5	W040001612	Pu-242	86.2
BLANK		Am-243	89.6
LCS		Am-243	68.7
B1B625	W040001577	Am-243	84.2
DUPLICATE	W040001577	Am-243	77.4
B07N73	W040001610	Am-243	79.0
B17NL5	W040001612	Am-243	83.3

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.

Herlene S. Rich
WSCF Production Control

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

10/7

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-023	Page 1 of 1
Collector: Pope/Pfister/Hughes	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Air Quality ☐; Data Turnaround: 45 Days
Project Designation: 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location: 216-Z-9/C3426 - Interval 224'-226.5'	SAF No.: F03-018	
Ice Chest No.	Field Logbook No.: HNF-N-~~3361~~ 361-1 4/8/04; COA: 119152ES10	Method of Shipment: Government Vehicle	
Shipped To: Waste Sampling & Characterization	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NN9

20041594

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None						
Type of Container	aGs*	P	aG	aG	aG						
No. of Container(s)	3	1	1	1	1						
Volume	40mL	500mL	60mL	120mL	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	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										
B17N73	SOIL	9/9/04	0820	X	X	X	X	X					
W04000160													

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Dana Wikoy Wanning	Date/Time: 9/9/04 1005	Received By/Stored In: [illegible]	Date/Time: 9/9/04 1005
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

The lab is to achieve a detection limit of 5 pCi/g & 10 pCi/g for gross alpha and beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237

(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}

(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}

(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-026	Page 1 of 1

Collector Pope/Pfister/Hughes	**Company Contact** Steve Trent **Telephone No.** 373-5869	**Project Coordinator** TRENT, SJ	**Price Code** 8N **Data Turnaround** 45 Days
Project Designation 216-Z-9 Trench Characterization Borehole - Soil	**Sampling Location** 216-Z-9/C3426 - Interval 228.5'-233'	**SAF No.** F03-018	**Air Quality** ☐
Ice Chest No.	**Field Logbook No.** HNF-N-~~9361~~ 361-1 ASC 4/19/04 **COA** 117506ES10	**Method of Shipment** Government Vehicle	
Shipped To Waste Sampling & Characterization	**Offsite Property No.** N/A	**Bill of Lading/Air Bill No.** N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage
RADIOACTIVE TIE TO: B17NP0

Preservation	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None				
Type of Container	aGs*	P	aG	aG	aG	aG				
No. of Container(s)	3	1	1	1	1	1				
Volume	40mL	500mL	60mL	120mL	60mL	60mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	See item (5) in Special Instructions.				

Sample No.	Matrix *	Sample Date	Sample Time										
B17NL5	SOIL	9/9/04	0858	X	X	X	X	X	X				
W04000161Z													

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Pfister 9/9/04	9/9/04 1000	[illegible]	9/9/04 1000
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

The lab is to achieve a detection limit of 5 pCi/g & 10 pCi/g for gross alpha and beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA – 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

Attachment 1
Narrative

Sample Delivery Group	**WSCF20051337**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F05-023**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-A-8 Crib Characterization Borehole sample/I-7 (B1D994) was received at the WSCF Laboratory on June 29, 2005. The sample was 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

Refer to *WSCF Method References Report,* pages 45 through 46, for a complete listing of approved analytical methods.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 11 for QC details. Analytical Notes:

- Sample B1D994 result was B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.
- Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. RPD criterion not applicable to low level sample.

All other QC controls are within the established limits.

Anions - The hold times for this analysis were met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 12 through 13 for QC details. Analytical Note:

- Preparation Date: 07-jul-2005.

All QC controls are within the established limits.

ICP-AES Metals (Bismuth and Phosphorus) – 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 GRP Letter of Instruction. See page 14 for QC details. Analytical Notes:

- Preparation Date: 18-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D7D0 (SDG# 20051234, F05-023).
- Phosphorus: insufficient spike concentration. Sample concentration was greater than four times the spike concentration.
- Bismuth: The analyte detected in the associated preparation Blank sample was evaluated and there was no significant effect on the sample result.

All other 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 GRP Letter of Instruction. See pages 15 through 17 for QC details. Analytical Notes:

- Preparation Date: 06-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D993 (SDG# 20051319, SAF# F05-023).

All QC controls are within the established limits.

Percent Solids – analyzed for organic moisture correction.

pH - See page 18 for QC details.

Organic Comments

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

PCBs – 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 GRP Letter of Instruction. See pages 24 through 25 for QC details. Analytical Note:

- Preparation Date: 08-jul-2005.

All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 26 through 31 for QC details. Analytical Note:

- Preparation Date: 08-jul-2005.

TPHD-WA - 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 GRP Letter of Instruction. See page 32 for QC details. Analytical Note:

- Preparation Date: 08-jul-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 GRP Letter of Instruction. See pages 33 through 36 for QC details. Analytical Note:

- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).

All QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with WSCF's radiochemical methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 38 through 42 for QC details. Analytical Notes:

- GEA – Duplicate QC sample was analyzed on sample# B1DCK1 (SDG# 20051304, F05-026).

- Americium-241, Plutonium-238, Plutonium-239/240, Uranium-233/234, Uranium-235 and Uranium-238 – Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).

- Uranium-235 and Uranium-238– Duplicate Relative Percent Difference (RPD) was above established limits due to batch sample and duplicate were not homogeneous.

All other QC controls are within the established limits.

Plutonium-242, Americium-243 and Uranium-232 – Radiochemical Tracer Recovery Data are summarized below:

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
Americium-243			
BLANK		Am-243	90.1%

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
LCS		Am-243	99.6%
B1D992	W050001997	Am-243	90.7%
DUPLICATE	W050001997	Am-243	88.3%
B1D994	W050002028	Am-243	91.7%
Plutonium-242			
BLANK		Pu-242	81.9%
LCS		Pu-242	89.4%
B1D992	W050001997	Pu-242	78.6%
DUPLICATE	W050001997	Pu-242	83.9%
B1D994	W050002028	Pu-242	89.5%
Strontium-85			
BLANK		Sr-85	89.6%
LCS		Sr-85	94.1%
B1D994	W050002028	Sr-85	87.0%
DUPLICATE	W050002028	Sr-85	95.7%
Uranium-232			
BLANK		U-232	64.1%
LCS		U-232	71.3%
B1D992	W050001997	U-232	92.1%
DUPLICATE	W050001997	U-232	75.6%
B1D994	W050002028	U-232	82.0%

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

F05-023-027

COLLECTOR Pope/Pfister/Mokler/Weis/Tyra 7/25	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ
PRICE CODE 8N	**DATA TURNAROUND** 45 Days / ~~45 Days~~ 4/29/5		
SAMPLING LOCATION 216-A-8, I-7	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole	**SAF NO.** F05-023	**AIR QUALITY** ☐
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 119152ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**

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

SPECIAL HANDLING AND/OR STORAGE

Z0051357

PRESERVATION			Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None				
TYPE OF CONTAINER			aGs*	aG	G/P	aG	G/P	Square Bottle - Poly				
NO. OF CONTAINER(S)			3	1	1	1	1	1				
VOLUME			40mL	120mL	120mL	120mL	120mL	500mL				
SAMPLE ANALYSIS			SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS				
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**									
B1D994	SOIL	6/29/5	0905	X	X	X	X	X	X			
W05C002028												

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	6/29/05 1000	TA FRAZIER [signature]	6/29/05 1000

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

B1D989 IS TIED TO THIS CHAIN

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			F05-023-027	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Mokler/Weis/Tyra	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ	**PRICE CODE** 8N	**DATA TURNAROUND**
SAMPLING LOCATION 216-A-8, I-7	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole		**SAF NO.** F05-023	**AIR QUALITY** ☐	45 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 119152ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE		
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

P.D.M P.D. MIX 7/5/2005 P.D.M P.D. MIX 7/5/2005

(1)VOA - 8260B (TCL); VOA - 8260B (Add-On) {1-Butanol, 1-Propanol, 2-Pentanone, Acetonitrile, Cyclohexane, Ethanol, Hexane, Tetrahydrofuran, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2)Semi-VOA - 8270A (TCL); Semi-VOA - 8270B (Add-On) {1,2,4-Trimethylbenzene, 2-Butoxyethanol, 2-Naphthylamine, 3+4 Methylphenol (cresol, m+p), Benzyl alcohol, Cyclohexanone, Decane, Pyridine, Tributyl phosphate} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(3)ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Nickel, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8_HG - ICPMS; ICP Metals - 6010B (Add-On) {Bismuth, Phosphorus}
(4)IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate} Cations (IC) - 300.7 {Nitrogen in ammonium} pH - 150.1;
(5)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} ~~Gamma Spec - Add-on {Antimony-125, Cesium-134} Gross Alpha; Gross Beta;~~ Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr;

MAB 6/6/05

A-6003-618(03/03)

Attachment 1
Narrative

Sample Delivery Group	**WSCF20051350**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F05-023**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-A-8 Crib Characterization Borehole sample/I-8 (B1D995) was received at the WSCF Laboratory on June 30, 2005. The sample was 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

Refer to *WSCF Method References Report,* pages 45 through 46, for a complete listing of approved analytical methods.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 11 for QC details. Analytical Notes:

- Duplicate, Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).
- Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. However, all other QC controls are within the established limits.

Anions - The hold times for this analysis were met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 12 through 13 for QC details. Analytical Notes:

- Preparation Date: 07-jul-2005.
- Duplicate, Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

All QC controls are within the established limits.

ICP-AES Metals (Bismuth and Phosphorus) – 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 GRP Letter of Instruction. See page 14 for QC details. Analytical Notes:

- Preparation Date: 18-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D7D0 (SDG# 20051234, SAF# F05-023).
- Phosphorus: insufficient spike concentration. Sample concentration was greater than four times the spike concentration.
- Bismuth: The analyte detected in the associated preparation Blank sample was evaluated and there was no significant effect on the sample result.

All other 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 GRP Letter of Instruction. See pages 15 through17 for QC details. Analytical Notes:

- Preparation Date: 06-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D993 (SDG# 20051319, SAF# F05-023).

All QC controls are within the established limits.

Percent Solids – analyzed for organic moisture correction.

pH - Duplicate QC sample was analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023). See page 18 for QC details.

Organic Comments

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

PCBs – 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 GRP Letter of Instruction. See pages 24 through 25 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 26 through 31 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

TPHD-WA - 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 GRP Letter of Instruction. See page 32 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

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 GRP Letter of Instruction. See pages 33 through 35for QC details.

All QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with WSCF's radiochemical methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 37 through 41 for QC details. Analytical Notes:

- Americium-241, Plutonium-238, Plutonium-239/240, Uranium-233/234, Uranium-235 and Uranium-238 – Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).
- Strontium-90 – Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).
- Uranium-235 and Uranium-238– Duplicate Relative Percent Difference (RPD) was above established limits due to batch sample and duplicate were not homogeneous.

All other QC controls are within the established limits.

Americium-243, Plutonium-242, Strontium-85 and Uranium-232 – Radiochemical Tracer Recovery Data are summarized below:

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
Americium-243			
BLANK		Am-243	90.1%
LCS		Am-243	99.6%
B1D992	W050001997	Am-243	90.7%
DUPLICATE	W050001997	Am-243	88.3%
B1D995	W050002036	Am-243	91.7%
Plutonium-242			
BLANK		Pu-242	81.9%
LCS		Pu-242	89.4%
B1D992	W050001997	Pu-242	78.6%
DUPLICATE	W050001997	Pu-242	83.9%
B1D995	W050002036	Pu-242	89.5%
Strontium-85			
BLANK		Sr-85	89.6%
LCS		Sr-85	94.1%
B1D994	W050002028	Sr-85	87.0%
DUPLICATE	W050002028	Sr-85	95.7%
B1D995	W050002036	Sr-85	92.6%
Uranium-232			
BLANK		U-232	64.1%
LCS		U-232	71.3%
B1D992	W050001997	U-232	92.1%
DUPLICATE	W050001997	U-232	75.6%
B1D995	W050002036	U-232	82.0%

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	F05-023-028	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8N	DATA TURNAROUND
Pope/Pfister/Mokler/Weis/Tyra	TRENT, SJ	373-5869	TRENT, SJ		45 Days / ~~45 Days~~ 6/30/05
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY** ☐	
216-A-8, I-8	216-A-8 Crib Characterization Borehole		F05-023		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**COA**	**METHOD OF SHIPMENT**		
	HNF-N-336-1	119152ES10	GOVERNMENT VEHICLE		
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
Waste Sampling & Characterization					

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

POSSI8LE SAMPLE HAZARDS/ REMARKS

SPECIAL HANDLING AND/OR STORAGE

20051350

PRESERVATION			Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None		
TYPE OF CONTAINER			aGs*	aG	G/P	aG	G/P	Square Bottle - Poly		
NO. OF CONTAINER(S)			3	1	1	1	1	1		
VOLUME			40mL	120mL	120mL	120mL	120mL	500mL		
SAMPLE ANALYSIS			SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS		
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**							
B1D995	SOIL	6/30/5	0705	X	X	X	X	X	X	
1005 0002036										

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
J.W. Weis	6/30/5 0820	K.B. Boehle	6/30/05 0820

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

TIE TO COC # B1D990

BID 6/30/05

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		F05-023-028	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Mokler/Weis/Tyra	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-S869	**PROJECT COORDINATOR** TRENT, SJ	**PRICE CODE** 8N **AIR QUALITY** ☐	**DATA TURNAROUND** **45 Days**
SAMPLING LOCATION 216-A-8, I-8	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole		**SAF NO.** F05-023	
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 1191S2ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**	

SPECIAL INSTRUCTIONS

(1)VOA - 8260B (TCL); VOA - 8260B (Add-On) {1-Butanol, 1-Propanol, 2-Pentanone, Acetonitrile, Cyclohexane, Ethanol, Hexane, Tetrahydrofuran, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2)Semi-VOA - 8270A (TCL); Semi-VOA - 8270B (Add-On) {1,2,4-Trimethylbenzene, 2-Butoxyethanol, 2-Naphthylamine, 3+4 Methylphenol (cresol, m+p), Benzyl alcohol, Cyclohexanone, Decane, Pyridine, Tributyl phosphate} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(3)ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Nickel, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8 HG - ICPMS; ICP Metals - 6010B (Add-On) {Bismuth, Phosphorus}
(4)IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate} Cations (IC) - 300.7 {Nitrogen in ammonium} pH - 150.1;
(5)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} ~~Gamma Spec - Add-on {Antimony-125, Cesium-134} Gross Alpha; Gross Beta~~; Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr;

MAB 6/6/05

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: CPP 200 Area, D&D-200 Area			DATA PACKAGE: VSR10-011		
VALIDATOR: Carl Schloesslin		LAB: WSCF		DATE: 3-12-2010	
SDG: WSCF2005-1337 & -1350			SDG: WSCF2004-1457, -1487 & -1594		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270 X		SW-846 8270 (TCLP)

SAMPLES/MATRIX Soil samples
SDG WSCF20041457: B17N67
SDG WSCF20041487: B17N70
SDG WSCF20041594: B17N73 & B17NL5
SDG WSCF20051337: B1D994
SDG WSCF20051350: B1D995

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

Technical verification documentation present for SDG WSCF20041457 only.

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: None

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:

For all SDGs, 11 common analytes spiked only for MS/MSDs and LCSs. Target analyte tributyl phosphate not represented.

SDG WSCF20041457: Pentachlorophenol MSD %R = 57%, LCS %R = 51%
SDG WSCF20041487: Pentachlorophenol MSD(1) %R = 57%, MS(2) %R = 52%, MSD(2) %R = 54%, LCS %R = 51%

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: None

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:

WSCF20041457: SVOA prep (extraction) date not included in the data package. It is *assumed* from statement made in lab narrative that extraction took place within 14 days of sample collection.

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: None

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:

GENERAL ORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: CPP 200 Area, D&D-200 Area			DATA PACKAGE: VSR10-011		
VALIDATOR: Carl Schloesslin		LAB: WSCF		DATE: 3-12-2010	
SDG: WSCF2005-1337 & -1350			SDG: WSCF2004-1457, -1487 & -1594		
ANALYSES PERFORMED					
8015	8021	8141	8151	8315	8310
		WTPH-HCID	WTPH-G	WTPH-D X	

SAMPLES/MATRIX: Soil samples

SDG WSCF20041457: B17N67
SDG WSCF20041487: B17N70
SDG WSCF20041594: B17N73 & B17NL5
SDG WSCF20051337: B1D994
SDG WSCF20051350: B1D995

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

Technical verification documentation present for SDG WSCF20041457 only.

2. INSTRUMENT TUNING AND CALIBRATION (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)

Comments:

GENERAL ORGANIC ANALYSIS 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: None

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 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: None

GENERAL ORGANIC 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: None

6. HOLDING TIMES (all levels)

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

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

Comments: None

WSCF20041457: WTPH-D prep (extraction) date not included in the data package. It is *assumed* from statement made in lab narrative that extraction took place within 14 days of sample collection.

GENERAL ORGANIC ANALYSIS DATA VALIDATION CHECKLIST

8. COMPOUND IDENTIFICATION, 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: None

9. SAMPLE CLEANUP (Levels D and E)

Fluoricil ® (or other aborbant) cleanup performed? ..... Yes No N/A

Lot check performed? ..... Yes No N/A

Check recoveries aceptable? ..... Yes No N/A

Check materials traceable? ..... Yes No N/A

Check 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: WSCF20041457
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

Lab ID: W040001533
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	3033.8	88.500	% Recov	09/15/04	46.000	107.000	
MS	1,4-Dichlorobenzene	106-46-7	3132.8	91.400	% Recov	09/15/04	30.000	96.000	
MS	2,4-Dinitrotoluene	121-14-2	2792.7	81.500	% Recov	09/15/04	59.000	106.000	
MS	2-Fluorophenol	367-12-4	3163.6	92.300	% Recov	09/15/04	42.000	105.000	
MS	Acenaphthene	83-32-9	3030.5	88.400	% Recov	09/15/04	61.000	116.000	
MS	4-Chloro-3-methylphenol	59-50-7	4317.4	84.000	% Recov	09/15/04	61.000	106.000	
MS	2-Chlorophenol	95-57-8	5248.3	102.000	% Recov	09/15/04	66.000	106.000	
MS	N-Nitrosodi-n-dipropylamine	621-64-7	3082.7	89.900	% Recov	09/15/04	71.000	114.000	
MS	2-Fluorobiphenyl	321-60-8	3147.7	91.800	% Recov	09/15/04	56.000	122.000	
MS	Phenol	108-95-2	5037.4	98.000	% Recov	09/15/04	42.000	111.000	
MS	Nitrobenzene-d5	4165-60-0	3034.0	88.500	% Recov	09/15/04	64.000	111.000	
MS	4-Nitrophenol	100-02-7	3834.4	74.600	% Recov	09/15/04	32.000	118.000	
MS	Pentachlorophenol	87-86-5	4005.4	77.900	% Recov	09/15/04	62.000	114.000	
MS	Phenol-d5	4165-62-2	3300.2	96.300	% Recov	09/15/04	54.000	120.000	
MS	Pyrene	129-00-0	3341.9	97.500	% Recov	09/15/04	66.000	118.000	
MS	2,4,6-Tribromophenol	118-79-6	3194.2	93.200	% Recov	09/15/04	24.000	122.000	
MS	Terphenyl-d14 (7Cl)	98904-43-9	3400.0	99.200	% Recov	09/15/04	35.000	150.000	
MSD	1,2,4-Trichlorobenzene	120-82-1	5332.6	77.900	% Recov	09/09/04	46.000	107.000	
MSD	1,4-Dichlorobenzene	106-46-7	4834.2	70.600	% Recov	09/09/04	30.000	96.000	
MSD	2,4-Dinitrotoluene	121-14-2	4505.6	65.800	% Recov	09/09/04	59.000	106.000	
MSD	2-Fluorophenol	367-12-4	5504.0	80.400	% Recov	09/09/04	42.000	105.000	
MSD	Acenaphthene	83-32-9	4905.9	71.600	% Recov	09/09/04	61.000	116.000	
MSD	4-Chloro-3-methylphenol	59-50-7	7808.0	76.000	% Recov	09/09/04	61.000	106.000	
MSD	2-Chlorophenol	95-57-8	9036.2	88.000	% Recov	09/09/04	66.000	106.000	
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	4852.3	70.900	% Recov	09/09/04	71.000	114.000	
MSD	2-Fluorobiphenyl	321-60-8	5548.8	81.000	% Recov	09/09/04	56.000	122.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	Phenol	108-95-2	9533.6	92.800	% Recov	09/09/04	42.000	111.000	
MSD	Nitrobenzene-d5	4165-60-0	5330.8	77.800	% Recov	09/09/04	64.000	111.000	
MSD	4-Nitrophenol	100-02-7	6574.1	64.000	% Recov	09/09/04	32.000	118.000	
MSD	Pentachlorophenol	87-86-5	5861.6	57.100	% Recov	09/09/04	62.000	114.000	*
MSD	Phenol-d5	4165-62-2	5705.8	83.300	% Recov	09/09/04	54.000	120.000	
MSD	Pyrene	129-00-0	5324.2	77.700	% Recov	09/09/04	66.000	118.000	
MSD	2,4,6-Tribromophenol	118-79-6	4161.0	60.800	% Recov	09/09/04	24.000	122.000	
MSD	Terphenyl-d14 (7Cl)	98904-43-9	5560.2	81.200	% Recov	09/09/04	35.000	150.000	
SURR	2-Fluorophenol	367-12-4	4917.8	71.800	% Recov	09/08/04	42.000	105.000	
SURR	2-Fluorobiphenyl	321-60-8	4887.3	71.400	% Recov	09/08/04	56.000	122.000	
SURR	Nitrobenzene-d5	4165-60-0	4906.0	71.700	% Recov	09/08/04	64.000	111.000	
SURR	Phenol-d5	4165-62-2	4447.6	65.000	% Recov	09/08/04	54.000	120.000	
SURR	2,4,6-Tribromophenol	118-79-6	4882.2	71.300	% Recov	09/08/04	24.000	122.000	
SURR	Terphenyl-d14 (7Cl)	98904-43-9	5395.4	78.800	% Recov	09/08/04	35.000	150.000	

Lab ID: W040001540
BATCH QC ASSOCIATED WITH SAMPLE

MS	1,2,4-Trichlorobenzene	120-82-1	2581.2	74.000	% Recov	09/08/04	46.000	107.000	
MS	1,4-Dichlorobenzene	106-46-7	2335.5	67.000	% Recov	09/08/04	30.000	96.000	
MS	2,4-Dinitrotoluene	121-14-2	2343.7	67.200	% Recov	09/08/04	59.000	106.000	
MS	2-Fluorophenol	367-12-4	2633.4	75.500	% Recov	09/08/04	42.000	105.000	
MS	Acenaphthene	83-32-9	2363.8	67.800	% Recov	09/08/04	61.000	116.000	
MS	4-Chloro-3-methylphenol	59-50-7	3687.3	70.500	% Recov	09/08/04	61.000	106.000	
MS	2-Chlorophenol	95-57-8	3884.9	74.300	% Recov	09/08/04	66.000	106.000	
MS	N-Nitrosodi-n-dipropylamine	621-64-7	2525.8	72.400	% Recov	09/08/04	71.000	114.000	
MS	2-Fluorobiphenyl	321-60-8	2547.0	73.100	% Recov	09/08/04	56.000	122.000	
MS	Phenol	108-95-2	3954.4	75.600	% Recov	09/08/04	42.000	111.000	
MS	Nitrobenzene-d5	4165-60-0	2634.0	75.500	% Recov	09/08/04	64.000	111.000	
MS	4-Nitrophenol	100-02-7	3138.8	60.000	% Recov	09/08/04	32.000	118.000	
MS	Pentachlorophenol	87-86-5	2732.2	52.200	% Recov	09/08/04	62.000	114.000	*

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date: 08/25/04
Receive Date:08/25/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Phenol-d5	4165-62-2	2562.0	73.500	% Recov	09/08/04	54.000	120.000	
MS	Pyrene	129-00-0	2743.8	78.700	% Recov	09/08/04	66.000	118.000	
MS	2,4,6-Tribromophenol	118-79-6	2301.9	66.000	% Recov	09/08/04	24.000	122.000	
MS	Terphenyl-d14 (7Cl)	98904-43-9	2824.6	81.000	% Recov	09/08/04	35.000	150.000	
MSD	1,2,4-Trichlorobenzene	120-82-1	2648.6	76.200	% Recov	09/08/04	46.000	107.000	
MSD	1,4-Dichlorobenzene	106-46-7	2665.4	76.700	% Recov	09/08/04	30.000	96.000	
MSD	2,4-Dinitrotoluene	121-14-2	2328.7	67.000	% Recov	09/08/04	59.000	106.000	
MSD	2-Fluorophenol	367-12-4	2969.3	85.400	% Recov	09/08/04	42.000	105.000	
MSD	Acenaphthene	83-32-9	2386.4	68.700	% Recov	09/08/04	61.000	116.000	
MSD	4-Chloro-3-methylphenol	59-50-7	3765.8	72.200	% Recov	09/08/04	61.000	106.000	
MSD	2-Chlorophenol	95-57-8	4349.2	83.400	% Recov	09/08/04	66.000	106.000	
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	2752.3	79.200	% Recov	09/08/04	71.000	114.000	
MSD	2-Fluorobiphenyl	321-60-8	2629.8	75.700	% Recov	09/08/04	56.000	122.000	
MSD	Phenol	108-95-2	4219.3	80.900	% Recov	09/08/04	42.000	111.000	
MSD	Nitrobenzene-d5	4165-60-0	2672.2	76.900	% Recov	09/08/04	64.000	111.000	
MSD	4-Nitrophenol	100-02-7	3104.8	59.600	% Recov	09/08/04	32.000	118.000	
MSD	Pentachlorophenol	87-86-5	2805.6	53.800	% Recov	09/08/04	62.000	114.000	*
MSD	Phenol-d5	4165-62-2	2738.7	78.800	% Recov	09/08/04	54.000	120.000	
MSD	Pyrene	129-00-0	2797.9	80.500	% Recov	09/08/04	66.000	118.000	
MSD	2,4,6-Tribromophenol	118-79-6	2394.6	68.900	% Recov	09/08/04	24.000	122.000	
MSD	Terphenyl-d14 (7Cl)	98904-43-9	2889.7	83.100	% Recov	09/08/04	35.000	150.000	
SPK-RPD	1,2,4-Trichlorobenzene	120-82-1	76.200	2.929	RPD	09/08/04	0.000	20.000	
SPK-RPD	1,4-Dichlorobenzene	106-46-7	76.700	13.500	RPD	09/08/04	0.000	20.000	
SPK-RPD	2,4-Dinitrotoluene	121-14-2	67.000	0.298	RPD	09/08/04	0.000	20.000	
SPK-RPD	2-Fluorophenol	367-12-4	85.400	12.306	RPD	09/08/04	0.000	20.000	
SPK-RPD	Acenaphthene	83-32-9	68.700	1.319	RPD	09/08/04	0.000	20.000	
SPK-RPD	4-Chloro-3-methylphenol	59-50-7	72.200	2.383	RPD	09/08/04	0.000	20.000	
SPK-RPD	2-Chlorophenol	95-57-8	83.400	11.541	RPD	09/08/04	0.000	20.000	
SPK-RPD	N-Nitrosodi-n-dipropylamine	621-64-7	79.200	8.971	RPD	09/08/04	0.000	20.000	
SPK-RPD	2-Fluorobiphenyl	321-60-8	75.700	3.495	RPD	09/08/04	0.000	20.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date: 08/25/04
Receive Date:08/25/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SPK-RPD	Phenol	108-95-2	80.900	6.773	RPD	09/08/04	0.000	20.000	
SPK-RPD	Nitrobenzene-d5	4165-60-0	76.900	1.837	RPD	09/08/04	0.000	20.000	
SPK-RPD	4-Nitrophenol	100-02-7	59.600	0.669	RPD	09/08/04	0.000	20.000	
SPK-RPD	Pentachlorophenol	87-86-5	53.800	3.019	RPD	09/08/04	0.000	20.000	
SPK-RPD	Phenol-d5	4165-62-2	78.800	6.960	RPD	09/08/04	0.000	20.000	
SPK-RPD	Pyrene	129-00-0	80.500	2.261	RPD	09/08/04	0.000	20.000	
SPK-RPD	2,4,6-Tribromophenol	118-79-6	68.900	4.299	RPD	09/08/04	0.000	20.000	
SPK-RPD	Terphenyl-d14 (7Cl)	98904-43-9	83.100	2.559	RPD	09/08/04	0.000	20.000	

BATCH QC

BLANK	1,2-Dichlorobenzene	95-50-1	< 360	n/a	ug/Kg	09/08/04			U
BLANK	1,2,4-Trimethylbenzene	95-63-6	< 120	n/a	ug/Kg	09/08/04			U
BLANK	1,2,4-Trichlorobenzene	120-82-1	< 290	n/a	ug/Kg	09/08/04			U
BLANK	1,3-Dichlorobenzene	541-73-1	< 320	n/a	ug/Kg	09/08/04			U
BLANK	1,4-Dichlorobenzene	106-46-7	< 310	n/a	ug/Kg	09/08/04			U
BLANK	2,4-Dichlorophenol	120-83-2	< 80	n/a	ug/Kg	09/08/04			U
BLANK	2,4-Dinitrotoluene	121-14-2	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2,4,5-Trichlorophenol	95-95-4	< 73	n/a	ug/Kg	09/08/04			U
BLANK	2,4,6-Trichlorophenol	88-06-2	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2,4-Dimethylphenol	105-67-9	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2,6-Dinitrotoluene	606-20-2	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2-Chloronaphthalene	91-58-7	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2-Fluorophenol	367-12-4	2818.5	84.600	% Recov	09/08/04	42.000	105.000	
BLANK	2-Methylnaphthalene	91-57-6	< 180	n/a	ug/Kg	09/08/04			U
BLANK	2-Methylphenol (cresol, o-)	95-48-7	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2-Nitroaniline	88-74-4	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2-Nitrophenol	88-75-5	< 170	n/a	ug/Kg	09/08/04			U
BLANK	3 & 4 Methylphenol Total	65794-96-9	< 110	n/a	ug/Kg	09/08/04			U
BLANK	3-Nitroaniline	99-09-2	< 67	n/a	ug/Kg	09/08/04			U
BLANK	4,6-Dinitro-2-methylphenol	534-52-1	< 670	n/a	ug/Kg	09/08/04			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	4-Bromophenylphenyl ether	101-55-3	< 67	n/a	ug/Kg	09/08/04			U
BLANK	4-Chlorophenylphenyl ether	7005-72-3	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Acenaphthene	83-32-9	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Acenaphthylene	208-96-8	< 80	n/a	ug/Kg	09/08/04			U
BLANK	Anthracene	120-12-7	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Bis(2-chloroethyl) ether	111-44-4	< 250	n/a	ug/Kg	09/08/04			U
BLANK	Benzo(a)anthracene	56-55-3	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Benzo(b)fluoranthene	205-99-2	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Benzo(ghi)perylene	191-24-2	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Benzo(a)pyrene	50-32-8	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Bis(2-Chloroethoxy)methane	111-91-1	< 110	n/a	ug/Kg	09/08/04			U
BLANK	Bis(2-ethylhexyl) phthalate	117-81-7	< 560	n/a	ug/Kg	09/08/04			U
BLANK	Bis(2-chloro-1-methylethyl)eth	108-60-1	< 250	n/a	ug/Kg	09/08/04			U
BLANK	Benzo(k)fluoranthene	207-08-9	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Butylbenzylphthalate	85-68-7	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Carbazole	86-74-8	< 80	n/a	ug/Kg	09/08/04			U
BLANK	4-Chloroaniline	106-47-8	< 93	n/a	ug/Kg	09/08/04			U
BLANK	4-Chloro-3-methylphenol	59-50-7	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2-Chlorophenol	95-57-8	< 150	n/a	ug/Kg	09/08/04			U
BLANK	Chrysene	218-01-9	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Cyclohexanone	108-94-1	< 330	n/a	ug/Kg	09/08/04			U
BLANK	3,3'-Dichlorobenzidine	91-94-1	< 80	n/a	ug/Kg	09/08/04			U
BLANK	Dibenz[a,h]anthracene	53-70-3	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Dibenzofuran	132-64-9	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Di-n-butylphthalate	84-74-2	< 87	n/a	ug/Kg	09/08/04			U
BLANK	Diethylphthalate	84-66-2	< 190	n/a	ug/Kg	09/08/04			U
BLANK	Dimethyl phthalate	131-11-3	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2,4-Dinitrophenol	51-28-5	< 670	n/a	ug/Kg	09/08/04			U
BLANK	Di-n-octylphthalate	117-84-0	< 67	n/a	ug/Kg	09/08/04			U
BLANK	N-Nitrosodi-n-dipropylamine	621-64-7	< 67	n/a	ug/Kg	09/08/04			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	2-Fluorobiphenyl	321-60-8	2635.4	79.100	% Recov	09/08/04	56.000	122.000	
BLANK	Fluorene	86-73-7	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Fluoranthene	206-44-0	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Hexachlorobenzene	118-74-1	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Hexachlorobutadiene	87-68-3	< 370	n/a	ug/Kg	09/08/04			U
BLANK	Hexachlorocyclopentadiene	77-47-4	< 310	n/a	ug/Kg	09/08/04			U
BLANK	Hexachloroethane	67-72-1	< 470	n/a	ug/Kg	09/08/04			U
BLANK	Indeno(1,2,3-cd)pyrene	193-39-5	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Isophorone	78-59-1	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Phenol	108-95-2	< 100	n/a	ug/Kg	09/08/04			U
BLANK	Naphthalene	91-20-3	< 290	n/a	ug/Kg	09/08/04			U
BLANK	Nitrobenzene-d5	4165-60-0	2689.2	80.700	% Recov	09/08/04	64.000	111.000	
BLANK	Nitrobenzene	98-95-3	< 260	n/a	ug/Kg	09/08/04			U
BLANK	4-Nitrophenol	100-02-7	< 650	n/a	ug/Kg	09/08/04			U
BLANK	4-Nitroaniline	100-01-6	< 250	n/a	ug/Kg	09/08/04			U
BLANK	N-Nitrosodiphenylamine	86-30-6	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Pentachlorophenol	87-86-5	< 300	n/a	ug/Kg	09/08/04			U
BLANK	Phenanthrene	85-01-8	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Phenol-d5	4165-62-2	2555.9	76.700	% Recov	09/08/04	54.000	120.000	
BLANK	Pyrene	129-00-0	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Tributyl phosphate	126-73-8	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2,4,6-Tribromophenol	118-79-6	2374.3	71.200	% Recov	09/08/04	24.000	122.000	
BLANK	Terphenyl-d14 (7Cl)	98904-43-9	2872.8	86.200	% Recov	09/08/04	35.000	150.000	
LCS	1,2,4-Trichlorobenzene	120-82-1	2380.8	71.400	% Recov	09/08/04	46.000	107.000	
LCS	1,4-Dichlorobenzene	106-46-7	2230.0	66.900	% Recov	09/08/04	42.000	111.000	
LCS	2,4-Dinitrotoluene	121-14-2	2123.6	63.700	% Recov	09/08/04	59.000	106.000	
LCS	2-Fluorophenol	367-12-4	2762.6	82.900	% Recov	09/08/04	50.000	110.000	
LCS	Acenaphthene	83-32-9	2158.8	64.800	% Recov	09/08/04	61.000	116.000	
LCS	4-Chloro-3-methylphenol	59-50-7	3398.8	68.000	% Recov	09/08/04	61.000	106.000	
LCS	2-Chlorophenol	95-57-8	3660.8	73.200	% Recov	09/08/04	66.000	106.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	N-Nitrosodi-n-dipropylamine	621-64-7	2386.5	71.600	% Recov	09/08/04	71.000	114.000	
LCS	2-Fluorobiphenyl	321-60-8	2381.1	71.400	% Recov	09/08/04	58.000	109.000	
LCS	Phenol	108-95-2	3623.8	72.500	% Recov	09/08/04	67.000	105.000	
LCS	Nitrobenzene-d5	4165-60-0	2573.5	77.200	% Recov	09/08/04	60.000	118.000	
LCS	4-Nitrophenol	100-02-7	3026.6	60.500	% Recov	09/08/04	32.000	118.000	
LCS	Pentachlorophenol	87-86-5	2535.5	50.700	% Recov	09/08/04	62.000	114.000	
LCS	Phenol-d5	4165-62-2	2531.8	76.000	% Recov	09/08/04	59.000	116.000	
LCS	Pyrene	129-00-0	2642.2	79.300	% Recov	09/08/04	66.000	118.000	
LCS	2,4,6-Tribromophenol	118-79-6	2170.8	65.100	% Recov	09/08/04	60.000	120.000	
LCS	Terphenyl-d14 (7CI)	98904-43-9	2773.6	83.200	% Recov	09/08/04	60.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: WTPH-D TPH Diesel Range (Wa)

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

Lab ID: W040001533

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte		CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Kerosene		TPHKEROSENE	118620	92.200	% Recov	09/07/04	70.000	130.000	
MS	ortho-Terphenyl	Surr	84-15-1	26829	104.000	% Recov	09/07/04	70.000	130.000	
MSD	Kerosene		TPHKEROSENE	113860	88.700	% Recov	09/07/04	70.000	130.000	
MSD	ortho-Terphenyl	Surr	84-15-1	26821	104.000	% Recov	09/07/04	70.000	130.000	
SPK-RPD	ortho-Terphenyl	Surr	84-15-1	104.000	0.000	RPD	09/07/04	0.000	20.000	
SURR	ortho-Terphenyl	Surr	84-15-1	30234	118.000	% Recov	09/07/04	70.000	130.000	

BATCH QC

QC Type	Analyte		CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Kerosene		TPHKEROSENE	< 3800	n/a	ug/Kg	09/07/04			U
BLANK	ortho-Terphenyl	Surr	84-15-1	23563	94.300	% Recov	09/07/04	70.000	130.000	
BLANK	Total Pet. Hydrocarbons Diesel		TPHDIESEL	< 3800	n/a	ug/Kg	09/07/04			U
LCS	ortho-Terphenyl	Surr	84-15-1	24928	99.700	% Recov	09/07/04	70.000	130.000	
LCS	Total Pet. Hydrocarbons Diesel		TPHDIESEL	108680	86.900	% Recov	09/07/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

Lab ID: W040001533
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	3033.8	88.500	% Recov	09/15/04	46.000	107.000	
MS	1,4-Dichlorobenzene	106-46-7	3132.8	91.400	% Recov	09/15/04	30.000	96.000	
MS	2,4-Dinitrotoluene	121-14-2	2792.7	81.500	% Recov	09/15/04	59.000	106.000	
MS	2-Fluorophenol	367-12-4	3163.6	92.300	% Recov	09/15/04	42.000	105.000	
MS	Acenaphthene	83-32-9	3030.5	88.400	% Recov	09/15/04	61.000	116.000	
MS	4-Chloro-3-methylphenol	59-50-7	4317.4	84.000	% Recov	09/15/04	61.000	106.000	
MS	2-Chlorophenol	95-57-8	5248.3	102.000	% Recov	09/15/04	66.000	106.000	
MS	N-Nitrosodi-n-dipropylamine	621-64-7	3082.7	89.900	% Recov	09/15/04	71.000	114.000	
MS	2-Fluorobiphenyl	321-60-8	3147.7	91.800	% Recov	09/15/04	56.000	122.000	
MS	Phenol	108-95-2	5037.4	98.000	% Recov	09/15/04	42.000	111.000	
MS	Nitrobenzene-d5	4165-60-0	3034.0	88.500	% Recov	09/15/04	64.000	111.000	
MS	4-Nitrophenol	100-02-7	3834.4	74.600	% Recov	09/15/04	32.000	118.000	
MS	Pentachlorophenol	87-86-5	4005.4	77.900	% Recov	09/15/04	62.000	114.000	
MS	Phenol-d5	4165-62-2	3300.2	96.300	% Recov	09/15/04	54.000	120.000	
MS	Pyrene	129-00-0	3341.9	97.500	% Recov	09/15/04	66.000	118.000	
MS	2,4,6-Tribromophenol	118-79-6	3194.2	93.200	% Recov	09/15/04	24.000	122.000	
MS	Terphenyl-d14 (7Cl)	98904-43-9	3400.0	99.200	% Recov	09/15/04	35.000	150.000	
MSD	1,2,4-Trichlorobenzene	120-82-1	5332.6	77.900	% Recov	09/09/04	46.000	107.000	
MSD	1,4-Dichlorobenzene	106-46-7	4834.2	70.600	% Recov	09/09/04	30.000	96.000	
MSD	2,4-Dinitrotoluene	121-14-2	4505.6	65.800	% Recov	09/09/04	59.000	106.000	
MSD	2-Fluorophenol	367-12-4	5504.0	80.400	% Recov	09/09/04	42.000	105.000	
MSD	Acenaphthene	83-32-9	4905.9	71.600	% Recov	09/09/04	61.000	116.000	
MSD	4-Chloro-3-methylphenol	59-50-7	7808.0	76.000	% Recov	09/09/04	61.000	106.000	
MSD	2-Chlorophenol	95-57-8	9036.2	88.000	% Recov	09/09/04	66.000	106.000	
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	4852.3	70.900	% Recov	09/09/04	71.000	114.000	*
MSD	2-Fluorobiphenyl	321-60-8	5548.8	81.000	% Recov	09/09/04	56.000	122.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	Phenol	108-95-2	9533.6	92.800	% Recov	09/09/04	42.000	111.000	
MSD	Nitrobenzene-d5	4165-60-0	5330.8	77.800	% Recov	09/09/04	64.000	111.000	
MSD	4-Nitrophenol	100-02-7	6574.1	64.000	% Recov	09/09/04	32.000	118.000	
MSD	Pentachlorophenol	87-86-5	5861.6	57.100	% Recov	09/09/04	62.000	114.000	*
MSD	Phenol-d5	4165-62-2	5705.8	83.300	% Recov	09/09/04	54.000	120.000	
MSD	Pyrene	129-00-0	5324.2	77.700	% Recov	09/09/04	66.000	118.000	
MSD	2,4,6-Tribromophenol	118-79-6	4161.0	60.800	% Recov	09/09/04	24.000	122.000	
MSD	Terphenyl-d14 (7Cl)	98904-43-9	5560.2	81.200	% Recov	09/09/04	35.000	150.000	

Lab ID: W040001540
BATCH QC ASSOCIATED WITH SAMPLE

MS	1,2,4-Trichlorobenzene	120-82-1	2581.2	74.000	% Recov	09/08/04	46.000	107.000	
MS	1,4-Dichlorobenzene	106-46-7	2335.5	67.000	% Recov	09/08/04	30.000	96.000	
MS	2,4-Dinitrotoluene	121-14-2	2343.7	67.200	% Recov	09/08/04	59.000	106.000	
MS	2-Fluorophenol	367-12-4	2633.4	75.500	% Recov	09/08/04	42.000	105.000	
MS	Acenaphthene	83-32-9	2363.8	67.800	% Recov	09/08/04	61.000	116.000	
MS	4-Chloro-3-methylphenol	59-50-7	3687.3	70.500	% Recov	09/08/04	61.000	106.000	
MS	2-Chlorophenol	95-57-8	3884.9	74.300	% Recov	09/08/04	66.000	106.000	
MS	N-Nitrosodi-n-dipropylamine	621-64-7	2525.8	72.400	% Recov	09/08/04	71.000	114.000	
MS	2-Fluorobiphenyl	321-60-8	2547.0	73.100	% Recov	09/08/04	56.000	122.000	
MS	Phenol	108-95-2	3954.4	75.600	% Recov	09/08/04	42.000	111.000	
MS	Nitrobenzene-d5	4165-60-0	2634.0	75.500	% Recov	09/08/04	64.000	111.000	
MS	4-Nitrophenol	100-02-7	3138.8	60.000	% Recov	09/08/04	32.000	118.000	
MS	Pentachlorophenol	87-86-5	2732.2	52.200	% Recov	09/08/04	62.000	114.000	*
MS	Phenol-d5	4165-62-2	2562.0	73.500	% Recov	09/08/04	54.000	120.000	
MS	Pyrene	129-00-0	2743.8	78.700	% Recov	09/08/04	66.000	118.000	
MS	2,4,6-Tribromophenol	118-79-6	2301.9	66.000	% Recov	09/08/04	24.000	122.000	
MS	Terphenyl-d14 (7Cl)	98904-43-9	2824.6	81.000	% Recov	09/08/04	35.000	150.000	
MSD	1,2,4-Trichlorobenzene	120-82-1	2648.6	76.200	% Recov	09/08/04	46.000	107.000	
MSD	1,4-Dichlorobenzene	106-46-7	2665.4	76.700	% Recov	09/08/04	30.000	96.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date: 08/25/04
Receive Date:08/25/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	2,4-Dinitrotoluene	121-14-2	2328.7	67.000	% Recov	09/08/04	59.000	106.000	
MSD	2-Fluorophenol	367-12-4	2969.3	85.400	% Recov	09/08/04	42.000	105.000	
MSD	Acenaphthene	83-32-9	2386.4	68.700	% Recov	09/08/04	61.000	116.000	
MSD	4-Chloro-3-methylphenol	59-50-7	3765.8	72.200	% Recov	09/08/04	61.000	106.000	
MSD	2-Chlorophenol	95-57-8	4349.2	83.400	% Recov	09/08/04	66.000	106.000	
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	2752.3	79.200	% Recov	09/08/04	71.000	114.000	
MSD	2-Fluorobiphenyl	321-60-8	2629.8	75.700	% Recov	09/08/04	56.000	122.000	
MSD	Phenol	108-95-2	4219.3	80.900	% Recov	09/08/04	42.000	111.000	
MSD	Nitrobenzene-d5	4165-60-0	2672.2	76.900	% Recov	09/08/04	64.000	111.000	
MSD	4-Nitrophenol	100-02-7	3104.8	59.600	% Recov	09/08/04	32.000	118.000	
MSD	Pentachlorophenol	87-86-5	2805.6	53.800	% Recov	09/08/04	62.000	114.000	*
MSD	Phenol-d5	4165-62-2	2738.7	78.800	% Recov	09/08/04	54.000	120.000	
MSD	Pyrene	129-00-0	2797.9	80.500	% Recov	09/08/04	66.000	118.000	
MSD	2,4,6-Tribromophenol	118-79-6	2394.6	68.900	% Recov	09/08/04	24.000	122.000	
MSD	Terphenyl-d14 (7Cl)	98904-43-9	2889.7	83.100	% Recov	09/08/04	35.000	150.000	
SPK-RPD	1,2,4-Trichlorobenzene	120-82-1	76.200	2.929	RPD	09/08/04	0.000	20.000	
SPK-RPD	1,4-Dichlorobenzene	106-46-7	76.700	13.500	RPD	09/08/04	0.000	20.000	
SPK-RPD	2,4-Dinitrotoluene	121-14-2	67.000	0.298	RPD	09/08/04	0.000	20.000	
SPK-RPD	2-Fluorophenol	367-12-4	85.400	12.306	RPD	09/08/04	0.000	20.000	
SPK-RPD	Acenaphthene	83-32-9	68.700	1.319	RPD	09/08/04	0.000	20.000	
SPK-RPD	4-Chloro-3-methylphenol	59-50-7	72.200	2.383	RPD	09/08/04	0.000	20.000	
SPK-RPD	2-Chlorophenol	95-57-8	83.400	11.541	RPD	09/08/04	0.000	20.000	
SPK-RPD	N-Nitrosodi-n-dipropylamine	621-64-7	79.200	8.971	RPD	09/08/04	0.000	20.000	
SPK-RPD	2-Fluorobiphenyl	321-60-8	75.700	3.495	RPD	09/08/04	0.000	20.000	
SPK-RPD	Phenol	108-95-2	80.900	6.773	RPD	09/08/04	0.000	20.000	
SPK-RPD	Nitrobenzene-d5	4165-60-0	76.900	1.837	RPD	09/08/04	0.000	20.000	
SPK-RPD	4-Nitrophenol	100-02-7	59.600	0.669	RPD	09/08/04	0.000	20.000	
SPK-RPD	Pentachlorophenol	87-86-5	53.800	3.019	RPD	09/08/04	0.000	20.000	
SPK-RPD	Phenol-d5	4165-62-2	78.800	6.960	RPD	09/08/04	0.000	20.000	
SPK-RPD	Pyrene	129-00-0	80.500	2.261	RPD	09/08/04	0.000	20.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date: 08/25/04
Receive Date:08/25/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SPK-RPD	2,4,6-Tribromophenol	118-79-6	68.900	4.299	RPD	09/08/04	0.000	20.000	
SPK-RPD	Terphenyl-d14 (7Cl)	98904-43-9	83.100	2.559	RPD	09/08/04	0.000	20.000	

Lab ID: W040001543
BATCH QC ASSOCIATED WITH SAMPLE

SURR	2-Fluorophenol	367-12-4	2323.4	68.000	% Recov	09/08/04	42.000	105.000	
SURR	2-Fluorobiphenyl	321-60-8	2361.6	69.100	% Recov	09/08/04	56.000	122.000	
SURR	Nitrobenzene-d5	4165-60-0	2318.9	67.900	% Recov	09/08/04	64.000	111.000	
SURR	Phenol-d5	4165-62-2	2079.8	60.900	% Recov	09/08/04	54.000	120.000	
SURR	2,4,6-Tribromophenol	118-79-6	1307.0	38.300	% Recov	09/08/04	24.000	122.000	
SURR	Terphenyl-d14 (7Cl)	98904-43-9	2764.3	80.900	% Recov	09/08/04	35.000	150.000	

BATCH QC

BLANK	1,2-Dichlorobenzene	95-50-1	< 360	n/a	ug/Kg	09/08/04			U
BLANK	1,2,4-Trimethylbenzene	95-63-6	< 120	n/a	ug/Kg	09/08/04			U
BLANK	1,2,4-Trichlorobenzene	120-82-1	< 290	n/a	ug/Kg	09/08/04			U
BLANK	1,3-Dichlorobenzene	541-73-1	< 320	n/a	ug/Kg	09/08/04			U
BLANK	1,4-Dichlorobenzene	106-46-7	< 310	n/a	ug/Kg	09/08/04			U
BLANK	2,4-Dichlorophenol	120-83-2	< 80	n/a	ug/Kg	09/08/04			U
BLANK	2,4-Dinitrotoluene	121-14-2	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2,4,5-Trichlorophenol	95-95-4	< 73	n/a	ug/Kg	09/08/04			U
BLANK	2,4,6-Trichlorophenol	88-06-2	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2,4-Dimethylphenol	105-67-9	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2,6-Dinitrotoluene	606-20-2	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2-Chloronaphthalene	91-58-7	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2-Fluorophenol	367-12-4	2818.5	84.600	% Recov	09/08/04	42.000	105.000	
BLANK	2-Methylnaphthalene	91-57-6	< 180	n/a	ug/Kg	09/08/04			U
BLANK	2-Methylphenol (cresol, o-)	95-48-7	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2-Nitroaniline	88-74-4	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2-Nitrophenol	88-75-5	< 170	n/a	ug/Kg	09/08/04			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	3 & 4 Methylphenol Total	65794-96-9	< 110	n/a	ug/Kg	09/08/04			U
BLANK	3-Nitroaniline	99-09-2	< 67	n/a	ug/Kg	09/08/04			U
BLANK	4,6-Dinitro-2-methylphenol	534-52-1	< 670	n/a	ug/Kg	09/08/04			U
BLANK	4-Bromophenylphenyl ether	101-55-3	< 67	n/a	ug/Kg	09/08/04			U
BLANK	4-Chlorophenylphenyl ether	7005-72-3	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Acenaphthene	83-32-9	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Acenaphthylene	208-96-8	< 80	n/a	ug/Kg	09/08/04			U
BLANK	Anthracene	120-12-7	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Bis(2-chloroethyl) ether	111-44-4	< 250	n/a	ug/Kg	09/08/04			U
BLANK	Benzo(a)anthracene	56-55-3	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Benzo(b)fluoranthene	205-99-2	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Benzo(ghi)perylene	191-24-2	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Benzo(a)pyrene	50-32-8	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Bis(2-Chloroethoxy)methane	111-91-1	< 110	n/a	ug/Kg	09/08/04			U
BLANK	Bis(2-ethylhexyl) phthalate	117-81-7	< 560	n/a	ug/Kg	09/08/04			U
BLANK	Bis(2-chloro-1-methylethyl)eth	108-60-1	< 250	n/a	ug/Kg	09/08/04			U
BLANK	Benzo(k)fluoranthene	207-08-9	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Butylbenzylphthalate	85-68-7	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Carbazole	86-74-8	< 80	n/a	ug/Kg	09/08/04			U
BLANK	4-Chloroaniline	106-47-8	< 93	n/a	ug/Kg	09/08/04			U
BLANK	4-Chloro-3-methylphenol	59-50-7	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2-Chlorophenol	95-57-8	< 150	n/a	ug/Kg	09/08/04			U
BLANK	Chrysene	218-01-9	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Cyclohexanone	108-94-1	< 330	n/a	ug/Kg	09/08/04			U
BLANK	3,3'-Dichlorobenzidine	91-94-1	< 80	n/a	ug/Kg	09/08/04			U
BLANK	Dibenz[a,h]anthracene	53-70-3	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Dibenzofuran	132-64-9	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Di-n-butylphthalate	84-74-2	< 87	n/a	ug/Kg	09/08/04			U
BLANK	Diethylphthalate	84-66-2	< 190	n/a	ug/Kg	09/08/04			U
BLANK	Dimethyl phthalate	131-11-3	< 67	n/a	ug/Kg	09/08/04			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	2,4-Dinitrophenol	51-28-5	< 670	n/a	ug/Kg	09/08/04			U
BLANK	Di-n-octylphthalate	117-84-0	< 67	n/a	ug/Kg	09/08/04			U
BLANK	N-Nitrosodi-n-dipropylamine	621-64-7	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2-Fluorobiphenyl	321-60-8	2635.4	79.100	% Recov	09/08/04	56.000	122.000	
BLANK	Fluorene	86-73-7	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Fluoranthene	206-44-0	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Hexachlorobenzene	118-74-1	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Hexachlorobutadiene	87-68-3	< 370	n/a	ug/Kg	09/08/04			U
BLANK	Hexachlorocyclopentadiene	77-47-4	< 310	n/a	ug/Kg	09/08/04			U
BLANK	Hexachloroethane	67-72-1	< 470	n/a	ug/Kg	09/08/04			U
BLANK	Indeno(1,2,3-cd)pyrene	193-39-5	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Isophorone	78-59-1	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Phenol	108-95-2	< 100	n/a	ug/Kg	09/08/04			U
BLANK	Naphthalene	91-20-3	< 290	n/a	ug/Kg	09/08/04			U
BLANK	Nitrobenzene-d5	4165-60-0	2689.2	80.700	% Recov	09/08/04	64.000	111.000	
BLANK	Nitrobenzene	98-95-3	< 260	n/a	ug/Kg	09/08/04			U
BLANK	4-Nitrophenol	100-02-7	< 650	n/a	ug/Kg	09/08/04			U
BLANK	4-Nitroaniline	100-01-6	< 250	n/a	ug/Kg	09/08/04			U
BLANK	N-Nitrosodiphenylamine	86-30-6	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Pentachlorophenol	87-86-5	< 300	n/a	ug/Kg	09/08/04			U
BLANK	Phenanthrene	85-01-8	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Phenol-d5	4165-62-2	2555.9	76.700	% Recov	09/08/04	54.000	120.000	
BLANK	Pyrene	129-00-0	< 67	n/a	ug/Kg	09/08/04			U
BLANK	Tributyl phosphate	126-73-8	< 67	n/a	ug/Kg	09/08/04			U
BLANK	2,4,6-Tribromophenol	118-79-6	2374.3	71.200	% Recov	09/08/04	24.000	122.000	
BLANK	Terphenyl-d14 (7Cl)	98904-43-9	2872.8	86.200	% Recov	09/08/04	35.000	150.000	
LCS	1,2,4-Trichlorobenzene	120-82-1	2380.8	71.400	% Recov	09/08/04	46.000	107.000	
LCS	1,4-Dichlorobenzene	106-46-7	2230.0	66.900	% Recov	09/08/04	42.000	111.000	
LCS	2,4-Dinitrotoluene	121-14-2	2123.6	63.700	% Recov	09/08/04	59.000	106.000	
LCS	2-Fluorophenol	367-12-4	2762.6	82.900	% Recov	09/08/04	50.000	110.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Acenaphthene	83-32-9	2158.8	64.800	% Recov	09/08/04	61.000	116.000	
LCS	4-Chloro-3-methylphenol	59-50-7	3398.8	68.000	% Recov	09/08/04	61.000	106.000	
LCS	2-Chlorophenol	95-57-8	3660.8	73.200	% Recov	09/08/04	66.000	106.000	
LCS	N-Nitrosodi-n-dipropylamine	621-64-7	2386.5	71.600	% Recov	09/08/04	71.000	114.000	
LCS	2-Fluorobiphenyl	321-60-8	2381.1	71.400	% Recov	09/08/04	58.000	109.000	
LCS	Phenol	108-95-2	3623.8	72.500	% Recov	09/08/04	67.000	105.000	
LCS	Nitrobenzene-d5	4165-60-0	2573.5	77.200	% Recov	09/08/04	60.000	118.000	
LCS	4-Nitrophenol	100-02-7	3026.6	60.500	% Recov	09/08/04	32.000	118.000	
LCS	Pentachlorophenol	87-86-5	2535.5	50.700	% Recov	09/08/04	62.000	114.000	*
LCS	Phenol-d5	4165-62-2	2531.8	76.000	% Recov	09/08/04	59.000	116.000	
LCS	Pyrene	129-00-0	2642.2	79.300	% Recov	09/08/04	66.000	118.000	
LCS	2,4,6-Tribromophenol	118-79-6	2170.8	65.100	% Recov	09/08/04	60.000	120.000	
LCS	Terphenyl-d14 (7Cl)	98904-43-9	2773.6	83.200	% Recov	09/08/04	60.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: WTPH-D TPH Diesel Range (Wa)

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte		CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001533										
BATCH QC ASSOCIATED WITH SAMPLE										
MS	Kerosene		TPHKEROSENE	118620	92.200	% Recov	09/07/04	70.000	130.000	
MS	ortho-Terphenyl	Surr	84-15-1	26829	104.000	% Recov	09/07/04	70.000	130.000	
MSD	Kerosene		TPHKEROSENE	113860	88.700	% Recov	09/07/04	70.000	130.000	
MSD	ortho-Terphenyl	Surr	84-15-1	26821	104.000	% Recov	09/07/04	70.000	130.000	
SPK-RPD	ortho-Terphenyl	Surr	84-15-1	104.000	0.000	RPD	09/07/04	0.000	20.000	
Lab ID: W040001543										
BATCH QC ASSOCIATED WITH SAMPLE										
SURR	ortho-Terphenyl	Surr	84-15-1	24377	94.800	% Recov	09/07/04	70.000	130.000	
BATCH QC										
BLANK	Kerosene		TPHKEROSENE	< 3800	n/a	ug/Kg	09/07/04			U
BLANK	ortho-Terphenyl	Surr	84-15-1	23563	94.300	% Recov	09/07/04	70.000	130.000	
BLANK	Total Pet. Hydrocarbons Diesel		TPHDIESEL	< 3800	n/a	ug/Kg	09/07/04			U
LCS	ortho-Terphenyl	Surr	84-15-1	24928	99.700	% Recov	09/07/04	70.000	130.000	
LCS	Total Pet. Hydrocarbons Diesel		TPHDIESEL	108680	86.900	% Recov	09/07/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date: 09/08/04
Receive Date:09/08/04

Lab ID: W040001605
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	3690.2	89.700	% Recov	09/21/04	46.000	107.000	
MS	1,4-Dichlorobenzene	106-46-7	3675.1	89.300	% Recov	09/21/04	30.000	96.000	
MS	2,4-Dinitrotoluene	121-14-2	3324.2	80.800	% Recov	09/21/04	59.000	106.000	
MS	2-Fluorophenol	367-12-4	4144.6	101.000	% Recov	09/21/04	42.000	105.000	
MS	Acenaphthene	83-32-9	3565.6	86.700	% Recov	09/21/04	61.000	116.000	
MS	4-Chloro-3-methylphenol	59-50-7	5439.8	88.200	% Recov	09/21/04	61.000	106.000	
MS	2-Chlorophenol	95-57-8	6195.3	100.000	% Recov	09/21/04	66.000	106.000	
MS	N-Nitrosodi-n-dipropylamine	621-64-7	3727.8	90.600	% Recov	09/21/04	71.000	114.000	
MS	2-Fluorobiphenyl	321-60-8	3658.6	88.900	% Recov	09/21/04	56.000	122.000	
MS	Phenol	108-95-2	5988.8	97.100	% Recov	09/21/04	42.000	111.000	
MS	Nitrobenzene-d5	4165-60-0	3706.5	90.100	% Recov	09/21/04	64.000	111.000	
MS	4-Nitrophenol	100-02-7	4572.5	74.100	% Recov	09/21/04	32.000	118.000	
MS	Pentachlorophenol	87-86-5	5687.6	92.200	% Recov	09/21/04	62.000	114.000	
MS	Phenol-d5	4165-62-2	3961.2	96.300	% Recov	09/21/04	54.000	120.000	
MS	Pyrene	129-00-0	3817.8	92.800	% Recov	09/21/04	66.000	118.000	
MS	2,4,6-Tribromophenol	118-79-6	3827.7	93.100	% Recov	09/21/04	24.000	122.000	
MS	Terphenyl-d14 (7Cl)	98904-43-9	3859.0	93.800	% Recov	09/21/04	35.000	150.000	
MSD	1,2,4-Trichlorobenzene	120-82-1	3519.8	85.600	% Recov	09/21/04	46.000	107.000	
MSD	1,4-Dichlorobenzene	106-46-7	3519.4	85.600	% Recov	09/21/04	30.000	96.000	
MSD	2,4-Dinitrotoluene	121-14-2	3291.0	80.100	% Recov	09/21/04	59.000	106.000	
MSD	2-Fluorophenol	367-12-4	3839.6	93.400	% Recov	09/21/04	42.000	105.000	
MSD	Acenaphthene	83-32-9	3450.6	84.000	% Recov	09/21/04	61.000	116.000	
MSD	4-Chloro-3-methylphenol	59-50-7	5501.6	89.200	% Recov	09/21/04	61.000	106.000	
MSD	2-Chlorophenol	95-57-8	5960.5	96.700	% Recov	09/21/04	66.000	106.000	
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	3660.6	89.100	% Recov	09/21/04	71.000	114.000	
MSD	2-Fluorobiphenyl	321-60-8	3434.9	83.600	% Recov	09/21/04	56.000	122.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date: 09/08/04
Receive Date:09/08/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	Phenol	108-95-2	6016.3	97.600	% Recov	09/21/04	42.000	111.000	
MSD	Nitrobenzene-d5	4165-60-0	3549.6	86.400	% Recov	09/21/04	64.000	111.000	
MSD	4-Nitrophenol	100-02-7	4396.6	71.300	% Recov	09/21/04	32.000	118.000	
MSD	Pentachlorophenol	87-86-5	4582.6	74.300	% Recov	09/21/04	62.000	114.000	
MSD	Phenol-d5	4165-62-2	3741.9	91.000	% Recov	09/21/04	54.000	120.000	
MSD	Pyrene	129-00-0	3910.9	95.200	% Recov	09/21/04	66.000	118.000	
MSD	2,4,6-Tribromophenol	118-79-6	3540.5	86.100	% Recov	09/21/04	24.000	122.000	
MSD	Terphenyl-d14 (7Cl)	98904-43-9	3959.7	96.300	% Recov	09/21/04	35.000	150.000	

Lab ID: W040001610
BATCH QC ASSOCIATED WITH SAMPLE

SURR	2-Fluorophenol	367-12-4	3080.7	87.000	% Recov	09/22/04	42.000	105.000	
SURR	2-Fluorobiphenyl	321-60-8	2588.0	73.100	% Recov	09/22/04	56.000	122.000	
SURR	Nitrobenzene-d5	4165-60-0	2628.0	74.300	% Recov	09/22/04	64.000	111.000	
SURR	Phenol-d5	4165-62-2	2865.0	81.000	% Recov	09/22/04	54.000	120.000	
SURR	2,4,6-Tribromophenol	118-79-6	2280.9	64.500	% Recov	09/22/04	24.000	122.000	
SURR	Terphenyl-d14 (7Cl)	98904-43-9	2959.1	83.600	% Recov	09/22/04	35.000	150.000	

Lab ID: W040001612
BATCH QC ASSOCIATED WITH SAMPLE

MS	1,2,4-Trichlorobenzene	120-82-1	4448.0	83.700	% Recov	09/22/04	46.000	107.000	
MS	1,4-Dichlorobenzene	106-46-7	4505.0	84.700	% Recov	09/22/04	30.000	96.000	
MS	2,4-Dinitrotoluene	121-14-2	3837.3	72.200	% Recov	09/22/04	59.000	106.000	
MS	2-Fluorophenol	367-12-4	4301.3	80.900	% Recov	09/22/04	42.000	105.000	
MS	Acenaphthene	83-32-9	4258.6	80.100	% Recov	09/22/04	61.000	116.000	
MS	4-Chloro-3-methylphenol	59-50-7	6626.6	83.100	% Recov	09/22/04	61.000	106.000	
MS	2-Chlorophenol	95-57-8	7426.2	93.100	% Recov	09/22/04	66.000	106.000	
MS	N-Nitrosodi-n-dipropylamine	621-64-7	4598.6	86.500	% Recov	09/22/04	71.000	114.000	
MS	2-Fluorobiphenyl	321-60-8	4033.4	75.900	% Recov	09/22/04	56.000	122.000	
MS	Phenol	108-95-2	7125.2	89.300	% Recov	09/22/04	42.000	111.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date: 09/09/04
Receive Date:09/09/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Nitrobenzene-d5	4165-60-0	3911.4	73.600	% Recov	09/22/04	64.000	111.000	
MS	4-Nitrophenol	100-02-7	4586.8	57.500	% Recov	09/22/04	32.000	118.000	
MS	Pentachlorophenol	87-86-5	6042.6	75.800	% Recov	09/22/04	62.000	114.000	
MS	Phenol-d5	4165-62-2	4264.7	80.200	% Recov	09/22/04	54.000	120.000	
MS	Pyrene	129-00-0	4834.4	90.900	% Recov	09/22/04	66.000	118.000	
MS	2,4,6-Tribromophenol	118-79-6	3664.0	68.900	% Recov	09/22/04	24.000	122.000	
MS	Terphenyl-d14 (7Cl)	98904-43-9	4316.3	81.200	% Recov	09/22/04	35.000	150.000	
MSD	1,2,4-Trichlorobenzene	120-82-1	4363.8	83.500	% Recov	09/22/04	46.000	107.000	
MSD	1,4-Dichlorobenzene	106-46-7	4418.4	84.600	% Recov	09/22/04	30.000	96.000	
MSD	2,4-Dinitrotoluene	121-14-2	3758.6	72.000	% Recov	09/22/04	59.000	106.000	
MSD	2-Fluorophenol	367-12-4	4760.4	91.100	% Recov	09/22/04	42.000	105.000	
MSD	Acenaphthene	83-32-9	4202.4	80.500	% Recov	09/22/04	61.000	116.000	
MSD	4-Chloro-3-methylphenol	59-50-7	6557.5	83.700	% Recov	09/22/04	61.000	106.000	
MSD	2-Chlorophenol	95-57-8	7249.9	92.500	% Recov	09/22/04	66.000	106.000	
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	4393.9	84.100	% Recov	09/22/04	71.000	114.000	
MSD	2-Fluorobiphenyl	321-60-8	4338.5	83.100	% Recov	09/22/04	56.000	122.000	
MSD	Phenol	108-95-2	7258.4	92.600	% Recov	09/22/04	42.000	111.000	
MSD	Nitrobenzene-d5	4165-60-0	4230.3	81.000	% Recov	09/22/04	64.000	111.000	
MSD	4-Nitrophenol	100-02-7	4738.2	60.500	% Recov	09/22/04	32.000	118.000	
MSD	Pentachlorophenol	87-86-5	6412.2	81.800	% Recov	09/22/04	62.000	114.000	
MSD	Phenol-d5	4165-62-2	4700.1	90.000	% Recov	09/22/04	54.000	120.000	
MSD	Pyrene	129-00-0	4830.2	92.500	% Recov	09/22/04	66.000	118.000	
MSD	2,4,6-Tribromophenol	118-79-6	3990.4	76.400	% Recov	09/22/04	24.000	122.000	
MSD	Terphenyl-d14 (7Cl)	98904-43-9	4748.0	90.900	% Recov	09/22/04	35.000	150.000	
SURR	2-Fluorophenol	367-12-4	3587.4	95.500	% Recov	09/22/04	42.000	105.000	
SURR	2-Fluorobiphenyl	321-60-8	3279.1	87.300	% Recov	09/22/04	56.000	122.000	
SURR	Nitrobenzene-d5	4165-60-0	3205.3	85.300	% Recov	09/22/04	64.000	111.000	
SURR	Phenol-d5	4165-62-2	3406.4	90.700	% Recov	09/22/04	54.000	120.000	
SURR	2,4,6-Tribromophenol	118-79-6	2710.8	72.100	% Recov	09/22/04	24.000	122.000	
SURR	Terphenyl-d14 (7Cl)	98904-43-9	3616.0	96.200	% Recov	09/22/04	35.000	150.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date: 09/09/04
Receive Date:09/09/04

Lab ID: W040001618
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	2946.2	85.800	% Recov	09/21/04	46.000	107.000	
MS	1,4-Dichlorobenzene	106-46-7	2981.4	86.800	% Recov	09/21/04	30.000	96.000	
MS	2,4-Dinitrotoluene	121-14-2	2579.7	75.100	% Recov	09/21/04	59.000	106.000	
MS	2-Fluorophenol	367-12-4	2966.7	86.400	% Recov	09/21/04	42.000	105.000	
MS	Acenaphthene	83-32-9	2787.1	81.100	% Recov	09/21/04	61.000	116.000	
MS	4-Chloro-3-methylphenol	59-50-7	4468.2	86.700	% Recov	09/21/04	61.000	106.000	
MS	2-Chlorophenol	95-57-8	4813.2	93.400	% Recov	09/21/04	66.000	106.000	
MS	N-Nitrosodi-n-dipropylamine	621-64-7	2976.5	86.600	% Recov	09/21/04	71.000	114.000	
MS	2-Fluorobiphenyl	321-60-8	2857.3	83.200	% Recov	09/21/04	56.000	122.000	
MS	Phenol	108-95-2	4829.8	93.700	% Recov	09/21/04	42.000	111.000	
MS	Nitrobenzene-d5	4165-60-0	2887.2	84.000	% Recov	09/21/04	64.000	111.000	
MS	4-Nitrophenol	100-02-7	3747.6	72.700	% Recov	09/21/04	32.000	118.000	
MS	Pentachlorophenol	87-86-5	4656.8	90.400	% Recov	09/21/04	62.000	114.000	
MS	Phenol-d5	4165-62-2	2999.7	87.300	% Recov	09/21/04	54.000	120.000	
MS	Pyrene	129-00-0	3140.9	91.400	% Recov	09/21/04	66.000	118.000	
MS	2,4,6-Tribromophenol	118-79-6	2817.4	82.000	% Recov	09/21/04	24.000	122.000	
MS	Terphenyl-d14 (7Cl)	98904-43-9	3207.9	93.400	% Recov	09/21/04	35.000	150.000	
MSD	1,2,4-Trichlorobenzene	120-82-1	2910.7	84.900	% Recov	09/21/04	46.000	107.000	
MSD	1,4-Dichlorobenzene	106-46-7	2884.7	84.100	% Recov	09/21/04	30.000	96.000	
MSD	2,4-Dinitrotoluene	121-14-2	2753.2	80.300	% Recov	09/21/04	59.000	106.000	
MSD	2-Fluorophenol	367-12-4	2932.1	85.500	% Recov	09/21/04	42.000	105.000	
MSD	Acenaphthene	83-32-9	2880.0	84.000	% Recov	09/21/04	61.000	116.000	
MSD	4-Chloro-3-methylphenol	59-50-7	4359.5	84.800	% Recov	09/21/04	61.000	106.000	
MSD	2-Chlorophenol	95-57-8	4640.1	90.200	% Recov	09/21/04	66.000	106.000	
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	2949.1	86.000	% Recov	09/21/04	71.000	114.000	
MSD	2-Fluorobiphenyl	321-60-8	2931.1	85.500	% Recov	09/21/04	56.000	122.000	
MSD	Phenol	108-95-2	4712.1	91.600	% Recov	09/21/04	42.000	111.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date: 09/13/04
Receive Date:09/13/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	Nitrobenzene-d5	4165-60-0	2927.7	85.400	% Recov	09/21/04	64.000	111.000	
MSD	4-Nitrophenol	100-02-7	3817.7	74.200	% Recov	09/21/04	32.000	118.000	
MSD	Pentachlorophenol	87-86-5	4712.2	91.600	% Recov	09/21/04	62.000	114.000	
MSD	Phenol-d5	4165-62-2	2996.2	87.400	% Recov	09/21/04	54.000	120.000	
MSD	Pyrene	129-00-0	3235.0	94.400	% Recov	09/21/04	66.000	118.000	
MSD	2,4,6-Tribromophenol	118-79-6	2781.3	81.100	% Recov	09/21/04	24.000	122.000	
MSD	Terphenyl-d14 (7Cl)	98904-43-9	3234.2	94.300	% Recov	09/21/04	35.000	150.000	
SPK-RPD	1,2,4-Trichlorobenzene	120-82-1	84.900	1.054	RPD	09/21/04	0.000	20.000	
SPK-RPD	1,4-Dichlorobenzene	106-46-7	84.100	3.160	RPD	09/21/04	0.000	20.000	
SPK-RPD	2,4-Dinitrotoluene	121-14-2	80.300	6.692	RPD	09/21/04	0.000	20.000	
SPK-RPD	2-Fluorophenol	367-12-4	85.500	1.047	RPD	09/21/04	0.000	20.000	
SPK-RPD	Acenaphthene	83-32-9	84.000	3.513	RPD	09/21/04	0.000	20.000	
SPK-RPD	4-Chloro-3-methylphenol	59-50-7	84.800	2.216	RPD	09/21/04	0.000	20.000	
SPK-RPD	2-Chlorophenol	95-57-8	90.200	3.486	RPD	09/21/04	0.000	20.000	
SPK-RPD	N-Nitrosodi-n-dipropylamine	621-64-7	86.000	0.695	RPD	09/21/04	0.000	20.000	
SPK-RPD	2-Fluorobiphenyl	321-60-8	85.500	2.727	RPD	09/21/04	0.000	20.000	
SPK-RPD	Phenol	108-95-2	91.600	2.267	RPD	09/21/04	0.000	20.000	
SPK-RPD	Nitrobenzene-d5	4165-60-0	85.400	1.653	RPD	09/21/04	0.000	20.000	
SPK-RPD	4-Nitrophenol	100-02-7	74.200	2.042	RPD	09/21/04	0.000	20.000	
SPK-RPD	Pentachlorophenol	87-86-5	91.600	1.319	RPD	09/21/04	0.000	20.000	
SPK-RPD	Phenol-d5	4165-62-2	87.400	0.114	RPD	09/21/04	0.000	20.000	
SPK-RPD	Pyrene	129-00-0	94.400	3.229	RPD	09/21/04	0.000	20.000	
SPK-RPD	2,4,6-Tribromophenol	118-79-6	81.100	1.104	RPD	09/21/04	0.000	20.000	
SPK-RPD	Terphenyl-d14 (7Cl)	98904-43-9	94.300	0.959	RPD	09/21/04	0.000	20.000	

BATCH QC

BLANK	1,2-Dichlorobenzene	95-50-1	< 360	n/a	ug/Kg	09/21/04			U
BLANK	1,2,4-Trimethylbenzene	95-63-6	< 120	n/a	ug/Kg	09/21/04			U
BLANK	1,2,4-Trichlorobenzene	120-82-1	< 290	n/a	ug/Kg	09/21/04			U
BLANK	1,3-Dichlorobenzene	541-73-1	< 320	n/a	ug/Kg	09/21/04			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	1,4-Dichlorobenzene	106-46-7	< 310	n/a	ug/Kg	09/21/04			U
BLANK	2,4-Dichlorophenol	120-83-2	< 80	n/a	ug/Kg	09/21/04			U
BLANK	2,4-Dinitrotoluene	121-14-2	< 67	n/a	ug/Kg	09/21/04			U
BLANK	2,4,5-Trichlorophenol	95-95-4	< 73	n/a	ug/Kg	09/21/04			U
BLANK	2,4,6-Trichlorophenol	88-06-2	< 67	n/a	ug/Kg	09/21/04			U
BLANK	2,4-Dimethylphenol	105-67-9	< 67	n/a	ug/Kg	09/21/04			U
BLANK	2,6-Dinitrotoluene	606-20-2	< 67	n/a	ug/Kg	09/21/04			U
BLANK	2-Chloronaphthalene	91-58-7	< 67	n/a	ug/Kg	09/21/04			U
BLANK	2-Fluorophenol	367-12-4	2962.3	88.900	% Recov	09/21/04	42.000	105.000	
BLANK	2-Methylnaphthalene	91-57-6	< 180	n/a	ug/Kg	09/21/04			U
BLANK	2-Methylphenol (cresol, o-)	95-48-7	< 67	n/a	ug/Kg	09/21/04			U
BLANK	2-Nitroaniline	88-74-4	< 67	n/a	ug/Kg	09/21/04			U
BLANK	2-Nitrophenol	88-75-5	< 170	n/a	ug/Kg	09/21/04			U
BLANK	3 & 4 Methylphenol Total	65794-96-9	< 110	n/a	ug/Kg	09/21/04			U
BLANK	3-Nitroaniline	99-09-2	< 67	n/a	ug/Kg	09/21/04			U
BLANK	4,6-Dinitro-2-methylphenol	534-52-1	< 670	n/a	ug/Kg	09/21/04			U
BLANK	4-Bromophenylphenyl ether	101-55-3	< 67	n/a	ug/Kg	09/21/04			U
BLANK	4-Chlorophenylphenyl ether	7005-72-3	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Acenaphthene	83-32-9	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Acenaphthylene	208-96-8	< 80	n/a	ug/Kg	09/21/04			U
BLANK	Anthracene	120-12-7	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Bis(2-chloroethyl) ether	111-44-4	< 250	n/a	ug/Kg	09/21/04			U
BLANK	Benzo(a)anthracene	56-55-3	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Benzo(b)fluoranthene	205-99-2	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Benzo(ghi)perylene	191-24-2	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Benzo(a)pyrene	50-32-8	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Bis(2-Chloroethoxy)methane	111-91-1	< 110	n/a	ug/Kg	09/21/04			U
BLANK	Bis(2-ethylhexyl) phthalate	117-81-7	< 560	n/a	ug/Kg	09/21/04			U
BLANK	Bis(2-chloro-1-methylethyl)eth	108-60-1	< 250	n/a	ug/Kg	09/21/04			U
BLANK	Benzo(k)fluoranthene	207-08-9	< 67	n/a	ug/Kg	09/21/04			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Butylbenzylphthalate	85-68-7	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Carbazole	86-74-8	< 80	n/a	ug/Kg	09/21/04			U
BLANK	4-Chloroaniline	106-47-8	< 93	n/a	ug/Kg	09/21/04			U
BLANK	4-Chloro-3-methylphenol	59-50-7	< 67	n/a	ug/Kg	09/21/04			U
BLANK	2-Chlorophenol	95-57-8	< 150	n/a	ug/Kg	09/21/04			U
BLANK	Chrysene	218-01-9	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Cyclohexanone	108-94-1	< 330	n/a	ug/Kg	09/21/04			U
BLANK	3,3'-Dichlorobenzidine	91-94-1	< 80	n/a	ug/Kg	09/21/04			U
BLANK	Dibenz[a,h]anthracene	53-70-3	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Dibenzofuran	132-64-9	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Di-n-butylphthalate	84-74-2	< 87	n/a	ug/Kg	09/21/04			U
BLANK	Diethylphthalate	84-66-2	< 190	n/a	ug/Kg	09/21/04			U
BLANK	Dimethyl phthalate	131-11-3	< 67	n/a	ug/Kg	09/21/04			U
BLANK	2,4-Dinitrophenol	51-28-5	< 670	n/a	ug/Kg	09/21/04			U
BLANK	Di-n-octylphthalate	117-84-0	< 67	n/a	ug/Kg	09/21/04			U
BLANK	N-Nitrosodi-n-dipropylamine	621-64-7	< 67	n/a	ug/Kg	09/21/04			U
BLANK	2-Fluorobiphenyl	321-60-8	2715.9	81.500	% Recov	09/21/04	56.000	122.000	
BLANK	Fluorene	86-73-7	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Fluoranthene	206-44-0	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Hexachlorobenzene	118-74-1	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Hexachlorobutadiene	87-68-3	< 370	n/a	ug/Kg	09/21/04			U
BLANK	Hexachlorocyclopentadiene	77-47-4	< 310	n/a	ug/Kg	09/21/04			U
BLANK	Hexachloroethane	67-72-1	< 470	n/a	ug/Kg	09/21/04			U
BLANK	Indeno(1,2,3-cd)pyrene	193-39-5	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Isophorone	78-59-1	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Phenol	108-95-2	< 100	n/a	ug/Kg	09/21/04			U
BLANK	Naphthalene	91-20-3	< 290	n/a	ug/Kg	09/21/04			U
BLANK	Nitrobenzene-d5	4165-60-0	2833.1	85.000	% Recov	09/21/04	64.000	111.000	
BLANK	Nitrobenzene	98-95-3	< 260	n/a	ug/Kg	09/21/04			U
BLANK	4-Nitrophenol	100-02-7	< 650	n/a	ug/Kg	09/21/04			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: SW-846 8270B Semi-Vols

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	4-Nitroaniline	100-01-6	< 250	n/a	ug/Kg	09/21/04			U
BLANK	N-Nitrosodiphenylamine	86-30-6	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Pentachlorophenol	87-86-5	< 300	n/a	ug/Kg	09/21/04			U
BLANK	Phenanthrene	85-01-8	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Phenol-d5	4165-62-2	2838.9	85.200	% Recov	09/21/04	54.000	120.000	
BLANK	Pyrene	129-00-0	< 67	n/a	ug/Kg	09/21/04			U
BLANK	Tributyl phosphate	126-73-8	< 67	n/a	ug/Kg	09/21/04			U
BLANK	2,4,6-Tribromophenol	118-79-6	2510.8	75.300	% Recov	09/21/04	24.000	122.000	
BLANK	Terphenyl-d14 (7Cl)	98904-43-9	3191.0	95.700	% Recov	09/21/04	35.000	150.000	
LCS	1,2,4-Trichlorobenzene	120-82-1	2835.9	85.100	% Recov	09/21/04	46.000	107.000	
LCS	1,4-Dichlorobenzene	106-46-7	2869.5	86.100	% Recov	09/21/04	42.000	111.000	
LCS	2,4-Dinitrotoluene	121-14-2	2627.1	78.800	% Recov	09/21/04	59.000	106.000	
LCS	2-Fluorophenol	367-12-4	3290.5	98.700	% Recov	09/21/04	50.000	110.000	
LCS	Acenaphthene	83-32-9	2767.6	83.000	% Recov	09/21/04	61.000	116.000	
LCS	4-Chloro-3-methylphenol	59-50-7	4409.6	88.200	% Recov	09/21/04	61.000	106.000	
LCS	2-Chlorophenol	95-57-8	4795.9	95.900	% Recov	09/21/04	66.000	106.000	
LCS	N-Nitrosodi-n-dipropylamine	621-64-7	2903.8	87.100	% Recov	09/21/04	71.000	114.000	
LCS	2-Fluorobiphenyl	321-60-8	2942.6	88.300	% Recov	09/21/04	58.000	109.000	
LCS	Phenol	108-95-2	4657.1	93.100	% Recov	09/21/04	67.000	105.000	
LCS	Nitrobenzene-d5	4165-60-0	2938.4	88.200	% Recov	09/21/04	60.000	118.000	
LCS	4-Nitrophenol	100-02-7	3511.4	70.200	% Recov	09/21/04	32.000	118.000	
LCS	Pentachlorophenol	87-86-5	4035.7	80.700	% Recov	09/21/04	62.000	114.000	
LCS	Phenol-d5	4165-62-2	3085.2	92.600	% Recov	09/21/04	59.000	116.000	
LCS	Pyrene	129-00-0	3115.4	93.500	% Recov	09/21/04	66.000	118.000	
LCS	2,4,6-Tribromophenol	118-79-6	3015.2	90.500	% Recov	09/21/04	60.000	120.000	
LCS	Terphenyl-d14 (7Cl)	98904-43-9	3213.0	96.400	% Recov	09/21/04	60.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: WTPH-D TPH Diesel Range (Wa)

SAF Number: F03-018
Sample Date: 09/08/04
Receive Date:09/08/04

QC Type	Analyte		CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001605										
BATCH QC ASSOCIATED WITH SAMPLE										
MS	Kerosene		TPHKEROSENE	20044	100.000	% Recov	09/21/04	70.000	130.000	
MS	ortho-Terphenyl	Surr	84-15-1	1068.2	102.000	% Recov	09/21/04	70.000	130.000	
MSD	Kerosene		TPHKEROSENE	32074	101.000	% Recov	09/21/04	70.000	130.000	
MSD	ortho-Terphenyl	Surr	84-15-1	1649.0	100.000	% Recov	09/21/04	70.000	130.000	
Lab ID: W040001610										
BATCH QC ASSOCIATED WITH SAMPLE										
SURR	ortho-Terphenyl	Surr	84-15-1	5335.7	107.000	% Recov	09/21/04	70.000	130.000	
Lab ID: W040001612										
BATCH QC ASSOCIATED WITH SAMPLE										
MS	Kerosene		TPHKEROSENE	63395	94.100	% Recov	09/21/04	70.000	130.000	
MS	ortho-Terphenyl	Surr	84-15-1	3024.3	101.000	% Recov	09/21/04	70.000	130.000	
MSD	Kerosene		TPHKEROSENE	47875	96.200	% Recov	09/21/04	70.000	130.000	
MSD	ortho-Terphenyl	Surr	84-15-1	3763.7	108.000	% Recov	09/21/04	70.000	130.000	
SURR	ortho-Terphenyl	Surr	84-15-1	2698.6	108.000	% Recov	09/21/04	70.000	130.000	
Lab ID: W040001618										
BATCH QC ASSOCIATED WITH SAMPLE										
MS	Kerosene		TPHKEROSENE	117850	94.500	% Recov	09/20/04	70.000	130.000	
MS	ortho-Terphenyl	Surr	84-15-1	25924	104.000	% Recov	09/20/04	70.000	130.000	
MSD	Kerosene		TPHKEROSENE	105870	85.000	% Recov	09/20/04	70.000	130.000	
MSD	ortho-Terphenyl	Surr	84-15-1	22677	91.100	% Recov	09/20/04	70.000	130.000	
SPK-RPD	ortho-Terphenyl	Surr	84-15-1	91.100	13.224	RPD	09/20/04	0.000	20.000	

BATCH QC

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: WTPH-D TPH Diesel Range (Wa)

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Kerosene	TPHKEROSENE	< 3800	n/a	ug/Kg	09/20/04			U
BLANK	ortho-Terphenyl Surr	84-15-1	28089	112.000	% Recov	09/20/04	70.000	130.000	
BLANK	Total Pet. Hydrocarbons Diesel	TPHDIESEL	< 3800	n/a	ug/Kg	09/20/04			U
LCS	ortho-Terphenyl Surr	84-15-1	26731	107.000	% Recov	09/20/04	70.000	130.000	
LCS	Total Pet. Hydrocarbons Diesel	TPHDIESEL	115680	92.500	% Recov	09/20/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

Lab ID: W050002028
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	1126.1	82.800	% Recov	07/20/05	46.000	107.000	
MS	1,4-Dichlorobenzene	106-46-7	982.79	72.200	% Recov	07/20/05	30.000	96.000	
MS	2,4-Dinitrotoluene	121-14-2	1124.5	82.600	% Recov	07/20/05	59.000	106.000	
MS	2-Fluorophenol	367-12-4	1283.8	94.400	% Recov	07/20/05	42.000	105.000	
MS	Acenaphthene	83-32-9	1130.8	83.100	% Recov	07/20/05	61.000	116.000	
MS	4-Chloro-3-methylphenol	59-50-7	1760.9	86.300	% Recov	07/20/05	61.000	106.000	
MS	2-Chlorophenol	95-57-8	1728.2	84.700	% Recov	07/20/05	66.000	106.000	
MS	N-Nitrosodi-n-dipropylamine	621-64-7	1179.4	86.700	% Recov	07/20/05	71.000	114.000	
MS	2-Fluorobiphenyl	321-60-8	1175.7	86.400	% Recov	07/20/05	56.000	122.000	
MS	Phenol	108-95-2	1785.1	87.500	% Recov	07/20/05	42.000	111.000	
MS	Nitrobenzene-d5	4165-60-0	1164.8	85.600	% Recov	07/20/05	64.000	111.000	
MS	4-Nitrophenol	100-02-7	1658.4	81.300	% Recov	07/20/05	32.000	118.000	
MS	Pentachlorophenol	87-86-5	1399.6	68.600	% Recov	07/20/05	62.000	114.000	
MS	Phenol-d5	4165-62-2	1195.9	87.900	% Recov	07/20/05	54.000	120.000	
MS	Pyrene	129-00-0	1150.9	84.600	% Recov	07/20/05	66.000	118.000	
MS	2,4,6-Tribromophenol	118-79-6	1202.2	88.400	% Recov	07/20/05	24.000	122.000	
MS	Terphenyl-d14 (7Cl)	98904-43-9	1210.6	89.000	% Recov	07/20/05	35.000	150.000	
MSD	1,2,4-Trichlorobenzene	120-82-1	1150.4	84.500	% Recov	07/20/05	46.000	107.000	
MSD	1,4-Dichlorobenzene	106-46-7	1024.8	75.300	% Recov	07/20/05	30.000	96.000	
MSD	2,4-Dinitrotoluene	121-14-2	1145.0	84.100	% Recov	07/20/05	59.000	106.000	
MSD	2-Fluorophenol	367-12-4	1349.5	99.100	% Recov	07/20/05	42.000	105.000	
MSD	Acenaphthene	83-32-9	1151.5	84.600	% Recov	07/20/05	61.000	116.000	
MSD	4-Chloro-3-methylphenol	59-50-7	1775.5	86.900	% Recov	07/20/05	61.000	106.000	
MSD	2-Chlorophenol	95-57-8	1769.2	86.600	% Recov	07/20/05	66.000	106.000	
MSD	N-Nitrosodi-n-diprepylamine	621-64-7	1201.4	88.200	% Recov	07/20/05	71.000	114.000	
MSD	2-Fluorobiphenyl	321-60-8	1182.3	86.800	% Recov	07/20/05	56.000	122.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	Phenol	108-95-2	1817.9	89.000	% Recov	07/20/05	42.000	111.000	
MSD	Nitrobenzene-d5	4165-60-0	1192.2	87.500	% Recov	07/20/05	64.000	111.000	
MSD	4-Nitrophenol	100-02-7	1675.7	82.000	% Recov	07/20/05	32.000	118.000	
MSD	Pentachlorophenol	87-86-5	1535.4	75.200	% Recov	07/20/05	62.000	114.000	
MSD	Phenol-d5	4165-62-2	1228.0	90.200	% Recov	07/20/05	54.000	120.000	
MSD	Pyrene	129-00-0	1189.1	87.300	% Recov	07/20/05	66.000	118.000	
MSD	2,4,6-Tribromophenol	118-79-6	1220.9	89.700	% Recov	07/20/05	24.000	122.000	
MSD	Terphenyl-d14 (7Cl)	98904-43-9	1230.4	90.400	% Recov	07/20/05	35.000	150.000	
SPK-RPD	1,2,4-Trichlorobenzene	120-82-1	84.500	2.032	RPD	07/20/05	0.000	20.000	
SPK-RPD	1,4-Dichlorobenzene	106-46-7	75.300	4.203	RPD	07/20/05	0.000	20.000	
SPK-RPD	2,4-Dinitrotoluene	121-14-2	84.100	1.800	RPD	07/20/05	0.000	20.000	
SPK-RPD	2-Fluorophenol	367-12-4	99.100	4.858	RPD	07/20/05	0.000	20.000	
SPK-RPD	Acenaphthene	83-32-9	84.600	1.789	RPD	07/20/05	0.000	20.000	
SPK-RPD	4-Chloro-3-methylphenol	59-50-7	86.900	0.693	RPD	07/20/05	0.000	20.000	
SPK-RPD	2-Chlorophenol	95-57-8	86.600	2.218	RPD	07/20/05	0.000	20.000	
SPK-RPD	N-Nitrosodi-n-dipropylamine	621-64-7	88.200	1.715	RPD	07/20/05	0.000	20.000	
SPK-RPD	2-Fluorobiphenyl	321-60-8	86.800	0.462	RPD	07/20/05	0.000	20.000	
SPK-RPD	Phenol	108-95-2	89.000	1.700	RPD	07/20/05	0.000	20.000	
SPK-RPD	Nitrobenzene-d5	4165-60-0	87.500	2.195	RPD	07/20/05	0.000	20.000	
SPK-RPD	4-Nitrophenol	100-02-7	82.000	0.857	RPD	07/20/05	0.000	20.000	
SPK-RPD	Pentachlorophenol	87-86-5	75.200	9.179	RPD	07/20/05	0.000	20.000	
SPK-RPD	Phenol-d5	4165-62-2	90.200	2.583	RPD	07/20/05	0.000	20.000	
SPK-RPD	Pyrene	129-00-0	87.300	3.141	RPD	07/20/05	0.000	20.000	
SPK-RPD	2,4,6-Tribromophenol	118-79-6	89.700	1.460	RPD	07/20/05	0.000	20.000	
SPK-RPD	Terphenyl-d14 (7Cl)	98904-43-9	90.400	1.561	RPD	07/20/05	0.000	20.000	
SURR	2-Fluorophenol	367-12-4	1207.7	88.400	% Recov	07/20/05	42.000	105.000	
SURR	2-Fluorobiphenyl	321-60-8	1105.4	80.900	% Recov	07/20/05	56.000	122.000	
SURR	Nitrobenzene-d5	4165-60-0	1100.6	80.600	% Recov	07/20/05	64.000	111.000	
SURR	Phenol-d5	4165-62-2	1137.1	83.300	% Recov	07/20/05	54.000	120.000	
SURR	2,4,6-Tribromophenol	118-79-6	1033.8	75.700	% Recov	07/20/05	24.000	122.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SURR	Terphenyl-d14 (7Cl)	98904-43-9	1150.0	84.200	% Recov	07/20/05	35.000	150.000	
BATCH QC									
BLANK	1,2-Dichlorobenzene	95-50-1	< 130	n/a	ug/Kg	07/20/05			U
BLANK	1,2,4-Trimethylbenzene	95-63-6	< 150	n/a	ug/Kg	07/20/05			U
BLANK	1,2,4-Trichlorobenzene	120-82-1	< 91	n/a	ug/Kg	07/20/05			U
BLANK	1,3-Dichlorobenzene	541-73-1	< 160	n/a	ug/Kg	07/20/05			U
BLANK	1,4-Dichlorobenzene	106-46-7	< 130	n/a	ug/Kg	07/20/05			U
BLANK	2-Naphthylamine	91-59-8	< 170	n/a	ug/Kg	07/20/05			U
BLANK	2,4-Dichlorophenol	120-83-2	< 45	n/a	ug/Kg	07/20/05			U
BLANK	2,4-Dinitrotoluene	121-14-2	< 54	n/a	ug/Kg	07/20/05			U
BLANK	2,4,5-Trichlorophenol	95-95-4	< 45	n/a	ug/Kg	07/20/05			U
BLANK	2,4,6-Trichlorophenol	88-06-2	< 42	n/a	ug/Kg	07/20/05			U
BLANK	2,4-Dimethylphenol	105-67-9	< 89	n/a	ug/Kg	07/20/05			U
BLANK	2,6-Dinitrotoluene	606-20-2	< 69	n/a	ug/Kg	07/20/05			U
BLANK	2-Butoxyethanol	111-76-2	< 83	n/a	ug/Kg	07/20/05			U
BLANK	2-Chloronaphthalene	91-58-7	< 65	n/a	ug/Kg	07/20/05			U
BLANK	2-Fluorophenol	367-12-4	1076.2	80.700	% Recov	07/20/05	42.000	105.000	
BLANK	2-Methylnaphthalene	91-57-6	< 75	n/a	ug/Kg	07/20/05			U
BLANK	2-Methylphenol (cresol, o-)	95-48-7	< 81	n/a	ug/Kg	07/20/05			U
BLANK	2-Nitroaniline	88-74-4	< 51	n/a	ug/Kg	07/20/05			U
BLANK	2-Nitrophenol	88-75-5	< 91	n/a	ug/Kg	07/20/05			U
BLANK	3 & 4 Methylphenol Total	65794-96-9	< 100	n/a	ug/Kg	07/20/05			U
BLANK	3-Nitroaniline	99-09-2	< 58	n/a	ug/Kg	07/20/05			U
BLANK	4,6-Dinitro-2-methylphenol	534-52-1	< 130	n/a	ug/Kg	07/20/05			U
BLANK	4-Bromophenylphenyl ether	101-55-3	< 51	n/a	ug/Kg	07/20/05			U
BLANK	4-Chlorophenylphenyl ether	7005-72-3	< 51	n/a	ug/Kg	07/20/05			U
BLANK	Acenaphthene	83-32-9	< 69	n/a	ug/Kg	07/20/05			U
BLANK	Acenaphthylene	208-96-8	< 73	n/a	ug/Kg	07/20/05			U
BLANK	Anthracene	120-12-7	< 77	n/a	ug/Kg	07/20/05			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

SAF Number: F05-023
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Bis(2-chloroethyl) ether	111-44-4	< 100	n/a	ug/Kg	07/20/05			U
BLANK	Benzo(a)anthracene	56-55-3	< 63	n/a	ug/Kg	07/20/05			U
BLANK	Benzo(b)fluoranthene	205-99-2	< 74	n/a	ug/Kg	07/20/05			U
BLANK	Benzo(ghi)perylene	191-24-2	< 77	n/a	ug/Kg	07/20/05			U
BLANK	Benzo(a)pyrene	50-32-8	< 61	n/a	ug/Kg	07/20/05			U
BLANK	Bis(2-Chloroethoxy)mathane	111-91-1	< 61	n/a	ug/Kg	07/20/05			U
BLANK	Bis(2-ethylhexyl) phthalate	117-81-7	< 71	n/a	ug/Kg	07/20/05			U
BLANK	Bis(2-chloro-1-methylethyl)eth	108-60-1	< 88	n/a	ug/Kg	07/20/05			U
BLANK	Benzyl alcohol	100-51-6	< 57	n/a	ug/Kg	07/20/05			U
BLANK	Benzo(k)fluoranthene	207-08-9	< 54	n/a	ug/Kg	07/20/05			U
BLANK	Butylbenzylphthalate	85-68-7	< 74	n/a	ug/Kg	07/20/05			U
BLANK	Carbazole	86-74-8	< 78	n/a	ug/Kg	07/20/05			U
BLANK	4-Chloroaniline	106-47-8	< 150	n/a	ug/Kg	07/20/05			U
BLANK	4-Chloro-3-methylphenol	59-50-7	< 47	n/a	ug/Kg	07/20/05			U
BLANK	2-Chlorophenol	95-57-8	< 76	n/a	ug/Kg	07/20/05			U
BLANK	Chrysene	218-01-9	< 71	n/a	ug/Kg	07/20/05			U
BLANK	Cyclohexanone	108-94-1	< 87	n/a	ug/Kg	07/20/05			U
BLANK	3,3'-Dichlorobenzidine	91-94-1	< 200	n/a	ug/Kg	07/20/05			U
BLANK	Decane	124-18-5	< 170	n/a	ug/Kg	07/20/05			U
BLANK	Dibenz[a,h]anthracena	53-70-3	< 93	n/a	ug/Kg	07/20/05			U
BLANK	Dibenzofuran	132-64-9	< 61	n/a	ug/Kg	07/20/05			U
BLANK	Di-n-butylphthalate	84-74-2	< 160	n/a	ug/Kg	07/20/05			U
BLANK	Diethylphthalate	84-66-2	< 130	n/a	ug/Kg	07/20/05			U
BLANK	Dimethyl phthalate	131-11-3	< 64	n/a	ug/Kg	07/20/05			U
BLANK	2,4-Dinitrophenol	51-28-5	< 180	n/a	ug/Kg	07/20/05			U
BLANK	Di-n-octylphthalate	117-84-0	< 85	n/a	ug/Kg	07/20/05			U
BLANK	N-Nitrosodi-n-dipropylamine	621-64-7	< 75	n/a	ug/Kg	07/20/05			U
BLANK	2-Fluorobiphenyl	321-60-8	968.47	72.600	% Recov	07/20/05	56.000	122.000	
BLANK	Fluorene	86-73-7	< 68	n/a	ug/Kg	07/20/05			U
BLANK	Fluoranthene	206-44-0	< 80	n/a	ug/Kg	07/20/05			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

SAF Number: F05-023
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Hexachlorobenzene	118-74-1	< 69	n/a	ug/Kg	07/20/05			U
BLANK	Hexachlorobutadiene	87-68-3	< 83	n/a	ug/Kg	07/20/05			U
BLANK	Hexachlorocyclopentadiene	77-47-4	< 160	n/a	ug/Kg	07/20/05			U
BLANK	Hexachloroethane	67-72-1	< 120	n/a	ug/Kg	07/20/05			U
BLANK	Indeno(1,2,3-cd)pyrene	193-39-5	< 82	n/a	ug/Kg	07/20/05			U
BLANK	Isophorone	78-59-1	< 83	n/a	ug/Kg	07/20/05			U
BLANK	Phenol	108-95-2	< 69	n/a	ug/Kg	07/20/05			U
BLANK	Naphthalene	91-20-3	< 82	n/a	ug/Kg	07/20/05			U
BLANK	Nitrobenzene-d5	4165-60-0	963.11	72.200	% Recov	07/20/05	64.000	111.000	
BLANK	Nitrobenzene	98-95-3	< 83	n/a	ug/Kg	07/20/05			U
BLANK	4-Nitrophenol	100-02-7	< 86	n/a	ug/Kg	07/20/05			U
BLANK	4-Nitroaniline	100-01-6	< 87	n/a	ug/Kg	07/20/05			U
BLANK	N-Nitrosodiphenylamine	86-30-6	< 72	n/a	ug/Kg	07/20/05			U
BLANK	Pentachlorophenol	87-86-5	< 73	n/a	ug/Kg	07/20/05			U
BLANK	Phenanthrene	85-01-8	< 71	n/a	ug/Kg	07/20/05			U
BLANK	Phenol-d5	4165-62-2	1001.9	75.100	% Recov	07/20/05	54.000	120.000	
BLANK	Pyrene	129-00-0	< 78	n/a	ug/Kg	07/20/05			U
BLANK	Pyridine	110-86-1	< 95	n/a	ug/Kg	07/20/05			U
BLANK	Tributyl phosphate	126-73-8	< 71	n/a	ug/Kg	07/20/05			U
BLANK	2,4,6-Tribromophenol	118-79-6	933.97	70.000	% Recov	07/20/05	24.000	122.000	
BLANK	Terphenyl-d14 (7Cl)	98904-43-9	1000.7	75.100	% Recov	07/20/05	35.000	150.000	
LCS	1,2,4-Trichlorobenzene	120-82-1	1137.5	85.300	% Recov	07/20/05	46.000	107.000	
LCS	1,4-Dichlorobenzene	106-46-7	1024.2	76.800	% Recov	07/20/05	42.000	111.000	
LCS	2,4-Dinitrotoluene	121-14-2	1172.7	88.000	% Recov	07/20/05	59.000	106.000	
LCS	2-Fluorophenol	367-12-4	1294.0	97.100	% Recov	07/20/05	50.000	110.000	
LCS	Acenaphthene	83-32-9	1134.9	85.100	% Recov	07/20/05	61.000	116.000	
LCS	4-Chloro-3-methylphenol	59-50-7	1687.1	84.400	% Recov	07/20/05	61.000	106.000	
LCS	2-Chlorophenol	95-57-8	1735.3	86.800	% Recov	07/20/05	66.000	106.000	
LCS	N-Nitrosodi-n-dipropylamine	621-64-7	1171.4	87.900	% Recov	07/20/05	71.000	114.000	
LCS	2-Fluorobiphenyl	321-60-8	1170.9	87.800	% Recov	07/20/05	58.000	109.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

SAF Number: F05-023
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Phenol	108-95-2	1755.5	87.800	% Recov	07/20/05	67.000	105.000	
LCS	Nitrobenzene-d5	4165-60-0	1151.9	86.400	% Recov	07/20/05	60.000	118.000	
LCS	4-Nitrophenol	100-02-7	1516.4	75.800	% Recov	07/20/05	32.000	118.000	
LCS	Pentachlorophenol	87-86-5	1514.5	75.700	% Recov	07/20/05	62.000	114.000	
LCS	Phenol-d5	4165-62-2	1197.8	89.800	% Recov	07/20/05	59.000	116.000	
LCS	Pyrene	129-00-0	1158.7	86.900	% Recov	07/20/05	66.000	118.000	
LCS	2,4,6-Tribromophenol	118-79-6	1165.7	87.400	% Recov	07/20/05	60.000	120.000	
LCS	Terphenyl-d14 (7Cl)	98904-43-9	1224.4	91.800	% Recov	07/20/05	60.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: WTPH-D TPH Diesel Range (Wa)

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

Lab ID: W050002028

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Kerosene	TPHKEROSENE	138550	108.000	% Recov	07/21/05	70.000	130.000	
MS	ortho-Terphenyl Surr	84-15-1	25310	99.100	% Recov	07/21/05	70.000	130.000	
MSD	Kerosene	TPHKEROSENE	115740	90.300	% Recov	07/21/05	70.000	130.000	
MSD	ortho-Terphenyl Surr	84-15-1	22994	89.700	% Recov	07/21/05	70.000	130.000	
SPK-RPD	ortho-Terphenyl Surr	84-15-1	89.700	9.958	RPD	07/21/05	0.000	20.000	
SURR	ortho-Terphenyl Surr	84-15-1	28370	111.000	% Recov	07/21/05	70.000	130.000	

BATCH QC

BLANK	Kerosene	TPHKEROSENE	< 3800	n/a	ug/Kg	07/21/05			U
BLANK	ortho-Terphenyl Surr	84-15-1	25846	103.000	% Recov	07/21/05	70.000	130.000	
BLANK	Total Pet. Hydrocarbons Diesel	TPHDIESEL	< 3800	n/a	ug/Kg	07/21/05			U
LCS	ortho-Terphenyl Surr	84-15-1	26822	107.000	% Recov	07/21/05	70.000	130.000	
LCS	Total Pet. Hydrocarbons Diesel	TPHDIESEL	135180	108.000	% Recov	07/21/05	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

Lab ID: W050002028
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	1126.1	82.800	% Recov	07/20/05	46.000	107.000	
MS	1,4-Dichlorobenzene	106-46-7	982.79	72.200	% Recov	07/20/05	30.000	96.000	
MS	2,4-Dinitrotoluene	121-14-2	1124.5	82.600	% Recov	07/20/05	59.000	106.000	
MS	2-Fluorophenol	367-12-4	1283.8	94.400	% Recov	07/20/05	42.000	105.000	
MS	Acenaphthene	83-32-9	1130.8	83.100	% Recov	07/20/05	61.000	116.000	
MS	4-Chloro-3-methylphenol	59-50-7	1760.9	86.300	% Recov	07/20/05	61.000	106.000	
MS	2-Chlorophenol	95-57-8	1728.2	84.700	% Recov	07/20/05	66.000	106.000	
MS	N-Nitrosodi-n-dipropylamine	621-64-7	1179.4	86.700	% Recov	07/20/05	71.000	114.000	
MS	2-Fluorobiphenyl	321-60-8	1175.7	86.400	% Recov	07/20/05	56.000	122.000	
MS	Phenol	108-95-2	1785.1	87.500	% Recov	07/20/05	42.000	111.000	
MS	Nitrobenzene-d5	4165-60-0	1164.8	85.600	% Recov	07/20/05	64.000	111.000	
MS	4-Nitrophenol	100-02-7	1658.4	81.300	% Recov	07/20/05	32.000	118.000	
MS	Pentachlorophenol	87-86-5	1399.6	68.600	% Recov	07/20/05	62.000	114.000	
MS	Phenol-d5	4165-62-2	1195.9	87.900	% Recov	07/20/05	54.000	120.000	
MS	Pyrene	129-00-0	1150.9	84.600	% Recov	07/20/05	66.000	118.000	
MS	2,4,6-Tribromophenol	118-79-6	1202.2	88.400	% Recov	07/20/05	24.000	122.000	
MS	Terphenyl-d14 (7Cl)	98904-43-9	1210.6	89.000	% Recov	07/20/05	35.000	150.000	
MSD	1,2,4-Trichlorobenzene	120-82-1	1150.4	84.500	% Recov	07/20/05	46.000	107.000	
MSD	1,4-Dichlorobenzene	106-46-7	1024.8	75.300	% Recov	07/20/05	30.000	96.000	
MSD	2,4-Dinitrotoluene	121-14-2	1145.0	84.100	% Recov	07/20/05	59.000	106.000	
MSD	2-Fluorophenol	367-12-4	1349.5	99.100	% Recov	07/20/05	42.000	105.000	
MSD	Acenaphthene	83-32-9	1151.5	84.600	% Recov	07/20/05	61.000	116.000	
MSD	4-Chloro-3-methylphenol	59-50-7	1775.5	86.900	% Recov	07/20/05	61.000	106.000	
MSD	2-Chlorophenol	95-57-8	1769.2	86.600	% Recov	07/20/05	66.000	106.000	
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	1201.4	88.200	% Recov	07/20/05	71.000	114.000	
MSD	2-Fluorobiphenyl	321-60-8	1182.3	86.800	% Recov	07/20/05	56.000	122.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	Phenol	108-95-2	1817.9	89.000	% Recov	07/20/05	42.000	111.000	
MSD	Nitrobenzene-d5	4165-60-0	1192.2	87.500	% Recov	07/20/05	64.000	111.000	
MSD	4-Nitrophenol	100-02-7	1675.7	82.000	% Recov	07/20/05	32.000	118.000	
MSD	Pentachlorophenol	87-86-5	1535.4	75.200	% Recov	07/20/05	62.000	114.000	
MSD	Phenol-d5	4165-62-2	1228.0	90.200	% Recov	07/20/05	54.000	120.000	
MSD	Pyrene	129-00-0	1189.1	87.300	% Recov	07/20/05	66.000	118.000	
MSD	2,4,6-Tribromophenol	118-79-6	1220.9	89.700	% Recov	07/20/05	24.000	122.000	
MSD	Terphenyl-d14 (7Cl)	98904-43-9	1230.4	90.400	% Recov	07/20/05	35.000	150.000	
SPK-RPD	1,2,4-Trichlorobenzene	120-82-1	84.500	2.032	RPD	07/20/05	0.000	20.000	
SPK-RPD	1,4-Dichlorobenzene	106-46-7	75.300	4.203	RPD	07/20/05	0.000	20.000	
SPK-RPD	2,4-Dinitrotoluene	121-14-2	84.100	1.800	RPD	07/20/05	0.000	20.000	
SPK-RPD	2-Fluorophenol	367-12-4	99.100	4.858	RPD	07/20/05	0.000	20.000	
SPK-RPD	Acenaphthene	83-32-9	84.600	1.789	RPD	07/20/05	0.000	20.000	
SPK-RPD	4-Chloro-3-methylphenol	59-50-7	86.900	0.693	RPD	07/20/05	0.000	20.000	
SPK-RPD	2-Chlorophenol	95-57-8	86.600	2.218	RPD	07/20/05	0.000	20.000	
SPK-RPD	N-Nitrosodi-n-dipropylamine	621-64-7	88.200	1.715	RPD	07/20/05	0.000	20.000	
SPK-RPD	2-Fluorobiphenyl	321-60-8	86.800	0.462	RPD	07/20/05	0.000	20.000	
SPK-RPD	Phenol	108-95-2	89.000	1.700	RPD	07/20/05	0.000	20.000	
SPK-RPD	Nitrobenzene-d5	4165-60-0	87.500	2.195	RPD	07/20/05	0.000	20.000	
SPK-RPD	4-Nitrophenol	100-02-7	82.000	0.857	RPD	07/20/05	0.000	20.000	
SPK-RPD	Pentachlorophenol	87-86-5	75.200	9.179	RPD	07/20/05	0.000	20.000	
SPK-RPD	Phenol-d5	4165-62-2	90.200	2.583	RPD	07/20/05	0.000	20.000	
SPK-RPD	Pyrene	129-00-0	87.300	3.141	RPD	07/20/05	0.000	20.000	
SPK-RPD	2,4,6-Tribromophenol	118-79-6	89.700	1.460	RPD	07/20/05	0.000	20.000	
SPK-RPD	Terphenyl-d14 (7Cl)	98904-43-9	90.400	1.561	RPD	07/20/05	0.000	20.000	

Lab ID: W050002036
BATCH QC ASSOCIATED WITH SAMPLE

SURR	2-Fluorophenol	367-12-4	1341.8	94.100	% Recov	07/20/05	42.000	105.000
SURR	2-Fluorobiphenyl	321-60-8	1214.2	85.100	% Recov	07/20/05	56.000	122.000

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

SAF Number: F05-023
Sample Date: 06/30/05
Receive Date:06/30/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SURR	Nitrobenzene-d5	4165-60-0	1210.0	84.900	% Recov	07/20/05	64.000	111.000	
SURR	Phenol-d5	4165-62-2	1254.5	88.000	% Recov	07/20/05	54.000	120.000	
SURR	2,4,6-Tribromophenol	118-79-6	1203.0	84.400	% Recov	07/20/05	24.000	122.000	
SURR	Terphenyl-d14 (7Cl)	98904-43-9	1271.5	89.200	% Recov	07/20/05	35.000	150.000	
BATCH QC									
BLANK	1,2-Dichlorobenzene	95-50-1	< 130	n/a	ug/Kg	07/20/05			U
BLANK	1,2,4-Trimethylbenzene	95-63-6	< 150	n/a	ug/Kg	07/20/05			U
BLANK	1,2,4-Trichlorobenzene	120-82-1	< 91	n/a	ug/Kg	07/20/05			U
BLANK	1,3-Dichlorobenzene	541-73-1	< 160	n/a	ug/Kg	07/20/05			U
BLANK	1,4-Dichlorobenzene	106-46-7	< 130	n/a	ug/Kg	07/20/05			U
BLANK	2-Naphthylamine	91-59-8	< 170	n/a	ug/Kg	07/20/05			U
BLANK	2,4-Dichlorophenol	120-83-2	< 45	n/a	ug/Kg	07/20/05			U
BLANK	2,4-Dinitrotoluene	121-14-2	< 54	n/a	ug/Kg	07/20/05			U
BLANK	2,4,5-Trichlorophenol	95-95-4	< 45	n/a	ug/Kg	07/20/05			U
BLANK	2,4,6-Trichlorophenol	88-06-2	< 42	n/a	ug/Kg	07/20/05			U
BLANK	2,4-Dimethylphenol	105-67-9	< 89	n/a	ug/Kg	07/20/05			U
BLANK	2,6-Dinitrotoluene	606-20-2	< 69	n/a	ug/Kg	07/20/05			U
BLANK	2-Butoxyethanol	111-76-2	< 83	n/a	ug/Kg	07/20/05			U
BLANK	2-Chloronaphthalene	91-58-7	< 65	n/a	ug/Kg	07/20/05			U
BLANK	2-Fluorophenol	367-12-4	1076.2	80.700	% Recov	07/20/05	42.000	105.000	
BLANK	2-Methylnaphthalene	91-57-6	< 75	n/a	ug/Kg	07/20/05			U
BLANK	2-Methylphenol (cresol, o-)	95-48-7	< 81	n/a	ug/Kg	07/20/05			U
BLANK	2-Nitroaniline	88-74-4	< 51	n/a	ug/Kg	07/20/05			U
BLANK	2-Nitrophenol	88-75-5	< 91	n/a	ug/Kg	07/20/05			U
BLANK	3 & 4 Methylphenol Total	65794-96-9	< 100	n/a	ug/Kg	07/20/05			U
BLANK	3-Nitroaniline	99-09-2	< 58	n/a	ug/Kg	07/20/05			U
BLANK	4,6-Dinitro-2-methylphenol	534-52-1	< 130	n/a	ug/Kg	07/20/05			U
BLANK	4-Bromophenylphenyl ether	101-55-3	< 51	n/a	ug/Kg	07/20/05			U
BLANK	4-Chlorophenylphenyl ether	7005-72-3	< 51	n/a	ug/Kg	07/20/05			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

SAF Number: F05-023
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Fonnd	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Acenaphthene	83-32-9	< 69	n/a	ug/Kg	07/20/05			U
BLANK	Acenaphthylene	208-96-8	< 73	n/a	ug/Kg	07/20/05			U
BLANK	Anthracene	120-12-7	< 77	n/a	ug/Kg	07/20/05			U
BLANK	Bis(2-chloroethyl) ether	111-44-4	< 100	n/a	ug/Kg	07/20/05			U
BLANK	Benzo(a)anthracene	56-55-3	< 63	n/a	ug/Kg	07/20/05			U
BLANK	Benzo(b)fluoranthene	205-99-2	< 74	n/a	ug/Kg	07/20/05			U
BLANK	Benzo(ghi)perylene	191-24-2	< 77	n/a	ug/Kg	07/20/05			U
BLANK	Benzo(a)pyrene	50-32-8	< 61	n/a	ug/Kg	07/20/05			U
BLANK	Bis(2-Chloroethoxy)methane	111-91-1	< 61	n/a	ug/Kg	07/20/05			U
BLANK	Bis(2-ethylhexyl) phthalate	117-81-7	< 71	n/a	ug/Kg	07/20/05			U
BLANK	Bis(2-chloro-1-methylethyl)eth	108-60-1	< 88	n/a	ug/Kg	07/20/05			U
BLANK	Benzyl alcohol	100-51-6	< 57	n/a	ug/Kg	07/20/05			U
BLANK	Benzo(k)fluoranthene	207-08-9	< 54	n/a	ug/Kg	07/20/05			U
BLANK	Butylbenzylphthalate	85-68-7	< 74	n/a	ug/Kg	07/20/05			U
BLANK	Carbazole	86-74-8	< 78	n/a	ug/Kg	07/20/05			U
BLANK	4-Chloroaniline	106-47-8	< 150	n/a	ug/Kg	07/20/05			U
BLANK	4-Chloro-3-methylphenol	59-50-7	< 47	n/a	ug/Kg	07/20/05			U
BLANK	2-Chlorophenol	95-57-8	< 76	n/a	ug/Kg	07/20/05			U
BLANK	Chrysene	218-01-9	< 71	n/a	ug/Kg	07/20/05			U
BLANK	Cyclohexanone	108-94-1	< 87	n/a	ug/Kg	07/20/05			U
BLANK	3,3'-Dichlorobenzidine	91-94-1	< 200	n/a	ug/Kg	07/20/05			U
BLANK	Decane	124-18-5	< 170	n/a	ug/Kg	07/20/05			U
BLANK	Dibenz[a,h]anthracene	53-70-3	< 93	n/a	ug/Kg	07/20/05			U
BLANK	Dibenzofuran	132-64-9	< 61	n/a	ug/Kg	07/20/05			U
BLANK	Di-n-butylphthalate	84-74-2	< 160	n/a	ug/Kg	07/20/05			U
BLANK	Diethylphthalate	84-66-2	< 130	n/a	ug/Kg	07/20/05			U
BLANK	Dimethyl phthalate	131-11-3	< 64	n/a	ug/Kg	07/20/05			U
BLANK	2,4-Dinitrophenol	51-28-5	< 180	n/a	ug/Kg	07/20/05			U
BLANK	Di-n-octylphthalate	117-84-0	< 85	n/a	ug/Kg	07/20/05			U
BLANK	N-Nitrosodi-n-dipropylamine	621-64-7	< 75	n/a	ug/Kg	07/20/05			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

SAF Number: F05-023
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	2-Fluorobiphenyl	321-60-8	968.47	72.600	% Recov	07/20/05	56.000	122.000	
BLANK	Fluorene	86-73-7	< 68	n/a	ug/Kg	07/20/05			U
BLANK	Fluoranthene	206-44-0	< 80	n/a	ug/Kg	07/20/05			U
BLANK	Hexachlorobenzene	118-74-1	< 69	n/a	ug/Kg	07/20/05			U
BLANK	Hexachlorobutadiene	87-68-3	< 83	n/a	ug/Kg	07/20/05			U
BLANK	Hexachlorocyclopentadiene	77-47-4	< 160	n/a	ug/Kg	07/20/05			U
BLANK	Hexachloroethane	67-72-1	< 120	n/a	ug/Kg	07/20/05			U
BLANK	Indeno(1,2,3-cd)pyrene	193-39-5	< 82	n/a	ug/Kg	07/20/05			U
BLANK	Isophorone	78-59-1	< 83	n/a	ug/Kg	07/20/05			U
BLANK	Phenol	108-95-2	< 69	n/a	ug/Kg	07/20/05			U
BLANK	Naphthalene	91-20-3	< 82	n/a	ug/Kg	07/20/05			U
BLANK	Nitrobenzene-d5	4165-60-0	963.11	72.200	% Recov	07/20/05	64.000	111.000	
BLANK	Nitrobenzene	98-95-3	< 83	n/a	ug/Kg	07/20/05			U
BLANK	4-Nitrophenol	100-02-7	< 86	n/a	ug/Kg	07/20/05			U
BLANK	4-Nitroaniline	100-01-6	< 87	n/a	ug/Kg	07/20/05			U
BLANK	N-Nitrosodiphenylamine	86-30-6	< 72	n/a	ug/Kg	07/20/05			U
BLANK	Pentachlorophenol	87-86-5	< 73	n/a	ug/Kg	07/20/05			U
BLANK	Phenanthrene	85-01-8	< 71	n/a	ug/Kg	07/20/05			U
BLANK	Phenol-d5	4165-62-2	1001.9	75.100	% Recov	07/20/05	54.000	120.000	
BLANK	Pyrene	129-00-0	< 78	n/a	ug/Kg	07/20/05			U
BLANK	Pyridine	110-86-1	< 95	n/a	ug/Kg	07/20/05			U
BLANK	Tributyl phosphate	126-73-8	< 71	n/a	ug/Kg	07/20/05			U
BLANK	2,4,6-Tribromophenol	118-79-6	933.97	70.000	% Recov	07/20/05	24.000	122.000	
BLANK	Terphenyl-d14 (7Cl)	98904-43-9	1000.7	75.100	% Recov	07/20/05	35.000	150.000	
LCS	1,2,4-Trichlorobenzene	120-82-1	1137.5	85.300	% Recov	07/20/05	46.000	107.000	
LCS	1,4-Dichlorobenzene	106-46-7	1024.2	76.800	% Recov	07/20/05	42.000	111.000	
LCS	2,4-Dinitrotoluene	121-14-2	1172.7	88.000	% Recov	07/20/05	59.000	106.000	
LCS	2-Fluorophenol	367-12-4	1294.0	97.100	% Recov	07/20/05	50.000	110.000	
LCS	Acenaphthene	83-32-9	1134.9	85.100	% Recov	07/20/05	61.000	116.000	
LCS	4-Chloro-3-methylphenol	59-50-7	1687.1	84.400	% Recov	07/20/05	61.000	106.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: SW-846 8270C Semi-Vols

SAF Number: F05-023
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	2-Chlorophenol	95-57-8	1735.3	86.800	% Recov	07/20/05	66.000	106.000	
LCS	N-Nitrosodi-n-dipropylamine	621-64-7	1171.4	87.900	% Recov	07/20/05	71.000	114.000	
LCS	2-Fluorobiphenyl	321-60-8	1170.9	87.800	% Recov	07/20/05	58.000	109.000	
LCS	Phenol	108-95-2	1755.5	87.800	% Recov	07/20/05	67.000	105.000	
LCS	Nitrobenzene-d5	4165-60-0	1151.9	86.400	% Recov	07/20/05	60.000	118.000	
LCS	4-Nitrophenol	100-02-7	1516.4	75.800	% Recov	07/20/05	32.000	118.000	
LCS	Pentachlorophenol	87-86-5	1514.5	75.700	% Recov	07/20/05	62.000	114.000	
LCS	Phenol-d5	4165-62-2	1197.8	89.800	% Recov	07/20/05	59.000	116.000	
LCS	Pyrene	129-00-0	1158.7	86.900	% Recov	07/20/05	66.000	118.000	
LCS	2,4,6-Tribromophenol	118-79-6	1165.7	87.400	% Recov	07/20/05	60.000	120.000	
LCS	Terphenyl-d14 (7Cl)	98904-43-9	1224.4	91.800	% Recov	07/20/05	60.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: WTPH-D TPH Diesel Range (Wa)

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

QC Type	Analyte		CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050002028										
BATCH QC ASSOCIATED WITH SAMPLE										
MS	Kerosene		TPHKEROSENE	138550	108.000	% Recov	07/21/05	70.000	130.000	
MS	ortho-Terphenyl	Surr	84-15-1	25310	99.100	% Recov	07/21/05	70.000	130.000	
MSD	Kerosene		TPHKEROSENE	115740	90.300	% Recov	07/21/05	70.000	130.000	
MSD	ortho-Terphenyl	Surr	84-15-1	22994	89.700	% Recov	07/21/05	70.000	130.000	
SPK-RPD	ortho-Terphenyl	Surr	84-15-1	89.700	9.958	RPD	07/21/05	0.000	20.000	
Lab ID: W050002036										
BATCH QC ASSOCIATED WITH SAMPLE										
SURR	ortho-Terphenyl	Surr	84-15-1	28120	105.000	% Recov	07/21/05	70.000	130.000	
BATCH QC										
BLANK	Kerosene		TPHKEROSENE	< 3800	n/a	ug/Kg	07/21/05			U
BLANK	ortho-Terphenyl	Surr	84-15-1	25846	103.000	% Recov	07/21/05	70.000	130.000	
BLANK	Total Pet. Hydrocarbons Diesel		TPHDIESEL	< 3800	n/a	ug/Kg	07/21/05			U
LCS	ortho-Terphenyl	Surr	84-15-1	26822	107.000	% Recov	07/21/05	70.000	130.000	
LCS	Total Pet. Hydrocarbons Diesel		TPHDIESEL	135180	108.000	% Recov	07/21/05	80.000	120.000	

Date: 12 March 2010
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: CPP 200 Area, D&D-200 Area
Subject: PCBs - Sample Data Group (SDGs) WSCF20041457, WSCF20041594, WSCF20051337 and WSCF20051350

INTRODUCTION

This memorandum presents the results of data validation for SDGs WSCF20041457, WSCF20041594, WSCF20051337 and WSCF20051350 prepared by WSCF. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Method
B17N67	8/23/2004	Soil	C	8082
B17NL5	9/09/2004	Soil	C	8082
B1D994	6/29/2005	Soil	C	8082
B1D995	6/30/2005	Soil	C	8082

Data validation was conducted in accordance with the CHPRC validation statement of work and the Sampling and Analysis Plan for Investigation of Dense, Nonaqueous-Phase Liquid Carbon Tetrachloride at the 216-Z-9 Trench, DOE/RL-2001-01, Rev. 0, Appendix E (SAP). 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. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested By Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The holding time requirements for PCBs are extraction within 14 days of sample collection and analysis within 40 days of sample extraction. Sample preservation requires chilling to 4 degrees Celsius.

The samples were extracted and analyzed within the prescribed holding times and properly preserved.

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable.

Trip Blanks

No trip blanks were submitted for analysis.

Field Blanks

No field blanks were submitted for analysis.

Equipment Blanks

No equipment blanks were submitted for analysis.

- **Accuracy**

Accuracy is evaluated by reviewing surrogate results, matrix spike sample results, and laboratory control sample results. According to the SAP, the laboratory control sample accuracy limits are 70% to 130% at a minimum, and the ones established by the analytical laboratory if more stringent. The matrix spike sample accuracy limits are the ones established by the analytical laboratory. The limits for reported analytes not listed in the SAP are specified by the DV procedure.

Surrogates

All surrogate recoveries were acceptable.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples

All MS/MSD recoveries were acceptable.

It should be noted for SDG WSCF20041457 that aroclor-1254 was the only analyte reported for the MS/MSD. For SDGs WSCF20041594, WSCF20051337 and WSCF20051350, aroclor-1260 was the only analyte reported for the MS/MSD. Method 8082 guidance specifies aroclor-1016 and aroclor-1260 for MS/MSD analyses. No sample data are qualified as a result.

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable.

It should be noted for SDG WSCF20041457 that aroclor-1254 was the only analyte reported for the LCS. For SDGs WSCF20041594, WSCF20051337 and WSCF20051350, aroclor-1260 was the only analyte reported for the LCS. Method 8082 guidance specifies aroclor-1016 and aroclor-1260 for LCS analyses. No sample data are qualified as a result.

- **Precision**

Precision is evaluated by reviewing MS/MSD results, field duplicate sample results, and field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. According to the SAP, the relative percent difference (RPD) limits are ±30%. The RPD limits for reported analytes not listed in the SAP are specified by the DV procedure. When duplicate RPDs exceed the limits and have associated results <5X the required detection limits with differences <2X the required detection limits no precision infraction occurred.

MS/MSD Samples

All MS/MSD RPD values were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

Field Split Samples

No field splits were submitted for analysis.

- **Detection Limits**

Reported MDLs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDLs were below the CRDLs with the following exception.

For SDG WSCF20041594, the aroclor-1221 MDL was > the CRDL.

- **Completeness**

SDGs WSCF20041457, WSCF20041594, WSCF20051337 and WSCF20051350 were 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

HNF-20433, Rev. 0, *Data Validation Procedure for Chemical Analyses*, June 2004.

DOE/RL-2001-01, Rev. 0, Appendix E, *Sampling and Analysis Plan for Investigation of Dense, Nonaqueous-Phase Liquid Carbon Tetrachloride at the 216-Z-9 Trench*.

Appendix 1

Glossary of Data Reporting Qualifiers

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

- **U** ─ The constituent was analyzed for and was not detected. The data should be considered usable for decision-making purposes.

- **UJ** ─ The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the MDL. The data should be considered usable for decision-making purposes.

- **J** ─ Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **UR** ─ Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** ─ Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

PCB Data Qualification Summary			
SDG: See comments	Reviewer: AQA	Project: CPP 200 Area, D&D-200 Area	Page 1 of 1
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
PCBs	None	N/A	N/A

Comments: SDGs WSCF20041457, WSCF20041594, WSCF20051337 & WSCF20051350

Appendix 3

Annotated Laboratory Reports

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041457

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Organic														
W040001533	B17N67	TRENT	12674-11-2	Aroclor-1016	SOIL	LA-523-427	U	< 49.0	ug/kg	1.00	49	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	< 98.0	ug/kg	1.00	98	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	< 49.0	ug/kg	1.00	49	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	< 49.0	ug/kg	1.00	49	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	< 49.0	ug/kg	1.00	49	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	11097-69-1	Aroclor-1254	SOIL	LA-523-427	U	< 49.0	ug/kg	1.00	49	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	< 49.0	ug/kg	1.00	49	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	< 49.0	ug/kg	1.00	49	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	11100-14-4	Aroclor-1268	SOIL	LA-523-427	U	< 49.0	ug/kg	1.00	49	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	100-02-7	4-Nitrophenol	SOIL	LA-523-456	U	< 660	ug/kg	1.00	6.6e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	< 320	ug/kg	1.00	3.2e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	108-95-2	Phenol	SOIL	LA-523-456	U	< 100	ug/kg	1.00	1.0e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	< 300	ug/kg	1.00	3.0e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	129-00-0	Pyrene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	83-32-9	Acenaphthene	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	87-86-5	Pentachlorophenol	SOIL	LA-523-456	JU	< 310	ug/kg	1.00	3.1e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	< 150	ug/kg	1.00	1.5e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	100-01-6	4-Nitroaniline	SOIL	LA-523-456	U	< 250	ug/kg	1.00	2.5e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	101-55-3	4-Bromophenylphenyl ether	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	105-67-9	2,4-Dimethylphenol	SOIL	LA-523-456	U	< 68.0	ug/kg	1.00	68	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	106-47-8	4-Chloroaniline	SOIL	LA-523-456	U	< 96.0	ug/kg	1.00	96	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	108-60-1	Bis(2-chloro-1-methylethyl)eth	SOIL	LA-523-456	U	< 260	ug/kg	1.00	2.6e+02	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	111-44-4	Bis(2-chloroethyl) ether	SOIL	LA-523-456	U	< 250	ug/kg	1.00	2.5e+02	09/08/04	08/23/04	08/23/04

LS 3-12-2010

MDL = Minimum Detection Limit
RQ = Result Qualifier
DF = Dilution Factor

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
X - Other flags and notes described in the comments/narrative.
E - Analyte is an estimate, has potentially larger errors
U - Analyzed for but not detected above limiting criteria.

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

2-2

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
~~W040001610~~	~~B17N72~~	~~TRENT~~	~~TPHKEROSENE~~	~~Kerosene~~	~~SOIL~~	~~NWTPH~~	~~U~~	~~< 4.00e+03~~	~~ug/kg~~	~~1.00~~	~~4.0e+03~~	~~09/21/04~~	~~09/09/04~~	~~09/09/04~~
W040001612	B17NL5	TRENT	12674-11-2	Aroclor-1016	SOIL	LA-523-427	U	< 56.0	ug/kg	1.00	56	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	< 110	ug/kg	1.00	1.1e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	< 56.0	ug/kg	1.00	56	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	< 56.0	ug/kg	1.00	56	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	< 56.0	ug/kg	1.00	56	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	11097-69-1	Aroclor-1254	SOIL	LA-523-427	U	< 56.0	ug/kg	1.00	56	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	< 56.0	ug/kg	1.00	56	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	< 56.0	ug/kg	1.00	56	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	11100-14-4	Aroclor-1268	SOIL	LA-523-427	U	< 56.0	ug/kg	1.00	56	09/22/04	09/09/04	09/09/04
~~W040001612~~	~~B17NL5~~	~~TRENT~~	~~100-02-7~~	~~4-Nitrophenol~~	~~SOIL~~	~~LA-523-456~~	~~U~~	~~< 730~~	~~ug/kg~~	~~1.00~~	~~7.3e+02~~	~~09/22/04~~	~~09/09/04~~	~~09/09/04~~
W040001612	B17NL5	TRENT	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	< 350	ug/kg	1.00	3.5e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	108-95-2	Phenol	SOIL	LA-523-456	U	< 110	ug/kg	1.00	1.1e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	< 330	ug/kg	1.00	3.3e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	129-00-0	Pyrene	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	83-32-9	Acenaphthene	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	87-86-5	Pentachlorophenol	SOIL	LA-523-456	U	< 340	ug/kg	1.00	3.4e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	< 170	ug/kg	1.00	1.7e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	100-01-6	4-Nitroaniline	SOIL	LA-523-456	U	< 280	ug/kg	1.00	2.8e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	101-55-3	4-Bromophenylphenyl ether	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	105-67-9	2,4-Dimethylphenol	SOIL	LA-523-456	U	< 75.0	ug/kg	1.00	75	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	106-47-8	4-Chloroaniline	SOIL	LA-523-456	U	< 110	ug/kg	1.00	1.1e+02	09/22/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	108-60-1	Bis(2-chloro-1-methylethyl)eth	SOIL	LA-523-456	U	< 290	ug/kg	1.00	2.9e+02	09/22/04	09/09/04	09/09/04
~~W040001612~~	~~B17NL5~~	~~TRENT~~	~~111-44-4~~	~~Bis(2-chloroethyl) ether~~	~~SOIL~~	~~LA-523-456~~	~~U~~	~~< 280~~	~~ug/kg~~	~~1.00~~	~~2.8e+02~~	~~09/22/04~~	~~09/09/04~~	~~09/09/04~~

LS 3-12-2010

MDL = Minimum Detection Limit
RQ = Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
E - Analyte is an estimate, has potentially larger errors
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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051337

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Organic														
W050002028	B1D994	TRENT	12674-11-2	Aroclor-1016	SOIL	LA-523-427	U	< 10.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	< 20.0	ug/kg	1.00	20	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	< 10.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	< 10.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	< 10.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	11097-69-1	Aroclor-1254	SOIL	LA-523-427		39.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	< 10.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	< 10.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	11100-14-4	Aroclor-1268	SOIL	LA-523-427	U	< 10.0	ug/kg	1.00	10	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	100-02-7	4-Nitrophenol	SOIL	LA-523-456	U	< 88.0	ug/kg	1.00	88	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	< 140	ug/kg	1.00	1.4e+02	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	108-95-2	Phenol	SOIL	LA-523-456	U	< 70.0	ug/kg	1.00	70	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	< 94.0	ug/kg	1.00	94	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	< 55.0	ug/kg	1.00	55	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	129-00-0	Pyrene	SOIL	LA-523-456	U	< 80.0	ug/kg	1.00	80	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	< 48.0	ug/kg	1.00	48	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	< 76.0	ug/kg	1.00	76	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	83-32-9	Acenaphthene	SOIL	LA-523-456	U	< 70.0	ug/kg	1.00	70	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	87-86-5	Pentachlorophenol	SOIL	LA-523-456	U	< 74.0	ug/kg	1.00	74	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	< 78.0	ug/kg	1.00	78	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	100-01-6	4-Nitroaniline	SOIL	LA-523-456	U	< 89.0	ug/kg	1.00	89	07/20/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	101-55-3	4-Bromophenylphenyl ether	SOIL	LA-523-456	U	< 53.0	ug/kg	1.00	53	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	105-67-9	2,4-Dimethylphenol	SOIL	LA-523-456	U	< 91.0	ug/kg	1.00	91	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	106-47-8	4-Chloroaniline	SOIL	LA-523-456	U	< 150	ug/kg	1.00	1.5e+02	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	108-60-1	Bis(2-chloro-1-methylethyl)eth	SOIL	LA-523-456	U	< 90.0	ug/kg	1.00	90	07/20/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	111-44-4	Bis(2-chloroethyl) ether	SOIL	LA-523-456	U	< 100	ug/kg	1.00	1.0e+02	07/20/05	06/29/05	06/29/05

LS 3-12-2010

MDL = Minimum Detection Limit
RQ = Result Qualifier

8 - 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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051350

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Organic														
W050002036	B1D995	TRENT	12674-11-2	Aroclor-1016	SOIL	LA-523-427	U	< 11.0	ug/kg	1.00	11	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	11104-28-2	Aroclor-1221	SOIL	LA-523-427	U	< 21.0	ug/kg	1.00	21	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	11141-16-5	Aroclor-1232	SOIL	LA-523-427	U	< 11.0	ug/kg	1.00	11	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	53469-21-9	Aroclor-1242	SOIL	LA-523-427	U	< 11.0	ug/kg	1.00	11	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	12672-29-6	Aroclor-1248	SOIL	LA-523-427	U	< 11.0	ug/kg	1.00	11	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	11097-69-1	Aroclor-1254	SOIL	LA-523-427	U	< 11.0	ug/kg	1.00	11	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	11096-82-5	Aroclor-1260	SOIL	LA-523-427	U	< 11.0	ug/kg	1.00	11	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	37324-23-5	Aroclor-1262	SOIL	LA-523-427	U	< 11.0	ug/kg	1.00	11	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	11100-14-4	Aroclor-1268	SOIL	LA-523-427	U	< 11.0	ug/kg	1.00	11	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	100-02-7	4-Nitrophenol	SOIL	LA-523-456	U	< 32.0	ug/kg	1.00	32	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	106-46-7	1,4-Dichlorobenzene	SOIL	LA-523-456	U	< 140	ug/kg	1.00	1.4e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	108-95-2	Phenol	SOIL	LA-523-456	U	< 73.0	ug/kg	1.00	73	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	120-82-1	1,2,4-Trichlorobenzene	SOIL	LA-523-456	U	< 98.0	ug/kg	1.00	98	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	121-14-2	2,4-Dinitrotoluene	SOIL	LA-523-456	U	< 58.0	ug/kg	1.00	58	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	129-00-0	Pyrene	SOIL	LA-523-456	U	< 83.0	ug/kg	1.00	83	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	59-50-7	4-Chloro-3-methylphenol	SOIL	LA-523-456	U	< 50.0	ug/kg	1.00	50	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	621-64-7	N-Nitrosodi-n-dipropylamine	SOIL	LA-523-456	U	< 80.0	ug/kg	1.00	80	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	83-32-9	Acenaphthene	SOIL	LA-523-456	U	< 73.0	ug/kg	1.00	73	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	87-86-5	Pentachlorophenol	SOIL	LA-523-456	U	< 78.0	ug/kg	1.00	78	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	95-57-8	2-Chlorophenol	SOIL	LA-523-456	U	< 81.0	ug/kg	1.00	81	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	100-01-6	4-Nitroaniline	SOIL	LA-523-456	U	< 93.0	ug/kg	1.00	93	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	101-55-3	4-Bromophenylphenyl ether	SOIL	LA-523-456	U	< 55.0	ug/kg	1.00	55	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	105-67-9	2,4-Dimethylphenol	SOIL	LA-523-456	U	< 96.0	ug/kg	1.00	96	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	106-47-8	4-Chloroaniline	SOIL	LA-523-456	U	< 160	ug/kg	1.00	1.6e+02	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	108-60-1	Bis(2-chloro-1-methylethyl)eth	SOIL	LA-523-456	U	< 94.0	ug/kg	1.00	94	07/20/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	111-44-4	Bis(2-chloroethyl) ether	SOIL	LA-523-456	U	< 110	ug/kg	1.00	1.1e+02	07/20/05	06/30/05	06/30/05

LS 3-12-2010

MDL=Minimum Detection Limit 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

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041457**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-Z-9/C3426 – Interval 174'-176-5' Trench Characterization Borehole - Soil (B17N67) was received at the WSCF Laboratory on August 23, 2004. The sample was 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- ICP-AES Metals by EPA Method 6010. Analytical work was performed with no deviations to the approved method.
- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- PCB by EPA Method 8080. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. 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.

- Ammonia by EPA Method 300.7. 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.

- Percent Solids by Method 160.3. Analytical work was performed with no deviations to the approved method.

- All RadChem analyses (AEA (Plutonium, Americium, Uranium and Neptunium), GEA, and Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Comments

ICP-MS Metals (Mercury and Uranium only) – 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 GRP Letter of Instruction. See pages 2-18 through 2-19 for QC details. All QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See page(s) 2-17 through 2-20 for QC details. Analytical Notes:

- Sodium – Matrix spike and spike duplicates exceeded the established laboratory limits. Sample result was E (estimate) flagged.

- Aluminum, Iron, Calcium and Magnesium – the spike concentration was insufficient for the sample concentration.

- Aluminum – laboratory control sample exceeds the established laboratory limits, but is within manufacturer's limits. Sample result was not flagged.

All other QC controls are within the established limits.

Anions - 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 GRP Letter of Instruction. See pages 2-20 through 2-21 for QC details. Analytical Notes:

- Chloride - Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

- Sulfate – Duplicate Relative Percent Difference exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

PCB – 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 GRP Letter of Instruction. See pages 2-29 through 2-30 for QC details. Analytical Notes:

- Sample results are moisture corrected and reported on a dry weight basis.
- Decachlorobiphenyl surrogate spike Relative Percent Difference slightly exceeded established limits. Matrix Spike and Matrix Spike Duplicate recoveries were within limit; sample results were not flagged.

All other QC controls are within the established limits

Semi-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 GRP Letter of Instruction. See pages 2-32 through 2-38 for QC details. Analytical Notes:

- Sample results are moisture corrected and reported on a dry weight basis.
- Pentachlorophenol – laboratory control sample recovery was below established laboratory limits. Matrix spike duplicate recoveries are below established limits. Sample result was J (estimate) flagged.
- N-Nitrosodi-n-dipropylamine – The matrix spike duplicate exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.
- Di-n-butylphthalate – Sample result J flagged; the target compound indicates that it was found at a concentration below that of the lowest calibration standard but above the detection limit.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 2-28 for QC details. Analytical Note:

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

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 GRP Letter of Instruction. See pages 2-25 through 2-27 for QC details. Analytical Note:

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

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 the GRP Letter of Instruction. See page 2-22 for QC details. Analytical Note:

- The matrix spike recovery is below established limits. The laboratory control sample is within established limits. The sample result is not flagged.

All QC controls are within the established limits.

Ammonia - 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 GRP Letter of Instruction. See pages 2-31 for QC details. Analytical Notes:

- Matrix spike and matrix spike duplicate were analyzed on sample delivery group 20041487, sample B17N70 for this batch.

- Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

All other QC controls are within the established limits.

pH - All laboratory QC controls were within the established limits.

Percent Solid – Analyzed for organic moisture correction only.

RadChem – There are no hold times associated with these WDOE accredited methods. A Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 2-23, 2-24 and 2-45 through 48 for QC details. Analytical Notes:

- Gross Alpha and Gross Beta – The duplicate Relative Percent Differences exceeded the established limits; sample results were not flagged since the sample had low activity and the RPD criteria does not apply.

- Neptunium-237 – the laboratory control sample recovery was below the established laboratory limits. Duplicate relative percent difference exceeded established laboratory limits. Sample result is X (estimated) flagged.

- Americium-241 – duplicate relative percent difference exceeded established laboratory limits; sample result was not flagged since the sample had low activity and the RPD criterion does not apply.

- Pu-239/240 - duplicate relative percent difference exceeded established laboratory limits; sample result was not flagged since the sample had low activity and the RPD criterion does not apply.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		Am-243	65.0
LCS		Am-243	80.14
B17N57	W040001533	Am-243	78.2
DUPLICATE	W040001533	Am-243	68.8
BLANK		Pu-242	77.3
LCS		Pu-242	71.9
B17N57	W040001533	Pu-242	81.0
DUPLICATE	W040001533	Pu-242	70.7
BLANK		U-232	83.1
LCS		U-232	71.7
B17N57	W040001533	U-232	80.7
DUPLICATE	W040001533	U-232	82.4

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.

Herlene S. Rich
WSCF Production Control

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

0000007

9/22

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-019	Page 1 of 1
Collector: Pope/Pfister/Hughes	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location: 216-Z-9/C3426 - Interval 174'-176.5'	SAF No.: F03-018	
Ice Chest No.	Field Logbook No.: HNF-~~N-9361~~ 360-1 1st 9/14/04; COA: 119152ES10	Method of Shipment: Government Vehicle	
Shipped To: Waste Sampling & Characterization 20041457	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage
RADIOACTIVE TIE TO: B17NN7

Preservation	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None					
Type of Container	aGs*	P	aG	aG	aG	aG					
No. of Container(s)	3	1	1	1	1	1					
Volume	40mL	500mL	60mL	120mL	60mL	60mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	See item (5) in Special Instructions.					

Sample No.	Matrix *	Sample Date	Sample Time										
B17N67	SOIL	8/23/04	1309	X	X	X	X	X	X				
W04000153 3													

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Lorraine Wolfe Wolfe	Date/Time: 14:12 8/23/04	Received By/Stored In: Victor Bins	Date/Time: 8/23/04 14:12
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** The laboratory is to achieve a detection limit of 5 pCi/g and 10 pCi/g for gross alpha and gross beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

CCC 10/11/04

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041594**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

Two (2) 216-Z-9/C3426 – Interval 224'-226.5' Trench Characterization Borehole - Soil GRP samples (B17N73 and B17NL5) were received at the WSCF Laboratory on September 9, 2004. 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

Inorganic

- Ammonia by EPA Method 300.7. Analytical work was performed with no deviations to the approved method.
- 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-AES Metals by EPA Method 6010. 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

- PCBs by EPA Method 8082. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. Analytical work was performed with no deviations to the approved method.

Radiochemistry

- All RadChem analyses (AEA (Plutonium, Americium, Uranium, Neptunium) GEA, Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 13 for QC details. Analytical Note:

- The sample results were less than the reporting detection limit, but greater than the method detection limit. The sample results were B flagged.

All QC controls are within the established limits.

Anions - The hold times for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 14 through 15 for QC details. Analytical Note:

- Chloride - The sample results for B17N73 and B17NL5 were less than the reporting detection limit, but greater than the method detection limit. The sample results were B flagged.
- Sulfate - The sample result for B17N73 was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.
- Nitrate - The sample result for B17NL5 was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

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 the GRP Letter of Instruction. See page 16 for QC details. Analytical Note:

- The Matrix and Matrix Spike Duplicate recoveries were below established laboratory limits. Sample results were below the detection limit and not flagged.

All other QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See pages 17 through 21 for QC details. Analytical Notes:

- Potassium – The Matrix Spike exceeded established laboratory limits. All other QC samples were within limits and the sample results were not flagged.

- Sodium – The Matrix Spike, Matrix Spike Duplicate and Relative Percent Difference were above established laboratory limits. Sample results were E (estimate) flagged.

- Silver – The Matrix Spike Duplicate was below established laboratory limits, making the Matrix Spike and Matrix Spike Duplicate Relative Percent Difference above established limits. The Laboratory Control Sample recovery was low. Sample B17N73 result was E (estimate) flagged.

- Phosphorus – The Matrix Spike Duplicate was below established laboratory limits. All other QC samples were within limits and the sample results were not flagged.

- Aluminum – the Laboratory Control Sample recovery exceeded established limits. The recovery was within manufacturer's limits and the sample results were not flagged.

- Iron and Strontium – the Laboratory Control Sample recoveries were above established limits. The recoveries were within manufacturer's limits and the sample results were not flagged.

All other QC controls are within the established limits.

ICP-MS Metals (Mercury and Uranium) – 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 GRP Letter of Instruction. See page 22 for QC details. Analytical Note:

- Mercury – The Laboratory Control Sample recovery exceeded established laboratory limits. All other QC controls were within limits, sample results were not flagged.

All other QC controls are within the established limits.

Percent Solids – analyzed for organic analysis correction only.

pH - The hold time for this analysis was met. All laboratory QC controls are within the established limits.

Organic Comments

- Organic sample results are moisture corrected and reported on dry weight basis.

PCBs – 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 GRP Letter of Instruction. See pages 32 through 33 for QC details. All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 34 through 41 for QC details. Analytical Note:

- Diethylphthalate and Di-n-butylphthalate- sample results were J flagged; results were less than the lowest calibration standard but greater than the detection limit.

All QC controls are within the established limits.

TPHD/G-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 42 through 43 for QC details. 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 GRP Letter of Instruction. See pages 44 through 47 for QC details. Analytical Notes:

- A Matrix Spike and Matrix Spike Duplicate were analyzed on sample B191F8 (SDG#20041555, SAF#F03-025). All recoveries were within established laboratory limits.

- Toluene – Laboratory Control Sample Recovery was above established limits due to column carry over from sample W04DC00159. All other QC controls were within limits and the sample results were not flagged.

All other QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with these WDOE accredited methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 48 through 56 for QC details. Analytical Note:

- Americium-241 - The Duplicate Relative Percent Difference exceeded the established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

- Europium-155, Gross Alpha, Gross Beta and Plutonium-239/240 - The Duplicate Relative Percent Difference exceeded established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

- Neptunium-137 - The Duplicate Relative Percent Difference and Laboratory Control Sample recovery exceeded established limits. The sample results were under the detection limit and not flagged. Sample results should be considered suspect.

- Gross Alpha and Gross Beta - The Duplicate Relative Percent Difference exceeded the established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery

Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		U-232	74.6
LCS		U-232	73.2
B1B625	W040001577	U-232	79.1
DUPLICATE	W040001577	U-232	90.1
B07N73	W040001610	U-232	82.2
B17NL5	W040001612	U-232	88.3
BLANK		Sr-85	90.0
LCS		Sr-85	86.9
B1B625	W040001577	Sr-85	101.7
DUPLICATE	W040001577	Sr-85	89.5
BLANK		Pu-242	75.6
LCS		Pu-242	79.3
B1B625	W040001577	Pu-242	74.0

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
DUPLICATE	W040001577	Pu-242	78.6
B07N73	W040001610	Pu-242	71.7
B17NL5	W040001612	Pu-242	86.2
BLANK		Am-243	89.6
LCS		Am-243	68.7
B1B625	W040001577	Am-243	84.2
DUPLICATE	W040001577	Am-243	77.4
B07N73	W040001610	Am-243	79.0
B17NL5	W040001612	Am-243	83.3

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.

Herlene S. Rich
WSCF Production Control

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

10/7

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-023	Page 1 of 1
Collector: Pope/Pfister/Hughes	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Air Quality ☐; Data Turnaround: 45 Days
Project Designation: 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location: 216-Z-9/C3426 - Interval 224'-226.5'	SAF No.: F03-018	
Ice Chest No.	Field Logbook No.: HNF-N-~~3361~~ 361-1 4/8/04; COA: 119152ES10	Method of Shipment: Government Vehicle	
Shipped To: Waste Sampling & Characterization	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NN9

20041594

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None						
Type of Container	aGs*	P	aG	aG	aG						
No. of Container(s)	3	1	1	1	1						
Volume	40mL	500mL	60mL	120mL	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	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										
B17N73	SOIL	9/9/04	0820	X	X	X	X	X					
W04000160													

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Dana Wikely Dana Wikely	Date/Time: 9/9/04 1005	Received By/Stored In: [illegible]	Date/Time: 9/9/04 1005
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

The lab is to achieve a detection limit of 5 pCi/g & 10 pCi/g for gross alpha and beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237

(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}

(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}

(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-026	Page 1 of 1
Collector Pope/Pfister/Hughes	Company Contact Steve Trent Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code 8N Data Turnaround 45 Days Air Quality ☐
Project Designation 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location 216-Z-9/C3426 - Interval 228.5'-233'	SAF No. F03-018	
Ice Chest No.	Field Logbook No. HNF-N-~~9361~~ 361-1 4/18/04 COA 117506ES10	Method of Shipment Government Vehicle	
Shipped To Waste Sampling & Characterization	Offsite Property No. N/A	Bill of Lading/Air Bill No. N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NP0

Preservation	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None				
Type of Container	aGs*	P	aG	aG	aG	aG				
No. of Container(s)	3	1	1	1	1	1				
Volume	40mL	500mL	60mL	120mL	60mL	60mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	See item (5) in Special Instructions.				

Sample No.	Matrix *	Sample Date	Sample Time										
B17NL5	SOIL	9/9/04	0858	X	X	X	X	X	X				
WO4000161Z													

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Pfister 9/9/04	9/9/04 1000	[illegible]	9/9/04 1000
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

The lab is to achieve a detection limit of 5 pCi/g & 10 pCi/g for gross alpha and beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA – 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

Attachment 1
Narrative

Sample Delivery Group	**WSCF20051337**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F05-023**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-A-8 Crib Characterization Borehole sample/I-7 (B1D994) was received at the WSCF Laboratory on June 29, 2005. The sample was 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

Refer to *WSCF Method References Report,* pages 45 through 46, for a complete listing of approved analytical methods.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 11 for QC details. Analytical Notes:

- Sample B1D994 result was B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.
- Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. RPD criterion not applicable to low level sample.

All other QC controls are within the established limits.

Anions - The hold times for this analysis were met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 12 through 13 for QC details. Analytical Note:

- Preparation Date: 07-jul-2005.

All QC controls are within the established limits.

ICP-AES Metals (Bismuth and Phosphorus) – 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 GRP Letter of Instruction. See page 14 for QC details. Analytical Notes:

- Preparation Date: 18-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D7D0 (SDG# 20051234, F05-023).
- Phosphorus: insufficient spike concentration. Sample concentration was greater than four times the spike concentration.
- Bismuth: The analyte detected in the associated preparation Blank sample was evaluated and there was no significant effect on the sample result.

All other 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 GRP Letter of Instruction. See pages 15 through 17 for QC details. Analytical Notes:

- Preparation Date: 06-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D993 (SDG# 20051319, SAF# F05-023).

All QC controls are within the established limits.

Percent Solids – analyzed for organic moisture correction.

pH - See page 18 for QC details.

Organic Comments

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

PCBs – 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 GRP Letter of Instruction. See pages 24 through 25 for QC details. Analytical Note:

- Preparation Date: 08-jul-2005.

All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 26 through 31 for QC details. Analytical Note:

- Preparation Date: 08-jul-2005.

TPHD-WA - 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 GRP Letter of Instruction. See page 32 for QC details. Analytical Note:

- Preparation Date: 08-jul-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 GRP Letter of Instruction. See pages 33 through 36 for QC details. Analytical Note:

- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).

All QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with WSCF's radiochemical methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 38 through 42 for QC details. Analytical Notes:

- GEA – Duplicate QC sample was analyzed on sample# B1DCK1 (SDG# 20051304, F05-026).

- Americium-241, Plutonium-238, Plutonium-239/240, Uranium-233/234, Uranium-235 and Uranium-238 – Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).

- Uranium-235 and Uranium-238– Duplicate Relative Percent Difference (RPD) was above established limits due to batch sample and duplicate were not homogeneous.

All other QC controls are within the established limits.

Plutonium-242, Americium-243 and Uranium-232 – Radiochemical Tracer Recovery Data are summarized below:

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
Americium-243			
BLANK		Am-243	90.1%

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
LCS		Am-243	99.6%
B1D992	W050001997	Am-243	90.7%
DUPLICATE	W050001997	Am-243	88.3%
B1D994	W050002028	Am-243	91.7%
Plutonium-242			
BLANK		Pu-242	81.9%
LCS		Pu-242	89.4%
B1D992	W050001997	Pu-242	78.6%
DUPLICATE	W050001997	Pu-242	83.9%
B1D994	W050002028	Pu-242	89.5%
Strontium-85			
BLANK		Sr-85	89.6%
LCS		Sr-85	94.1%
B1D994	W050002028	Sr-85	87.0%
DUPLICATE	W050002028	Sr-85	95.7%
Uranium-232			
BLANK		U-232	64.1%
LCS		U-232	71.3%
B1D992	W050001997	U-232	92.1%
DUPLICATE	W050001997	U-232	75.6%
B1D994	W050002028	U-232	82.0%

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

F05-023-027

COLLECTOR Pope/Pfister/Mokler/Weis/Tyra 7/25	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ
PRICE CODE 8N	**DATA TURNAROUND** 45 Days / ~~45 Days~~ 4/29/5		
SAMPLING LOCATION 216-A-8, I-7	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole	**SAF NO.** F05-023	**AIR QUALITY** ☐
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 119152ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**

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

SPECIAL HANDLING AND/OR STORAGE

Z0051357

PRESERVATION			Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None				
TYPE OF CONTAINER			aGs*	aG	G/P	aG	G/P	Square Bottle - Poly				
NO. OF CONTAINER(S)			3	1	1	1	1	1				
VOLUME			40mL	120mL	120mL	120mL	120mL	500mL				
SAMPLE ANALYSIS			SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS				
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**									
B1D994	SOIL	6/29/5	0905	X	X	X	X	X	X			
W05C002028												

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	6/29/05 1000	TA FRAZIER [signature]	6/29/05 1000

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

B1D989 IS TIED TO THIS CHAIN

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			F05-023-027	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Mokler/Weis/Tyra	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ	**PRICE CODE** 8N	**DATA TURNAROUND**
SAMPLING LOCATION 216-A-8, I-7	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole		**SAF NO.** F05-023	**AIR QUALITY** ☐	45 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 119152ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE		
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

P.D.M P.D. MIX 7/5/2005 P.D.M P.D. MIX 7/5/2005

(1)VOA - 8260B (TCL); VOA - 8260B (Add-On) {1-Butanol, 1-Propanol, 2-Pentanone, Acetonitrile, Cyclohexane, Ethanol, Hexane, Tetrahydrofuran, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2)Semi-VOA - 8270A (TCL); Semi-VOA - 8270B (Add-On) {1,2,4-Trimethylbenzene, 2-Butoxyethanol, 2-Naphthylamine, 3+4 Methylphenol (cresol, m+p), Benzyl alcohol, Cyclohexanone, Decane, Pyridine, Tributyl phosphate} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(3)ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Nickel, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8_HG - ICPMS; ICP Metals - 6010B (Add-On) {Bismuth, Phosphorus}
(4)IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate} Cations (IC) - 300.7 {Nitrogen in ammonium} pH - 150.1;
(5)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} ~~Gamma Spec - Add-on {Antimony-125, Cesium-134} Gross Alpha; Gross Beta;~~ Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr;

MAB 6/6/05

A-6003-618(03/03)

Attachment 1
Narrative

Sample Delivery Group	**WSCF20051350**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F05-023**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-A-8 Crib Characterization Borehole sample/I-8 (B1D995) was received at the WSCF Laboratory on June 30, 2005. The sample was 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

Refer to *WSCF Method References Report,* pages 45 through 46, for a complete listing of approved analytical methods.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 11 for QC details. Analytical Notes:

- Duplicate, Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).
- Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. However, all other QC controls are within the established limits.

Anions - The hold times for this analysis were met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 12 through 13 for QC details. Analytical Notes:

- Preparation Date: 07-jul-2005.
- Duplicate, Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

All QC controls are within the established limits.

ICP-AES Metals (Bismuth and Phosphorus) – 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 GRP Letter of Instruction. See page 14 for QC details. Analytical Notes:

- Preparation Date: 18-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D7D0 (SDG# 20051234, SAF# F05-023).
- Phosphorus: insufficient spike concentration. Sample concentration was greater than four times the spike concentration.
- Bismuth: The analyte detected in the associated preparation Blank sample was evaluated and there was no significant effect on the sample result.

All other 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 GRP Letter of Instruction. See pages 15 through17 for QC details. Analytical Notes:

- Preparation Date: 06-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D993 (SDG# 20051319, SAF# F05-023).

All QC controls are within the established limits.

Percent Solids – analyzed for organic moisture correction.

pH - Duplicate QC sample was analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023). See page 18 for QC details.

Organic Comments

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

PCBs – 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 GRP Letter of Instruction. See pages 24 through 25 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 26 through 31 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

TPHD-WA - 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 GRP Letter of Instruction. See page 32 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

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 GRP Letter of Instruction. See pages 33 through 35for QC details.

All QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with WSCF's radiochemical methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 37 through 41 for QC details. Analytical Notes:

- Americium-241, Plutonium-238, Plutonium-239/240, Uranium-233/234, Uranium-235 and Uranium-238 – Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).
- Strontium-90 – Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).
- Uranium-235 and Uranium-238– Duplicate Relative Percent Difference (RPD) was above established limits due to batch sample and duplicate were not homogeneous.

All other QC controls are within the established limits.

Americium-243, Plutonium-242, Strontium-85 and Uranium-232 – Radiochemical Tracer Recovery Data are summarized below:

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
Americium-243			
BLANK		Am-243	90.1%
LCS		Am-243	99.6%
B1D992	W050001997	Am-243	90.7%
DUPLICATE	W050001997	Am-243	88.3%
B1D995	W050002036	Am-243	91.7%
Plutonium-242			
BLANK		Pu-242	81.9%
LCS		Pu-242	89.4%
B1D992	W050001997	Pu-242	78.6%
DUPLICATE	W050001997	Pu-242	83.9%
B1D995	W050002036	Pu-242	89.5%
Strontium-85			
BLANK		Sr-85	89.6%
LCS		Sr-85	94.1%
B1D994	W050002028	Sr-85	87.0%
DUPLICATE	W050002028	Sr-85	95.7%
B1D995	W050002036	Sr-85	92.6%
Uranium-232			
BLANK		U-232	64.1%
LCS		U-232	71.3%
B1D992	W050001997	U-232	92.1%
DUPLICATE	W050001997	U-232	75.6%
B1D995	W050002036	U-232	82.0%

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	F05-023-028	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8N	DATA TURNAROUND
Pope/Pfister/Mokler/Weis/Tyra	TRENT, SJ	373-5869	TRENT, SJ		45 Days / ~~45 Days~~ 6/30/05
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY** ☐	
216-A-8, I-8	216-A-8 Crib Characterization Borehole		F05-023		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**COA**	**METHOD OF SHIPMENT**		
	HNF-N-336-1	119152ES10	GOVERNMENT VEHICLE		
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
Waste Sampling & Characterization					

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

POSSI8LE SAMPLE HAZARDS/ REMARKS

SPECIAL HANDLING AND/OR STORAGE

20051350

PRESERVATION			Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None		
TYPE OF CONTAINER			aGs*	aG	G/P	aG	G/P	Square Bottle - Poly		
NO. OF CONTAINER(S)			3	1	1	1	1	1		
VOLUME			40mL	120mL	120mL	120mL	120mL	500mL		
SAMPLE ANALYSIS			SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS		
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**							
B1D995	SOIL	6/30/5	0705	X	X	X	X	X	X	
1005 0002036										

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
J.W. Weis	6/30/5 0820	K.B. Boehle	6/30/05 0820

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

TIE TO COC # B1D990

~~B1D~~ 6/30/05

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		F05-023-028	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Mokler/Weis/Tyra	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-S869	**PROJECT COORDINATOR** TRENT, SJ	**PRICE CODE** 8N **AIR QUALITY** ☐	**DATA TURNAROUND** **45 Days**
SAMPLING LOCATION 216-A-8, I-8	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole		**SAF NO.** F05-023	
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 1191S2ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**	

SPECIAL INSTRUCTIONS

(1)VOA - 8260B (TCL); VOA - 8260B (Add-On) {1-Butanol, 1-Propanol, 2-Pentanone, Acetonitrile, Cyclohexane, Ethanol, Hexane, Tetrahydrofuran, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2)Semi-VOA - 8270A (TCL); Semi-VOA - 8270B (Add-On) {1,2,4-Trimethylbenzene, 2-Butoxyethanol, 2-Naphthylamine, 3+4 Methylphenol (cresol, m+p), Benzyl alcohol, Cyclohexanone, Decane, Pyridine, Tributyl phosphate} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(3)ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Nickel, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8 HG - ICPMS; ICP Metals - 6010B (Add-On) {Bismuth, Phosphorus}
(4)IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate} Cations (IC) - 300.7 {Nitrogen in ammonium} pH - 150.1;
(5)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} ~~Gamma Spec - Add-on {Antimony-125, Cesium-134} Gross Alpha; Gross Beta~~; Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr;

MAB 6/6/05

A-6003-618(03/03)

Appendix 5

Data Validation Supporting Documentation

PESTICIDE/PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: CPP 200 Area, D&D-200 Area			DATA PACKAGE: VSR10-011		
VALIDATOR: Carl Schloesslin		LAB: WSCF		DATE: 3-12-2010	
SDG: WSCF2005-1337 & -1350			SDG: WSCF2004-1457 & -1594		
ANALYSES PERFORMED					
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082 X	SW-846 8081 (TCLP)	SW-846 8151	

SAMPLES/MATRIX Soil samples

SDG WSCF20041457: B17N67
SDG WSCF20041594: B17NL5
SDG WSCF20051337: B1D994
SDG WSCF20051350: B1D995

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

Technical verification documentation present for SDG WSCF20041457 only.

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:

PESTICIDE/PCB DATA VALIDATION CHECKLIST

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

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

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

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

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

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

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

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

Comments: None

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

Surrogates analyzed? ..... Yes No N/A

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Comments:

WSCF20041457: Aroclor-1254 spiked only for LCS and MS/MSD
WSCF20041594: Aroclor-1260 spiked only for LCS and MS/MSD
WSCF20051337: Aroclor-1260 spiked only for LCS and MS/MSD
WSCF20051350: Aroclor-1260 spiked only for LCS and MS/MSD

PESTICIDE/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: None

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: None

PESTICIDE/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:

Used high concentration PCB CRDL (0.1 mg/kg) - see SAP Table 2-1A, footnote g.

WSCF20041594: Aroclor-1221 MDL = 110 ug/kg (CRDL = 100)

9. SAMPLE CLEANUP (Levels D and E)

Fluoricil ® (or other absorbent) cleanup performed? ..... Yes No N/A

Lot check performed? ..... Yes No N/A

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

GPC cleanup performed? ..... Yes No N/A

GPC check performed? ..... Yes No N/A

GPC check recoveries acceptable? ..... Yes No N/A

GPC calibration performed? ..... Yes No N/A

GPC calibration check performed? ..... Yes No N/A

GPC calibration check retention times acceptable? ..... Yes No N/A

Check/calibration materials traceable? ..... Yes No N/A

Check/calibration materials Expired? ..... Yes No N/A

Analytical batch QC given similar cleanup? ..... Yes No N/A

Transcription/Calculation Errors? ..... Yes No N/A

Comments:

Appendix 6

Additional Documentation Requested By Client

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: PCBs complete list

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001533									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Aroclor-1254	11097-69-1	741.69	75.259	% Recov	09/01/04	75.000	125.000	
MS	Decachlorobiphenyl	2051-24-3	759.85	77.100	% Recov	09/01/04	50.000	150.000	
MS	Tetrachloro-m-xylene	877-09-8	889.74	90.300	% Recov	09/01/04	50.000	150.000	
MSD	Aroclor-1254	11097-69-1	784.86	77.500	% Recov	09/01/04	75.000	125.000	
MSD	Decachlorobiphenyl	2051-24-3	1027.0	101.000	% Recov	09/01/04	50.000	150.000	
MSD	Tetrachloro-m-xylene	877-09-8	851.91	84.200	% Recov	09/01/04	50.000	150.000	
SURR	Decachlorobiphenyl	2051-24-3	1065.7	109.000	% Recov	09/01/04	50.000	150.000	
SURR	Tetrachloro-m-xylene	877-09-8	932.23	95.000	% Recov	09/01/04	50.000	150.000	
Lab ID: W040001537									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Aroclor-1254	11097-69-1	496.22	102.000	% Recov	09/01/04	75.000	125.000	
MS	Decachlorobiphenyl	2051-24-3	706.30	72.700	% Recov	09/01/04	50.000	150.000	
MS	Tetrachloro-m-xylene	877-09-8	828.85	85.300	% Recov	09/01/04	50.000	150.000	
MSD	Aroclor-1254	11097-69-1	518.07	108.000	% Recov	09/01/04	75.000	125.000	
MSD	Decachlorobiphenyl	2051-24-3	903.47	94.300	% Recov	09/01/04	50.000	150.000	
MSD	Tetrachloro-m-xylene	877-09-8	814.57	85.000	% Recov	09/01/04	50.000	150.000	
SPK-RPD	Aroclor-1254	11097-69-1	108.000	5.714	RPD	09/01/04	0.000	25.000	
SPK-RPD	Decachlorobiphenyl	2051-24-3	94.300	25.868	RPD	09/01/04	0.000	20.000	*
SPK-RPD	Tetrachloro-m-xylene	877-09-8	85.000	0.352	RPD	09/01/04	0.000	20.000	
BATCH QC									
BLANK	Aroclor-1016	12674-11-2	< 50	n/a	UGKG	09/01/04			U
BLANK	Aroclor-1221	11104-28-2	< 100	n/a	ug/Kg	09/01/04			U
BLANK	Aroclor-1232	11141-16-5	< 50	n/a	ug/Kg	09/01/04			U
BLANK	Aroclor-1242	53469-21-9	< 50	n/a	ug/Kg	09/01/04			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: PCBs complete list

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Aroclor-1248	12672-29-6	< 50	n/a	ug/Kg	09/01/04			U
BLANK	Aroclor-1254	11097-69-1	< 50	n/a	ug/Kg	09/01/04			U
BLANK	Aroclor-1260	11096-82-5	< 50	n/a	ug/Kg	09/01/04			U
BLANK	Aroclor-1262	37324-23-5	< 50	n/a	ug/Kg	09/01/04			U
BLANK	Aroclor-1268	11100-14-4	< 50	n/a	ug/Kg	09/01/04			U
BLANK	Decachlorobiphenyl	2051-24-3	804.25	80.400	% Recov	09/01/04	50.000	150.000	
BLANK	Tetrachloro-m-xylene	877-09-8	921.74	92.200	% Recov	09/01/04	50.000	150.000	
LCS	Aroclor-1254	11097-69-1	902.61	90.300	% Recov	09/01/04	70.000	130.000	
LCS	Decachlorobiphenyl	2051-24-3	955.89	95.600	% Recov	09/01/04	50.000	150.000	
LCS	Tetrachloro-m-xylene	877-09-8	886.69	88.700	% Recov	09/01/04	50.000	150.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: PCBs complete list

SAF Number: F03-018
Sample Date: 09/09/04
Receive Date:09/09/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001612									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Aroclor-1260	11096-82-5	494.55	89.800	% Recov	09/22/04	75.000	125.000	
MS	Decachlorobiphenyl	2051-24-3	1104.0	100.000	% Recov	09/22/04	50.000	150.000	
MS	Tetrachloro-m-xylene	877-09-8	758.19	68.800	% Recov	09/22/04	50.000	150.000	
MSD	Aroclor-1260	11096-82-5	519.26	95.000	% Recov	09/22/04	75.000	125.000	
MSD	Decachlorobiphenyl	2051-24-3	1205.4	110.000	% Recov	09/22/04	50.000	150.000	
MSD	Tetrachloro-m-xylene	877-09-8	1023.4	93.700	% Recov	09/22/04	50.000	150.000	
SURR	Decachlorobiphenyl	2051-24-3	969.68	86.700	% Recov	09/22/04	50.000	150.000	
SURR	Tetrachloro-m-xylene	877-09-8	1047.1	93.600	% Recov	09/22/04	50.000	150.000	
Lab ID: W040001618									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Aroclor-1260	11096-82-5	419.27	81.900	% Recov	09/22/04	75.000	125.000	
MS	Decachlorobiphenyl	2051-24-3	837.44	81.800	% Recov	09/22/04	50.000	150.000	
MS	Tetrachloro-m-xylene	877-09-8	965.68	94.300	% Recov	09/22/04	50.000	150.000	
MSD	Aroclor-1260	11096-82-5	253.20	100.000	% Recov	09/22/04	75.000	125.000	
MSD	Decachlorobiphenyl	2051-24-3	963.66	95.200	% Recov	09/22/04	50.000	150.000	
MSD	Tetrachloro-m-xylene	877-09-8	934.00	92.200	% Recov	09/22/04	50.000	150.000	
SPK-RPD	Aroclor-1260	11096-82-5	100.000	19.901	RPD	09/22/04	0.000	25.000	
SPK-RPD	Decachlorobiphenyl	2051-24-3	95.200	15.141	RPD	09/22/04	0.000	20.000	
SPK-RPD	Tetrachloro-m-xylene	877-09-8	92.200	2.252	RPD	09/22/04	0.000	20.000	
BATCH QC									
BLANK	Aroclor-1016	12674-11-2	< 50	n/a	UGKG	09/22/04			U
BLANK	Aroclor-1221	11104-28-2	< 100	n/a	ug/Kg	09/22/04			U
BLANK	Aroclor-1232	11141-16-5	< 50	n/a	ug/Kg	09/22/04			U
BLANK	Aroclor-1242	53469-21-9	< 50	n/a	ug/Kg	09/22/04			U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: PCBs complete list

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Aroclor-1248	12672-29-6	< 50	n/a	ug/Kg	09/22/04			U
BLANK	Aroclor-1254	11097-69-1	< 50	n/a	ug/Kg	09/22/04			U
BLANK	Aroclor-1260	11096-82-5	< 50	n/a	ug/Kg	09/22/04			U
BLANK	Aroclor-1262	37324-23-5	< 50	n/a	ug/Kg	09/22/04			U
BLANK	Aroclor-1268	11100-14-4	< 50	n/a	ug/Kg	09/22/04			U
BLANK	Decachlorobiphenyl	2051-24-3	827.23	82.700	% Recov	09/22/04	50.000	150.000	
BLANK	Tetrachloro-m-xylene	877-09-8	676.78	67.700	% Recov	09/22/04	50.000	150.000	
LCS	Aroclor-1260	11096-82-5	476.43	95.300	% Recov	09/22/04	70.000	130.000	
LCS	Decachlorobiphenyl	2051-24-3	742.18	74.200	% Recov	09/22/04	50.000	150.000	
LCS	Tetrachloro-m-xylene	877-09-8	826.48	82.600	% Recov	09/22/04	50.000	150.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: PCBs complete list

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

Lab ID: W050002028

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Aroclor-1260	11096-82-5	246.77	121.000	% Recov	07/20/05	75.000	125.000	
MS	Decachlorobiphenyl	2051-24-3	214.98	105.000	% Recov	07/20/05	50.000	150.000	
MS	Tetrachloro-m-xylene	877-09-8	207.60	101.000	% Recov	07/20/05	50.000	150.000	
MSD	Aroclor-1260	11096-82-5	221.69	109.000	% Recov	07/20/05	75.000	125.000	
MSD	Decachlorobiphenyl	2051-24-3	181.45	89.100	% Recov	07/20/05	50.000	150.000	
MSD	Tetrachloro-m-xylene	877-09-8	190.29	93.400	% Recov	07/20/05	50.000	150.000	
SPK-RPD	Aroclor-1260	11096-82-5	109.000	10.435	RPD	07/20/05	0.000	25.000	
SPK-RPD	Dacachlorobiphenyl	2051-24-3	89.100	16.383	RPD	07/20/05	0.000	20.000	
SPK-RPD	Tetrachloro-m-xylene	877-09-8	93.400	7.819	RPD	07/20/05	0.000	20.000	
SURR	Decachlorobiphenyl	2051-24-3	196.59	96.200	% Recov	07/20/05	50.000	150.000	
SURR	Tetrachloro-m-xylene	877-09-8	190.83	93.400	% Recov	07/20/05	50.000	150.000	

BATCH QC

BLANK	Aroclor-1016	12674-11-2	< 10	n/a	UGKG	07/20/05			U
BLANK	Aroclor-1221	11104-28-2	< 20	n/a	ug/Kg	07/20/05			U
BLANK	Aroclor-1232	11141-16-5	< 10	n/a	ug/Kg	07/20/05			U
BLANK	Aroclor-1242	53469-21-9	< 10	n/a	ug/Kg	07/20/05			U
BLANK	Aroclor-1248	12672-29-6	< 10	n/a	ug/Kg	07/20/05			U
BLANK	Aroclor-1254	11097-69-1	< 10	n/a	ug/Kg	07/20/05			U
BLANK	Aroclor-1260	11096-82-5	< 10	n/a	ug/Kg	07/20/05			U
BLANK	Aroclor-1262	37324-23-5	< 10	n/a	ug/Kg	07/20/05			U
BLANK	Aroclor-1268	11100-14-4	< 10	n/a	ug/Kg	07/20/05			U
BLANK	Decachlorobiphenyl	2051-24-3	185.88	92.900	% Recov	07/20/05	50.000	150.000	
BLANK	Tetrachloro-m-xylene	877-09-8	184.40	92.200	% Recov	07/20/05	50.000	150.000	
LCS	Aroclor-1260	11096-82-5	221.90	111.000	% Recov	07/20/05	70.000	130.000	
LCS	Decachlorobiphenyl	2051-24-3	189.02	94.500	% Recov	07/20/05	50.000	150.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: PCBs complete list

SAF Number: F05-023
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Tetrachloro-m-xylene	877-09-8	189.92	95.000	% Recov	07/20/05	50.000	150.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: PCBs complete list

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050002028									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Aroclor-1260	11096-82-5	246.77	121.000	% Recov	07/20/05	75.000	125.000	
MS	Decachlorobiphenyl	2051-24-3	214.98	105.000	% Recov	07/20/05	50.000	150.000	
MS	Tetraehloro-m-xylene	877-09-8	207.60	101.000	% Recov	07/20/05	50.000	150.000	
MSD	Aroclor-1260	11096-82-5	221.69	109.000	% Recov	07/20/05	75.000	125.000	
MSD	Decachlorobiphenyl	2051-24-3	181.45	89.100	% Recov	07/20/05	50.000	150.000	
MSD	Tetrachloro-m-xylene	877-09-8	190.29	93.400	% Recov	07/20/05	50.000	150.000	
SPK-RPD	Aroclor-1260	11096-82-5	109.000	10.435	RPD	07/20/05	0.000	25.000	
SPK-RPD	Decachlorobiphenyl	2051-24-3	89.100	16.383	RPD	07/20/05	0.000	20.000	
SPK-RPD	Tetrachloro-m-xylene	877-09-8	93.400	7.819	RPD	07/20/05	0.000	20.000	
Lab ID: W050002036									
BATCH QC ASSOCIATED WITH SAMPLE									
SURR	Decachlorobiphenyl	2051-24-3	192.35	90.100	% Recov	07/20/05	50.000	150.000	
SURR	Tetrachloro-m-xylene	877-09-8	191.69	89.800	% Recov	07/20/05	50.000	150.000	
BATCH QC									
BLANK	Aroclor-1016	12674-11-2	< 10	n/a	UGKG	07/20/05			U
BLANK	Aroclor-1221	11104-28-2	< 20	n/a	ug/Kg	07/20/05			U
BLANK	Aroclor-1232	11141-16-5	< 10	n/a	ug/Kg	07/20/05			U
BLANK	Aroclor-1242	53469-21-9	< 10	n/a	ug/Kg	07/20/05			U
BLANK	Aroclor-1248	12672-29-6	< 10	n/a	ug/Kg	07/20/05			U
BLANK	Aroclor-1254	11097-69-1	< 10	n/a	ug/Kg	07/20/05			U
BLANK	Aroclor-1260	11096-82-5	< 10	n/a	ug/Kg	07/20/05			U
BLANK	Aroclor-1262	37324-23-5	< 10	n/a	ug/Kg	07/20/05			U
BLANK	Aroclor-1268	11100-14-4	< 10	n/a	ug/Kg	07/20/05			U
BLANK	Decachlorobiphenyl	2051-24-3	185.88	92.900	% Recov	07/20/05	50.000	150.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: PCBs complete list

SAF Number: F05-023
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	184.40	92.200	% Recov	07/20/05	50.000	150.000	
LCS	Aroclor-1260	11096-82-5	221.90	111.000	% Recov	07/20/05	70.000	130.000	
LCS	Decachlorobiphenyl	2051-24-3	189.02	94.500	% Recov	07/20/05	50.000	150.000	
LCS	Tetrachloro-m-xylene	877-09-8	189.92	95.000	% Recov	07/20/05	50.000	150.000	

Date: 17 March 2010
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: CPP 200 Area, D&D-200 Area
Subject: Inorganics - Sample Data Group (SDGs) WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 and WSCF20051350

INTRODUCTION

This memorandum presents the results of data validation for SDGs WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 and WSCF20051350 prepared by WSCF. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B17N67	8/23/2004	Soil	C	6010B & 200.8
B17N70	8/25/2004	Soil	C	6010B & 200.8
B17N73	9/09/2004	Soil	C	6010B & 200.8
B17NL5	9/09/2004	Soil	C	6010B & 200.8
B1D994	6/29/2005	Soil	C	6010B & 200.8
B1D995	6/30/2005	Soil	C	6010B & 200.8

Data validation was conducted in accordance with the CHPRC validation statement of work and the Sampling and Analysis Plan for Investigation of Dense, Nonaqueous-Phase Liquid Carbon Tetrachloride at the 216-Z-9 Trench, DOE/RL-2001-01, Rev. 0, Appendix E (SAP). 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. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested By Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The holding time requirement for ICP metals are analysis within 180 days of sample collection, and the holding time requirement for mercury is analysis within 28 days of sample collection. Sample preservation for all analytes requires chilling to 4 degrees Celsius.

The samples were analyzed within the prescribed holding times and properly preserved.

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable with the following exceptions.

For SDG WSCF20041457, the Hg laboratory blank result was > the method detection limit (MDL). The Hg result for sample B17N67 was a detect <5X the blank result and should be qualified as a non-detect estimate and flagged "UJ."

For SDG WSCF20041487, the Hg laboratory blank result was > the MDL. The Hg result for sample B17N70 was a non-detect and should not be qualified.

For SDG WSCF20041594, the Hg and U laboratory blank results were > the MDLs. The Hg and U results for sample B17N73 were detects >5X the laboratory blank results and should not be qualified. The Hg result for sample B17NL5 was a detect <5X the blank result and should be qualified as a non-detect estimate and flagged "UJ." The U result for sample B17N73 was a non-detect and should not be qualified. It should be noted that the information required to convert the Hg and U on-instrument concentrations in ug/L to final concentrations in mg/kg was not provided in the data package and acquired by email correspondence with CH2M Hill. See Appendix 5 for this correspondence.

For SDG WSCF20051337, the Bi laboratory blank result was > the MDL. The Bi result for sample B1D994 was a non-detect and should not be qualified.

For SDG WSCF20051350, the Bi laboratory blank result was > the MDL. The Bi result for sample B1D995 was a non-detect and should not be qualified.

Trip Blanks

No trip blanks were submitted for analysis.

Field Blanks

No field blanks were submitted for analysis.

Equipment Blanks

No equipment blanks were submitted for analysis.

- **Accuracy**

Accuracy is evaluated by reviewing matrix spike sample results and laboratory control sample results. According to the SAP, the matrix spike sample accuracy limits are 70% to 130%. The laboratory control sample accuracy limits are the ones established by the analytical laboratory (except for uranium via ICP-MS that is 65% to 135%). The limits for reported analytes not listed in the SAP are specified by the DV procedure.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples

All MS/MSD recoveries were acceptable with the following exceptions.

For SDG WSCF20041457, the MS and MSD recoveries for Na were > the upper acceptance limit. The Na result for sample B17N67 was a detect and should be qualified as an estimate and flagged "J."

For SDG WSCF20041487, the MS and MSD recoveries for Na, and the MS recovery for Hg were > the upper acceptance limits. The Na result for sample B17N70 was a detect and should be qualified as an estimate and flagged "J." The Hg result for sample B17N70 was a non-detect and should not be qualified.

For SDG WSCF20041594, the MS recovery for K, and the MS and MSD recoveries for Na were > the upper acceptance limits. The MSD recovery for Ag was < the lower acceptance limit but ≥30%. The K and Na results for samples B17N73 and B17NL5 were detects and should be qualified as estimates and flagged "J." The Ag result for sample B17N73 was a detect and should be qualified as an estimate and flagged "J." The Ag result for sample B17NL5 was a non-detect and should be qualified as an estimate and flagged "UJ."

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable with the following exceptions.

For SDG WSCF20041594, the LCS recovery for Ag was < the lower acceptance limit, and the LCS recovery for Hg was > the upper acceptance limit. The Ag result for sample B17N73 was a detect and should be qualified as an estimate and flagged "J." The Ag result for sample B17NL5 was a non-detect and should be qualified as an estimate and flagged "UJ." The Hg result for sample B17N73 was a detect and should be qualified as an estimate and flagged "J." The Hg result for sample B17NL5 was a detect and would be qualified as an estimate and flagged "J," but has been further qualified as a non-detect estimate and flagged "UJ" due to laboratory blank contamination.

- **Precision**

Precision is evaluated by reviewing MS/MSD results, field duplicate sample results, and field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. According to the

SAP, the relative percent difference (RPD) limits are ±30%. The limits for reported analytes not listed in the SAP are specified by the DV procedure. When duplicate RPDs exceed the limits and have associated results <5X the SAP required detection limits (or <5X the laboratory required detection limits for analytes not listed in the SAP) with differences <2X the required detection limits no precision infraction occurred.

MS/MSD Samples

All MS/MSD RPD values were acceptable with the following exception.

For SDG WSCF20041594, the Ag RPD was > the acceptance limit. The Ag result for sample B17N73 was a detect and should be qualified as an estimate and flagged "J." The Ag result for sample B17NL5 was a non-detect and should be qualified as an estimate and flagged "UJ."

Field Duplicate Samples

No field duplicates were submitted for analysis.

Field Split Samples

No field splits were submitted for analysis.

- **Detection Limits**

Reported MDLs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDLs were below the CRDLs with the following exceptions.

For SDGs WSCF20041457 and WSCF20041487, the Hg and U MDLs for samples B17N67 and B17N70 were > the CRDLs.

For SDG WSCF20041594, the U MDLs for samples B17N73 and B17NL5 were > the CRDL.

For SDGs WSCF20051337 and WSCF20051350, the Ba, Cr, Cu and U MDLs for samples B1D994 and B1D995 were > the CRDLs.

- **Completeness**

SDGs WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 and WSCF20051350 were 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

Multiple minor deficiencies leading to qualification of sample results as estimates occurred. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

HNF-20433, Rev. 0, *Data Validation Procedure for Chemical Analyses*, June 2004.

DOE/RL-2001-01, Rev. 0, Appendix E, *Sampling and Analysis Plan for Investigation of Dense, Nonaqueous-Phase Liquid Carbon Tetrachloride at the 216-Z-9 Trench*.

Appendix 1

Glossary of Data Reporting Qualifiers

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

- **U** ─ The constituent was analyzed for and was not detected. The data should be considered usable for decision-making purposes.

- **UJ** ─ The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the MDL. The data should be considered usable for decision-making purposes.

- **J** ─ Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **UR** ─ Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** ─ Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

Inorganic Data Qualification Summary			
SDG: See comments	Reviewer: AQA	Project: CPP 200 Area, D&D-200 Area	Page 1 of 1
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
Hg	UJ	B17N67	Laboratory blank contamination
Na	J	B17N67, B17N70, B17N73, B17NL5	High MS and MSD recoveries
Hg	J	B17N73	High LCS recovery
Hg	UJ	B17NL5	Laboratory blank contamination and high LCS recovery
Ag	J	B17N73	Low MSD and LCS recoveries, poor MS/MSD precision
Ag	UJ	B17NL5	Low MSD and LCS recoveries, poor MS/MSD precision
K	J	B17N73, B17NL5	High MS recovery

Comments: SDGs WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 & WSCF20051350

Appendix 3

Annotated Laboratory Reports

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041457

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Inorganic														
~~W040001533~~	~~B17N67~~	~~TRENT~~	~~57-12-5~~	~~Cyanide~~	~~SOIL~~	~~LA-605-402~~	~~U~~	~~< 0.200~~	~~mg/kg~~	~~1.00~~	~~0.20~~	~~09/02/04~~	~~08/23/04~~	~~08/23/04~~
W040001533	B17N67	TRENT	NH4-N	Nitrogen in ammonium	SOIL	LA-503-401	B	1.64	mg/kg	50.00	0.20	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	TS	Total solids	SOIL	LA-519-412		97.3	%	1.00	0.0	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	PH	pH Measurement	SOIL	LA-212-411		9.39	pH	1.00	0.010	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	16984-48-8	Fluoride	SOIL	LA-533-410	U	< 1.15	mg/kg	50.00	1.2	08/31/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	16887-00-6	Chloride	SOIL	LA-533-410	B	5.03	mg/kg	50.00	2.6	08/31/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	NO2-N	Nitrogen in Nitrite	SOIL	LA-533-410	U	< 0.950	mg/kg	50.00	0.95	08/31/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	NO3-N	Nitrogen in Nitrate	SOIL	LA-533-410		18.9	mg/kg	50.00	0.65	08/31/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	14265-44-2	Phosphate	SOIL	LA-533-410	U	< 2.70	mg/kg	50.00	2.7	08/31/04	08/23/04	08/23/04
~~W040001533~~	~~B17N67~~	~~TRENT~~	~~14808-79-8~~	~~Sulfate~~	~~SOIL~~	~~LA-533-410~~	~~B~~	~~17.5~~	~~mg/kg~~	~~50.00~~	~~5.0~~	~~08/31/04~~	~~08/23/04~~	~~08/23/04~~
W040001533	B17N67	TRENT	7429-90-5	Aluminum	SOIL	LA-505-411		4.97e+03	mg/kg	1.00	2.5	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7439-89-6	Iron	SOIL	LA-505-411		1.26e+04	mg/kg	1.00	1.5	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7439-95-4	Magnesium	SOIL	LA-505-411		3.12e+03	mg/kg	1.00	1.8	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7439-96-5	Manganese	SOIL	LA-505-411		207	mg/kg	1.00	0.043	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-02-0	Nickel	SOIL	LA-505-411		21.4	mg/kg	1.00	0.16	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-09-7	Potassium	SOIL	LA-505-411		972	mg/kg	1.00	8.9	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-22-4	Silver	SOIL	LA-505-411		2.88	mg/kg	1.00	0.12	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-23-5	Sodium	SOIL	LA-505-411	E	561	mg/kg	1.00	15	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-36-0	Antimony	SOIL	LA-505-411	U	< 0.540	mg/kg	1.00	0.54	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-39-3	Barium	SOIL	LA-505-411		60.5	mg/kg	1.00	0.013	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-43-9	Cadmium	SOIL	LA-505-411		1.27	mg/kg	1.00	0.075	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-47-3	Chromium	SOIL	LA-505-411		38.0	mg/kg	1.00	0.20	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-48-4	Cobalt	SOIL	LA-505-411		6.58	mg/kg	1.00	0.092	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-50-8	Copper	SOIL	LA-505-411		18.4	mg/kg	1.00	0.070	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-62-2	Vanadium	SOIL	LA-505-411		26.4	mg/kg	1.00	0.18	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-66-6	Zinc	SOIL	LA-505-411		32.3	mg/kg	1.00	0.26	09/15/04	08/23/04	08/23/04

Payes per Steve Treat 5/4/05

MDL = Minimum Detection Limit
RQ = Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
X - Other flags and notes described in the comments/narrative.
E - Analyte is an estimate, has potentially larger errors
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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041457

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001533	B17N67 TRENT	7440-70-2	Calcium	SOIL	LA-505-411		2.57e+03	mg/kg	1.00	1.2	09/15/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	7439-92-1	Lead	SOIL	LA-505-411	U	< 0.0630	mg/kg	1.00	0.063	09/15/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	7439-93-2	Lithium	SOIL	LA-505-411		8.28	mg/kg	1.00	0.10	09/15/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	7440-24-6	Strontium	SOIL	LA-505-411		31.1	mg/kg	1.00	0.10	09/15/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	7440-38-2	Arsenic	SOIL	LA-505-411	U	< 1.20	mg/kg	1.00	1.2	09/15/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	7440-41-7	Beryllium	SOIL	LA-505-411		0.280	mg/kg	1.00	5.0e-03	09/15/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	7440-69-9	Bismuth	SOIL	LA-505-411	U	< 2.20	mg/kg	1.00	2.2	09/15/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	7723-14-0	Phosphorus	SOIL	LA-505-411		494	mg/kg	1.00	0.30	09/15/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	7782-49-2	Selenium	SOIL	LA-505-411	U	< 1.00	mg/kg	1.00	1.0	09/15/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	7439-97-6	Mercury UJ	SOIL	LA-505-412		1.02	mg/kg	9.95	1.0	08/31/04	08/23/04	08/23/04
W040001533	B17N67 TRENT	7440-61-1	Uranium	SOIL	LA-505-412	U	< 0.995	mg/kg	9.95	1.0	08/31/04	08/23/04	08/23/04

LS
3-12-2010

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E - Analyte is an estimate, has potentially larger errors
U - Analyzed for but not detected above limiting criteria.

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041487

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Inorganic													
~~W040001543~~	~~B17N70 GRP TRENT~~	~~57-12-5~~	~~Cyanide~~	~~SOIL~~	~~LA-695-402~~	~~U~~	~~< 0.200~~	~~mg/kg~~	~~1.00~~	~~0.20~~	~~09/08/04~~	~~08/25/04~~	~~08/25/04~~
W040001543	B17N70 GRP TRENT	NH4-N	Nitrogen in ammonium	SOIL	LA-503-401	B	0.906	mg/kg	49.00	0.20	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	TS	Total solids	SOIL	LA-519-412		97.1	%	1.00	0.0	09/01/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	PH	pH Measurement	SOIL	LA-212-411		9.38	pH	1.00	0.010	09/01/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	16984-48-8	Fluoride	SOIL	LA-533-410	U	< 1.15	mg/kg	50.00	1.2	08/31/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	16887-00-6	Chloride	SOIL	LA-533-410	B	5.13	mg/kg	50.00	2.6	08/31/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	NO2-N	Nitrogen in Nitrite	SOIL	LA-533-410	U	< 0.950	mg/kg	50.00	0.95	08/31/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	NO3-N	Nitrogen in Nitrate	SOIL	LA-533-410		21.6	mg/kg	50.00	0.65	08/31/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	14265-44-2	Phosphate	SOIL	LA-533-410	U	< 2.70	mg/kg	50.00	2.7	08/31/04	08/25/04	08/25/04
~~W040001543~~	~~B17N70 GRP TRENT~~	~~14808-79-8~~	~~Sulfate~~	~~SOIL~~	~~LA-533-410~~	~~B~~	~~10.2~~	~~mg/kg~~	~~50.00~~	~~5.0~~	~~08/31/04~~	~~08/25/04~~	~~08/25/04~~
W040001543	B17N70 GRP TRENT	7429-90-5	Aluminum	SOIL	LA-505-411		5.41e+03	mg/kg	1.00	2.5	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7439-89-6	Iron	SOIL	LA-505-411		1.39e+04	mg/kg	1.00	1.5	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7439-95-4	Magnesium	SOIL	LA-505-411		3.37e+03	mg/kg	1.00	1.8	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7439-96-5	Manganese	SOIL	LA-505-411		2.24e+03	mg/kg	1.00	0.043	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-02-0	Nickel	SOIL	LA-505-411		28.5	mg/kg	1.00	0.16	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-09-7	Potassium	SOIL	LA-505-411		1.21e+03	mg/kg	1.00	8.9	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-22-4	Silver	SOIL	LA-505-411		2.56	mg/kg	1.00	0.12	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-23-5	Sodium	SOIL	LA-505-411	E	661	mg/kg	1.00	15	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-36-0	Antimony	SOIL	LA-505-411	U	< 0.540	mg/kg	1.00	0.54	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-39-3	Barium	SOIL	LA-505-411		53.2	mg/kg	1.00	0.013	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-43-9	Cadmium	SOIL	LA-505-411		1.43	mg/kg	1.00	0.075	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-47-3	Chromium	SOIL	LA-505-411		54.4	mg/kg	1.00	0.20	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-48-4	Cobalt	SOIL	LA-505-411		6.88	mg/kg	1.00	0.092	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-50-8	Copper	SOIL	LA-505-411		13.3	mg/kg	1.00	0.070	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-62-2	Vanadium	SOIL	LA-505-411		26.4	mg/kg	1.00	0.18	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-66-6	Zinc	SOIL	LA-505-411		31.9	mg/kg	1.00	0.26	09/15/04	08/25/04	08/25/04

MDL = Minimum Detection Limit
RQ = Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
E - Analyte is an estimate, has potentially larger errors
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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041487

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001543	B17N70	GRP	TRENT	7440-70-2	Calcium	SOIL	LA-505-411		2.31e+03	mg/kg	1.00	1.2	09/15/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	7439-92-1	Lead	SOIL	LA-505-411	U	< 0.0630	mg/kg	1.00	0.063	09/15/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	7439-93-2	Lithium	SOIL	LA-505-411		9.11	mg/kg	1.00	0.10	09/15/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	7440-24-6	Strontium	SOIL	LA-505-411		21.0	mg/kg	1.00	0.10	09/15/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	7440-38-2	Arsenic	SOIL	LA-505-411		1.81	mg/kg	1.00	1.2	09/15/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	7440-41-7	Beryllium	SOIL	LA-505-411		0.284	mg/kg	1.00	5.0e-03	09/15/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	7440-69-9	Bismuth	SOIL	LA-505-411	U	< 2.20	mg/kg	1.00	2.2	09/15/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	7723-14-0	Phosphorus	SOIL	LA-505-411		524	mg/kg	1.00	0.30	09/15/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	7782-49-2	Selenium	SOIL	LA-505-411	U	< 1.00	mg/kg	1.00	1.0	09/15/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	7439-97-6	Mercury	SOIL	LA-505-412	U	< 0.987	mg/kg	9.87	0.99	08/31/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	7440-61-1	Uranium	SOIL	LA-505-412	U	< 0.987	mg/kg	9.87	0.99	08/31/04	08/25/04	08/25/04

MDL=Minimum Detection Limit
RQ=Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
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E - Analyte is an estimate, has potentially larger errors
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DF=Dilution Factor

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Inorganic														
W040001610	B17N73	TRENT	57-12-5	Cyanide	SOIL	LA-635-402	U	< 0.200	mg/kg	1.00	0.20	09/27/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	NH4-N	Nitrogen in ammonium	SOIL	LA-503-401	B	0.780	mg/kg	50.00	0.20	09/20/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	TS	Total solids	SOIL	LA-519-412		93.9	%	1.00	0.0	09/15/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	PH	pH Measurement	SOIL	LA-212-411		8.45	pH	1.00	0.010	09/15/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	16984-48-8	Fluoride	SOIL	LA-533-410	U	< 1.15	mg/kg	50.00	1.2	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	16887-00-6	Chloride	SOIL	LA-533-410	B	3.30	mg/kg	50.00	2.6	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	NO2-N	Nitrogen in Nitrite	SOIL	LA-533-410	U	< 0.950	mg/kg	50.00	0.95	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	NO3-N	Nitrogen in Nitrate	SOIL	LA-533-410		6.53	mg/kg	50.00	0.65	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	14265-44-2	Phosphate	SOIL	LA-533-410	U	< 2.70	mg/kg	50.00	2.7	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	14808-79-8	Sulfate	SOIL	LA-533-410	B	11.2	mg/kg	50.00	5.0	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7429-90-5	Aluminum	SOIL	LA-505-411		6.51e+03	mg/kg	1.00	2.5	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7439-89-6	Iron	SOIL	LA-505-411		1.65e+04	mg/kg	1.00	1.5	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7439-95-4	Magnesium	SOIL	LA-505-411		3.68e+03	mg/kg	1.00	1.8	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7439-96-5	Manganese	SOIL	LA-505-411		318	mg/kg	1.00	0.043	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-02-0	Nickel	SOIL	LA-505-411		20.2	mg/kg	1.00	0.16	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-09-7	Potassium	J SOIL	LA-505-411		970	mg/kg	1.00	8.9	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-22-4	Silver	J SOIL	LA-505-411	E	0.958	mg/kg	1.00	0.12	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-23-5	Sodium	J SOIL	LA-505-411	E	325	mg/kg	1.00	15	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-36-0	Antimony	SOIL	LA-505-411	U	< 0.540	mg/kg	1.00	0.54	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-39-3	Barium	SOIL	LA-505-411		106	mg/kg	1.00	0.013	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-43-9	Cadmium	SOIL	LA-505-411	U	< 0.0750	mg/kg	1.00	0.075	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-47-3	Chromium	SOIL	LA-505-411		35.7	mg/kg	1.00	0.20	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-48-4	Cobalt	SOIL	LA-505-411		9.45	mg/kg	1.00	0.092	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-50-8	Copper	SOIL	LA-505-411		14.9	mg/kg	1.00	0.070	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-62-2	Vanadium	SOIL	LA-505-411		56.7	mg/kg	1.00	0.18	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-66-6	Zinc	SOIL	LA-505-411		35.9	mg/kg	1.00	0.26	09/23/04	09/09/04	09/09/04

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001610	B17N73	TRENT	7440-70-2	Calcium		SOIL	LA-505-411		3.28e+03	mg/kg	1.00	1.2	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7439-92-1	Lead		SOIL	LA-505-411	U	< 0.0630	mg/kg	1.00	0.063	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7439-93-2	Lithium		SOIL	LA-505-411		6.80	mg/kg	1.00	0.10	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-24-6	Strontium		SOIL	LA-505-411		23.0	mg/kg	1.00	0.10	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-38-2	Arsenic		SOIL	LA-505-411		1.62	mg/kg	1.00	1.2	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-41-7	Beryllium		SOIL	LA-505-411		0.296	mg/kg	1.00	5.0e-03	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-69-9	Bismuth		SOIL	LA-505-411	U	< 5.00	mg/kg	1.00	5.0	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7723-14-0	Phosphorus		SOIL	LA-505-411		663	mg/kg	1.00	4.8	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7782-49-2	Selenium		SOIL	LA-505-411	U	< 1.00	mg/kg	1.00	1.0	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7439-97-6	Mercury	J	SOIL	LA-505-412		0.399	mg/kg	9.98	0.010	09/15/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-61-1	Uranium		SOIL	LA-505-412		0.382	mg/kg	9.98	0.16	09/15/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	57-12-5	Cyanide		SOIL	LA-605-402	U	< 0.200	mg/kg	1.00	0.20	09/27/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	NH4-N	Nitrogen in ammonium		SOIL	LA-503-401	B	0.717	mg/kg	50.00	0.20	09/20/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	TS	Total solids		SOIL	LA-519-412		88.3	%	1.00	0.0	09/15/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	PH	pH Measurement		SOIL	LA-212-411		8.00	pH	1.00	0.010	09/15/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	16984-48-8	Fluoride		SOIL	LA-533-410	U	< 1.15	mg/kg	50.00	1.2	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	16887-00-6	Chloride		SOIL	LA-533-410	B	4.64	mg/kg	50.00	2.6	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	NO2-N	Nitrogen in Nitrite		SOIL	LA-533-410	U	< 0.950	mg/kg	50.00	0.95	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	NO3-N	Nitrogen in Nitrate		SOIL	LA-533-410	B	12.3	mg/kg	50.00	0.65	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	14265-44-2	Phosphate		SOIL	LA-533-410	U	< 2.70	mg/kg	50.00	2.7	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	14808-79-8	Sulfate		SOIL	LA-533-410	U	< 5.00	mg/kg	50.00	5.0	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7429-90-5	Aluminum		SOIL	LA-505-411		7.37e+03	mg/kg	1.00	2.5	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7439-89-6	Iron		SOIL	LA-505-411		1.70e+04	mg/kg	1.00	1.5	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7439-95-4	Magnesium		SOIL	LA-505-411		4.66e+03	mg/kg	1.00	1.8	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7439-96-5	Manganese		SOIL	LA-505-411		515	mg/kg	1.00	0.043	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-02-0	Nickel		SOIL	LA-505-411		17.4	mg/kg	1.00	0.16	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-09-7	Potassium	J	SOIL	LA-505-411		89.8	mg/kg	1.00	8.9	09/23/04	09/09/04	09/09/04

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001612	B17NL5	TRENT	7440-22-4	Silver	UJ	SOIL	LA-505-411	U	< 0.120	mg/kg	1.00	0.12	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-23-5	Sodium	J	SOIL	LA-505-411	E	145	mg/kg	1.00	15	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-36-0	Antimony		SOIL	LA-505-411		0.828	mg/kg	1.00	0.54	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-39-3	Barium		SOIL	LA-505-411		107	mg/kg	1.00	0.013	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-43-9	Cadmium		SOIL	LA-505-411	U	< 0.0750	mg/kg	1.00	0.075	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-47-3	Chromium		SOIL	LA-505-411		21.1	mg/kg	1.00	0.20	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-48-4	Cobalt		SOIL	LA-505-411		10.5	mg/kg	1.00	0.092	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-50-8	Copper		SOIL	LA-505-411		18.0	mg/kg	1.00	0.070	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-62-2	Vanadium		SOIL	LA-505-411		51.7	mg/kg	1.00	0.18	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-66-6	Zinc		SOIL	LA-505-411		37.0	mg/kg	1.00	0.26	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-70-2	Calcium		SOIL	LA-505-411		3.21e+03	mg/kg	1.00	1.2	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7439-92-1	Lead		SOIL	LA-505-411	U	< 0.0630	mg/kg	1.00	0.063	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7439-93-2	Lithium		SOIL	LA-505-411		7.93	mg/kg	1.00	0.10	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-24-6	Strontium		SOIL	LA-505-411		25.9	mg/kg	1.00	0.10	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-38-2	Arsenic		SOIL	LA-505-411	U	< 1.20	mg/kg	1.00	1.2	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-41-7	Beryllium		SOIL	LA-505-411		0.310	mg/kg	1.00	5.0e-03	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-69-9	Bismuth		SOIL	LA-505-411	U	< 2.20	mg/kg	1.00	2.2	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7723-14-0	Phosphorus		SOIL	LA-505-411		584	mg/kg	1.00	4.8	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7782-49-2	Selanium		SOIL	LA-505-411	U	< 1.00	mg/kg	1.00	1.0	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7439-97-6	Mercury	UJ	SOIL	LA-505-412		0.180	mg/kg	9.88	9.9e-03	09/15/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-61-1	Uranium		SOIL	LA-505-412	U	< 0.158	mg/kg	9.88	0.16	09/15/04	09/09/04	09/09/04

LS
3-12-2010

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051337

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Inorganic														
~~W050002028~~	~~B1D994~~	~~TRENT~~	~~NH4-N~~	~~Nitrogen in ammonium~~	~~SOIL~~	~~LA-503-401~~	~~B~~	~~0.245~~	~~mg/kg~~	~~50.00~~	~~0.20~~	~~07/07/05~~	~~06/29/05~~	~~06/29/05~~
W050002028	B1D994	TRENT	TS	Total solids	SOIL	LA-519-412		97.4	%	1.00	0.0	~~07/07/05~~	06/29/05	06/29/05
W050002028	B1D994	TRENT	PH	pH Measurement	SOIL	LA-212-411		9.16	pH	~~1.00~~	0.010	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	16984-48-8	Fluoride	SOIL	LA-533-410	U	< 1.15	mg/kg	50.00	1.2	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	16887-00-6	Chloride	SOIL	LA-533-410	U	< 2.60	mg/kg	50.00	2.6	07/07/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	NO2-N	Nitrogen in Nitrite	SOIL	LA-533-410	U	< 0.950	mg/kg	50.00	0.95	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	NO3-N	Nitrogen in Nitrate	SOIL	LA-533-410	U	< 0.650	mg/kg	50.00	0.65	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	PO4-P	Phosphate (P) by IC	SOIL	LA-533-410	U	< 2.70	mg/kg	50.00	2.7	07/07/05	06/29/05	06/29/05
~~W050002028~~	~~B1D994~~	~~TRENT~~	~~14808-79-8~~	~~Sulfate~~	~~SOIL~~	~~LA-533-410~~	~~U~~	~~< 5.00~~	~~mg/kg~~	~~50.00~~	~~5.0~~	~~07/07/05~~	~~06/29/05~~	~~06/29/05~~
W05000202B	B1D994	TRENT	7440-69-9	Bismuth	SOIL	LA-505-411	U	< 1.08	mg/kg	49.30	1.1	07/18/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7723-14-0	Phosphorus	SOIL	LA-505-411		451	mg/kg	49.30	2.4	07/18/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-02-0	Nickel	SOIL	LA-505-412		12.7	mg/kg	1.04	0.10	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-22-4	Silver	SOIL	LA-505-412	U	< 0.104	mg/kg	1.04	0.10	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-39-3	Barium	SOIL	LA-505-412		48.9	mg/kg	1.04	4.2	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-43-9	Cadmium	SOIL	LA-505-412	U	< 0.104	mg/kg	1.04	0.10	07/07/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	7440-47-3	Chromium	SOIL	LA-505-412		10.2	mg/kg	1.04	4.2	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-50-8	Copper	SOIL	LA-505-412		9.07	mg/kg	1.04	2.1	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7439-92-1	Lead	SOIL	LA-505-412		3.01	mg/kg	1.04	0.21	07/07/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	7439-97-6	Mercury	SOIL	LA-505-412	U	< 0.104	mg/kg	1.04	0.10	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-61-1	Uranium	SOIL	LA-505-412		0.300	mg/kg	1.04	0.10	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-38-2	Arsenic	SOIL	LA-505-412		2.45	mg/kg	1.04	0.42	07/07/05	06/29/05	06/29/05
W05000202B	B1D994	TRENT	7782-49-2	Selenium	SOIL	LA-505-412	U	< 0.416	mg/kg	1.04	0.42	07/07/05	06/29/05	06/29/05

LS
3-12-2010

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051350

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Inorganic														
W050002036	B1D995	TRENT	NH4-N	Nitrogen in ammonium	SOIL	LA-533-401	U	< 0.136	mg/kg	49.00	0.28	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	TS	Total solids	SOIL	LA-519-412		93.2	%	1.00	0.0	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	PH	pH Measurement	SOIL	LA-212-411		9.18	pH	1.00	0.010	07/06/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	16984-48-8	Fluoride	SOIL	LA-533-410	U	< 1.13	mg/kg	49.00	1.1	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	16887-00-6	Chloride	SOIL	LA-533-410	U	< 2.55	mg/kg	49.00	2.5	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	NO2-N	Nitrogen in Nitrite	SOIL	LA-533-410	U	< 0.931	mg/kg	49.00	0.93	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	NO3-N	Nitrogen in Nitrate	SOIL	LA-533-410	U	< 0.637	mg/kg	49.00	0.64	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	PO4-P	Phosphate (P) by IC	SOIL	LA-533-410	U	< 2.65	mg/kg	49.00	2.6	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	14808-79-8	Sulfate	SOIL	LA-533-410	U	< 4.36	mg/kg	49.00	4.3	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-69-9	Bismuth	SOIL	LA-505-411	U	< 1.08	mg/kg	49.31	1.1	07/18/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7723-14-0	Phosphorus	SOIL	LA-505-411		536	mg/kg	49.31	2.4	07/18/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-02-0	Nickel	SOIL	LA-505-412		3.89	mg/kg	1.05	0.10	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-22-4	Silver	SOIL	LA-505-412	U	< 0.105	mg/kg	1.05	0.10	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-39-3	Barium	SOIL	LA-505-412		25.5	mg/kg	1.05	4.2	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-43-9	Cadmium	SOIL	LA-505-412	U	< 0.105	mg/kg	1.05	0.10	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-47-3	Chromium	SOIL	LA-505-412		5.83	mg/kg	1.05	4.2	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-50-8	Copper	SOIL	LA-505-412		5.01	mg/kg	1.05	2.1	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7439-92-1	Lead	SOIL	LA-505-412		1.39	mg/kg	1.05	0.21	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7439-97-6	Mercury	SOIL	LA-505-412	U	< 0.105	mg/kg	1.05	0.10	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-61-1	Uranium	SOIL	LA-505-412		0.180	mg/kg	1.05	0.10	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-38-2	Arsenic	SOIL	LA-505-412		0.650	mg/kg	1.05	0.42	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7782-49-2	Selenium	SOIL	LA-505-412	U	< 0.420	mg/kg	1.05	0.42	07/07/05	06/30/05	06/30/05

LS
3-12-2010

MDL=Minimum Detection Limit 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

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041457**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-Z-9/C3426 – Interval 174'-176-5' Trench Characterization Borehole - Soil (B17N67) was received at the WSCF Laboratory on August 23, 2004. The sample was 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- ICP-AES Metals by EPA Method 6010. Analytical work was performed with no deviations to the approved method.
- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- PCB by EPA Method 8080. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. 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.

- Ammonia by EPA Method 300.7. 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.

- Percent Solids by Method 160.3. Analytical work was performed with no deviations to the approved method.

- All RadChem analyses (AEA (Plutonium, Americium, Uranium and Neptunium), GEA, and Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Comments

ICP-MS Metals (Mercury and Uranium only) – 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 GRP Letter of Instruction. See pages 2-18 through 2-19 for QC details. All QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See page(s) 2-17 through 2-20 for QC details. Analytical Notes:

- Sodium – Matrix spike and spike duplicates exceeded the established laboratory limits. Sample result was E (estimate) flagged.

- Aluminum, Iron, Calcium and Magnesium – the spike concentration was insufficient for the sample concentration.

- Aluminum – laboratory control sample exceeds the established laboratory limits, but is within manufacturer's limits. Sample result was not flagged.

All other QC controls are within the established limits.

Anions - 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 GRP Letter of Instruction. See pages 2-20 through 2-21 for QC details. Analytical Notes:

- Chloride - Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

- Sulfate – Duplicate Relative Percent Difference exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

PCB – 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 GRP Letter of Instruction. See pages 2-29 through 2-30 for QC details. Analytical Notes:

- Sample results are moisture corrected and reported on a dry weight basis.
- Decachlorobiphenyl surrogate spike Relative Percent Difference slightly exceeded established limits. Matrix Spike and Matrix Spike Duplicate recoveries were within limit; sample results were not flagged.

All other QC controls are within the established limits

Semi-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 GRP Letter of Instruction. See pages 2-32 through 2-38 for QC details. Analytical Notes:

- Sample results are moisture corrected and reported on a dry weight basis.
- Pentachlorophenol – laboratory control sample recovery was below established laboratory limits. Matrix spike duplicate recoveries are below established limits. Sample result was J (estimate) flagged.
- N-Nitrosodi-n-dipropylamine – The matrix spike duplicate exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.
- Di-n-butylphthalate – Sample result J flagged; the target compound indicates that it was found at a concentration below that of the lowest calibration standard but above the detection limit.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 2-28 for QC details. Analytical Note:

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

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 GRP Letter of Instruction. See pages 2-25 through 2-27 for QC details. Analytical Note:

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

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 the GRP Letter of Instruction. See page 2-22 for QC details. Analytical Note:

- The matrix spike recovery is below established limits. The laboratory control sample is within established limits. The sample result is not flagged.

All QC controls are within the established limits.

Ammonia - 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 GRP Letter of Instruction. See pages 2-31 for QC details. Analytical Notes:

- Matrix spike and matrix spike duplicate were analyzed on sample delivery group 20041487, sample B17N70 for this batch.

- Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

All other QC controls are within the established limits.

pH - All laboratory QC controls were within the established limits.

Percent Solid – Analyzed for organic moisture correction only.

RadChem – There are no hold times associated with these WDOE accredited methods. A Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 2-23, 2-24 and 2-45 through 48 for QC details. Analytical Notes:

- Gross Alpha and Gross Beta – The duplicate Relative Percent Differences exceeded the established limits; sample results were not flagged since the sample had low activity and the RPD criteria does not apply.

- Neptunium-237 – the laboratory control sample recovery was below the established laboratory limits. Duplicate relative percent difference exceeded established laboratory limits. Sample result is X (estimated) flagged.

- Americium-241 – duplicate relative percent difference exceeded established laboratory limits; sample result was not flagged since the sample had low activity and the RPD criterion does not apply.

- Pu-239/240 - duplicate relative percent difference exceeded established laboratory limits; sample result was not flagged since the sample had low activity and the RPD criterion does not apply.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		Am-243	65.0
LCS		Am-243	80.14
B17N57	W040001533	Am-243	78.2
DUPLICATE	W040001533	Am-243	68.8
BLANK		Pu-242	77.3
LCS		Pu-242	71.9
B17N57	W040001533	Pu-242	81.0
DUPLICATE	W040001533	Pu-242	70.7
BLANK		U-232	83.1
LCS		U-232	71.7
B17N57	W040001533	U-232	80.7
DUPLICATE	W040001533	U-232	82.4

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.

Herlene S. Rich
WSCF Production Control

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

0000007

9/22

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-019	Page 1 of 1
Collector: Pope/Pfister/Hughes	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location: 216-Z-9/C3426 - Interval 174'-176.5'	SAF No.: F03-018	
Ice Chest No.	Field Logbook No.: HNF-~~N-9361~~ 361-1 1st 9/14/04; COA: 119152ES10	Method of Shipment: Government Vehicle	
Shipped To: Waste Sampling & Characterization 20041457	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage
RADIOACTIVE TIE TO: B17NN7

Preservation	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None					
Type of Container	aGs*	P	aG	aG	aG	aG					
No. of Container(s)	3	1	1	1	1	1					
Volume	40mL	500mL	60mL	120mL	60mL	60mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	See item (5) in Special Instructions.					

Sample No.	Matrix *	Sample Date	Sample Time										
B17N67	SOIL	8/23/04	1309	X	X	X	X	X	X				
W04000153 3													

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Lorraine Wolfe Wolfe	Date/Time: 14:12 8/23/04	Received By/Stored In: Victor Bins	Date/Time: 8/23/04 14:12
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** The laboratory is to achieve a detection limit of 5 pCi/g and 10 pCi/g for gross alpha and gross beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

000059 COC 10/11/04 3-2

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041487**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-Z-9/C3426 – Interval 184'-186.5' Trench Characterization Borehole - Soil GRP sample (B17N70) was received at the WSCF Laboratory on August 25, 2004. The sample was 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- ICP-AES Metals by EPA Method 6010. Analytical work was performed with no deviations to the approved method.
- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. 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.

- Ammonia by EPA Method 300.7. 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.

- Percent Solids by EPA Method 160.3. Analytical work was performed with no deviations to the approved method.

- All RadChem analyses (AEA (Plutonium, Americium, Uranium, Neptunium) GEA, Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Comments

ICP-MS Metals (Uranium and Mercury only) – 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 GRP Letter of Instruction. See page 2-18 through 2-19 for QC details. All GRP sample delivery groups associated with this batch QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See pages 2-37 through 2-42 for QC details. Analytical Notes:

- Sodium – The matrix spike and matrix spike duplicate for sample B190V5 (SDG# 20041417) associated with this batch exceeded established laboratory limits. The sample result was E (estimate) flagged.

- Potassium - The matrix spike duplicate for sample B190V5 (SDG# 20041417) associated with this batch exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.

- Aluminum, Iron, Magnesium and Calcium - the spike concentration was insufficient for the sample concentration.

- Aluminum – the Laboratory Control Sample recovery exceeded established laboratory limits but was within the manufacturer's limits. Sample result was not flagged.

All other QC controls are within the established limits.

Anions - The hold times for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 2-20 through 2-21 for QC details. Analytical Notes:

- Chloride – Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

- Sulfate - Duplicate Relative Percent Difference for the batch exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 2-30 through 2-36 for QC details. Analytical Notes:

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

- Pentachlorophenol - laboratory control sample recovery was below established laboratory limits. The sample result was less than the detection limit and not flagged.

- N-Nitrosodi-n-dipropylamine - The matrix spike duplicate for sample B17N67 (SDG# 20041457) associated with this batch exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 2-26 for QC details. Analytical Note:

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

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 GRP Letter of Instruction. See page(s) 2-22 through 2-24 for QC details. Analytical Notes:

- Styrene – Sample result J flagged; the target compound indicates that it was found at a concentration below that of the lowest calibration standard but above the detection limit.

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

All other 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 the GRP Letter of Instruction. See page 2-27 for QC details. Analytical Note:

- The matrix spike recovery was below established laboratory limits. The matrix spike duplicate was within limits and all other QC controls were within limits. The sample result was not flagged.

All other QC controls are within the established limits.

Ammonia - 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 GRP Letter of Instruction. See page 2-28 for QC details. Analytical Note:

- Duplicate Relative Percent Difference for the batch exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

pH - All laboratory QC controls are within the established limits.

Percent Solids – run for organic analysis moisture correction only.

RadChem – There are no hold times associated with these WDOE accredited methods. A Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 2-25, 2-29, 2-43 through 2-46 for QC details. Analytical Notes:

- Neptunium-237 – The Duplicate Relative Percent Difference is below the established laboratory limit. The RPD criterion is not applicable to sample activity below the detection limit.

- Americium-241 and Plutonium-239-240 – Duplicate Relative Percent Differences are above the established laboratory limits. The sample was in a soil matrix and non-homogeneous. Sample results were not flagged.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery

Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		Pu-242	64.3
LCS		Pu-242	72.6
B17N70	W040001543	Pu-242	77.4
DUPLICATE	W040001543	Pu-242	72.3
BLANK		Am-243	80.1
LCS		Am-243	88.7
B17N70	W040001543	Am-243	70.4

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
DUPLICATE	W040001543	Am-243	89.1
BLANK		U-232	86.1
LCS		U-232	80.1
B17N70	W040001543	U-232	84.3
DUPLICATE	W040001543	U-232	89.2

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.

Herlene S. Rich
WSCF Production Control

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

9/23/04

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-021	Page 1 of 1
Collector: Pope/Pfister/Hughes	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days
Project Designation: 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location: 216-Z-9/C3426 - Interval 184'-186.5'	SAF No.: F03-018	Air Quality ☐
Ice Chest No.	Field Logbook No.: HNF-~~N3361~~ 360-1 4/8/04; COA: 119152ES10	Method of Shipment: Government Vehicle	
Shipped To: Waste Sampling & Characterization	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NN8

SAMPLE ANALYSIS

SDG #20041487

Preservation				Cool 4C	None	Cool 4C	Cool 4C	None				
Type of Container				aGs*	P	aG	aG	aG				
No. of Container(s)				3	1	1	1	1				
Volume				40mL	500mL	60mL	120mL	60mL				
				See item (1) in Special Instructions.	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									
B17N70 W04000543	SOIL	8/25/04	1135	X	X	X	X	X				

CHAIN OF POSSESSION	Sign/Print Names		
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / David Tyler	8/25/04 1300	[signature] / Bobbs	8/25/04 1300
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** The laboratory is to achieve a detection limit of 5 pCi/g and 10 pCi/g for gross alpha and gross beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA – 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

010057

3 - 2

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041594**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

Two (2) 216-Z-9/C3426 – Interval 224'-226.5' Trench Characterization Borehole - Soil GRP samples (B17N73 and B17NL5) were received at the WSCF Laboratory on September 9, 2004. 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

Inorganic

- Ammonia by EPA Method 300.7. Analytical work was performed with no deviations to the approved method.
- 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-AES Metals by EPA Method 6010. 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

- PCBs by EPA Method 8082. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. Analytical work was performed with no deviations to the approved method.

Radiochemistry

- All RadChem analyses (AEA (Plutonium, Americium, Uranium, Neptunium) GEA, Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 13 for QC details. Analytical Note:

- The sample results were less than the reporting detection limit, but greater than the method detection limit. The sample results were B flagged.

All QC controls are within the established limits.

Anions - The hold times for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 14 through 15 for QC details. Analytical Note:

- Chloride - The sample results for B17N73 and B17NL5 were less than the reporting detection limit, but greater than the method detection limit. The sample results were B flagged.
- Sulfate - The sample result for B17N73 was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.
- Nitrate - The sample result for B17NL5 was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

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 the GRP Letter of Instruction. See page 16 for QC details. Analytical Note:

- The Matrix and Matrix Spike Duplicate recoveries were below established laboratory limits. Sample results were below the detection limit and not flagged.

All other QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See pages 17 through 21 for QC details. Analytical Notes:

- Potassium – The Matrix Spike exceeded established laboratory limits. All other QC samples were within limits and the sample results were not flagged.

- Sodium – The Matrix Spike, Matrix Spike Duplicate and Relative Percent Difference were above established laboratory limits. Sample results were E (estimate) flagged.

- Silver – The Matrix Spike Duplicate was below established laboratory limits, making the Matrix Spike and Matrix Spike Duplicate Relative Percent Difference above established limits. The Laboratory Control Sample recovery was low. Sample B17N73 result was E (estimate) flagged.

- Phosphorus – The Matrix Spike Duplicate was below established laboratory limits. All other QC samples were within limits and the sample results were not flagged.

- Aluminum – the Laboratory Control Sample recovery exceeded established limits. The recovery was within manufacturer's limits and the sample results were not flagged.

- Iron and Strontium – the Laboratory Control Sample recoveries were above established limits. The recoveries were within manufacturer's limits and the sample results were not flagged.

All other QC controls are within the established limits.

ICP-MS Metals (Mercury and Uranium) – 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 GRP Letter of Instruction. See page 22 for QC details. Analytical Note:

- Mercury – The Laboratory Control Sample recovery exceeded established laboratory limits. All other QC controls were within limits, sample results were not flagged.

All other QC controls are within the established limits.

Percent Solids – analyzed for organic analysis correction only.

pH - The hold time for this analysis was met. All laboratory QC controls are within the established limits.

Organic Comments

- Organic sample results are moisture corrected and reported on dry weight basis.

PCBs – 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 GRP Letter of Instruction. See pages 32 through 33 for QC details. All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 34 through 41 for QC details. Analytical Note:

- Diethylphthalate and Di-n-butylphthalate- sample results were J flagged; results were less than the lowest calibration standard but greater than the detection limit.

All QC controls are within the established limits.

TPHD/G-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 42 through 43 for QC details. 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 GRP Letter of Instruction. See pages 44 through 47 for QC details. Analytical Notes:

- A Matrix Spike and Matrix Spike Duplicate were analyzed on sample B191F8 (SDG#20041555, SAF#F03-025). All recoveries were within established laboratory limits.

- Toluene – Laboratory Control Sample Recovery was above established limits due to column carry over from sample W04DC00159. All other QC controls were within limits and the sample results were not flagged.

All other QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with these WDOE accredited methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 48 through 56 for QC details. Analytical Note:

- Americium-241 - The Duplicate Relative Percent Difference exceeded the established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

- Europium-155, Gross Alpha, Gross Beta and Plutonium-239/240 - The Duplicate Relative Percent Difference exceeded established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

- Neptunium-137 - The Duplicate Relative Percent Difference and Laboratory Control Sample recovery exceeded established limits. The sample results were under the detection limit and not flagged. Sample results should be considered suspect.

- Gross Alpha and Gross Beta - The Duplicate Relative Percent Difference exceeded the established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery

Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		U-232	74.6
LCS		U-232	73.2
B1B625	W040001577	U-232	79.1
DUPLICATE	W040001577	U-232	90.1
B07N73	W040001610	U-232	82.2
B17NL5	W040001612	U-232	88.3
BLANK		Sr-85	90.0
LCS		Sr-85	86.9
B1B625	W040001577	Sr-85	101.7
DUPLICATE	W040001577	Sr-85	89.5
BLANK		Pu-242	75.6
LCS		Pu-242	79.3
B1B625	W040001577	Pu-242	74.0

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
DUPLICATE	W040001577	Pu-242	78.6
B07N73	W040001610	Pu-242	71.7
B17NL5	W040001612	Pu-242	86.2
BLANK		Am-243	89.6
LCS		Am-243	68.7
B1B625	W040001577	Am-243	84.2
DUPLICATE	W040001577	Am-243	77.4
B07N73	W040001610	Am-243	79.0
B17NL5	W040001612	Am-243	83.3

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.

Herlene S. Rich
WSCF Production Control

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

10/7

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-023	Page 1 of 1
Collector: Pope/Pfister/Hughes	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Air Quality ☐; Data Turnaround: 45 Days
Project Designation: 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location: 216-Z-9/C3426 - Interval 224'-226.5'	SAF No.: F03-018	
Ice Chest No.	Field Logbook No.: HNF-N-~~3361~~ 361-1 4/8/04; COA: 119152ES10	Method of Shipment: Government Vehicle	
Shipped To: Waste Sampling & Characterization	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NN9

20041594

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None						
Type of Container	aGs*	P	aG	aG	aG						
No. of Container(s)	3	1	1	1	1						
Volume	40mL	500mL	60mL	120mL	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	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										
B17N73	SOIL	9/9/04	0820	X	X	X	X	X					
W04000160													

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Lana Wilcox Wanning	Date/Time: 9/9/04 1005	Received By/Stored In: [illegible]	Date/Time: 9/9/04 1005
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

The lab is to achieve a detection limit of 5 pCi/g & 10 pCi/g for gross alpha and beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237

(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}

(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}

(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-026	Page 1 of 1

Collector Pope/Pfister/Hughes	Company Contact Steve Trent	Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code 8N Air Quality ☐	Data Turnaround 45 Days
Project Designation 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location 216-Z-9/C3426 - Interval 228.5'-233'		SAF No. F03-018		
Ice Chest No.	Field Logbook No. ASC 4/19/04 HNF-N-~~9361~~ 361-1	COA 117506ES10	Method of Shipment Government Vehicle		
Shipped To Waste Sampling & Characterization	Offsite Property No. N/A		Bill of Lading/Air Bill No. N/A		

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NP0

Preservation	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None				
Type of Container	aGs*	P	aG	aG	aG	aG				
No. of Container(s)	3	1	1	1	1	1				
Volume	40mL	500mL	60mL	120mL	60mL	60mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	See item (5) in Special Instructions.				

Sample No.	Matrix *	Sample Date	Sample Time										
B17NL5	SOIL	9/9/04	0858	X	X	X	X	X	X				
WO4000161Z													

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From R. Pfister 9/9/04 1000	Date/Time	Received By/Stored In [illegible] 9/9/04 1000	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

The lab is to achieve a detection limit of 5 pCi/g & 10 pCi/g for gross alpha and beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA – 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

Attachment 1
Narrative

Sample Delivery Group	**WSCF20051337**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F05-023**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-A-8 Crib Characterization Borehole sample/I-7 (B1D994) was received at the WSCF Laboratory on June 29, 2005. The sample was 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

Refer to *WSCF Method References Report,* pages 45 through 46, for a complete listing of approved analytical methods.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 11 for QC details. Analytical Notes:

- Sample B1D994 result was B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.
- Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. RPD criterion not applicable to low level sample.

All other QC controls are within the established limits.

Anions - The hold times for this analysis were met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 12 through 13 for QC details. Analytical Note:

- Preparation Date: 07-jul-2005.

All QC controls are within the established limits.

ICP-AES Metals (Bismuth and Phosphorus) – 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 GRP Letter of Instruction. See page 14 for QC details. Analytical Notes:

- Preparation Date: 18-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D7D0 (SDG# 20051234, F05-023).
- Phosphorus: insufficient spike concentration. Sample concentration was greater than four times the spike concentration.
- Bismuth: The analyte detected in the associated preparation Blank sample was evaluated and there was no significant effect on the sample result.

All other 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 GRP Letter of Instruction. See pages 15 through 17 for QC details. Analytical Notes:

- Preparation Date: 06-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D993 (SDG# 20051319, SAF# F05-023).

All QC controls are within the established limits.

Percent Solids – analyzed for organic moisture correction.

pH - See page 18 for QC details.

Organic Comments

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

PCBs – 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 GRP Letter of Instruction. See pages 24 through 25 for QC details. Analytical Note:

- Preparation Date: 08-jul-2005.

All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 26 through 31 for QC details. Analytical Note:

- Preparation Date: 08-jul-2005.

TPHD-WA - 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 GRP Letter of Instruction. See page 32 for QC details. Analytical Note:

- Preparation Date: 08-jul-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 GRP Letter of Instruction. See pages 33 through 36 for QC details. Analytical Note:

- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).

All QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with WSCF's radiochemical methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 38 through 42 for QC details. Analytical Notes:

- GEA – Duplicate QC sample was analyzed on sample# B1DCK1 (SDG# 20051304, F05-026).

- Americium-241, Plutonium-238, Plutonium-239/240, Uranium-233/234, Uranium-235 and Uranium-238 – Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).

- Uranium-235 and Uranium-238– Duplicate Relative Percent Difference (RPD) was above established limits due to batch sample and duplicate were not homogeneous.

All other QC controls are within the established limits.

Plutonium-242, Americium-243 and Uranium-232 – Radiochemical Tracer Recovery Data are summarized below:

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
Americium-243			
BLANK		Am-243	90.1%

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
LCS		Am-243	99.6%
B1D992	W050001997	Am-243	90.7%
DUPLICATE	W050001997	Am-243	88.3%
B1D994	W050002028	Am-243	91.7%
Plutonium-242			
BLANK		Pu-242	81.9%
LCS		Pu-242	89.4%
B1D992	W050001997	Pu-242	78.6%
DUPLICATE	W050001997	Pu-242	83.9%
B1D994	W050002028	Pu-242	89.5%
Strontium-85			
BLANK		Sr-85	89.6%
LCS		Sr-85	94.1%
B1D994	W050002028	Sr-85	87.0%
DUPLICATE	W050002028	Sr-85	95.7%
Uranium-232			
BLANK		U-232	64.1%
LCS		U-232	71.3%
B1D992	W050001997	U-232	92.1%
DUPLICATE	W050001997	U-232	75.6%
B1D994	W050002028	U-232	82.0%

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

F05-023-027

COLLECTOR Pope/Pfister/Mokler/Weis/Tyra 7/25	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ
PRICE CODE 8N	**DATA TURNAROUND** 45 Days / ~~45 Days~~ 4/29/5		
SAMPLING LOCATION 216-A-8, I-7	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole	**SAF NO.** F05-023	**AIR QUALITY** ☐
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 119152ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**

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

SPECIAL HANDLING AND/OR STORAGE

Z0051357

PRESERVATION			Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None				
TYPE OF CONTAINER			aGs*	aG	G/P	aG	G/P	Square Bottle - Poly				
NO. OF CONTAINER(S)			3	1	1	1	1	1				
VOLUME			40mL	120mL	120mL	120mL	120mL	500mL				
SAMPLE ANALYSIS			SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS				
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**									
B1D994	SOIL	6/29/5	0905	X	X	X	X	X	X			
W05C002028												

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	6/29/05 1000	TA FRAZIER [signature]	6/29/05 1000

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

B1D989 IS TIED TO THIS CHAIN

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			F05-023-027	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Mokler/Weis/Tyra	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ	**PRICE CODE** 8N	**DATA TURNAROUND**
SAMPLING LOCATION 216-A-8, I-7	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole		**SAF NO.** F05-023	**AIR QUALITY** ☐	45 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 119152ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE		
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

P.D.M P.D.Mix 7/5/2005 P.D.M P.D.Mix 7/5/2005

(1)VOA - 8260B (TCL); VOA - 8260B (Add-On) {1-Butanol, 1-Propanol, 2-Pentanone, Acetonitrile, Cyclohexane, Ethanol, Hexane, Tetrahydrofuran, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2)Semi-VOA - 8270A (TCL); Semi-VOA - 8270B (Add-On) {1,2,4-Trimethylbenzene, 2-Butoxyethanol, 2-Naphthylamine, 3+4 Methylphenol (cresol, m+p), Benzyl alcohol, Cyclohexanone, Decane, Pyridine, Tributyl phosphate} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(3)ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Nickel, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8_HG - ICPMS; ICP Metals - 6010B (Add-On) {Bismuth, Phosphorus}
(4)IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate} Cations (IC) - 300.7 {Nitrogen in ammonium} pH - 150.1;
(5)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} ~~Gamma Spec - Add-on {Antimony-125, Cesium-134} Gross Alpha; Gross Beta;~~ Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr;

MAB 6/6/05

A-6003-618(03/03)

Attachment 1
Narrative

Sample Delivery Group	**WSCF20051350**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F05-023**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-A-8 Crib Characterization Borehole sample/I-8 (B1D995) was received at the WSCF Laboratory on June 30, 2005. The sample was 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

Refer to *WSCF Method References Report,* pages 45 through 46, for a complete listing of approved analytical methods.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 11 for QC details. Analytical Notes:

- Duplicate, Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).
- Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. However, all other QC controls are within the established limits.

Anions - The hold times for this analysis were met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 12 through 13 for QC details. Analytical Notes:

- Preparation Date: 07-jul-2005.
- Duplicate, Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

All QC controls are within the established limits.

ICP-AES Metals (Bismuth and Phosphorus) – 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 GRP Letter of Instruction. See page 14 for QC details. Analytical Notes:

- Preparation Date: 18-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D7D0 (SDG# 20051234, SAF# F05-023).
- Phosphorus: insufficient spike concentration. Sample concentration was greater than four times the spike concentration.
- Bismuth: The analyte detected in the associated preparation Blank sample was evaluated and there was no significant effect on the sample result.

All other 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 GRP Letter of Instruction. See pages 15 through17 for QC details. Analytical Notes:

- Preparation Date: 06-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D993 (SDG# 20051319, SAF# F05-023).

All QC controls are within the established limits.

Percent Solids – analyzed for organic moisture correction.

pH - Duplicate QC sample was analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023). See page 18 for QC details.

Organic Comments

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

PCBs – 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 GRP Letter of Instruction. See pages 24 through 25 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 26 through 31 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

TPHD-WA - 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 GRP Letter of Instruction. See page 32 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

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 GRP Letter of Instruction. See pages 33 through 35for QC details.

All QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with WSCF's radiochemical methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 37 through 41 for QC details. Analytical Notes:

- Americium-241, Plutonium-238, Plutonium-239/240, Uranium-233/234, Uranium-235 and Uranium-238 – Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).
- Strontium-90 – Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).
- Uranium-235 and Uranium-238– Duplicate Relative Percent Difference (RPD) was above established limits due to batch sample and duplicate were not homogeneous.

All other QC controls are within the established limits.

Americium-243, Plutonium-242, Strontium-85 and Uranium-232 – Radiochemical Tracer Recovery Data are summarized below:

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
Americium-243			
BLANK		Am-243	90.1%
LCS		Am-243	99.6%
B1D992	W050001997	Am-243	90.7%
DUPLICATE	W050001997	Am-243	88.3%
B1D995	W050002036	Am-243	91.7%
Plutonium-242			
BLANK		Pu-242	81.9%
LCS		Pu-242	89.4%
B1D992	W050001997	Pu-242	78.6%
DUPLICATE	W050001997	Pu-242	83.9%
B1D995	W050002036	Pu-242	89.5%
Strontium-85			
BLANK		Sr-85	89.6%
LCS		Sr-85	94.1%
B1D994	W050002028	Sr-85	87.0%
DUPLICATE	W050002028	Sr-85	95.7%
B1D995	W050002036	Sr-85	92.6%
Uranium-232			
BLANK		U-232	64.1%
LCS		U-232	71.3%
B1D992	W050001997	U-232	92.1%
DUPLICATE	W050001997	U-232	75.6%
B1D995	W050002036	U-232	82.0%

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	F05-023-028	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8N	DATA TURNAROUND
Pope/Pfister/Mokler/Weis/Tyra	TRENT, SJ	373-5869	TRENT, SJ		45 Days / ~~45 Days~~ 6/30/05
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY** ☐	
216-A-8, I-8	216-A-8 Crib Characterization Borehole		F05-023		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**COA**	**METHOD OF SHIPMENT**		
	HNF-N-336-1	119152ES10	GOVERNMENT VEHICLE		
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
Waste Sampling & Characterization					

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

POSSI8LE SAMPLE HAZARDS/ REMARKS

SPECIAL HANDLING AND/OR STORAGE

20051350

PRESERVATION			Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None			
TYPE OF CONTAINER			aGs*	aG	G/P	aG	G/P	Square Bottle - Poly			
NO. OF CONTAINER(S)			3	1	1	1	1	1			
VOLUME			40mL	120mL	120mL	120mL	120mL	500mL			
SAMPLE ANALYSIS			SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS			
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**								
B1D995	SOIL	6/30/5	0705	X	X	X	X	X	X		
1005 0002036											

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
J.W. [illegible]	6/30/5 0820	[illegible]	6/30/05 0820

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

TIE TO COC # B1D990

B1D 6/30/05

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		F05-023-028	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Mokler/Weis/Tyra	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-S869	**PROJECT COORDINATOR** TRENT, SJ	**PRICE CODE** 8N **AIR QUALITY** ☐	**DATA TURNAROUND** **45 Days**
SAMPLING LOCATION 216-A-8, I-8	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole		**SAF NO.** F05-023		
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 1191S2ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE		
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

(1)VOA - 8260B (TCL); VOA - 8260B (Add-On) {1-Butanol, 1-Propanol, 2-Pentanone, Acetonitrile, Cyclohexane, Ethanol, Hexane, Tetrahydrofuran, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2)Semi-VOA - 8270A (TCL); Semi-VOA - 8270B (Add-On) {1,2,4-Trimethylbenzene, 2-Butoxyethanol, 2-Naphthylamine, 3+4 Methylphenol (cresol, m+p), Benzyl alcohol, Cyclohexanone, Decane, Pyridine, Tributyl phosphate} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(3)ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Nickel, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8 HG - ICPMS; ICP Metals - 6010B (Add-On) {Bismuth, Phosphorus}
(4)IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate} Cations (IC) - 300.7 {Nitrogen in ammonium} pH - 150.1;
(5)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} ~~Gamma Spec - Add-on {Antimony-125, Cesium-134} Gross Alpha; Gross Beta~~; Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr;

MAB 6/6/05

A-6003-618(03/03)

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

ALIDATION LEVEL:	A	B	C	D	E
PROJECT: CPP 200 Area, D&D-200 Area			DATA PACKAGE: VSR10-011		
VALIDATOR: Carl Schloesslin		LAB: WSCF		DATE: 3-17-2010	
SDG: WSCF2005-1337 & -1350			SDG: WSCF2004-1457, -1487 & -1594		
ANALYSES PERFORMED					
SW-846/ICP X	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide	EPA 200.8 ICP/MS X	

SAMPLES/MATRIX Soil samples

SDG WSCF20041457: B17N67
SDG WSCF20041487: B17N70
SDG WSCF20041594: B17N73 & B17NL5
SDG WSCF20051337: B1D994
SDG WSCF20051350: B1D995

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

Technical verification documentation present for SDG WSCF20041457 only.

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:

WSCF2004-1457 & -1487 MB detects: Hg 0.12 ug/L = 1.2 mg/kg
WSCF20041594 MB detects: Hg 0.060 ug/L = 0.060 mg/kg, U 0.019 ug/L = 0.019 mg/kg (info required to determine mg/kg concentrations not provided in data package. See email correspondence attached to this worksheet)
WSCF2005-1337 & -1350 MB detects: Bi 2.2 ug/L = 110 mg/kg

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:

WSCF20041457: Na MS %R = 182%, MSD %R = 205%

WSCF20041487: Na MS(1) %R = 160%, Na MSD(1) %R = 167%, Na MS(2) %R = 182%, MSD(2) %R = 205%, Hg MS(5) %R = 149%

WSCF20041594: Ag LCS %R = 25%, Ag MSD %R = 41%, K MS %R = 128%, Na MS %R = 185%, Na MSD %R = 134%

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

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

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

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

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

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

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

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

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

Comments:

WSCF20041594: Ag MS/MSD RPD = 81%

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: None

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:

MDLs > CRDLs:

WSCF20041457: Hg MDL = 1.0 mg/kg (CRDL = 0.2), U MDL = 1.0 mg/kg (CRDL = 0.02)

WSCF20041487: Hg MDL = 0.99 mg/kg (CRDL = 0.2), U MDL = 0.99 mg/kg (CRDL = 0.02)

WSCF20041594: U MDL = 0.16 mg/kg (CRDL = 0.02)

WSCF2005-1337 & -1350: Ba MDL = 4.2 mg/kg (CRDL = 0.5), Cr MDL = 4.2 mg/kg (CRDL = 0.2), Cu MDL = 2.1 mg/kg (CRDL = 1), U MDL = 0.10 mg/kg (CRDL = 0.02)

From: "Anastos, Heather L" <Heather_L_Anastos@RL.gov>
To: "'Carl Schloesslin'" <cschloesslin@aqainc.net>
Cc: "Lynch, Sherry A" <Sherry_A_Lynch@rl.gov>
Sent: Wednesday, March 17, 2010 11:38 AM
Subject: FW: URGENT>> WSCF20041594 - Need ICP-MS Prep Factor

Carl –

Please proceed with the data validation using the prep information provided below. The laboratory is checking the data – but if they find anything that would change the validation, we will incorporate it during review. Let me know if you need anything else.

Thank you,
Heather

From: Baird, William W (Bill)
Sent: Tuesday, March 16, 2010 12:10 PM
To: Anastos, Heather L
Cc: Meznarich, Huei K
Subject: RE: URGENT>> WSCF20041594 - Need ICP-MS Prep Factor

Heather,

First I made a typo (.069 should be .060) but now I have discovered something else. I need to get the prep log book. I will keep you posted.

Bill

From: Anastos, Heather L
Sent: Tuesday, March 16, 2010 7:44 AM
To: Baird, William W (Bill)
Cc: Fitzgerald, Scot L; Grohs, James F; Medley, Heather A
Subject: FW: URGENT>> WSCF20041594 - Need ICP-MS Prep Factor
Importance: High

Bill –

The validator has an additional question about the data you provided – see below:

--Heather

Heather,

What is documented below is not clear. It states that the prep factor is 998, but then values were added to my original email that do not use 998:

Mercury = 0.060 ug/L = **??** mg/kg 0.069 mg/Kg
Uranium = 0.019 ug/L = **??** mg/kg 0.019 mg/Kg

Also, if 0.060 ug/L = 0.069 mg/kg (factor = 1.15), how does 0.019 ug/L = 0.019 mg/kg (factor = 1.0) with the same prep?

From: Baird, William W (Bill)
Sent: Monday, March 15, 2010 2:32 PM
To: Anastos, Heather L
Cc: Grohs, James F
Subject: RE: URGENT>> WSCF20041594 - Need ICP-MS Prep Factor

In general: Prep factor 1000 ➔MDL changes from ug/L to mg/Kg

Specifically in this instance the PF = 998.

From: Anastos, Heather L
Sent: Friday, March 12, 2010 1:40 PM
To: Fitzgerald, Scot L; Baird, William W (Bill)
Cc: Medley, Heather A; Lynch, Sherry A
Subject: URGENT>> WSCF20041594 - Need ICP-MS Prep Factor
Importance: High

Scot –

We are currently working on a third party validation for the following data package and have a question that is holding up validation. We need additional information so that we can compare the contamination found in the blank to the sample data. You can either (1) provide the MDLs for the blank or (2) provide the prep information for QC and samples (additional detail below). This request is holding up priority data validation.

If you have any questions, call me at 376-2444.

Thank you,
Heather

For VSR10-011, SDG WSCF20041594, there are detects in the ICP-MS method blank.
Mercury = 0.060 ug/L = **??** mg/kg 0.069 mg/Kg
Uranium = 0.019 ug/L = **??** mg/kg 0.019 mg/Kg

Since both ICP-MS analytes are detects I do not have an MDL value in ug/L on the QC summary form that I can compare to the associated MDL value in mg/kg on the sample results form. With this comparison I can determine the prep factor and convert the MB hits above to mg/kg.

Can you please contact WSCF for the ICP-MS prep factor?

Appendix 6

Additional Documentation Requested By Client

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date: 08/16/04
Receive Date:08/16/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001462									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Aluminum	7429-90-5	1920	n/a	% Recov	09/15/04	75.000	125.000	
MS	Calcium	7440-70-2	810	n/a	% Recov	09/15/04	75.000	125.000	
MS	Iron	7439-89-6	1340	n/a	% Recov	09/15/04	75.000	125.000	
MS	Potassium	7440-09-7	2290	119.271	% Recov	09/15/04	75.000	125.000	
MS	Lithium	7439-93-2	218.77	113.943	% Recov	09/15/04	70.000	130.000	
MS	Magnesium	7439-95-4	1060	n/a	% Recov	09/15/04	75.000	125.000	
MS	Sodium	7440-23-5	307.4	160.104	% Recov	09/15/04	75.000	125.000	*
MS	Phosphorus	7723-14-0	230	119.792	% Recov	09/15/04	70.000	130.000	
MSD	Aluminum	7429-90-5	2410	n/a	% Recov	09/15/04	75.000	125.000	
MSD	Calcium	7440-70-2	1020	n/a	% Recov	09/15/04	75.000	125.000	
MSD	Iron	7439-89-6	2120	n/a	% Recov	09/15/04	75.000	125.000	
MSD	Potassium	7440-09-7	2430	125.258	% Recov	09/15/04	75.000	125.000	*
MSD	Lithium	7439-93-2	226.77	116.892	% Recov	09/15/04	75.000	125.000	
MSD	Magnesium	7439-95-4	1590	n/a	% Recov	09/15/04	75.000	125.000	
MSD	Sodium	7440-23-5	324.4	167.216	% Recov	09/15/04	75.000	125.000	*
MSD	Phosphorus	7723-14-0	234	120.619	% Recov	09/15/04	75.000	125.000	
Lab ID: W040001533									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Silver	7440-22-4	182.12	91.980	% Recov	09/15/04	75.000	125.000	
MS	Aluminum	7429-90-5	1760	n/a	% Recov	09/15/04	75.000	125.000	
MS	Arsenic	7440-38-2	196	98.990	% Recov	09/15/04	75.000	125.000	
MS	Barium	7440-39-3	199.5	100.758	% Recov	09/15/04	75.000	125.000	
MS	Beryllium	7440-41-7	216.72	109.455	% Recov	09/15/04	75.000	125.000	
MS	Bismuth	7440-69-9	193	97.475	% Recov	09/15/04	75.000	125.000	
MS	Calcium	7440-70-2	1220	n/a	% Recov	09/15/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Cadmium	7440-43-9	183.73	92.793	% Recov	09/15/04	75.000	125.000	
MS	Cobalt	7440-48-4	191.42	96.677	% Recov	09/15/04	75.000	125.000	
MS	Chromium	7440-47-3	201	101.515	% Recov	09/15/04	75.000	125.000	
MS	Copper	7440-50-8	211.6	106.869	% Recov	09/15/04	75.000	125.000	
MS	Iron	7439-89-6	1500	n/a	% Recov	09/15/04	75.000	125.000	
MS	Potassium	7440-09-7	2288	115.556	% Recov	09/15/04	75.000	125.000	
MS	Lithium	7439-93-2	233.72	118.040	% Recov	09/15/04	70.000	130.000	
MS	Magnesium	7439-95-4	1070	n/a	% Recov	09/15/04	75.000	125.000	
MS	Manganese	7439-96-5	217	109.596	% Recov	09/15/04	75.000	125.000	
MS	Sodium	7440-23-5	360	181.818	% Recov	09/15/04	75.000	125.000	
MS	Nickel	7440-02-0	193.6	97.778	% Recov	09/15/04	75.000	125.000	
MS	Phosphorus	7723-14-0	233	117.677	% Recov	09/15/04	70.000	130.000	
MS	Lead	7439-92-1	182	91.919	% Recov	09/15/04	75.000	125.000	
MS	Antimony	7440-36-0	182	91.919	% Recov	09/15/04	75.000	125.000	
MS	Selenium	7782-49-2	194	97.980	% Recov	09/15/04	75.000	125.000	
MS	Strontium	7440-24-6	212.9	107.525	% Recov	09/15/04	70.000	130.000	
MS	Vanadium	7440-62-2	198.6	100.303	% Recov	09/15/04	75.000	125.000	
MS	Zinc	7440-66-6	201.7	101.869	% Recov	09/15/04	75.000	125.000	
MSD	Silver	7440-22-4	183.12	92.485	% Recov	09/15/04	75.000	125.000	
MSD	Aluminum	7429-90-5	1310	n/a	% Recov	09/15/04	75.000	125.000	
MSD	Arsenic	7440-38-2	196	98.990	% Recov	09/15/04	75.000	125.000	
MSD	Barium	7440-39-3	198.5	100.253	% Recov	09/15/04	75.000	125.000	
MSD	Beryllium	7440-41-7	217.72	109.960	% Recov	09/15/04	75.000	125.000	
MSD	Bismuth	7440-69-9	198	100.000	% Recov	09/15/04	75.000	125.000	
MSD	Calcium	7440-70-2	850	n/a	% Recov	09/15/04	75.000	125.000	
MSD	Cadmium	7440-43-9	183.73	92.793	% Recov	09/15/04	75.000	125.000	
MSD	Cobalt	7440-48-4	191.42	96.677	% Recov	09/15/04	75.000	125.000	
MSD	Chromium	7440-47-3	179	90.404	% Recov	09/15/04	75.000	125.000	
MSD	Copper	7440-50-8	217.6	109.899	% Recov	09/15/04	75.000	125.000	
MSD	Iron	7439-89-6	-600	n/a	% Recov	09/15/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	Potassium	7440-09-7	2308	116.566	% Recov	09/15/04	75.000	125.000	
MSD	Lithium	7439-93-2	241.72	122.081	% Recov	09/15/04	75.000	125.000	
MSD	Magnesium	7439-95-4	610	n/a	% Recov	09/15/04	75.000	125.000	
MSD	Manganese	7439-96-5	197	99.495	% Recov	09/15/04	75.000	125.000	
MSD	Sodium	7440-23-5	406	205.051	% Recov	09/15/04	75.000	125.000	
MSD	Nickel	7440-02-0	183.6	92.727	% Recov	09/15/04	75.000	125.000	
MSD	Phosphorus	7723-14-0	191	96.465	% Recov	09/15/04	75.000	125.000	
MSD	Lead	7439-92-1	183	92.424	% Recov	09/15/04	75.000	125.000	
MSD	Antimony	7440-36-0	185	93.434	% Recov	09/15/04	75.000	125.000	
MSD	Selenium	7782-49-2	194	97.980	% Recov	09/15/04	75.000	125.000	
MSD	Strontium	7440-24-6	216.9	109.545	% Recov	09/15/04	75.000	125.000	
MSD	Vanadium	7440-62-2	195.6	98.788	% Recov	09/15/04	75.000	125.000	
MSD	Zinc	7440-66-6	200.7	101.364	% Recov	09/15/04	75.000	125.000	
SPK-RPD	Silver	7440-22-4	92.485	0.548	RPD	09/15/04	0.000	20.000	
SPK-RPD	Aluminum	7429-90-5		n/a	RPD	09/15/04	0.000	20.000	
SPK-RPD	Arsenic	7440-38-2	98.990	0.000	RPD	09/15/04	0.000	20.000	
SPK-RPD	Barium	7440-39-3	100.253	0.502	RPD	09/15/04	0.000	20.000	
SPK-RPD	Beryllium	7440-41-7	109.960	0.460	RPD	09/15/04	0.000	20.000	
SPK-RPD	Calcium	7440-70-2		n/a	RPD	09/15/04	0.000	20.000	
SPK-RPD	Cadmium	7440-43-9	92.793	0.000	RPD	09/15/04	0.000	20.000	
SPK-RPD	Cobalt	7440-48-4	96.677	0.000	RPD	09/15/04	0.000	20.000	
SPK-RPD	Copper	7440-50-8	109.899	2.796	RPD	09/15/04	0.000	20.000	
SPK-RPD	Iron	7439-89-6		n/a	RPD	09/15/04	0.000	20.000	
SPK-RPD	Potassium	7440-09-7	116.566	0.870	RPD	09/15/04	0.000	20.000	
SPK-RPD	Lithium	7439-93-2	122.081	3.366	RPD	09/15/04	0.000	20.000	
SPK-RPD	Magnesium	7439-95-4		n/a	RPD	09/15/04	0.000	20.000	
SPK-RPD	Manganese	7439-96-5	99.495	9.662	RPD	09/15/04	0.000	20.000	
SPK-RPD	Sodium	7440-23-5		n/a	RPD	09/15/04	0.000	20.000	
SPK-RPD	Nickel	7440-02-0	92.727	5.303	RPD	09/15/04	0.000	20.000	
SPK-RPD	Phosphorus	7723-14-0	96.465	19.811	RPD	09/15/04	0.000	20.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SPK-RPD	Lead	7439-92-1	92.424	0.548	RPD	09/15/04	0.000	20.000	
SPK-RPD	Antimony	7440-36-0	93.434	1.635	RPD	09/15/04	0.000	20.000	
SPK-RPD	Selenium	7782-49-2	97.980	0.000	RPD	09/15/04	0.000	20.000	
SPK-RPD	Strontium	7440-24-6	109.545	1.861	RPD	09/15/04	0.000	20.000	
SPK-RPD	Vanadium	7440-62-2	98.788	1.522	RPD	09/15/04	0.000	20.000	

Lab ID: W040001577

BATCH QC ASSOCIATED WITH SAMPLE

MS	Bismuth	7440-69-9	191	98.454	% Recov	09/15/04	75.000	125.000	
MS	Chromium	7440-47-3	185	95.361	% Recov	09/15/04	75.000	125.000	
MS	Zinc	7440-66-6	195.1	100.567	% Recov	09/15/04	75.000	125.000	
MSD	Bismuth	7440-69-9	194	98.477	% Recov	09/15/04	75.000	125.000	
MSD	Chromium	7440-47-3	184	93.401	% Recov	09/15/04	75.000	125.000	
MSD	Zinc	7440-66-6	201.1	102.081	% Recov	09/15/04	75.000	125.000	
SPK-RPD	Bismuth	7440-69-9	98.477	0.023	RPD	09/15/04	0.000	20.000	
SPK-RPD	Chromium	7440-47-3	93.401	2.077	RPD	09/15/04	0.000	20.000	
SPK-RPD	Zinc	7440-66-6	102.081	1.494	RPD	09/15/04	0.000	20.000	

BATCH QC

BLANK	Silver	7440-22-4	<0.12	n/a	ug/L	09/15/04	-1.000	0.032	U
BLANK	Aluminum	7429-90-5	<2.5	n/a	ug/L	09/15/04	-1.000	63.000	U
BLANK	Arsenic	7440-38-2	<1.2	n/a	ug/L	09/15/04	-1.000	0.067	U
BLANK	Barium	7440-39-3	<1.3e-2	n/a	ug/L	09/15/04	-1.000	0.014	U
BLANK	Beryllium	7440-41-7	<5e-3	n/a	ug/L	09/15/04	-1.000	0.009	U
BLANK	Bismuth	7440-69-9	<5	n/a	ug/L	09/15/04	-1.000	0.068	U
BLANK	Calcium	7440-70-2	<1.2	n/a	ug/L	09/15/04	-38.000	38.000	U
BLANK	Cadmium	7440-43-9	<7.5e-2	n/a	ug/L	09/15/04	-1.000	0.009	U
BLANK	Cobalt	7440-48-4	<9.2e-2	n/a	ug/L	09/15/04	-4.000	4.000	U
BLANK	Chromium	7440-47-3	<0.2	n/a	ug/L	09/15/04	-1.000	0.035	U
BLANK	Copper	7440-50-8	<7e-2	n/a	ug/L	09/15/04	-1.000	0.035	U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Iron	7439-89-6	<1.5	n/a	ug/L	09/15/04	-19.000	19.000	U
BLANK	Potassium	7440-09-7	<8.9	n/a	ug/L	09/15/04	-710.000	710.000	U
BLANK	Lithium	7439-93-2	<0.1	n/a	ug/L	09/15/04	-38.000	38.000	U
BLANK	Magnesium	7439-95-4	<1.85	n/a	ug/L	09/15/04	-85.000	85.000	U
BLANK	Manganese	7439-96-5	<4.3e-2	n/a	ug/L	09/15/04	-1.000	0.009	U
BLANK	Sodium	7440-23-5	<14.6	n/a	ug/L	09/15/04	-73.000	73.000	U
BLANK	Nickel	7440-02-0	<0.16	n/a	ug/L	09/15/04	-1.000	0.012	U
BLANK	Phosphorus	7723-14-0	<0.3	n/a	ug/L	09/15/04	0.000	1000.000	U
BLANK	Lead	7439-92-1	<6.3e-2	n/a	ug/L	09/15/04	-1.000	0.068	U
BLANK	Antimony	7440-36-0	<0.54	n/a	ug/L	09/15/04	-1.000	0.074	U
BLANK	Selenium	7782-49-2	<1	n/a	ug/L	09/15/04	-1.000	0.075	U
BLANK	Strontium	7440-24-6	<0.1	n/a	ug/L	09/15/04	-38.000	38.000	U
BLANK	Vanadium	7440-62-2	<0.18	n/a	ug/L	09/15/04	-1.000	0.030	U
BLANK	Zinc	7440-66-6	<0.26	n/a	ug/L	09/15/04	-1.000	0.018	U
LCS	Silver	7440-22-4	319	100.631	% Recov	09/15/04	80.000	120.000	
LCS	Aluminum	7429-90-5	9580	131.233	% Recov	09/15/04	80.000	120.000	*
LCS	Arsenic	7440-38-2	406	103.308	% Recov	09/15/04	80.000	120.000	
LCS	Barium	7440-39-3	617	104.576	% Recov	09/15/04	80.000	120.000	
LCS	Beryllium	7440-41-7	314	115.018	% Recov	09/15/04	80.000	120.000	
LCS	Bismuth	7440-69-9	202	102.020	% Recov	09/15/04	80.000	120.000	
LCS	Calcium	7440-70-2	3630	100.833	% Recov	09/15/04	80.000	120.000	
LCS	Cadmium	7440-43-9	268	100.375	% Recov	09/15/04	80.000	120.000	
LCS	Cobalt	7440-48-4	287	101.056	% Recov	09/15/04	80.000	120.000	
LCS	Chromium	7440-47-3	288	101.408	% Recov	09/15/04	80.000	120.000	
LCS	Copper	7440-50-8	368	113.231	% Recov	09/15/04	80.000	120.000	
LCS	Iron	7439-89-6	13900	108.594	% Recov	09/15/04	80.000	120.000	
LCS	Potassium	7440-09-7	4500	109.756	% Recov	09/15/04	80.000	120.000	
LCS	Lithium	7439-93-2	236	119.192	% Recov	09/15/04	80.000	120.000	
LCS	Magnesium	7439-95-4	2660	118.750	% Recov	09/15/04	80.000	120.000	
LCS	Manganese	7439-96-5	701	105.732	% Recov	09/15/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Sodium	7440-23-5	568	100.176	% Recov	09/15/04	80.000	120.000	
LCS	Nickel	7440-02-0	286	101.418	% Recov	09/15/04	80.000	120.000	
LCS	Phosphorus	7723-14-0	619	94.360	% Recov	09/15/04	80.000	120.000	
LCS	Lead	7439-92-1	289	98.973	% Recov	09/15/04	80.000	120.000	
LCS	Antimony	7440-36-0	356	105.952	% Recov	09/15/04	80.000	120.000	
LCS	Selenium	7782-49-2	324	103.846	% Recov	09/15/04	80.000	120.000	
LCS	Strontium	7440-24-6	318	113.167	% Recov	09/15/04	80.000	120.000	
LCS	Vanadium	7440-62-2	364	100.552	% Recov	09/15/04	80.000	120.000	
LCS	Zinc	7440-66-6	510	110.151	% Recov	09/15/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F03-018
Sample Date: 08/10/04
Receive Date:08/10/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001442									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Mercury	7439-97-6	22.06	110.300	% Recov	08/31/04	70.000	130.000	
MS	Uranium	7440-61-1	394.1	98.525	% Recov	08/31/04	70.000	130.000	
MSD	Mercury	7439-97-6	22.91	114.550	% Recov	08/31/04	70.000	130.000	
MSD	Uranium	7440-61-1	408	102.000	% Recov	08/31/04	70.000	130.000	
Lab ID: W040001462									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Mercury	7439-97-6	22.74	113.700	% Recov	08/31/04	70.000	130.000	
MS	Uranium	7440-61-1	408.9	102.225	% Recov	08/31/04	70.000	130.000	
MSD	Mercury	7439-97-6	23.19	115.950	% Recov	08/31/04	70.000	130.000	
MSD	Uranium	7440-61-1	402.1	100.525	% Recov	08/31/04	70.000	130.000	
Lab ID: W040001529									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Mercury	7439-97-6	22.67	113.350	% Recov	08/31/04	70.000	130.000	
MS	Uranium	7440-61-1	416.04	104.010	% Recov	08/31/04	70.000	130.000	
MSD	Mercury	7439-97-6	23.43	117.150	% Recov	08/31/04	70.000	130.000	
MSD	Uranium	7440-61-1	419.24	104.810	% Recov	08/31/04	70.000	130.000	
Lab ID: W040001533									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Mercury	7439-97-6	22.17	110.850	% Recov	08/31/04	70.000	130.000	
MS	Uranium	7440-61-1	414.5	103.625	% Recov	08/31/04	70.000	130.000	
MSD	Mercury	7439-97-6	22.32	111.600	% Recov	08/31/04	70.000	130.000	
MSD	Uranium	7440-61-1	409.7	102.425	% Recov	08/31/04	70.000	130.000	
SPK-RPD	Mercury	7439-97-6	111.600	0.674	RPD	08/31/04	0.000	20.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SPK-RPD	Uranium	7440-61-1	102.425	1.165	RPD	08/31/04	0.000	20.000	

Lab ID: W04DC00147
BATCH QC ASSOCIATED WITH SAMPLE

MS	Mercury	7439-97-6	29.78	148.900	% Recov	08/31/04	70.000	130.000	*
MSD	Mercury	7439-97-6	23.35	116.750	% Recov	08/31/04	70.000	130.000	

BATCH QC

BLANK	Mercury	7439-97-6	0.12	0.120	ug/L	08/31/04	-0.220	0.220	
BLANK	Uranium	7440-61-1	<0.1	n/a	ug/L	08/31/04	-0.220	0.220	U
LCS	Mercury	7439-97-6	10.37	110.202	% Recov	08/31/04	75.000	114.000	
LCS	Uranium	7440-61-1	399.5	99.875	% Recov	08/31/04	89.000	107.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date: 08/16/04
Receive Date:08/16/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001462									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Aluminum	7429-90-5	1920	n/a	% Recov	09/15/04	75.000	125.000	
MS	Calcium	7440-70-2	810	n/a	% Recov	09/15/04	75.000	125.000	
MS	Iron	7439-89-6	1340	n/a	% Recov	09/15/04	75.000	125.000	
MS	Potassium	7440-09-7	2290	119.271	% Recov	09/15/04	75.000	125.000	
MS	Lithium	7439-93-2	218.77	113.943	% Recov	09/15/04	70.000	130.000	
MS	Magnesium	7439-95-4	1060	n/a	% Recov	09/15/04	75.000	125.000	
MS	Sodium	7440-23-5	307.4	160.104	% Recov	09/15/04	75.000	125.000	*
MS	Phosphorus	7723-14-0	230	119.792	% Recov	09/15/04	70.000	130.000	
MSD	Aluminum	7429-90-5	2410	n/a	% Recov	09/15/04	75.000	125.000	
MSD	Calcium	7440-70-2	1020	n/a	% Recov	09/15/04	75.000	125.000	
MSD	Iron	7439-89-6	2120	n/a	% Recov	09/15/04	75.000	125.000	
MSD	Potassium	7440-09-7	2430	125.258	% Recov	09/15/04	75.000	125.000	*
MSD	Lithium	7439-93-2	226.77	116.892	% Recov	09/15/04	75.000	125.000	
MSD	Magnesium	7439-95-4	1590	n/a	% Recov	09/15/04	75.000	125.000	
MSD	Sodium	7440-23-5	324.4	167.216	% Recov	09/15/04	75.000	125.000	*
MSD	Phosphorus	7723-14-0	234	120.619	% Recov	09/15/04	75.000	125.000	
Lab ID: W040001533									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Silver	7440-22-4	182.12	91.980	% Recov	09/15/04	75.000	125.000	
MS	Aluminum	7429-90-5	1760	n/a	% Recov	09/15/04	75.000	125.000	
MS	Arsenic	7440-38-2	196	98.990	% Recov	09/15/04	75.000	125.000	
MS	Barium	7440-39-3	199.5	100.758	% Recov	09/15/04	75.000	125.000	
MS	Beryllium	7440-41-7	216.72	109.455	% Recov	09/15/04	75.000	125.000	
MS	Bismuth	7440-69-9	193	97.475	% Recov	09/15/04	75.000	125.000	
MS	Calcium	7440-70-2	1220	n/a	% Recov	09/15/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: ICP Metals Analysis, .Grd H20 P

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Cadmium	7440-43-9	183.73	92.793	% Recov	09/15/04	75.000	125.000	
MS	Cobalt	7440-48-4	191.42	96.677	% Recov	09/15/04	75.000	125.000	
MS	Chromium	7440-47-3	201	101.515	% Recov	09/15/04	75.000	125.000	
MS	Copper	7440-50-8	211.6	106.869	% Recov	09/15/04	75.000	125.000	
MS	Iron	7439-89-6	1500	n/a	% Recov	09/15/04	75.000	125.000	
MS	Potassium	7440-09-7	2288	115.556	% Recov	09/15/04	75.000	125.000	
MS	Lithium	7439-93-2	233.72	118.040	% Recov	09/15/04	70.000	130.000	
MS	Magnesium	7439-95-4	1070	n/a	% Recov	09/15/04	75.000	125.000	
MS	Manganese	7439-96-5	217	109.596	% Recov	09/15/04	75.000	125.000	
MS	Sodium	7440-23-5	360	181.818	% Recov	09/15/04	75.000	125.000	*
MS	Nickel	7440-02-0	193.6	97.778	% Recov	09/15/04	75.000	125.000	
MS	Phosphorus	7723-14-0	233	117.677	% Recov	09/15/04	70.000	130.000	
MS	Lead	7439-92-1	182	91.919	% Recov	09/15/04	75.000	125.000	
MS	Antimony	7440-36-0	182	91.919	% Recov	09/15/04	75.000	125.000	
MS	Selenium	7782-49-2	194	97.980	% Recov	09/15/04	75.000	125.000	
MS	Strontium	7440-24-6	212.9	107.525	% Recov	09/15/04	70.000	130.000	
MS	Vanadium	7440-62-2	198.6	100.303	% Recov	09/15/04	75.000	125.000	
MS	Zinc	7440-66-6	201.7	101.869	% Recov	09/15/04	75.000	125.000	
MSD	Silver	7440-22-4	183.12	92.485	% Recov	09/15/04	75.000	125.000	
MSD	Aluminum	7429-90-5	1310	n/a	% Recov	09/15/04	75.000	125.000	
MSD	Arsenic	7440-38-2	196	98.990	% Recov	09/15/04	75.000	125.000	
MSD	Barium	7440-39-3	198.5	100.253	% Recov	09/15/04	75.000	125.000	
MSD	Beryllium	7440-41-7	217.72	109.960	% Recov	09/15/04	75.000	125.000	
MSD	Bismuth	7440-69-9	198	100.000	% Recov	09/15/04	75.000	125.000	
MSD	Calcium	7440-70-2	850	n/a	% Recov	09/15/04	75.000	125.000	
MSD	Cadmium	7440-43-9	183.73	92.793	% Recov	09/15/04	75.000	125.000	
MSD	Cobalt	7440-48-4	191.42	96.677	% Recov	09/15/04	75.000	125.000	
MSD	Chromium	7440-47-3	179	90.404	% Recov	09/15/04	75.000	125.000	
MSD	Copper	7440-50-8	217.6	109.899	% Recov	09/15/04	75.000	125.000	
MSD	Iron	7439-89-6	-600	n/a	% Recov	09/15/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	Potassium	7440-09-7	2308	116.566	% Recov	09/15/04	75.000	125.000	
MSD	Lithium	7439-93-2	241.72	122.081	% Recov	09/15/04	75.000	125.000	
MSD	Magnesium	7439-95-4	610	n/a	% Recov	09/15/04	75.000	125.000	
MSD	Manganese	7439-96-5	197	99.495	% Recov	09/15/04	75.000	125.000	
MSD	Sodium	7440-23-5	406	205.051	% Recov	09/15/04	75.000	125.000	
MSD	Nickel	7440-02-0	183.6	92.727	% Recov	09/15/04	75.000	125.000	
MSD	Phosphorus	7723-14-0	191	96.465	% Recov	09/15/04	75.000	125.000	
MSD	Lead	7439-92-1	183	92.424	% Recov	09/15/04	75.000	125.000	
MSD	Antimony	7440-36-0	185	93.434	% Recov	09/15/04	75.000	125.000	
MSD	Selenium	7782-49-2	194	97.980	% Recov	09/15/04	75.000	125.000	
MSD	Strontium	7440-24-6	216.9	109.545	% Recov	09/15/04	75.000	125.000	
MSD	Vanadium	7440-62-2	195.6	98.788	% Recov	09/15/04	75.000	125.000	
MSD	Zinc	7440-66-6	200.7	101.364	% Recov	09/15/04	75.000	125.000	
SPK-RPD	Silver	7440-22-4	92.485	0.548	RPD	09/15/04	0.000	20.000	
SPK-RPD	Aluminum	7429-90-5		n/a	RPD	09/15/04	0.000	20.000	
SPK-RPD	Arsenic	7440-38-2	98.990	0.000	RPD	09/15/04	0.000	20.000	
SPK-RPD	Barium	7440-39-3	100.253	0.502	RPD	09/15/04	0.000	20.000	
SPK-RPD	Beryllium	7440-41-7	109.960	0.460	RPD	09/15/04	0.000	20.000	
SPK-RPD	Calcium	7440-70-2		n/a	RPD	09/15/04	0.000	20.000	
SPK-RPD	Cadmium	7440-43-9	92.793	0.000	RPD	09/15/04	0.000	20.000	
SPK-RPD	Cobalt	7440-48-4	96.677	0.000	RPD	09/15/04	0.000	20.000	
SPK-RPD	Copper	7440-50-8	109.899	2.796	RPD	09/15/04	0.000	20.000	
SPK-RPD	Iron	7439-89-6		n/a	RPD	09/15/04	0.000	20.000	
SPK-RPD	Potassium	7440-09-7	116.566	0.870	RPD	09/15/04	0.000	20.000	
SPK-RPD	Lithium	7439-93-2	122.081	3.366	RPD	09/15/04	0.000	20.000	
SPK-RPD	Magnesium	7439-95-4		n/a	RPD	09/15/04	0.000	20.000	
SPK-RPD	Manganese	7439-96-5	99.495	9.662	RPD	09/15/04	0.000	20.000	
SPK-RPD	Sodium	7440-23-5		n/a	RPD	09/15/04	0.000	20.000	
SPK-RPD	Nickel	7440-02-0	92.727	5.303	RPD	09/15/04	0.000	20.000	
SPK-RPD	Phosphorus	7723-14-0	96.465	19.811	RPD	09/15/04	0.000	20.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SPK-RPD	Lead	7439-92-1	92.424	0.548	RPD	09/15/04	0.000	20.000	
SPK-RPD	Antimony	7440-36-0	93.434	1.635	RPD	09/15/04	0.000	20.000	
SPK-RPD	Selenium	7782-49-2	97.980	0.000	RPD	09/15/04	0.000	20.000	
SPK-RPD	Strontium	7440-24-6	109.545	1.861	RPD	09/15/04	0.000	20.000	
SPK-RPD	Vanadium	7440-62-2	98.788	1.522	RPD	09/15/04	0.000	20.000	

Lab ID: W040001577
BATCH QC ASSOCIATED WITH SAMPLE

MS	Bismuth	7440-69-9	191	98.454	% Recov	09/15/04	75.000	125.000	
MS	Chromium	7440-47-3	185	95.361	% Recov	09/15/04	75.000	125.000	
MS	Zinc	7440-66-6	195.1	100.567	% Recov	09/15/04	75.000	125.000	
MSD	Bismuth	7440-69-9	194	98.477	% Recov	09/15/04	75.000	125.000	
MSD	Chromium	7440-47-3	184	93.401	% Recov	09/15/04	75.000	125.000	
MSD	Zinc	7440-66-6	201.1	102.081	% Recov	09/15/04	75.000	125.000	
SPK-RPD	Bismuth	7440-69-9	98.477	0.023	RPD	09/15/04	0.000	20.000	
SPK-RPD	Chromium	7440-47-3	93.401	2.077	RPD	09/15/04	0.000	20.000	
SPK-RPD	Zinc	7440-66-6	102.081	1.494	RPD	09/15/04	0.000	20.000	

BATCH QC

BLANK	Silver	7440-22-4	<0.12	n/a	ug/L	09/15/04	-1.000	0.032	U
BLANK	Aluminum	7429-90-5	<2.5	n/a	ug/L	09/15/04	-1.000	63.000	U
BLANK	Arsenic	7440-38-2	<1.2	n/a	ug/L	09/15/04	-1.000	0.067	U
BLANK	Barium	7440-39-3	<1.3e-2	n/a	ug/L	09/15/04	-1.000	0.014	U
BLANK	Beryllium	7440-41-7	<5e-3	n/a	ug/L	09/15/04	-1.000	0.009	U
BLANK	Bismuth	7440-69-9	<5	n/a	ug/L	09/15/04	-1.000	0.068	U
BLANK	Calcium	7440-70-2	<1.2	n/a	ug/L	09/15/04	-38.000	38.000	U
BLANK	Cadmium	7440-43-9	<7.5e-2	n/a	ug/L	09/15/04	-1.000	0.009	U
BLANK	Cobalt	7440-48-4	<9.2e-2	n/a	ug/L	09/15/04	-4.000	4.000	U
BLANK	Chromium	7440-47-3	<0.2	n/a	ug/L	09/15/04	-1.000	0.035	U
BLANK	Copper	7440-50-8	<7e-2	n/a	ug/L	09/15/04	-1.000	0.035	U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Iron	7439-89-6	<1.5	n/a	ug/L	09/15/04	-19.000	19.000	U
BLANK	Potassium	7440-09-7	<8.9	n/a	ug/L	09/15/04	-710.000	710.000	U
BLANK	Lithium	7439-93-2	<0.1	n/a	ug/L	09/15/04	-38.000	38.000	U
BLANK	Magnesium	7439-95-4	<1.85	n/a	ug/L	09/15/04	-85.000	85.000	U
BLANK	Manganese	7439-96-5	<4.3e-2	n/a	ug/L	09/15/04	-1.000	0.009	U
BLANK	Sodium	7440-23-5	<14.6	n/a	ug/L	09/15/04	-73.000	73.000	U
BLANK	Nickel	7440-02-0	<0.16	n/a	ug/L	09/15/04	-1.000	0.012	U
BLANK	Phosphorus	7723-14-0	<0.3	n/a	ug/L	09/15/04	0.000	1000.000	U
BLANK	Lead	7439-92-1	<6.3e-2	n/a	ug/L	09/15/04	-1.000	0.068	U
BLANK	Antimony	7440-36-0	<0.54	n/a	ug/L	09/15/04	-1.000	0.074	U
BLANK	Selenium	7782-49-2	<1	n/a	ug/L	09/15/04	-1.000	0.075	U
BLANK	Strontium	7440-24-6	<0.1	n/a	ug/L	09/15/04	-38.000	38.000	U
BLANK	Vanadium	7440-62-2	<0.18	n/a	ug/L	09/15/04	-1.000	0.030	U
BLANK	Zinc	7440-66-6	<0.26	n/a	ug/L	09/15/04	-1.000	0.018	U
LCS	Silver	7440-22-4	319	100.631	% Recov	09/15/04	80.000	120.000	
LCS	Aluminum	7429-90-5	9580	131.233	% Recov	09/15/04	80.000	120.000	*
LCS	Arsenic	7440-38-2	406	103.308	% Recov	09/15/04	80.000	120.000	
LCS	Barium	7440-39-3	617	104.576	% Recov	09/15/04	80.000	120.000	
LCS	Beryllium	7440-41-7	314	115.018	% Recov	09/15/04	80.000	120.000	
LCS	Bismuth	7440-69-9	202	102.020	% Recov	09/15/04	80.000	120.000	
LCS	Calcium	7440-70-2	3630	100.833	% Recov	09/15/04	80.000	120.000	
LCS	Cadmium	7440-43-9	268	100.375	% Recov	09/15/04	80.000	120.000	
LCS	Cobalt	7440-48-4	287	101.056	% Recov	09/15/04	80.000	120.000	
LCS	Chromium	7440-47-3	288	101.408	% Recov	09/15/04	80.000	120.000	
LCS	Copper	7440-50-8	368	113.231	% Recov	09/15/04	80.000	120.000	
LCS	Iron	7439-89-6	13900	108.594	% Recov	09/15/04	80.000	120.000	
LCS	Potassium	7440-09-7	4500	109.756	% Recov	09/15/04	80.000	120.000	
LCS	Lithium	7439-93-2	236	119.192	% Recov	09/15/04	80.000	120.000	
LCS	Magnesium	7439-95-4	2660	118.750	% Recov	09/15/04	80.000	120.000	
LCS	Manganese	7439-96-5	701	105.732	% Recov	09/15/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Sodium	7440-23-5	568	100.176	% Recov	09/15/04	80.000	120.000	
LCS	Nickel	7440-02-0	286	101.418	% Recov	09/15/04	80.000	120.000	
LCS	Phosphorus	7723-14-0	619	94.360	% Recov	09/15/04	80.000	120.000	
LCS	Lead	7439-92-1	289	98.973	% Recov	09/15/04	80.000	120.000	
LCS	Antimony	7440-36-0	356	105.952	% Recov	09/15/04	80.000	120.000	
LCS	Selenium	7782-49-2	324	103.846	% Recov	09/15/04	80.000	120.000	
LCS	Strontium	7440-24-6	318	113.167	% Recov	09/15/04	80.000	120.000	
LCS	Vanadium	7440-62-2	364	100.552	% Recov	09/15/04	80.000	120.000	
LCS	Zinc	7440-66-6	510	110.151	% Recov	09/15/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F03-018
Sample Date: 08/10/04
Receive Date:08/10/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001442									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Mercury	7439-97-6	22.06	110.300	% Recov	08/31/04	70.000	130.000	
MS	Uranium	7440-61-1	394.1	98.525	% Recov	08/31/04	70.000	130.000	
MSD	Mercury	7439-97-6	22.91	114.550	% Recov	08/31/04	70.000	130.000	
MSD	Uranium	7440-61-1	408	102.000	% Recov	08/31/04	70.000	130.000	
Lab ID: W040001462									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Mercury	7439-97-6	22.74	113.700	% Recov	08/31/04	70.000	130.000	
MS	Uranium	7440-61-1	408.9	102.225	% Recov	08/31/04	70.000	130.000	
MSD	Mercury	7439-97-6	23.19	115.950	% Recov	08/31/04	70.000	130.000	
MSD	Uranium	7440-61-1	402.1	100.525	% Recov	08/31/04	70.000	130.000	
Lab ID: W040001529									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Mercury	7439-97-6	22.67	113.350	% Recov	08/31/04	70.000	130.000	
MS	Uranium	7440-61-1	416.04	104.010	% Recov	08/31/04	70.000	130.000	
MSD	Mercury	7439-97-6	23.43	117.150	% Recov	08/31/04	70.000	130.000	
MSD	Uranium	7440-61-1	419.24	104.810	% Recov	08/31/04	70.000	130.000	
Lab ID: W040001533									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Mercury	7439-97-6	22.17	110.850	% Recov	08/31/04	70.000	130.000	
MS	Uranium	7440-61-1	414.5	103.625	% Recov	08/31/04	70.000	130.000	
MSD	Mercury	7439-97-6	22.32	111.600	% Recov	08/31/04	70.000	130.000	
MSD	Uranium	7440-61-1	409.7	102.425	% Recov	08/31/04	70.000	130.000	
SPK-RPD	Mercury	7439-97-6	111.600	0.674	RPD	08/31/04	0.000	20.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SPK-RPD	Uranium	7440-61-1	102.425	1.165	RPD	08/31/04	0.000	20.000	

Lab ID: W04DC00147
BATCH QC ASSOCIATED WITH SAMPLE

MS	Mercury	7439-97-6	29.78	148.900	% Recov	08/31/04	70.000	130.000	*
MSD	Mercury	7439-97-6	23.35	116.750	% Recov	08/31/04	70.000	130.000	

BATCH QC

BLANK	Mercury	7439-97-6	0.12	0.120	ug/L	08/31/04	-0.220	0.220	
BLANK	Uranium	7440-61-1	<0.1	n/a	ug/L	08/31/04	-0.220	0.220	U
LCS	Mercury	7439-97-6	10.37	110.202	% Recov	08/31/04	75.000	114.000	
LCS	Uranium	7440-61-1	399.5	99.875	% Recov	08/31/04	89.000	107.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date: 09/09/04
Receive Date:09/09/04

Lab ID: W040001610
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Silver	7440-22-4	194.042	97.021	% Recov	09/23/04	75.000	125.000	
MS	Aluminum	7429-90-5	2370	n/a	% Recov	09/23/04	75.000	125.000	
MS	Arsenic	7440-38-2	184.38	92.190	% Recov	09/23/04	75.000	125.000	
MS	Barium	7440-39-3	209	104.500	% Recov	09/23/04	75.000	125.000	
MS	Beryllium	7440-41-7	213.704	106.852	% Recov	09/23/04	75.000	125.000	
MS	Bismuth	7440-69-9	184	92.000	% Recov	09/23/04	75.000	125.000	
MS	Calcium	7440-70-2	880	n/a	% Recov	09/23/04	75.000	125.000	
MS	Cadmium	7440-43-9	181	90.500	% Recov	09/23/04	75.000	125.000	
MS	Cobalt	7440-48-4	186.55	93.275	% Recov	09/23/04	75.000	125.000	
MS	Chromium	7440-47-3	182.3	91.150	% Recov	09/23/04	75.000	125.000	
MS	Copper	7440-50-8	209.1	104.550	% Recov	09/23/04	75.000	125.000	
MS	Iron	7439-89-6	1600	n/a	% Recov	09/23/04	75.000	125.000	
MS	Potassium	7440-09-7	2560	128.000	% Recov	09/23/04	75.000	125.000	*
MS	Lithium	7439-93-2	241.2	120.600	% Recov	09/23/04	70.000	130.000	
MS	Magnesium	7439-95-4	1280	n/a	% Recov	09/23/04	75.000	125.000	
MS	Manganese	7439-96-5	188	94.000	% Recov	09/23/04	75.000	125.000	
MS	Sodium	7440-23-5	369	184.500	% Recov	09/23/04	75.000	125.000	*
MS	Nickel	7440-02-0	179.8	89.900	% Recov	09/23/04	75.000	125.000	
MS	Phosphorus	7723-14-0	149	74.500	% Recov	09/23/04	70.000	130.000	
MS	Lead	7439-92-1	166	83.000	% Recov	09/23/04	75.000	125.000	
MS	Antimony	7440-36-0	177	88.500	% Recov	09/23/04	75.000	125.000	
MS	Selenium	7782-49-2	188	94.000	% Recov	09/23/04	75.000	125.000	
MS	Strontium	7440-24-6	228	114.000	% Recov	09/23/04	70.000	130.000	
MS	Vanadium	7440-62-2	190.3	95.150	% Recov	09/23/04	75.000	125.000	
MS	Zinc	7440-66-6	198.1	99.050	% Recov	09/23/04	75.000	125.000	
MSD	Silver	7440-22-4	82.042	41.021	% Recov	09/23/04	75.000	125.000	*

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date: 09/09/04
Receive Date:09/09/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MSD	Aluminum	7429-90-5	2160	n/a	% Recov	09/23/04	75.000	125.000	
MSD	Arsenic	7440-38-2	175.38	87.690	% Recov	09/23/04	75.000	125.000	
MSD	Barium	7440-39-3	199	99.500	% Recov	09/23/04	75.000	125.000	
MSD	Beryllium	7440-41-7	219.704	109.852	% Recov	09/23/04	75.000	125.000	
MSD	Bismuth	7440-69-9	193	96.500	% Recov	09/23/04	75.000	125.000	
MSD	Calcium	7440-70-2	1020	n/a	% Recov	09/23/04	75.000	125.000	
MSD	Cadmium	7440-43-9	182	91.000	% Recov	09/23/04	75.000	125.000	
MSD	Cobalt	7440-48-4	188.55	94.275	% Recov	09/23/04	75.000	125.000	
MSD	Chromium	7440-47-3	183.3	91.650	% Recov	09/23/04	75.000	125.000	
MSD	Copper	7440-50-8	199.1	99.550	% Recov	09/23/04	75.000	125.000	
MSD	Iron	7439-89-6	4100	n/a	% Recov	09/23/04	75.000	125.000	
MSD	Potassium	7440-09-7	2300	115.000	% Recov	09/23/04	75.000	125.000	
MSD	Lithium	7439-93-2	217.2	108.600	% Recov	09/23/04	75.000	125.000	
MSD	Magnesium	7439-95-4	1170	n/a	% Recov	09/23/04	75.000	125.000	
MSD	Manganese	7439-96-5	175	87.500	% Recov	09/23/04	75.000	125.000	
MSD	Sodium	7440-23-5	268	134.000	% Recov	09/23/04	75.000	125.000	*
MSD	Nickel	7440-02-0	173.8	86.900	% Recov	09/23/04	75.000	125.000	
MSD	Phosphorus	7723-14-0	139	69.500	% Recov	09/23/04	75.000	125.000	*
MSD	Lead	7439-92-1	181	90.500	% Recov	09/23/04	75.000	125.000	
MSD	Antimony	7440-36-0	173	86.500	% Recov	09/23/04	75.000	125.000	
MSD	Selenium	7782-49-2	183	91.500	% Recov	09/23/04	75.000	125.000	
MSD	Strontium	7440-24-6	237	118.500	% Recov	09/23/04	75.000	125.000	
MSD	Vanadium	7440-62-2	197.3	98.650	% Recov	09/23/04	75.000	125.000	
MSD	Zinc	7440-66-6	191.1	95.550	% Recov	09/23/04	75.000	125.000	
SPK-RPD	Silver	7440-22-4	41.021	81.135	RPD	09/23/04	0.000	20.000	*
SPK-RPD	Aluminum	7429-90-5		n/a	RPD	09/23/04	0.000	20.000	
SPK-RPD	Arsenic	7440-38-2	87.690	5.003	RPD	09/23/04	0.000	20.000	
SPK-RPD	Barium	7440-39-3	99.500	4.902	RPD	09/23/04	0.000	20.000	
SPK-RPD	Beryllium	7440-41-7	109.852	2.769	RPD	09/23/04	0.000	20.000	
SPK-RPD	Bismuth	7440-69-9	96.500	4.775	RPD	09/23/04	0.000	20.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date: 09/09/04
Receive Date:09/09/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SPK-RPD	Calcium	7440-70-2		n/a	RPD	09/23/04	0.000	20.000	
SPK-RPD	Cadmium	7440-43-9	91.000	0.551	RPD	09/23/04	0.000	20.000	
SPK-RPD	Cobalt	7440-48-4	94.275	1.066	RPD	09/23/04	0.000	20.000	
SPK-RPD	Chromium	7440-47-3	91.650	0.547	RPD	09/23/04	0.000	20.000	
SPK-RPD	Copper	7440-50-8	99.550	4.900	RPD	09/23/04	0.000	20.000	
SPK-RPD	Iron	7439-89-6		n/a	RPD	09/23/04	0.000	20.000	
SPK-RPD	Potassium	7440-09-7	115.000	10.700	RPD	09/23/04	0.000	20.000	
SPK-RPD	Lithium	7439-93-2	108.600	10.471	RPD	09/23/04	0.000	20.000	
SPK-RPD	Magnesium	7439-95-4		n/a	RPD	09/23/04	0.000	20.000	
SPK-RPD	Manganese	7439-96-5	87.500	7.163	RPD	09/23/04	0.000	20.000	
SPK-RPD	Sodium	7440-23-5	134.000	31.711	RPD	09/23/04	0.000	20.000	
SPK-RPD	Nickel	7440-02-0	86.900	3.394	RPD	09/23/04	0.000	20.000	
SPK-RPD	Phosphorus	7723-14-0	69.500	6.944	RPD	09/23/04	0.000	20.000	
SPK-RPD	Lead	7439-92-1	90.500	8.646	RPD	09/23/04	0.000	20.000	
SPK-RPD	Antimony	7440-36-0	86.500	2.286	RPD	09/23/04	0.000	20.000	
SPK-RPD	Selenium	7782-49-2	91.500	2.695	RPD	09/23/04	0.000	20.000	
SPK-RPD	Strontium	7440-24-6	118.500	3.871	RPD	09/23/04	0.000	20.000	
SPK-RPD	Vanadium	7440-62-2	98.650	3.612	RPD	09/23/04	0.000	20.000	
SPK-RPD	Zinc	7440-66-6	95.550	3.597	RPD	09/23/04	0.000	20.000	

BATCH QC

BLANK	Silver	7440-22-4	<0.12	n/a	ug/L	09/23/04	-1.000	0.032	U
BLANK	Aluminum	7429-90-5	<2.5	n/a	ug/L	09/23/04	-1.000	63.000	U
BLANK	Arsenic	7440-38-2	<1.2	n/a	ug/L	09/23/04	-1.000	0.067	U
BLANK	Barium	7440-39-3	<1.3e-2	n/a	ug/L	09/23/04	-1.000	0.014	U
BLANK	Beryllium	7440-41-7	<5e-3	n/a	ug/L	09/23/04	-1.000	0.009	U
BLANK	Bismuth	7440-69-9	<5	n/a	ug/L	09/23/04	-1.000	0.068	U
BLANK	Calcium	7440-70-2	<1.2	n/a	ug/L	09/23/04	-38.000	38.000	U
BLANK	Cadmium	7440-43-9	<7.5e-2	n/a	ug/L	09/23/04	-1.000	0.009	U
BLANK	Cobalt	7440-48-4	<9.2e-2	n/a	ug/L	09/23/04	-4.000	4.000	U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Chromium	7440-47-3	<0.2	n/a	ug/L	09/23/04	-1.000	0.035	U
BLANK	Copper	7440-50-8	<7e-2	n/a	ug/L	09/23/04	-1.000	0.035	U
BLANK	Iron	7439-89-6	<1.5	n/a	ug/L	09/23/04	-19.000	19.000	U
BLANK	Potassium	7440-09-7	<8.9	n/a	ug/L	09/23/04	-710.000	710.000	U
BLANK	Lithium	7439-93-2	<0.1	n/a	ug/L	09/23/04	-38.000	38.000	U
BLANK	Magnesium	7439-95-4	<1.85	n/a	ug/L	09/23/04	-85.000	85.000	U
BLANK	Manganese	7439-96-5	<4.3e-2	n/a	ug/L	09/23/04	-1.000	0.009	U
BLANK	Sodium	7440-23-5	<14.6	n/a	ug/L	09/23/04	-73.000	73.000	U
BLANK	Nickel	7440-02-0	<0.16	n/a	ug/L	09/23/04	-1.000	0.012	U
BLANK	Phosphorus	7723-14-0	<0.3	n/a	ug/L	09/23/04	0.000	1000.000	U
BLANK	Lead	7439-92-1	<6.3e-2	n/a	ug/L	09/23/04	-1.000	0.068	U
BLANK	Antimony	7440-36-0	<0.54	n/a	ug/L	09/23/04	-1.000	0.074	U
BLANK	Selenium	7782-49-2	<1	n/a	ug/L	09/23/04	-1.000	0.075	U
BLANK	Strontium	7440-24-6	<0.1	n/a	ug/L	09/23/04	-38.000	38.000	U
BLANK	Vanadium	7440-62-2	<0.18	n/a	ug/L	09/23/04	-1.000	0.030	U
BLANK	Zinc	7440-66-6	<0.26	n/a	ug/L	09/23/04	-1.000	0.018	U
LCS	Silver	7440-22-4	78.5	24.608	% Recov	09/23/04	80.000	120.000	*
LCS	Aluminum	7429-90-5	10400	142.466	% Recov	09/23/04	80.000	120.000	*
LCS	Arsenic	7440-38-2	358	90.633	% Recov	09/23/04	80.000	120.000	
LCS	Barium	7440-39-3	646	109.122	% Recov	09/23/04	80.000	120.000	
LCS	Beryllium	7440-41-7	310	112.727	% Recov	09/23/04	80.000	120.000	
LCS	Bismuth	7440-69-9	197	98.500	% Recov	09/23/04	80.000	120.000	
LCS	Calcium	7440-70-2	3400	94.444	% Recov	09/23/04	80.000	120.000	
LCS	Cadmium	7440-43-9	248	92.193	% Recov	09/23/04	80.000	120.000	
LCS	Cobalt	7440-48-4	269	94.056	% Recov	09/23/04	80.000	120.000	
LCS	Chromium	7440-47-3	278	97.203	% Recov	09/23/04	80.000	120.000	
LCS	Copper	7440-50-8	345	105.505	% Recov	09/23/04	80.000	120.000	
LCS	Iron	7439-89-6	15400	120.312	% Recov	09/23/04	80.000	120.000	*
LCS	Potassium	7440-09-7	4700	114.634	% Recov	09/23/04	80.000	120.000	
LCS	Lithium	7439-93-2	236	84.588	% Recov	09/23/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Magnesium	7439-95-4	2590	117.727	% Recov	09/23/04	80.000	120.000	
LCS	Manganese	7439-96-5	664	99.850	% Recov	09/23/04	80.000	120.000	
LCS	Sodium	7440-23-5	525	92.267	% Recov	09/23/04	80.000	120.000	
LCS	Nickel	7440-02-0	262	92.254	% Recov	09/23/04	80.000	120.000	
LCS	Phosphorus	7723-14-0	650	98.784	% Recov	09/23/04	80.000	120.000	
LCS	Lead	7439-92-1	285	96.939	% Recov	09/23/04	80.000	120.000	
LCS	Antimony	7440-36-0	344	101.775	% Recov	09/23/04	80.000	120.000	
LCS	Selenium	7782-49-2	311	99.045	% Recov	09/23/04	80.000	120.000	
LCS	Strontium	7440-24-6	340	120.141	% Recov	09/23/04	80.000	120.000	*
LCS	Vanadium	7440-62-2	350	96.154	% Recov	09/23/04	80.000	120.000	
LCS	Zinc	7440-66-6	484	104.086	% Recov	09/23/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F03-018
Sample Date: 09/08/04
Receive Date:09/08/04

Lab ID: W040001605

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Mercury	7439-97-6	20.5963	102.981	% Recov	09/15/04	70.000	130.000	
MS	Uranium	7440-61-1	401.6	100.400	% Recov	09/15/04	70.000	130.000	
MSD	Mercury	7439-97-6	21.4563	107.281	% Recov	09/15/04	70.000	130.000	
MSD	Uranium	7440-61-1	419.4	104.850	% Recov	09/15/04	70.000	130.000	
SPK-RPD	Mercury	7439-97-6	107.281	4.090	RPD	09/15/04	0.000	20.000	
SPK-RPD	Uranium	7440-61-1	104.850	4.336	RPD	09/15/04	0.000	20.000	

BATCH QC

BLANK	Mercury	7439-97-6	5.994e-2	0.060	ug/L	09/15/04	-0.220	0.220	
BLANK	Uranium	7440-61-1	1.882e-2	0.019	ug/L	09/15/04	-0.220	0.220	
LCS	Mercury	7439-97-6	11.92	126.674	% Recov	09/15/04	75.000	114.000	*
LCS	Uranium	7440-61-1	413.5	103.375	% Recov	09/15/04	89.000	107.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F05-023
Sample Date: 06/14/05
Receive Date:06/15/05

Lab ID: W050001783

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Bismuth	7440-69-9	83.1	83.939	% Recov	07/18/05	75.000	125.000	
MS	Phosphorus	7723-14-0	145	n/a	% Recov	07/18/05	70.000	130.000	
MSD	Bismuth	7440-69-9	83.5	84.343	% Recov	07/18/05	75.000	125.000	
MSD	Phosphorus	7723-14-0	147	n/a	% Recov	07/18/05	75.000	125.000	
SPK-RPD	Bismuth	7440-69-9	84.343	0.480	RPD	07/18/05	0.000	20.000	
SPK-RPD	Phosphorus	7723-14-0		n/a	RPD	07/18/05	0.000	20.000	

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Bismuth	7440-69-9	2.2	2.200	ug/L	07/18/05			
BLANK	Phosphorus	7723-14-0	<4.8e-2	n/a	ug/L	07/18/05			U
LCS	Bismuth	7440-69-9	181	91.414	% Recov	07/18/05	80.000	120.000	
LCS	Phosphorus	7723-14-0	709	110.781	% Recov	07/18/05	78.000	123.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F05-023
Sample Date: 06/27/05
Receive Date:06/27/05

Lab ID: W050002015
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Silver	7440-22-4	206.6	103.300	% Recov	07/07/05	70.000	130.000	
MS	Arsenic	7440-38-2	189.857	94.928	% Recov	07/07/05	70.000	130.000	
MS	Barium	7440-39-3	215.47	107.735	% Recov	07/07/05	70.000	130.000	
MS	Cadmium	7440-43-9	207.4785	103.739	% Recov	07/07/05	70.000	130.000	
MS	Chromium	7440-47-3	170.91	85.455	% Recov	07/07/05	70.000	130.000	
MS	Copper	7440-50-8	190.554	95.277	% Recov	07/07/05	70.000	130.000	
MS	Mercury	7439-97-6	1.9776	98.880	% Recov	07/07/05	70.000	130.000	
MS	Nickel	7440-02-0	186.46	93.230	% Recov	07/07/05	70.000	130.000	
MS	Lead	7439-92-1	209.693	104.846	% Recov	07/07/05	70.000	130.000	
MS	Selenium	7782-49-2	190.4	95.200	% Recov	07/07/05	70.000	130.000	
MS	Uranium	7440-61-1	204.8397	102.420	% Recov	07/07/05	70.000	130.000	
MSD	Silver	7440-22-4	199.4	99.700	% Recov	07/07/05	70.000	130.000	
MSD	Arsenic	7440-38-2	189.157	94.579	% Recov	07/07/05	70.000	130.000	
MSD	Barium	7440-39-3	212.47	106.235	% Recov	07/07/05	70.000	130.000	
MSD	Cadmium	7440-43-9	203.5785	101.789	% Recov	07/07/05	70.000	130.000	
MSD	Chromium	7440-47-3	170.61	85.305	% Recov	07/07/05	70.000	130.000	
MSD	Copper	7440-50-8	190.054	95.027	% Recov	07/07/05	70.000	130.000	
MSD	Mercury	7439-97-6	1.9576	97.880	% Recov	07/07/05	70.000	130.000	
MSD	Nickel	7440-02-0	185.36	92.680	% Recov	07/07/05	70.000	130.000	
MSD	Lead	7439-92-1	207.093	103.546	% Recov	07/07/05	70.000	130.000	
MSD	Selenium	7782-49-2	191.2	95.600	% Recov	07/07/05	70.000	130.000	
MSD	Uranium	7440-61-1	200.9397	100.470	% Recov	07/07/05	70.000	130.000	
SPK-RPD	Silver	7440-22-4	99.700	3.547	RPD	07/07/05	0.000	20.000	
SPK-RPD	Arsenic	7440-38-2	94.579	0.368	RPD	07/07/05	0.000	20.000	
SPK-RPD	Barium	7440-39-3	106.235	1.402	RPD	07/07/05	0.000	20.000	
SPK-RPD	Cadmium	7440-43-9	101.789	1.898	RPD	07/07/05	0.000	20.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F05-023
Sample Date: 06/27/05
Receive Date:06/27/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SPK-RPD	Chromium	7440-47-3	85.305	0.176	RPD	07/07/05	0.000	20.000	
SPK-RPD	Copper	7440-50-8	95.027	0.263	RPD	07/07/05	0.000	20.000	
SPK-RPD	Mercury	7439-97-6	97.880	1.016	RPD	07/07/05	0.000	20.000	
SPK-RPD	Nickel	7440-02-0	92.680	0.592	RPD	07/07/05	0.000	20.000	
SPK-RPD	Lead	7439-92-1	103.546	1.248	RPD	07/07/05	0.000	20.000	
SPK-RPD	Selenium	7782-49-2	95.600	0.419	RPD	07/07/05	0.000	20.000	
SPK-RPD	Uranium	7440-61-1	100.470	1.922	RPD	07/07/05	0.000	20.000	
BATCH QC									
BLANK	Silver	7440-22-4	<0.1	n/a	ug/L	07/07/05			U
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L	07/07/05			U
BLANK	Barium	7440-39-3	<4	n/a	ug/L	07/07/05			U
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L	07/07/05			U
BLANK	Chromium	7440-47-3	<4	n/a	ug/L	07/07/05			U
BLANK	Copper	7440-50-8	<2	n/a	ug/L	07/07/05			U
BLANK	Mercury	7439-97-6	<0.1	n/a	ug/L	07/07/05			U
BLANK	Nickel	7440-02-0	<0.1	n/a	ug/L	07/07/05			U
BLANK	Lead	7439-92-1	<0.2	n/a	ug/L	07/07/05			U
BLANK	Selenium	7782-49-2	<0.4	n/a	ug/L	07/07/05			U
BLANK	Uranium	7440-61-1	<0.1	n/a	ug/L	07/07/05			U
LCS	Silver	7440-22-4	148.4	114.154	% Recov	07/07/05	110.000	170.000	
LCS	Arsenic	7440-38-2	161	100.000	% Recov	07/07/05	82.000	142.000	
LCS	Barium	7440-39-3	252.5	100.198	% Recov	07/07/05	79.000	123.000	
LCS	Cadmium	7440-43-9	133.9	104.609	% Recov	07/07/05	88.000	127.000	
LCS	Chromium	7440-47-3	67.75	97.482	% Recov	07/07/05	50.000	126.000	
LCS	Copper	7440-50-8	144.1	97.365	% Recov	07/07/05	61.000	134.000	
LCS	Mercury	7439-97-6	16.33	96.627	% Recov	07/07/05	75.000	114.000	
LCS	Nickel	7440-02-0	153.7	104.558	% Recov	07/07/05	84.000	125.000	
LCS	Lead	7439-92-1	147.9	104.155	% Recov	07/07/05	87.000	120.000	
LCS	Selenium	7782-49-2	64.13	99.891	% Recov	07/07/05	83.000	145.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F05-023
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Uranium	7440-61-1	414	103.500	% Recov	07/07/05	89.000	107.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: ICP Metals Analysis, Grd H20 P

SAF Number: F05-023
Sample Date: 06/14/05
Receive Date:06/15/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050001783									
BATCH QC ASSOCIATED WITH SAMPLE									
MS	Bismuth	7440-69-9	83.1	83.939	% Recov	07/18/05	75.000	125.000	
MS	Phosphorus	7723-14-0	145	n/a	% Recov	07/18/05	70.000	130.000	
MSD	Bismuth	7440-69-9	83.5	84.343	% Recov	07/18/05	75.000	125.000	
MSD	Phosphorus	7723-14-0	147	n/a	% Recov	07/18/05	75.000	125.000	
SPK-RPD	Bismuth	7440-69-9	84.343	0.480	RPD	07/18/05	0.000	20.000	
SPK-RPD	Phosphorus	7723-14-0		n/a	RPD	07/18/05	0.000	20.000	
BATCH QC									
BLANK	Bismuth	7440-69-9	2.2	2.200	ug/L	07/18/05			
BLANK	Phosphorus	7723-14-0	<4.8e-2	n/a	ug/L	07/18/05			U
LCS	Bismuth	7440-69-9	181	91.414	% Recov	07/18/05	80.000	120.000	
LCS	Phosphorus	7723-14-0	709	110.781	% Recov	07/18/05	78.000	123.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F05-023
Sample Date: 06/27/05
Receive Date:06/27/05

Lab ID: W050002015
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Silver	7440-22-4	206.6	103.300	% Recov	07/07/05	70.000	130.000	
MS	Arsenic	7440-38-2	189.857	94.928	% Recov	07/07/05	70.000	130.000	
MS	Barium	7440-39-3	215.47	107.735	% Recov	07/07/05	70.000	130.000	
MS	Cadmium	7440-43-9	207.4785	103.739	% Recov	07/07/05	70.000	130.000	
MS	Chromium	7440-47-3	170.91	85.455	% Recov	07/07/05	70.000	130.000	
MS	Copper	7440-50-8	190.554	95.277	% Recov	07/07/05	70.000	130.000	
MS	Mercury	7439-97-6	1.9776	98.880	% Recov	07/07/05	70.000	130.000	
MS	Nickel	7440-02-0	186.46	93.230	% Recov	07/07/05	70.000	130.000	
MS	Lead	7439-92-1	209.693	104.846	% Recov	07/07/05	70.000	130.000	
MS	Selenium	7782-49-2	190.4	95.200	% Recov	07/07/05	70.000	130.000	
MS	Uranium	7440-61-1	204.8397	102.420	% Recov	07/07/05	70.000	130.000	
MSD	Silver	7440-22-4	199.4	99.700	% Recov	07/07/05	70.000	130.000	
MSD	Arsenic	7440-38-2	189.157	94.579	% Recov	07/07/05	70.000	130.000	
MSD	Barium	7440-39-3	212.47	106.235	% Recov	07/07/05	70.000	130.000	
MSD	Cadmium	7440-43-9	203.5785	101.789	% Recov	07/07/05	70.000	130.000	
MSD	Chromium	7440-47-3	170.61	85.305	% Recov	07/07/05	70.000	130.000	
MSD	Copper	7440-50-8	190.054	95.027	% Recov	07/07/05	70.000	130.000	
MSD	Mercury	7439-97-6	1.9576	97.880	% Recov	07/07/05	70.000	130.000	
MSD	Nickel	7440-02-0	185.36	92.680	% Recov	07/07/05	70.000	130.000	
MSD	Lead	7439-92-1	207.093	103.546	% Recov	07/07/05	70.000	130.000	
MSD	Selenium	7782-49-2	191.2	95.600	% Recov	07/07/05	70.000	130.000	
MSD	Uranium	7440-61-1	200.9397	100.470	% Recov	07/07/05	70.000	130.000	
SPK-RPD	Silver	7440-22-4	99.700	3.547	RPD	07/07/05	0.000	20.000	
SPK-RPD	Arsenic	7440-38-2	94.579	0.368	RPD	07/07/05	0.000	20.000	
SPK-RPD	Barium	7440-39-3	106.235	1.402	RPD	07/07/05	0.000	20.000	
SPK-RPD	Cadmium	7440-43-9	101.789	1.898	RPD	07/07/05	0.000	20.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F05-023
Sample Date: 06/27/05
Receive Date:06/27/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
SPK-RPD	Chromium	7440-47-3	85.305	0.176	RPD	07/07/05	0.000	20.000	
SPK-RPD	Copper	7440-50-8	95.027	0.263	RPD	07/07/05	0.000	20.000	
SPK-RPD	Mercury	7439-97-6	97.880	1.016	RPD	07/07/05	0.000	20.000	
SPK-RPD	Nickel	7440-02-0	92.680	0.592	RPD	07/07/05	0.000	20.000	
SPK-RPD	Lead	7439-92-1	103.546	1.248	RPD	07/07/05	0.000	20.000	
SPK-RPD	Selenium	7782-49-2	95.600	0.419	RPD	07/07/05	0.000	20.000	
SPK-RPD	Uranium	7440-61-1	100.470	1.922	RPD	07/07/05	0.000	20.000	
BATCH QC									
BLANK	Silver	7440-22-4	<0.1	n/a	ug/L	07/07/05			U
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L	07/07/05			U
BLANK	Barium	7440-39-3	<4	n/a	ug/L	07/07/05			U
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L	07/07/05			U
BLANK	Chromium	7440-47-3	<4	n/a	ug/L	07/07/05			U
BLANK	Copper	7440-50-8	<2	n/a	ug/L	07/07/05			U
BLANK	Mercury	7439-97-6	<0.1	n/a	ug/L	07/07/05			U
BLANK	Nickel	7440-02-0	<0.1	n/a	ug/L	07/07/05			U
BLANK	Lead	7439-92-1	<0.2	n/a	ug/L	07/07/05			U
BLANK	Selenium	7782-49-2	<0.4	n/a	ug/L	07/07/05			U
BLANK	Uranium	7440-61-1	<0.1	n/a	ug/L	07/07/05			U
LCS	Silver	7440-22-4	148.4	114.154	% Recov	07/07/05	110.000	170.000	
LCS	Arsenic	7440-38-2	161	100.000	% Recov	07/07/05	82.000	142.000	
LCS	Barium	7440-39-3	252.5	100.198	% Recov	07/07/05	79.000	123.000	
LCS	Cadmium	7440-43-9	133.9	104.609	% Recov	07/07/05	88.000	127.000	
LCS	Chromium	7440-47-3	67.75	97.482	% Recov	07/07/05	50.000	126.000	
LCS	Copper	7440-50-8	144.1	97.365	% Recov	07/07/05	61.000	134.000	
LCS	Mercury	7439-97-6	16.33	96.627	% Recov	07/07/05	75.000	114.000	
LCS	Nickel	7440-02-0	153.7	104.558	% Recov	07/07/05	84.000	125.000	
LCS	Lead	7439-92-1	147.9	104.155	% Recov	07/07/05	87.000	120.000	
LCS	Selenium	7782-49-2	64.13	99.891	% Recov	07/07/05	83.000	145.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: ICP-2008 MS All possible metal

SAF Number: F05-023
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
LCS	Uranium	7440-61-1	414	103.500	% Recov	07/07/05	89.000	107.000	

Date: 12 March 2010
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: CPP 200 Area, D&D-200 Area
Subject: General Chemistry - Sample Data Group (SDGs) WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 and WSCF20051350

INTRODUCTION

This memorandum presents the results of data validation for SDGs WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 and WSCF20051350 prepared by WSCF. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B17N67	8/23/2004	Soil	C	300.0, 300.7, 335.2 & 9045C
B17N70	8/25/2004	Soil	C	300.0, 300.7, 335.2 & 9045C
B17N73	9/09/2004	Soil	C	300.0, 300.7, 335.2 & 9045C
B17NL5	9/09/2004	Soil	C	300.0, 300.7, 335.2 & 9045C
B1D994	6/29/2005	Soil	C	300.0, 300.7 & 9045C
B1D995	6/30/2005	Soil	C	300.0, 300.7 & 9045C

Data validation was conducted in accordance with the CHPRC validation statement of work and the Sampling and Analysis Plan for Investigation of Dense, Nonaqueous-Phase Liquid Carbon Tetrachloride at the 216-Z-9 Trench, DOE/RL-2001-01, Rev. 0, Appendix E (SAP). 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. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested By Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The holding time requirements are as follows:

- All anions except nitrate, nitrite, and phosphate – analysis within 28 days of sample collection
- Nitrate, nitrite, and phosphate – extraction within 28 days of sample collection and analysis within 48 hours of extraction
- pH – analysis as soon as possible after sample collection
- Total cyanide – analysis within 14 days of sample collection

- Ammonia – analysis within 28 days of sample collection

Sample preservation requires chilling to 4 degrees Celsius.

The samples were extracted and analyzed within the prescribed holding times and properly preserved with the following exceptions.

For SDG WSCF20041457, sample B1VN67 was analyzed for pH nine days after sample collection. The pH result should be qualified as an estimate and flagged "J."

For SDG WSCF20041487, sample B1VN70 was analyzed for pH seven days after sample collection. The pH result should be qualified as an estimate and flagged "J."

For SDG WSCF20041594, samples B17N73 and B17NL5 were analyzed for pH seven days after sample collection. The pH results should be qualified as estimates and flagged "J." In addition, samples B17N73 and B17NL5 were analyzed for total cyanide beyond the holding time but within 2X the holding time. The total cyanide results were non-detects and should be qualified as estimates and flagged "UJ."

For SDG WSCF20051337, sample B1D994 was analyzed for pH seven days after sample collection. The pH result should be qualified as an estimate and flagged "J."

For SDG WSCF20051350, sample B1D995 was analyzed for pH six days after sample collection. The pH result should be qualified as an estimate and flagged "J."

It should be noted for all 2004 SDGs that anion extraction dates were not provided in the data packages. The lab narratives stated that all holding times were met, and it is assumed for validation that sample analyses took place within 48 hours of sample extraction for nitrate, nitrite and phosphate.

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable with the following exceptions.

For SDGs WSCF20041457, WSCF20041487 and WSCF20041594, the total cyanide laboratory blank results were > the method detection limit (MDL). The associated sample results were all non-detects and should not be qualified for the blank infractions.

Trip Blanks

No trip blanks were submitted for analysis.

Field Blanks

No field blanks were submitted for analysis.

Equipment Blanks

No equipment blanks were submitted for analysis.

- **Accuracy**

Accuracy is evaluated by reviewing matrix spike sample results and laboratory control sample results. According to the SAP, the matrix spike sample accuracy limits are 70% to 130%. The laboratory control sample accuracy limits are the ones established by the analytical laboratory. The limits for reported analytes not listed in the SAP are specified by the DV procedure.

Matrix Spike/Matrix Spike Duplicate (MS/MSD) Samples

All MS/MSD recoveries were acceptable with the following exceptions.

For SDG WSCF20041457, the MSD recovery for total cyanide was < the lower acceptance limit but ≥30%. The associated result for sample B1VN67 was a non-detect and should be qualified as an estimate and flagged "UJ."

For SDG WSCF20041594, the MS recovery for total cyanide was < the lower acceptance limit but ≥30%. The associated results for samples B17N73 and B17NL5 were non-detects and should be qualified as estimates and flagged "UJ."

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable.

- **Precision**

Precision is evaluated by reviewing MS/MSD results, laboratory duplicate sample results, field duplicate sample results, and field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. According to the SAP, the relative percent difference (RPD) limits are ±30%. The RPD limits for reported analytes not listed in the SAP are specified by the DV procedure. When duplicate RPDs exceed the limits and have associated results <5X the SAP required detection limits (or <5X the laboratory required detection limits for analytes not listed in the SAP) with differences <2X the required detection limits no precision infraction occurred.

MS/MSD Samples

All MS/MSD RPD values were acceptable with the following exception.

For SDG WSCF20041457, the total cyanide RPD was above the upper acceptance limit. The associated result for sample B1VN67 was a non-detect and should be qualified as an estimate and flagged "UJ."

Laboratory Duplicate Samples

All laboratory duplicate results were acceptable.

Field Duplicate Samples

No field duplicates were submitted for analysis.

Field Split Samples

No field splits were submitted for analysis.

- **Detection Limits**

Reported MDLs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDLs were below the CRDLs with the following exceptions.

For SDG WSCF20041457, the chloride MDL for sample B17N67 was > the CRDL.

For SDG WSCF20041487, the chloride MDL for sample B17N70 was > the CRDL.

For SDG WSCF20041594, the chloride MDLs for samples B17N73 and B17NL5 were > the CRDL.

For SDG WSCF20051337, the chloride MDL for sample B1D994 was > the CRDL.

For SDG WSCF20051350, the chloride MDL for sample B1D995 was > the CRDL.

- **Completeness**

SDGs WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 and WSCF20051350 were 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

Multiple minor deficiencies leading to qualification of sample results as estimates occurred. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

HNF-20433, Rev. 0, *Data Validation Procedure for Chemical Analyses*, June 2004.

DOE/RL-2001-01, Rev. 0, Appendix E, *Sampling and Analysis Plan for Investigation of Dense, Nonaqueous-Phase Liquid Carbon Tetrachloride at the 216-Z-9 Trench*.

Appendix 1

Glossary of Data Reporting Qualifiers

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

- **U** ─ The constituent was analyzed for and was not detected. The data should be considered usable for decision-making purposes.

- **UJ** ─ The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the MDL. The data should be considered usable for decision-making purposes.

- **J** ─ Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **UR** ─ Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** ─ Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

General Chemistry Data Qualification Summary			
SDG: See comments	Reviewer: AQA	Project: CPP 200 Area, D&D-200 Area	Page 1 of 1
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
pH	J	B17N67, B17N70, B17N73, B17NL5, B1D994, B1D995	Analysis beyond 2X the holding time
Total cyanide	UJ	B17N67	Low MSD recovery and poor MS/MSD precision
Total cyanide	UJ	B17N73, B17NL5	Analysis beyond the holding time but within 2X the holding time and low MS recovery

Comments: SDGs WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 & WSCF20051350

Appendix 3

Annotated Laboratory Reports

WSCF
ANALYTICAL RESULTS REPORT

000015

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041457

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Inorganic															
W040001533	B17N67	TRENT	57-12-5	Cyanide	UJ	SOIL	LA-695-402	U payoes per Steve Treat	< 0.200	mg/kg	1.00	0.20	09/02/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	NH4-N	Nitrogen in ammonium		SOIL	LA-503-401	B 5/4/05	1.64	mg/kg	50.00	0.20	09/08/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	TS	Total solids		SOIL	LA-519-412		97.3	%	1.00	0.0	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	PH	pH Measurement	J	SOIL	LA-212-411		9.38	pH	1.00	0.010	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	16984-48-8	Fluoride		SOIL	LA-533-410	U	< 1.15	mg/kg	50.00	1.2	08/31/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	16887-00-6	Chloride		SOIL	LA-533-410	B	5.03	mg/kg	50.00	2.6	08/31/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	NO2-N	Nitrogen in Nitrite		SOIL	LA-533-410	U	< 0.950	mg/kg	50.00	0.95	08/31/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	NO3-N	Nitrogen in Nitrate		SOIL	LA-533-410		18.9	mg/kg	50.00	0.65	08/31/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	14265-44-2	Phosphate		SOIL	LA-533-410	U	< 2.70	mg/kg	50.00	2.7	08/31/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	14808-79-8	Sulfate		SOIL	LA-533-410	B	17.5	mg/kg	50.00	5.0	08/31/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7429-90-5	Aluminum		SOIL	LA-505-411		4.97e+03	mg/kg	1.00	2.5	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7439-89-6	Iron		SOIL	LA-505-411		1.26e+04	mg/kg	1.00	1.5	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7439-95-4	Magnesium	LS	SOIL	LA-505-411		3.12e+03	mg/kg	1.00	1.8	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7439-96-5	Manganese	3-12-2010	SOIL	LA-505-411		207	mg/kg	1.00	0.043	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-02-0	Nickel		SOIL	LA-505-411		21.4	mg/kg	1.00	0.16	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-09-7	Potassium		SOIL	LA-505-411		972	mg/kg	1.00	8.9	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-22-4	Silver		SOIL	LA-505-411		2.88	mg/kg	1.00	0.12	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-23-5	Sodium		SOIL	LA-505-411	E	561	mg/kg	1.00	15	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-36-0	Antimony		SOIL	LA-505-411	U	< 0.540	mg/kg	1.00	0.54	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-39-3	Barium		SOIL	LA-505-411		60.5	mg/kg	1.00	0.013	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-43-9	Cadmium		SOIL	LA-505-411		1.27	mg/kg	1.00	0.075	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-47-3	Chromium		SOIL	LA-505-411		38.0	mg/kg	1.00	0.20	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-48-4	Cobalt		SOIL	LA-505-411		6.58	mg/kg	1.00	0.092	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-50-8	Copper		SOIL	LA-505-411		18.4	mg/kg	1.00	0.070	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-62-2	Vanadium		SOIL	LA-505-411		26.4	mg/kg	1.00	0.18	09/15/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	7440-66-6	Zinc		SOIL	LA-505-411		33.2	mg/kg	1.00	0.26	09/15/04	08/23/04	08/23/04

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J - Analyte is an estimate, has potentially larger errors
X - Other flags and notes described in the comments/narrative.
E - Analyte is an estimate, has potentially larger errors
U - Analyzed for but not detected above limiting criteria.

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041487

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Inorganic													
W040001543	B17N70 GRP TRENT	57-12-5	Cyanide	SOIL	LA-695-402	U	< 0.200	mg/kg	1.00	0.20	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	NH4-N	Nitrogen in ammonium	SOIL	LA-503-401	B	0.906	mg/kg	49.00	0.20	09/08/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	TS	Total solids	SOIL	LA-519-412		97.1	%	1.00	0.0	09/01/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	PH	pH Measurement J	SOIL	LA-212-411		9.38	pH	1.00	0.010	09/01/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	16984-48-8	Fluoride	SOIL	LA-533-410	U	< 1.15	mg/kg	50.00	1.2	08/31/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	16887-00-6	Chloride	SOIL	LA-533-410	B	5.13	mg/kg	50.00	2.6	08/31/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	NO2-N	Nitrogen in Nitrite	SOIL	LA-533-410	U	< 0.950	mg/kg	50.00	0.95	08/31/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	NO3-N	Nitrogen in Nitrate	SOIL	LA-533-410		21.6	mg/kg	50.00	0.65	08/31/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	14265-44-2	Phosphate	SOIL	LA-533-410	U	< 2.70	mg/kg	50.00	2.7	08/31/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	14808-79-8	Sulfate	SOIL	LA-533-410	B	10.2	mg/kg	50.00	5.0	08/31/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7429-90-5	Aluminum	SOIL	LA-505-411		5.41e+03	mg/kg	1.00	2.5	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7439-89-6	Iron	SOIL	LA-505-411		1.39e+04	mg/kg	1.00	1.5	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7439-95-4	Magnesium	SOIL	LA-505-411		3.37e+03	mg/kg	1.00	1.8	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7439-96-5	Manganese	SOIL	LA-505-411		2.24e+03	mg/kg	1.00	0.043	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-02-0	Nickel	SOIL	LA-505-411		28.5	mg/kg	1.00	0.16	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-09-7	Potassium	SOIL	LA-505-411		1.21e+03	mg/kg	1.00	8.9	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-22-4	Silver	SOIL	LA-505-411		2.56	mg/kg	1.00	0.12	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-23-5	Sodium	SOIL	LA-505-411	E	661	mg/kg	1.00	15	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-36-0	Antimony	SOIL	LA-505-411	U	< 0.540	mg/kg	1.00	0.54	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-39-3	Barium	SOIL	LA-505-411		53.2	mg/kg	1.00	0.013	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-43-9	Cadmium	SOIL	LA-505-411		1.43	mg/kg	1.00	0.075	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-47-3	Chromium	SOIL	LA-505-411		54.4	mg/kg	1.00	0.20	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-48-4	Cobalt	SOIL	LA-505-411		6.88	mg/kg	1.00	0.092	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-50-8	Copper	SOIL	LA-505-411		13.3	mg/kg	1.00	0.070	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-62-2	Vanadium	SOIL	LA-505-411		26.4	mg/kg	1.00	0.18	09/15/04	08/25/04	08/25/04
W040001543	B17N70 GRP TRENT	7440-66-6	Zinc	SOIL	LA-505-411		31.3	mg/kg	1.00	0.26	09/15/04	08/25/04	08/25/04

LS
3-12-2010

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Inorganic															
W040001610	B17N73	TRENT	57-12-5	Cyanide	UJ	SOIL	LA-695-402	U	< 0.200	mg/kg	1.00	0.20	09/27/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	NH4-N	Nitrogen in ammonium		SOIL	LA-503-401	B	0.780	mg/kg	50.00	0.20	09/20/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	TS	Total solids		SOIL	LA-519-412		93.9	%	1.00	0.0	09/15/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	PH	pH Measurement	J	SOIL	LA-212-411		8.45	pH	1.00	0.010	09/15/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	16984-48-8	Fluoride		SOIL	LA-533-410	U	< 1.15	mg/kg	50.00	1.2	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	16887-00-6	Chloride		SOIL	LA-533-410	B	3.30	mg/kg	50.00	2.6	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	NO2-N	Nitrogen in Nitrite		SOIL	LA-533-410	U	< 0.950	mg/kg	50.00	0.95	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	NO3-N	Nitrogen in Nitrate		SOIL	LA-533-410		6.53	mg/kg	50.00	0.65	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	14265-44-2	Phosphate		SOIL	LA-533-410	U	< 2.70	mg/kg	50.00	2.7	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	14808-79-8	Sulfate		SOIL	LA-533-410	B	11.2	mg/kg	50.00	5.0	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7429-90-5	Aluminum		SOIL	LA-505-411		6.51e+03	mg/kg	1.00	2.5	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7439-89-6	Iron		SOIL	LA-505-411		1.65e+04	mg/kg	1.00	1.5	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7439-95-4	Magnesium		SOIL	LA-505-411		3.68e+03	mg/kg	1.00	1.8	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7439-96-5	Manganese		SOIL	LA-505-411		318	mg/kg	1.00	0.043	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-02-0	Nickel		SOIL	LA-505-411		20.2	mg/kg	1.00	0.16	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-09-7	Potassium		SOIL	LA-505-411		970	mg/kg	1.00	8.9	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-22-4	Silver		SOIL	LA-505-411	E	0.958	mg/kg	1.00	0.12	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-23-5	Sodium		SOIL	LA-505-411	E	325	mg/kg	1.00	15	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-36-0	Antimony		SOIL	LA-505-411	U	< 0.540	mg/kg	1.00	0.54	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-39-3	Barium		SOIL	LA-505-411		106	mg/kg	1.00	0.013	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-43-9	Cadmium		SOIL	LA-505-411	U	< 0.0750	mg/kg	1.00	0.075	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-47-3	Chromium		SOIL	LA-505-411		35.7	mg/kg	1.00	0.20	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-48-4	Cobalt		SOIL	LA-505-411		9.45	mg/kg	1.00	0.092	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-50-8	Copper		SOIL	LA-505-411		14.9	mg/kg	1.00	0.070	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-62-2	Vanadium		SOIL	LA-505-411		56.7	mg/kg	1.00	0.18	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-66-6	Zinc		SOIL	LA-505-411		35.8	mg/kg	1.00	0.20	09/23/04	09/09/04	09/09/04

LS
3-12-2010

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001610	B17N73	TRENT	7440-70-2	Calcium		SOIL	LA-505-411		3.28e+05	mg/kg	1.00	1.2	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7439-92-1	Lead		SOIL	LA-505-411	U	< 0.0630	mg/kg	1.00	0.063	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7439-93-2	Lithium		SOIL	LA-505-411		6.80	mg/kg	1.00	0.10	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-24-6	Strontium	<5	SOIL	LA-505-411		23.0	mg/kg	1.00	0.10	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-38-2	Arsenic	3-12-2010	SOIL	LA-505-411		1.62	mg/kg	1.00	1.2	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-41-7	Beryllium		SOIL	LA-505-411		0.296	mg/kg	1.00	5.0e-03	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-69-9	Bismuth		SOIL	LA-505-411	U	< 5.00	mg/kg	1.00	5.0	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7723-14-0	Phosphorus		SOIL	LA-505-411		663	mg/kg	1.00	4.8	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7782-49-2	Selenium		SOIL	LA-505-411	U	< 1.00	mg/kg	1.00	1.0	09/23/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7439-97-6	Mercury		SOIL	LA-505-412		0.399	mg/kg	9.98	0.010	09/15/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	7440-61-1	Uranium		SOIL	LA-505-412		0.382	mg/kg	9.98	0.16	09/15/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	57-12-5	Cyanide	UJ	SOIL	LA-695-402	U	< 0.200	mg/kg	1.00	0.20	09/27/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	NH4-N	Nitrogen in ammonium		SOIL	LA-503-401	B	0.717	mg/kg	50.00	0.20	09/20/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	TS	Total solids		SOIL	LA-519-412		88.3	%	1.00	0.0	09/15/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	PH	pH Measurement	J	SOIL	LA-212-411		8.06	pH	1.00	0.010	09/15/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	16984-48-8	Fluoride		SOIL	LA-533-410	U	< 1.15	mg/kg	50.00	1.2	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	16887-00-6	Chloride		SOIL	LA-533-410	B	4.64	mg/kg	50.00	2.6	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	NO2-N	Nitrogen in Nitrite		SOIL	LA-533-410	U	< 0.950	mg/kg	50.00	0.95	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	NO3-N	Nitrogen in Nitrate		SOIL	LA-533-410	B	12.3	mg/kg	50.00	0.65	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	14265-44-2	Phosphate		SOIL	LA-533-410	U	< 2.70	mg/kg	50.00	2.7	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	14808-79-8	Sulfate		SOIL	LA-533-410	U	< 5.00	mg/kg	50.00	5.0	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7429-90-5	Aluminum		SOIL	LA-505-411		7.37e+03	mg/kg	1.00	2.5	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7439-89-6	Iron		SOIL	LA-505-411		1.70e+04	mg/kg	1.00	1.5	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7439-95-4	Magnesium		SOIL	LA-505-411		4.66e+03	mg/kg	1.00	1.8	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7439-96-5	Manganese		SOIL	LA-505-411		515	mg/kg	1.00	0.043	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-02-0	Nickel		SOIL	LA-505-411		17.4	mg/kg	1.00	0.16	09/23/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	7440-09-7	Potassium		SOIL	LA-505-411		89.8	mg/kg	1.00	8.3	09/23/04	09/09/04	09/09/04

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051337

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ		Result	Unit	DF	MDL	Analyze	Sample	Receive
Inorganic																
W050002028	B1D994	TRENT	NH4-N	Nitrogen in ammonium		SOIL	LA-503-401	B		0.245	mg/kg	50.00	0.20	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	TS	Total solids		SOIL	LA-519-412			97.4	%	1.00	0.0	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	PH	pH Measurement	J	SOIL	LA-212-411			9.16	pH	1.00	0.010	07/06/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	16984-48-8	Fluoride		SOIL	LA-533-410	U	<	1.15	mg/kg	50.00	1.2	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	16887-00-6	Chloride		SOIL	LA-533-410	U	<	2.60	mg/kg	50.00	2.6	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	NO2-N	Nitrogen in Nitrite		SOIL	LA-533-410	U	<	0.950	mg/kg	50.00	0.95	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	NO3-N	Nitrogen in Nitrate		SOIL	LA-533-410	U	<	0.650	mg/kg	50.00	0.65	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	PO4-P	Phosphate (P) by IC		SOIL	LA-533-410	U	<	2.70	mg/kg	50.00	2.7	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	14808-79-8	Sulfate		SOIL	LA-533-410	U	<	5.00	mg/kg	50.00	5.0	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-69-9	Bismuth		SOIL	LA-505-411	U	<	1.09	mg/kg	49.30	1.1	07/18/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7723-14-0	Phosphorus		SOIL	LA-505-411			451	mg/kg	49.30	2.4	07/18/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-02-0	Nickel		SOIL	LA-505-412			12.7	mg/kg	1.04	0.10	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-22-4	Silver		SOIL	LA-505-412	U	<	0.104	mg/kg	1.04	0.10	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-39-3	Barium		SOIL	LA-505-412			49.9	mg/kg	1.04	4.2	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-43-9	Cadmium		SOIL	LA-505-412	U	<	0.104	mg/kg	1.04	0.10	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-47-3	Chromium		SOIL	LA-505-412			10.2	mg/kg	1.04	4.2	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-50-8	Copper		SOIL	LA-505-412			9.07	mg/kg	1.04	2.1	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7439-92-1	Lead		SOIL	LA-505-412			3.01	mg/kg	1.04	0.21	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7439-97-6	Mercury		SOIL	LA-505-412	U	<	0.104	mg/kg	1.04	0.10	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-61-1	Uranium		SOIL	LA-505-412			0.300	mg/kg	1.04	0.10	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7440-38-2	Arsenic		SOIL	LA-505-412			2.45	mg/kg	1.04	0.42	07/07/05	06/29/05	06/29/05
W050002028	B1D994	TRENT	7782-49-2	Selenium		SOIL	LA-505-412	U	<	0.418	mg/kg	1.04	0.42	07/07/05	06/29/05	06/29/05

<5
3-12-2010

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

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051350

Sample #	Client ID		CAS #	Test Performed		Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Inorganic															
W050002036	B1D995	TRENT	NH4-N	Nitrogen in ammonium		SOIL	LA-503-401	U	< 0.196	mg/kg	49.00	0.20	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	TS	Total solids		SOIL	LA-519-412		93.2	%	1.00	0.0	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	PH	pH Measurement	J	SOIL	LA-212-411		9.18	pH	1.00	0.010	07/06/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	16984-48-8	Fluoride		SOIL	LA-533-410	U	< 1.13	mg/kg	49.00	1.1	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	16887-00-6	Chloride		SOIL	LA-533-410	U	< 2.55	mg/kg	49.00	2.5	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	NO2-N	Nitrogen in Nitrite		SOIL	LA-533-410	U	< 0.931	mg/kg	49.00	0.93	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	NO3-N	Nitrogen in Nitrate		SOIL	LA-533-410	U	< 0.637	mg/kg	49.00	0.64	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	PO4-P	Phosphate (P) by IC		SOIL	LA-533-410	U	< 2.65	mg/kg	49.00	2.6	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	14808-79-8	Sulfate		SOIL	LA-533-410	U	< 4.90	mg/kg	49.00	4.9	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-69-9	Bismuth		SOIL	LA-505-411	U	< 1.08	mg/kg	49.31	1.1	07/18/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7723-14-0	Phosphorus		SOIL	LA-505-411		536	mg/kg	49.31	2.4	07/18/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-02-0	Nickel		SOIL	LA-505-412		3.89	mg/kg	1.05	0.10	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-22-4	Silver		SOIL	LA-505-412	U	< 0.105	mg/kg	1.05	0.10	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-39-3	Barium		SOIL	LA-505-412		25.5	mg/kg	1.05	4.2	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-43-9	Cadmium		SOIL	LA-505-412	U	< 0.105	mg/kg	1.05	0.10	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-47-3	Chromium		SOIL	LA-505-412		5.83	mg/kg	1.05	4.2	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-50-8	Copper		SOIL	LA-505-412		5.01	mg/kg	1.05	2.1	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7439-92-1	Lead		SOIL	LA-505-412		1.39	mg/kg	1.05	0.21	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7439-97-6	Mercury		SOIL	LA-505-412	U	< 0.105	mg/kg	1.05	0.10	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-61-1	Uranium		SOIL	LA-505-412		0.180	mg/kg	1.05	0.10	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7440-38-2	Arsenic		SOIL	LA-505-412		0.650	mg/kg	1.05	0.42	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	7782-49-2	Selenium		SOIL	LA-505-412	U	< 0.420	mg/kg	1.05	0.42	07/07/05	06/30/05	06/30/05

LS
3-12-2010

MDL=Minimum Detection Limit 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

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041457**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-Z-9/C3426 – Interval 174'-176-5' Trench Characterization Borehole - Soil (B17N67) was received at the WSCF Laboratory on August 23, 2004. The sample was 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- ICP-AES Metals by EPA Method 6010. Analytical work was performed with no deviations to the approved method.
- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- PCB by EPA Method 8080. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. 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.

- Ammonia by EPA Method 300.7. 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.

- Percent Solids by Method 160.3. Analytical work was performed with no deviations to the approved method.

- All RadChem analyses (AEA (Plutonium, Americium, Uranium and Neptunium), GEA, and Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Comments

ICP-MS Metals (Mercury and Uranium only) – 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 GRP Letter of Instruction. See pages 2-18 through 2-19 for QC details. All QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See page(s) 2-17 through 2-20 for QC details. Analytical Notes:

- Sodium – Matrix spike and spike duplicates exceeded the established laboratory limits. Sample result was E (estimate) flagged.

- Aluminum, Iron, Calcium and Magnesium – the spike concentration was insufficient for the sample concentration.

- Aluminum – laboratory control sample exceeds the established laboratory limits, but is within manufacturer's limits. Sample result was not flagged.

All other QC controls are within the established limits.

Anions - 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 GRP Letter of Instruction. See pages 2-20 through 2-21 for QC details. Analytical Notes:

- Chloride - Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

- Sulfate – Duplicate Relative Percent Difference exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

PCB – 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 GRP Letter of Instruction. See pages 2-29 through 2-30 for QC details. Analytical Notes:

- Sample results are moisture corrected and reported on a dry weight basis.
- Decachlorobiphenyl surrogate spike Relative Percent Difference slightly exceeded established limits. Matrix Spike and Matrix Spike Duplicate recoveries were within limit; sample results were not flagged.

All other QC controls are within the established limits

Semi-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 GRP Letter of Instruction. See pages 2-32 through 2-38 for QC details. Analytical Notes:

- Sample results are moisture corrected and reported on a dry weight basis.
- Pentachlorophenol – laboratory control sample recovery was below established laboratory limits. Matrix spike duplicate recoveries are below established limits. Sample result was J (estimate) flagged.
- N-Nitrosodi-n-dipropylamine – The matrix spike duplicate exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.
- Di-n-butylphthalate – Sample result J flagged; the target compound indicates that it was found at a concentration below that of the lowest calibration standard but above the detection limit.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 2-28 for QC details. Analytical Note:

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

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 GRP Letter of Instruction. See pages 2-25 through 2-27 for QC details. Analytical Note:

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

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 the GRP Letter of Instruction. See page 2-22 for QC details. Analytical Note:

- The matrix spike recovery is below established limits. The laboratory control sample is within established limits. The sample result is not flagged.

All QC controls are within the established limits.

Ammonia - 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 GRP Letter of Instruction. See pages 2-31 for QC details. Analytical Notes:

- Matrix spike and matrix spike duplicate were analyzed on sample delivery group 20041487, sample B17N70 for this batch.

- Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

All other QC controls are within the established limits.

pH - All laboratory QC controls were within the established limits.

Percent Solid – Analyzed for organic moisture correction only.

RadChem – There are no hold times associated with these WDOE accredited methods. A Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 2-23, 2-24 and 2-45 through 48 for QC details. Analytical Notes:

- Gross Alpha and Gross Beta – The duplicate Relative Percent Differences exceeded the established limits; sample results were not flagged since the sample had low activity and the RPD criteria does not apply.

- Neptunium-237 – the laboratory control sample recovery was below the established laboratory limits. Duplicate relative percent difference exceeded established laboratory limits. Sample result is X (estimated) flagged.

- Americium-241 – duplicate relative percent difference exceeded established laboratory limits; sample result was not flagged since the sample had low activity and the RPD criterion does not apply.

- Pu-239/240 - duplicate relative percent difference exceeded established laboratory limits; sample result was not flagged since the sample had low activity and the RPD criterion does not apply.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		Am-243	65.0
LCS		Am-243	80.14
B17N57	W040001533	Am-243	78.2
DUPLICATE	W040001533	Am-243	68.8
BLANK		Pu-242	77.3
LCS		Pu-242	71.9
B17N57	W040001533	Pu-242	81.0
DUPLICATE	W040001533	Pu-242	70.7
BLANK		U-232	83.1
LCS		U-232	71.7
B17N57	W040001533	U-232	80.7
DUPLICATE	W040001533	U-232	82.4

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.

Herlene S. Rich
WSCF Production Control

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

0000007

9/22

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-019	Page 1 of 1

Collector Pope/Pfister/Hughes	Company Contact Steve Trent	Telephone No. 373-5869	Project Coordinator TRENT, SJ
Project Designation 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location 216-Z-9/C3426 - Interval 174'-176.5'		SAF No. F03-018
Ice Chest No.	Field Logbook No. 1SK 4/14/04 HNF-~~N-9361~~ 360-1	COA 119152ES10	Method of Shipment Government Vehicle
Shipped To Waste Sampling & Characterization 20041457	Offsite Property No. N/A		Bill of Lading/Air Bill No. N/A

Price Code 8N

Data Turnaround 45 Days

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NN7

Preservation	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None					
Type of Container	aGs*	P	aG	aG	aG	aG					
No. of Container(s)	3	1	1	1	1	1					
Volume	40mL	500mL	60mL	120mL	60mL	60mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	See item (5) in Special Instructions.					

Sample No.	Matrix *	Sample Date	Sample Time										
B17N67	SOIL	8/23/04	1309	X	X	X	X	X	X				
W04000153													

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Tomas Wibely Wonowing	14:12 8/23/04	Victor Binns	8/23/04 14:12
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** The laboratory is to achieve a detection limit of 5 pCi/g and 10 pCi/g for gross alpha and gross beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237

(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}

(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}

(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

CCC 10/11/04

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041487**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-Z-9/C3426 – Interval 184'-186.5' Trench Characterization Borehole - Soil GRP sample (B17N70) was received at the WSCF Laboratory on August 25, 2004. The sample was 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- ICP-AES Metals by EPA Method 6010. Analytical work was performed with no deviations to the approved method.
- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. 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.

- Ammonia by EPA Method 300.7. 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.

- Percent Solids by EPA Method 160.3. Analytical work was performed with no deviations to the approved method.

- All RadChem analyses (AEA (Plutonium, Americium, Uranium, Neptunium) GEA, Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Comments

ICP-MS Metals (Uranium and Mercury only) – 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 GRP Letter of Instruction. See page 2-18 through 2-19 for QC details. All GRP sample delivery groups associated with this batch QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See pages 2-37 through 2-42 for QC details. Analytical Notes:

- Sodium – The matrix spike and matrix spike duplicate for sample B190V5 (SDG# 20041417) associated with this batch exceeded established laboratory limits. The sample result was E (estimate) flagged.

- Potassium - The matrix spike duplicate for sample B190V5 (SDG# 20041417) associated with this batch exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.

- Aluminum, Iron, Magnesium and Calcium - the spike concentration was insufficient for the sample concentration.

- Aluminum – the Laboratory Control Sample recovery exceeded established laboratory limits but was within the manufacturer's limits. Sample result was not flagged.

All other QC controls are within the established limits.

Anions - The hold times for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 2-20 through 2-21 for QC details. Analytical Notes:

- Chloride – Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

- Sulfate - Duplicate Relative Percent Difference for the batch exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 2-30 through 2-36 for QC details. Analytical Notes:

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

- Pentachlorophenol - laboratory control sample recovery was below established laboratory limits. The sample result was less than the detection limit and not flagged.

- N-Nitrosodi-n-dipropylamine - The matrix spike duplicate for sample B17N67 (SDG# 20041457) associated with this batch exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 2-26 for QC details. Analytical Note:

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

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 GRP Letter of Instruction. See page(s) 2-22 through 2-24 for QC details. Analytical Notes:

- Styrene – Sample result J flagged; the target compound indicates that it was found at a concentration below that of the lowest calibration standard but above the detection limit.

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

All other 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 the GRP Letter of Instruction. See page 2-27 for QC details. Analytical Note:

- The matrix spike recovery was below established laboratory limits. The matrix spike duplicate was within limits and all other QC controls were within limits. The sample result was not flagged.

All other QC controls are within the established limits.

Ammonia - 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 GRP Letter of Instruction. See page 2-28 for QC details. Analytical Note:

- Duplicate Relative Percent Difference for the batch exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

pH - All laboratory QC controls are within the established limits.

Percent Solids – run for organic analysis moisture correction only.

RadChem – There are no hold times associated with these WDOE accredited methods. A Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 2-25, 2-29, 2-43 through 2-46 for QC details. Analytical Notes:

- Neptunium-237 – The Duplicate Relative Percent Difference is below the established laboratory limit. The RPD criterion is not applicable to sample activity below the detection limit.

- Americium-241 and Plutonium-239-240 – Duplicate Relative Percent Differences are above the established laboratory limits. The sample was in a soil matrix and non-homogeneous. Sample results were not flagged.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery

Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		Pu-242	64.3
LCS		Pu-242	72.6
B17N70	W040001543	Pu-242	77.4
DUPLICATE	W040001543	Pu-242	72.3
BLANK		Am-243	80.1
LCS		Am-243	88.7
B17N70	W040001543	Am-243	70.4

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
DUPLICATE	W040001543	Am-243	89.1
BLANK		U-232	86.1
LCS		U-232	80.1
B17N70	W040001543	U-232	84.3
DUPLICATE	W040001543	U-232	89.2

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.

Herlene S. Rich
WSCF Production Control

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

9/23/04

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-021	Page 1 of 1
Collector: Pope/Pfister/Hughes	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Data Turnaround: 45 Days; Air Quality ☐
Project Designation: 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location: 216-Z-9/C3426 - Interval 184'-186.5'	SAF No.: F03-018	
Ice Chest No.	Field Logbook No.: HNF-~~N3361~~ 7 4/8/04 360-1; COA: 119152ES10	Method of Shipment: Government Vehicle	
Shipped To: Waste Sampling & Characterization	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NN8

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None						
Type of Container	aGs*	P	aG	aG	aG						
No. of Container(s)	3	1	1	1	1						
Volume	40mL	500mL	60mL	120mL	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.						

SDG # 20041487

Sample No.	Matrix *	Sample Date	Sample Time										
B17N70 W04000543	SOIL	8/25/04	1135	X	X	X	X	X					

CHAIN OF POSSESSION — Sign/Print Names

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[illegible] / David Tyler	8/25/04 1300	[illegible] / [illegible]	8/25/04 1300

SPECIAL INSTRUCTIONS

** The laboratory is to achieve a detection limit of 5 pCi/g and 10 pCi/g for gross alpha and gross beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA – 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041594**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

Two (2) 216-Z-9/C3426 – Interval 224'-226.5' Trench Characterization Borehole - Soil GRP samples (B17N73 and B17NL5) were received at the WSCF Laboratory on September 9, 2004. 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

Inorganic

- Ammonia by EPA Method 300.7. Analytical work was performed with no deviations to the approved method.
- 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-AES Metals by EPA Method 6010. 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

- PCBs by EPA Method 8082. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. Analytical work was performed with no deviations to the approved method.

Radiochemistry

- All RadChem analyses (AEA (Plutonium, Americium, Uranium, Neptunium) GEA, Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 13 for QC details. Analytical Note:

- The sample results were less than the reporting detection limit, but greater than the method detection limit. The sample results were B flagged.

All QC controls are within the established limits.

Anions - The hold times for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 14 through 15 for QC details. Analytical Note:

- Chloride - The sample results for B17N73 and B17NL5 were less than the reporting detection limit, but greater than the method detection limit. The sample results were B flagged.
- Sulfate - The sample result for B17N73 was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.
- Nitrate - The sample result for B17NL5 was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

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 the GRP Letter of Instruction. See page 16 for QC details. Analytical Note:

- The Matrix and Matrix Spike Duplicate recoveries were below established laboratory limits. Sample results were below the detection limit and not flagged.

All other QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See pages 17 through 21 for QC details. Analytical Notes:

- Potassium – The Matrix Spike exceeded established laboratory limits. All other QC samples were within limits and the sample results were not flagged.

- Sodium – The Matrix Spike, Matrix Spike Duplicate and Relative Percent Difference were above established laboratory limits. Sample results were E (estimate) flagged.

- Silver – The Matrix Spike Duplicate was below established laboratory limits, making the Matrix Spike and Matrix Spike Duplicate Relative Percent Difference above established limits. The Laboratory Control Sample recovery was low. Sample B17N73 result was E (estimate) flagged.

- Phosphorus – The Matrix Spike Duplicate was below established laboratory limits. All other QC samples were within limits and the sample results were not flagged.

- Aluminum – the Laboratory Control Sample recovery exceeded established limits. The recovery was within manufacturer's limits and the sample results were not flagged.

- Iron and Strontium – the Laboratory Control Sample recoveries were above established limits. The recoveries were within manufacturer's limits and the sample results were not flagged.

All other QC controls are within the established limits.

ICP-MS Metals (Mercury and Uranium) – 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 GRP Letter of Instruction. See page 22 for QC details. Analytical Note:

- Mercury – The Laboratory Control Sample recovery exceeded established laboratory limits. All other QC controls were within limits, sample results were not flagged.

All other QC controls are within the established limits.

Percent Solids – analyzed for organic analysis correction only.

pH - The hold time for this analysis was met. All laboratory QC controls are within the established limits.

Organic Comments

- Organic sample results are moisture corrected and reported on dry weight basis.

PCBs – 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 GRP Letter of Instruction. See pages 32 through 33 for QC details. All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 34 through 41 for QC details. Analytical Note:

- Diethylphthalate and Di-n-butylphthalate- sample results were J flagged; results were less than the lowest calibration standard but greater than the detection limit.

All QC controls are within the established limits.

TPHD/G-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 42 through 43 for QC details. 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 GRP Letter of Instruction. See pages 44 through 47 for QC details. Analytical Notes:

- A Matrix Spike and Matrix Spike Duplicate were analyzed on sample B191F8 (SDG#20041555, SAF#F03-025). All recoveries were within established laboratory limits.

- Toluene – Laboratory Control Sample Recovery was above established limits due to column carry over from sample W04DC00159. All other QC controls were within limits and the sample results were not flagged.

All other QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with these WDOE accredited methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 48 through 56 for QC details. Analytical Note:

- Americium-241 - The Duplicate Relative Percent Difference exceeded the established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

- Europium-155, Gross Alpha, Gross Beta and Plutonium-239/240 - The Duplicate Relative Percent Difference exceeded established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

- Neptunium-137 - The Duplicate Relative Percent Difference and Laboratory Control Sample recovery exceeded established limits. The sample results were under the detection limit and not flagged. Sample results should be considered suspect.

- Gross Alpha and Gross Beta - The Duplicate Relative Percent Difference exceeded the established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery

Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		U-232	74.6
LCS		U-232	73.2
B1B625	W040001577	U-232	79.1
DUPLICATE	W040001577	U-232	90.1
B07N73	W040001610	U-232	82.2
B17NL5	W040001612	U-232	88.3
BLANK		Sr-85	90.0
LCS		Sr-85	86.9
B1B625	W040001577	Sr-85	101.7
DUPLICATE	W040001577	Sr-85	89.5
BLANK		Pu-242	75.6
LCS		Pu-242	79.3
B1B625	W040001577	Pu-242	74.0

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
DUPLICATE	W040001577	Pu-242	78.6
B07N73	W040001610	Pu-242	71.7
B17NL5	W040001612	Pu-242	86.2
BLANK		Am-243	89.6
LCS		Am-243	68.7
B1B625	W040001577	Am-243	84.2
DUPLICATE	W040001577	Am-243	77.4
B07N73	W040001610	Am-243	79.0
B17NL5	W040001612	Am-243	83.3

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.

Herlene S. Rich
WSCF Production Control

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

10/7

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-023	Page 1 of 1
Collector: Pope/Pfister/Hughes	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Air Quality ☐; Data Turnaround: 45 Days
Project Designation: 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location: 216-Z-9/C3426 - Interval 224'-226.5'	SAF No.: F03-018	
Ice Chest No.	Field Logbook No.: HNF-N-~~3361~~ 361-1 4/8/04; COA: 119152ES10	Method of Shipment: Government Vehicle	
Shipped To: Waste Sampling & Characterization	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NN9

20041594

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None						
Type of Container	aGs*	P	aG	aG	aG						
No. of Container(s)	3	1	1	1	1						
Volume	40mL	500mL	60mL	120mL	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	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										
B17N73	SOIL	9/9/04	0820	X	X	X	X	X					
W04000160													

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Dana Wikoy Wanning	Date/Time: 9/9/04 1005	Received By/Stored In: [signature]	Date/Time: 9/9/04 1005
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

The lab is to achieve a detection limit of 5 pCi/g & 10 pCi/g for gross alpha and beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237

(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}

(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}

(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-026	Page 1 of 1

Collector Pope/Pfister/Hughes	Company Contact Steve Trent	Telephone No. 373-5869	Project Coordinator TRENT, SJ
Project Designation 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location 216-Z-9/C3426 - Interval 228.5'-233'		SAF No. F03-018
Ice Chest No.	Field Logbook No. ASC 4/19/04 HNF-N-~~9361~~ 361-1	COA 117506ES10	Method of Shipment Government Vehicle
Shipped To Waste Sampling & Characterization	Offsite Property No. N/A		Bill of Lading/Air Bill No. N/A

Price Code **8N** Data Turnaround **45 Days**

Air Quality ☐

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NP0

Preservation	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None				
Type of Container	aGs*	P	aG	aG	aG	aG				
No. of Container(s)	3	1	1	1	1	1				
Volume	40mL	500mL	60mL	120mL	60mL	60mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	See item (5) in Special Instructions.				

Sample No.	Matrix *	Sample Date	Sample Time										
B17NL5	SOIL	9/9/04	0858	X	X	X	X	X	X				
WO4000161Z													

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
R. Pfister 44 Rmlp	9/9/04 1000	[illegible]	9/9/04 1000

SPECIAL INSTRUCTIONS

The lab is to achieve a detection limit of 5 pCi/g & 10 pCi/g for gross alpha and beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA – 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

Attachment 1
Narrative

Sample Delivery Group	**WSCF20051337**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F05-023**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-A-8 Crib Characterization Borehole sample/I-7 (B1D994) was received at the WSCF Laboratory on June 29, 2005. The sample was 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

Refer to *WSCF Method References Report,* pages 45 through 46, for a complete listing of approved analytical methods.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 11 for QC details. Analytical Notes:

- Sample B1D994 result was B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.
- Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. RPD criterion not applicable to low level sample.

All other QC controls are within the established limits.

Anions - The hold times for this analysis were met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 12 through 13 for QC details. Analytical Note:

- Preparation Date: 07-jul-2005.

All QC controls are within the established limits.

ICP-AES Metals (Bismuth and Phosphorus) – 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 GRP Letter of Instruction. See page 14 for QC details. Analytical Notes:

- Preparation Date: 18-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D7D0 (SDG# 20051234, F05-023).
- Phosphorus: insufficient spike concentration. Sample concentration was greater than four times the spike concentration.
- Bismuth: The analyte detected in the associated preparation Blank sample was evaluated and there was no significant effect on the sample result.

All other 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 GRP Letter of Instruction. See pages 15 through 17 for QC details. Analytical Notes:

- Preparation Date: 06-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D993 (SDG# 20051319, SAF# F05-023).

All QC controls are within the established limits.

Percent Solids – analyzed for organic moisture correction.

pH - See page 18 for QC details.

Organic Comments

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

PCBs – 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 GRP Letter of Instruction. See pages 24 through 25 for QC details. Analytical Note:

- Preparation Date: 08-jul-2005.

All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 26 through 31 for QC details. Analytical Note:

- Preparation Date: 08-jul-2005.

TPHD-WA - 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 GRP Letter of Instruction. See page 32 for QC details. Analytical Note:

- Preparation Date: 08-jul-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 GRP Letter of Instruction. See pages 33 through 36 for QC details. Analytical Note:

- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).

All QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with WSCF's radiochemical methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 38 through 42 for QC details. Analytical Notes:

- GEA – Duplicate QC sample was analyzed on sample# B1DCK1 (SDG# 20051304, F05-026).

- Americium-241, Plutonium-238, Plutonium-239/240, Uranium-233/234, Uranium-235 and Uranium-238 – Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).

- Uranium-235 and Uranium-238– Duplicate Relative Percent Difference (RPD) was above established limits due to batch sample and duplicate were not homogeneous.

All other QC controls are within the established limits.

Plutonium-242, Americium-243 and Uranium-232 – Radiochemical Tracer Recovery Data are summarized below:

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
Americium-243			
BLANK		Am-243	90.1%

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
LCS		Am-243	99.6%
B1D992	W050001997	Am-243	90.7%
DUPLICATE	W050001997	Am-243	88.3%
B1D994	W050002028	Am-243	91.7%
Plutonium-242			
BLANK		Pu-242	81.9%
LCS		Pu-242	89.4%
B1D992	W050001997	Pu-242	78.6%
DUPLICATE	W050001997	Pu-242	83.9%
B1D994	W050002028	Pu-242	89.5%
Strontium-85			
BLANK		Sr-85	89.6%
LCS		Sr-85	94.1%
B1D994	W050002028	Sr-85	87.0%
DUPLICATE	W050002028	Sr-85	95.7%
Uranium-232			
BLANK		U-232	64.1%
LCS		U-232	71.3%
B1D992	W050001997	U-232	92.1%
DUPLICATE	W050001997	U-232	75.6%
B1D994	W050002028	U-232	82.0%

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

F05-023-027

COLLECTOR Pope/Pfister/Mokler/Weis/Tyra 7/25	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ
PRICE CODE 8N	**DATA TURNAROUND** 45 Days / ~~45 Days~~ 4/29/5		
SAMPLING LOCATION 216-A-8, I-7	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole	**SAF NO.** F05-023	**AIR QUALITY** ☐
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 119152ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**

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

SPECIAL HANDLING AND/OR STORAGE

Z0051357

PRESERVATION			Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None				
TYPE OF CONTAINER			aGs*	aG	G/P	aG	G/P	Square Bottle - Poly				
NO. OF CONTAINER(S)			3	1	1	1	1	1				
VOLUME			40mL	120mL	120mL	120mL	120mL	500mL				
SAMPLE ANALYSIS			SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS				
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**									
B1D994	SOIL	6/29/5	0905	X	X	X	X	X	X			
W05C002028												

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	6/29/05 1000	TA FRAZIER [signature]	6/29/05 1000

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

B1D989 IS TIED TO THIS CHAIN

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			F05-023-027	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Mokler/Weis/Tyra	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ	**PRICE CODE** 8N	**DATA TURNAROUND**
SAMPLING LOCATION 216-A-8, I-7	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole		**SAF NO.** F05-023	**AIR QUALITY** ☐	45 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 119152ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE		
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

P.D.M P.D.Mix 7/5/2005 P.D.M P.D.Mix 7/5/2005

(1)VOA - 8260B (TCL); VOA - 8260B (Add-On) {1-Butanol, 1-Propanol, 2-Pentanone, Acetonitrile, Cyclohexane, Ethanol, Hexane, Tetrahydrofuran, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2)Semi-VOA - 8270A (TCL); Semi-VOA - 8270B (Add-On) {1,2,4-Trimethylbenzene, 2-Butoxyethanol, 2-Naphthylamine, 3+4 Methylphenol (cresol, m+p), Benzyl alcohol, Cyclohexanone, Decane, Pyridine, Tributyl phosphate} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(3)ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Nickel, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8_HG - ICPMS; ICP Metals - 6010B (Add-On) {Bismuth, Phosphorus}
(4)IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate} Cations (IC) - 300.7 {Nitrogen in ammonium} pH - 150.1;
(5)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} ~~Gamma Spec - Add-on {Antimony-125, Cesium-134} Gross Alpha; Gross Beta;~~ Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr;

MAB 6/6/05

A-6003-618(03/03)

Attachment 1
Narrative

Sample Delivery Group	**WSCF20051350**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F05-023**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-A-8 Crib Characterization Borehole sample/I-8 (B1D995) was received at the WSCF Laboratory on June 30, 2005. The sample was 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

Refer to *WSCF Method References Report,* pages 45 through 46, for a complete listing of approved analytical methods.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 11 for QC details. Analytical Notes:

- Duplicate, Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).
- Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. However, all other QC controls are within the established limits.

Anions - The hold times for this analysis were met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 12 through 13 for QC details. Analytical Notes:

- Preparation Date: 07-jul-2005.
- Duplicate, Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

All QC controls are within the established limits.

ICP-AES Metals (Bismuth and Phosphorus) – 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 GRP Letter of Instruction. See page 14 for QC details. Analytical Notes:

- Preparation Date: 18-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D7D0 (SDG# 20051234, SAF# F05-023).
- Phosphorus: insufficient spike concentration. Sample concentration was greater than four times the spike concentration.
- Bismuth: The analyte detected in the associated preparation Blank sample was evaluated and there was no significant effect on the sample result.

All other 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 GRP Letter of Instruction. See pages 15 through17 for QC details. Analytical Notes:

- Preparation Date: 06-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D993 (SDG# 20051319, SAF# F05-023).

All QC controls are within the established limits.

Percent Solids – analyzed for organic moisture correction.

pH - Duplicate QC sample was analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023). See page 18 for QC details.

Organic Comments

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

PCBs – 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 GRP Letter of Instruction. See pages 24 through 25 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 26 through 31 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

TPHD-WA - 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 GRP Letter of Instruction. See page 32 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

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 GRP Letter of Instruction. See pages 33 through 35for QC details.

All QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with WSCF's radiochemical methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 37 through 41 for QC details. Analytical Notes:

- Americium-241, Plutonium-238, Plutonium-239/240, Uranium-233/234, Uranium-235 and Uranium-238 – Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).
- Strontium-90 – Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).
- Uranium-235 and Uranium-238– Duplicate Relative Percent Difference (RPD) was above established limits due to batch sample and duplicate were not homogeneous.

All other QC controls are within the established limits.

Americium-243, Plutonium-242, Strontium-85 and Uranium-232 – Radiochemical Tracer Recovery Data are summarized below:

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
Americium-243			
BLANK		Am-243	90.1%
LCS		Am-243	99.6%
B1D992	W050001997	Am-243	90.7%
DUPLICATE	W050001997	Am-243	88.3%
B1D995	W050002036	Am-243	91.7%
Plutonium-242			
BLANK		Pu-242	81.9%
LCS		Pu-242	89.4%
B1D992	W050001997	Pu-242	78.6%
DUPLICATE	W050001997	Pu-242	83.9%
B1D995	W050002036	Pu-242	89.5%
Strontium-85			
BLANK		Sr-85	89.6%
LCS		Sr-85	94.1%
B1D994	W050002028	Sr-85	87.0%
DUPLICATE	W050002028	Sr-85	95.7%
B1D995	W050002036	Sr-85	92.6%
Uranium-232			
BLANK		U-232	64.1%
LCS		U-232	71.3%
B1D992	W050001997	U-232	92.1%
DUPLICATE	W050001997	U-232	75.6%
B1D995	W050002036	U-232	82.0%

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	F05-023-028	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8N	DATA TURNAROUND
Pope/Pfister/Mokler/Weis/Tyra	TRENT, SJ	373-5869	TRENT, SJ		45 Days / ~~45 Days~~ 6/30/05
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY** ☐	
216-A-8, I-8	216-A-8 Crib Characterization Borehole		F05-023		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**COA**	**METHOD OF SHIPMENT**		
	HNF-N-336-1	119152ES10	GOVERNMENT VEHICLE		
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
Waste Sampling & Characterization					

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

POSSI8LE SAMPLE HAZARDS/ REMARKS

SPECIAL HANDLING AND/OR STORAGE

20051350

PRESERVATION			Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None		
TYPE OF CONTAINER			aGs*	aG	G/P	aG	G/P	Square Bottle - Poly		
NO. OF CONTAINER(S)			3	1	1	1	1	1		
VOLUME			40mL	120mL	120mL	120mL	120mL	500mL		
SAMPLE ANALYSIS			SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS		
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**							
B1D995	SOIL	6/30/5	0705	X	X	X	X	X	X	
1005 0002036										

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
J.W. Weis	6/30/5 0820	K.B. Boebe	6/30/05 0820

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

TIE TO COC # B1D990

~~B1D~~ 6/30/05

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		F05-023-028	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Mokler/Weis/Tyra	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-S869	**PROJECT COORDINATOR** TRENT, SJ	**PRICE CODE** 8N **AIR QUALITY** ☐	**DATA TURNAROUND** **45 Days**
SAMPLING LOCATION 216-A-8, I-8	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole		**SAF NO.** F05-023	
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 1191S2ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**	

SPECIAL INSTRUCTIONS

(1)VOA - 8260B (TCL); VOA - 8260B (Add-On) {1-Butanol, 1-Propanol, 2-Pentanone, Acetonitrile, Cyclohexane, Ethanol, Hexane, Tetrahydrofuran, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2)Semi-VOA - 8270A (TCL); Semi-VOA - 8270B (Add-On) {1,2,4-Trimethylbenzene, 2-Butoxyethanol, 2-Naphthylamine, 3+4 Methylphenol (cresol, m+p), Benzyl alcohol, Cyclohexanone, Decane, Pyridine, Tributyl phosphate} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(3)ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Nickel, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8 HG - ICPMS; ICP Metals - 6010B (Add-On) {Bismuth, Phosphorus}
(4)IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate} Cations (IC) - 300.7 {Nitrogen in ammonium} pH - 150.1;
(5)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} ~~Gamma Spec - Add-on {Antimony-125, Cesium-134} Gross Alpha; Gross Beta~~; Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr;

MAB 6/6/05

A-6003-618(03/03)

Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY DATA VALIDATION CHECKLISTS

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: CPP 200 Area, D&D-200 Area			DATA PACKAGE: VSR10-011		
VALIDATOR: Carl Schloesslin		LAB: WSCF		DATE: 3-12-2010	
SDG: WSCF2005-1337 & -1350			SDG: WSCF2004-1457, -1487 & -1594		
ANALYSES PERFORMED					
Anions/IC X	TOC	TOX	TPH-418.1	Oil and Grease	Alkalinity
Ammonia X	BOD/COD	Chloride	Chromium-VI	pH X	NO_3/NO_2
Sulfate	TDS	TKN	Phosphate	Total CN X	Sulfide

SAMPLES/MATRIX Soil samples

SDG WSCF20041457: B17N67
SDG WSCF20041487: B17N70
SDG WSCF20041594: B17N73 & B17NL5
SDG WSCF20051337: B1D994
SDG WSCF20051350: B1D995

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

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

Comments:

Technical verification documentation present for SDG WSCF20041457 only.

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 DATA VALIDATION CHECKLISTS

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:

WSCF2004-1457, -1487 & -1594: Total CN MB = 1 ug/L = ?? mg/kg (insufficient info to make conversion; associated sample results are non-detects)

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:

WSCF20041457: Total CN MSD %R = 56%
WSCF20041594: Total CN MS %R = 67%

GENERAL CHEMISTRY DATA VALIDATION CHECKLISTS

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:

WSCF20041457: Total CN MS/MSD RPD = 40% (WSCS form incorrectly lists the RPD = 30%)

6. HOLDING TIMES (all levels)

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

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

Comments:

WSCF20041457: pH analysis performed nine days after sample collection.

WSCF20041487: pH analysis performed seven days after sample collection.

WSCF20041594: pH analysis performed six days after sample collection. Total cyanide analysis performed 18 days after sample collection (HT = 14 days).

WSCF20051337: pH analysis performed seven days after sample collection.

WSCF20051350: pH analysis performed six days after sample collection.

All 2004 SDGs: Anions prep (extraction) dates not included in the data packages. It is *assumed* from statement made in lab narratives that analysis took place within 48 hours of sample extraction for nitrate, nitrite and phosphate.

GENERAL CHEMISTRY DATA VALIDATION CHECKLISTS

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:

WSCF2004-1457, -1487 & -1594, & WSCF2005-1337: Cl MDL = 2.6 mg/kg (CRDL = 2)
WSCF20051350: Cl MDL = 2.5 mg/kg (CRDL = 2)

Appendix 6

Additional Documentation Requested By Client

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: Anions by Ion Chromatography

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

Lab ID: W040001533

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Chloride	16887-00-6	4.91e+00	2.414	RPD	08/31/04	0.000	20.000	
DUP	Fluoride	16984-48-8	<1.15e0	n/a	RPD	08/31/04	0.000	20.000	U
DUP	Nitrogen in Nitrite	NO2-N	<9.50e-1	n/a	RPD	08/31/04	0.000	20.000	U
DUP	Nitrogen in Nitrate	NO3-N	2.10e+01	10.526	RPD	08/31/04	0.000	20.000	
DUP	Phosphate	14265-44-2	<2.70e0	n/a	RPD	08/31/04	0.000	20.000	U
DUP	Sulfate	14808-79-8	2.66e+01	41.270	RPD	08/31/04	0.000	20.000	*
MS	Chloride	16887-00-6	9.15e-01	91.500	% Recov	08/31/04	75.000	125.000	
MS	Fluoride	16984-48-8	4.67e-01	94.534	% Recov	08/31/04	75.000	125.000	
MS	Nitrogen in Nitrite	NO2-N	4.45e-01	89.000	% Recov	08/31/04	75.000	125.000	
MS	Nitrogen in Nitrate	NO3-N	4.20e-01	93.126	% Recov	08/31/04	75.000	125.000	
MS	Phosphate	14265-44-2	7.87e-01	81.218	% Recov	08/31/04	75.000	125.000	
MS	Sulfate	14808-79-8	1.72e+00	86.000	% Recov	08/31/04	75.000	125.000	
MSD	Chloride	16887-00-6	9.59e-01	95.900	% Recov	08/31/04	75.000	125.000	
MSD	Fluoride	16984-48-8	4.85e-01	98.178	% Recov	08/31/04	75.000	125.000	
MSD	Nitrogen in Nitrite	NO2-N	4.93e-01	98.600	% Recov	08/31/04	75.000	125.000	
MSD	Nitrogen in Nitrate	NO3-N	5.10e-01	113.082	% Recov	08/31/04	75.000	125.000	
MSD	Phosphate	14265-44-2	8.23e-01	84.933	% Recov	08/31/04	75.000	125.000	
MSD	Sulfate	14808-79-8	1.94e+00	97.000	% Recov	08/31/04	75.000	125.000	

BATCH QC

BLANK	Chloride	16887-00-6	<5.20e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Chloride	16887-00-6	<5.20e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Fluoride	16984-48-8	<2.30e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Fluoride	16984-48-8	<2.30e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	08/31/04	0.000	300.000	U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: Anions by Ion Chromatography

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Phosphate	14265-44-2	<5.40e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Phosphate	14265-44-2	<5.40e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/a	mg/L	08/31/04	0.000	300.000	U
LCS	Chloride	16887-00-6	2.04e+02	102.000	% Recov	08/31/04	80.000	120.000	
LCS	Fluoride	16984-48-8	9.23e+01	93.516	% Recov	08/31/04	80.000	120.000	
LCS	Nitrogen in Nitrite	NO2-N	9.73e+01	97.300	% Recov	08/31/04	80.000	120.000	
LCS	Nitrogen in Nitrate	NO3-N	8.40e+01	93.230	% Recov	08/31/04	80.000	120.000	
LCS	Phosphate	14265-44-2	1.86e+02	95.975	% Recov	08/31/04	80.000	120.000	
LCS	Sulfate	14808-79-8	3.81e+02	95.489	% Recov	08/31/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: Cyanide by Midi/Spectrophotom

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

Lab ID: W040001533

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Cyanide by Midi/Spectrophotom	57-12-5	84.1	84.100	% Recov	09/02/04	75.000	125.000	
MSD	Cyanide by Midi/Spectrophotom	57-12-5	56.1	56.100	% Recov	09/02/04	75.000	125.000	*
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	62.300	29.781	RPD	09/02/04	0.000	20.000	*

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	1	1.000	ug/L	09/02/04	-4.000	4.000	
BLNK-PREP	Cyanide by Midi/Spectrophotom	57-12-5	1	1.000	ug/L	09/02/04	-4.000	4.000	
LCS	Cyanide by Midi/Spectrophotom	57-12-5	110.6	110.600	% Recov	09/02/04	85.000	115.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: Ammonia (N) by IC

SAF Number: F03-018
Sample Date: 08/25/04
Receive Date:08/25/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001543									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Ammonia (N) by IC	7664-41-7	1.33e+00	37.925	RPD	09/08/04	0.000	20.000	*
MS	Ammonia (N) by IC	7664-41-7	4.49e-01	108.981	% Recov	09/08/04	75.000	125.000	
MSD	Ammonia (N) by IC	7664-41-7	4.06e-01	98.544	% Recov	09/08/04	75.000	125.000	
BATCH QC									
BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	09/08/04	0.000	30.000	U
BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	09/08/04	0.000	30.000	U
LCS	Ammonia (N) by IC	7664-41-7	8.84e+01	107.543	% Recov	09/08/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: Anions by Ion Chromatography

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

Lab ID: W040001533

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Chloride	16887-00-6	4.91e+00	2.414	RPD	08/31/04	0.000	20.000	
DUP	Fluoride	16984-48-8	<1.15e0	n/a	RPD	08/31/04	0.000	20.000	U
DUP	Nitrogen in Nitrite	NO2-N	<9.50e-1	n/a	RPD	08/31/04	0.000	20.000	U
DUP	Nitrogen in Nitrate	NO3-N	2.10e+01	10.526	RPD	08/31/04	0.000	20.000	
DUP	Phosphate	14265-44-2	<2.70e0	n/a	RPD	08/31/04	0.000	20.000	U
DUP	Sulfate	14808-79-8	2.66e+01	41.270	RPD	08/31/04	0.000	20.000	
MS	Chloride	16887-00-6	9.15e-01	91.500	% Recov	08/31/04	75.000	125.000	
MS	Fluoride	16984-48-8	4.67e-01	94.534	% Recov	08/31/04	75.000	125.000	
MS	Nitrogen in Nitrite	NO2-N	4.45e-01	89.000	% Recov	08/31/04	75.000	125.000	
MS	Nitrogen in Nitrate	NO3-N	4.20e-01	93.126	% Recov	08/31/04	75.000	125.000	
MS	Phosphate	14265-44-2	7.87e-01	81.218	% Recov	08/31/04	75.000	125.000	
MS	Sulfate	14808-79-8	1.72e+00	86.000	% Recov	08/31/04	75.000	125.000	
MSD	Chloride	16887-00-6	9.59e-01	95.900	% Recov	08/31/04	75.000	125.000	
MSD	Fluoride	16984-48-8	4.85e-01	98.178	% Recov	08/31/04	75.000	125.000	
MSD	Nitrogen in Nitrite	NO2-N	4.93e-01	98.600	% Recov	08/31/04	75.000	125.000	
MSD	Nitrogen in Nitrate	NO3-N	5.10e-01	113.082	% Recov	08/31/04	75.000	125.000	
MSD	Phosphate	14265-44-2	8.23e-01	84.933	% Recov	08/31/04	75.000	125.000	
MSD	Sulfate	14808-79-8	1.94e+00	97.000	% Recov	08/31/04	75.000	125.000	

BATCH QC

BLANK	Chloride	16887-00-6	<5.20e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Chloride	16887-00-6	<5.20e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Fluoride	16984-48-8	<2.30e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Fluoride	16984-48-8	<2.30e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	08/31/04	0.000	300.000	U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: Anions by Ion Chromatography

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Phosphate	14265-44-2	<5.40e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Phosphate	14265-44-2	<5.40e-2	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/a	mg/L	08/31/04	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/a	mg/L	08/31/04	0.000	300.000	U
LCS	Chloride	16887-00-6	2.04e+02	102.000	% Recov	08/31/04	80.000	120.000	
LCS	Fluoride	16984-48-8	9.23e+01	93.516	% Recov	08/31/04	80.000	120.000	
LCS	Nitrogen in Nitrite	NO2-N	9.73e+01	97.300	% Recov	08/31/04	80.000	120.000	
LCS	Nitrogen in Nitrate	NO3-N	8.40e+01	93.230	% Recov	08/31/04	80.000	120.000	
LCS	Phosphate	14265-44-2	1.86e+02	95.975	% Recov	08/31/04	80.000	120.000	
LCS	Sulfate	14808-79-8	3.81e+02	95.489	% Recov	08/31/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: Cyanide by Midi/Spectrophotom

SAF Number: F03-018
Sample Date: 08/25/04
Receive Date:08/25/04

Lab ID: W040001543

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Cyanide by Midi/Spectrophotom	57-12-5	74.5	74.500	% Recov	09/08/04	75.000	125.000	*
MSD	Cyanide by Midi/Spectrophotom	57-12-5	85.1	85.100	% Recov	09/08/04	75.000	125.000	
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	85.100	13.283	RPD	09/08/04	0.000	20.000	

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	1	1.000	ug/L	09/08/04	-4.000	4.000	
BLNK-PREP	Cyanide by Midi/Spectrophotom	57-12-5	1	1.000	ug/L	09/08/04	-4.000	4.000	
LCS	Cyanide by Midi/Spectrophotom	57-12-5	92.9	92.900	% Recov	09/08/04	85.000	115.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: Ammonia (N) by IC

SAF Number: F03-018
Sample Date: 08/25/04
Receive Date:08/25/04

Lab ID: W040001543

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Ammonia (N) by IC	7664-41-7	1.33e+00	37.925	RPD	09/08/04	0.000	20.000	*
MS	Ammonia (N) by IC	7664-41-7	4.49e-01	108.981	% Recov	09/08/04	75.000	125.000	
MSD	Ammonia (N) by IC	7664-41-7	4.06e-01	98.544	% Recov	09/08/04	75.000	125.000	

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	09/08/04	0.000	30.000	U
BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	09/08/04	0.000	30.000	U
LCS	Ammonia (N) by IC	7664-41-7	8.84e+01	107.543	% Recov	09/08/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: Ammonia (N) by IC

SAF Number: F03-018
Sample Date: 09/15/04
Receive Date:09/15/04

Lab ID: W040001657

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Ammonia (N) by IC	7664-41-7	1.19e+00	10.619	RPD	09/20/04	0.000	20.000	
MS	Ammonia (N) by IC	7664-41-7	3.87e-01	93.932	% Recov	09/20/04	75.000	125.000	
MSD	Ammonia (N) by IC	7664-41-7	4.10e-01	99.515	% Recov	09/20/04	75.000	125.000	

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	09/20/04	0.000	30.000	U
BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	09/20/04	0.000	30.000	U
LCS	Ammonia (N) by IC	7664-41-7	8.33e+01	101.338	% Recov	09/20/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: Anions by Ion Chromatography

SAF Number: F03-018
Sample Date: 09/15/04
Receive Date:09/15/04

Lab ID: W040001657

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Chloride	16887-00-6	3.37e+00	14.580	RPD	09/21/04	0.000	20.000	
DUP	Fluoride	16984-48-8	<1.13e0	n/a	RPD	09/21/04	0.000	20.000	U
DUP	Nitrogen in Nitrite	NO2-N	<9.31e-1	n/a	RPD	09/21/04	0.000	20.000	U
DUP	Nitrogen in Nitrate	NO3-N	1.01e+01	8.678	RPD	09/21/04	0.000	20.000	
DUP	Phosphate	14265-44-2	<2.65e0	n/a	RPD	09/21/04	0.000	20.000	U
DUP	Sulfate	14808-79-8	9.53e+00	4.111	RPD	09/21/04	0.000	20.000	
MS	Chloride	16887-00-6	9.14e-01	91.400	% Recov	09/21/04	75.000	125.000	
MS	Fluoride	16984-48-8	4.38e-01	88.664	% Recov	09/21/04	75.000	125.000	
MS	Nitrogen in Nitrite	NO2-N	4.65e-01	93.000	% Recov	09/21/04	75.000	125.000	
MS	Nitrogen in Nitrate	NO3-N	4.85e-01	107.539	% Recov	09/21/04	75.000	125.000	
MS	Phosphate	14265-44-2	7.97e-01	82.250	% Recov	09/21/04	75.000	125.000	
MS	Sulfate	14808-79-8	1.85e+00	92.500	% Recov	09/21/04	75.000	125.000	
MSD	Chloride	16887-00-6	9.55e-01	95.500	% Recov	09/21/04	75.000	125.000	
MSD	Fluoride	16984-48-8	4.40e-01	89.069	% Recov	09/21/04	75.000	125.000	
MSD	Nitrogen in Nitrite	NO2-N	4.81e-01	96.200	% Recov	09/21/04	75.000	125.000	
MSD	Nitrogen in Nitrate	NO3-N	4.81e-01	106.652	% Recov	09/21/04	75.000	125.000	
MSD	Phosphate	14265-44-2	8.11e-01	83.695	% Recov	09/21/04	75.000	125.000	
MSD	Sulfate	14808-79-8	1.94e+00	97.000	% Recov	09/21/04	75.000	125.000	

BATCH QC

BLANK	Chloride	16887-00-6	<5.20e-2	n/a	mg/L	09/21/04	0.000	300.000	U
BLANK	Chloride	16887-00-6	<5.20e-2	n/a	mg/L	09/21/04	0.000	300.000	U
BLANK	Fluoride	16984-48-8	<2.30e-2	n/a	mg/L	09/21/04	0.000	300.000	U
BLANK	Fluoride	16984-48-8	<2.30e-2	n/a	mg/L	09/21/04	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	09/21/04	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	09/21/04	0.000	300.000	U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: Anions by Ion Chromatography

SAF Number: F03-018
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	09/21/04	0.000	300.000	U
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	09/21/04	0.000	300.000	U
BLANK	Phosphate	14265-44-2	<5.40e-2	n/a	mg/L	09/21/04	0.000	300.000	U
BLANK	Phosphate	14265-44-2	<5.40e-2	n/a	mg/L	09/21/04	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/a	mg/L	09/21/04	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/a	mg/L	09/21/04	0.000	300.000	U
LCS	Chloride	16887-00-6	1.89e+02	94.500	% Recov	09/21/04	80.000	120.000	
LCS	Fluoride	16984-48-8	8.99e+01	91.084	% Recov	09/21/04	80.000	120.000	
LCS	Nitrogen in Nitrite	NO2-N	9.33e+01	93.300	% Recov	09/21/04	80.000	120.000	
LCS	Nitrogen in Nitrate	NO3-N	9.89e+01	109.767	% Recov	09/21/04	80.000	120.000	
LCS	Phosphate	14265-44-2	1.78e+02	91.847	% Recov	09/21/04	80.000	120.000	
LCS	Sulfate	14808-79-8	3.84e+02	96.241	% Recov	09/21/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: Cyanide by Midi/Spectrophotom

SAF Number: F03-018
Sample Date: 09/09/04
Receive Date:09/09/04

Lab ID: W040001610

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
MS	Cyanide by Midi/Spectrophotom	57-12-5	66.5	66.500	% Recov	09/27/04	75.000	125.000	*
MSD	Cyanide by Midi/Spectrophotom	57-12-5	71.6	71.600	% Recov	09/27/04	75.000	125.000	*
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	71.600	7.386	RPD	09/27/04	0.000	20.000	

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	1	1.000	ug/L	09/27/04	-4.000	4.000	
BLNK-PREP	Cyanide by Midi/Spectrophotom	57-12-5	1	1.000	ug/L	09/27/04	-4.000	4.000	
LCS	Cyanide by Midi/Spectrophotom	57-12-5	97.6	97.600	% Recov	09/27/04	85.000	115.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: Ammonia (N) by IC

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050002028									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Ammonia (N) by IC	7664-41-7	3.57e-01	37.209	RPD	07/07/05	0.000	20.000	*
MS	Ammonia (N) by IC	7664-41-7	3.92e-01	95.146	% Recov	07/07/05	75.000	125.000	
MSD	Ammonia (N) by IC	7664-41-7	3.89e-01	94.417	% Recov	07/07/05	75.000	125.000	
BATCH QC									
BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	07/07/05	0.000	30.000	U
BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	07/07/05	0.000	30.000	U
LCS	Ammonia (N) by IC	7664-41-7	7.77e+01	94.756	% Recov	07/07/05	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: Anions by Ion Chromatography

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

Lab ID: W050002028

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Chloride	16887-00-6	<2.55e0	n/a	RPD	07/07/05	0.000	20.000	U
DUP	Fluoride	16984-48-8	<1.13e0	n/a	RPD	07/07/05	0.000	20.000	U
DUP	Nitrogen in Nitrite	NO2-N	<9.31e-1	n/a	RPD	07/07/05	0.000	20.000	U
DUP	Nitrogen in Nitrate	NO3-N	<6.37e-1	n/a	RPD	07/07/05	0.000	20.000	U
DUP	Phosphate (P) by IC	PO4-P	<2.65e0	n/a	RPD	07/07/05	0.000	20.000	U
DUP	Sulfate	14808-79-8	<4.90e0	n/a	RPD	07/07/05	0.000	20.000	U
MS	Chloride	16887-00-6	9.98e-01	99.800	% Recov	07/07/05	75.000	125.000	
MS	Fluoride	16984-48-8	4.61e-01	93.320	% Recov	07/07/05	75.000	125.000	
MS	Nitrogen in Nitrite	NO2-N	4.95e-01	99.000	% Recov	07/07/05	75.000	125.000	
MS	Nitrogen in Nitrate	NO3-N	4.51e-01	100.000	% Recov	07/07/05	75.000	125.000	
MS	Phosphate (P) by IC	PO4-P	7.94e-01	81.940	% Recov	07/07/05	75.000	125.000	
MS	Sulfate	14808-79-8	1.92e+00	96.000	% Recov	07/07/05	75.000	125.000	
MSD	Chloride	16887-00-6	9.32e-01	93.200	% Recov	07/07/05	75.000	125.000	
MSD	Fluoride	16984-48-8	4.48e-01	90.688	% Recov	07/07/05	75.000	125.000	
MSD	Nitrogen in Nitrite	NO2-N	4.53e-01	90.600	% Recov	07/07/05	75.000	125.000	
MSD	Nitrogen in Nitrate	NO3-N	4.31e-01	95.565	% Recov	07/07/05	75.000	125.000	
MSD	Phosphate (P) by IC	PO4-P	8.07e-01	83.282	% Recov	07/07/05	75.000	125.000	
MSD	Sulfate	14808-79-8	1.91e+00	95.500	% Recov	07/07/05	75.000	125.000	

BATCH QC

BLANK	Chloride	16887-00-6	<5.20e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Chloride	16887-00-6	<5.20e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Fluoride	16984-48-8	<2.30e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Fluoride	16984-48-8	<2.30e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	07/07/05	0.000	300.000	U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: Anions by Ion Chromatography

SAF Number: F05-023
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Phosphate (P) by IC	PO4-P	<5.40a-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Phosphate (P) by IC	PO4-P	<5.40e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/e	mg/L	07/07/05	0.000	300.000	U
LCS	Chloride	16887-00-6	1.83e+02	91.500	% Recov	07/07/05	80.000	120.000	
LCS	Fluoride	16984-48-8	9.09e+01	90.900	% Recov	07/07/05	80.000	120.000	
LCS	Nitrogen in Nitrite	NO2-N	9.05e+01	90.500	% Recov	07/07/05	80.000	120.000	
LCS	Nitrogen in Nitrate	NO3-N	8.66e+01	95.374	% Recov	07/07/05	80.000	120.000	
LCS	Phosphate (P) by IC	PO4-P	1.76e+02	90.815	% Recov	07/07/05	80.000	120.000	
LCS	Sulfate	14808-79-8	3.77e+02	94.486	% Recov	07/07/05	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: pH Soil and Waste Measurement

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050002028									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	pH Soil and Waste Measurement	PH	9.176	0.207	RPD	07/06/05	0.000	3.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: Ammonia (N) by IC

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

Lab ID: W050002028

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Ammonia (N) by IC	7664-41-7	3.57e-01	37.209	RPD	07/07/05	0.000	20.000	*
MS	Ammonia (N) by IC	7664-41-7	3.92e-01	95.146	% Recov	07/07/05	75.000	125.000	
MSD	Ammonia (N) by IC	7664-41-7	3.89e-01	94.417	% Recov	07/07/05	75.000	125.000	

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	07/07/05	0.000	30.000	U
BLANK	Ammonia (N) by IC	7664-41-7	<4.00e-3	n/a	mg/L	07/07/05	0.000	30.000	U
LCS	Ammonia (N) by IC	7664-41-7	7.77e+01	94.756	% Recov	07/07/05	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: Anions by Ion Chromatography

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

Lab ID: W050002028

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Chloride	16887-00-6	<2.55e0	n/a	RPD	07/07/05	0.000	20.000	U
DUP	Fluoride	16984-48-8	<1.13e0	n/a	RPD	07/07/05	0.000	20.000	U
DUP	Nitrogen in Nitrite	NO2-N	<9.31e-1	n/a	RPD	07/07/05	0.000	20.000	U
DUP	Nitrogen in Nitrate	NO3-N	<6.37e-1	n/a	RPD	07/07/05	0.000	20.000	U
DUP	Phosphate (P) by IC	PO4-P	<2.65e0	n/a	RPD	07/07/05	0.000	20.000	U
DUP	Sulfate	14808-79-8	<4.90e0	n/a	RPD	07/07/05	0.000	20.000	U
MS	Chloride	16887-00-6	9.98e-01	99.800	% Recov	07/07/05	75.000	125.000	
MS	Fluoride	16984-48-8	4.61e-01	93.320	% Recov	07/07/05	75.000	125.000	
MS	Nitrogen in Nitrite	NO2-N	4.95e-01	99.000	% Recov	07/07/05	75.000	125.000	
MS	Nitrogen in Nitrate	NO3-N	4.51e-01	100.000	% Recov	07/07/05	75.000	125.000	
MS	Phosphate (P) by IC	PO4-P	7.94e-01	81.940	% Recov	07/07/05	75.000	125.000	
MS	Sulfate	14808-79-8	1.92e+00	96.000	% Recov	07/07/05	75.000	125.000	
MSD	Chloride	16887-00-6	9.32e-01	93.200	% Recov	07/07/05	75.000	125.000	
MSD	Fluoride	16984-48-8	4.48e-01	90.688	% Recov	07/07/05	75.000	125.000	
MSD	Nitrogen in Nitrite	NO2-N	4.53e-01	90.600	% Recov	07/07/05	75.000	125.000	
MSD	Nitrogen in Nitrate	NO3-N	4.31e-01	95.565	% Recov	07/07/05	75.000	125.000	
MSD	Phosphate (P) by IC	PO4-P	8.07e-01	83.282	% Recov	07/07/05	75.000	125.000	
MSD	Sulfate	14808-79-8	1.91e+00	95.500	% Recov	07/07/05	75.000	125.000	

BATCH QC

BLANK	Chloride	16887-00-6	<5.20e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Chloride	16887-00-6	<5.20e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Fluoride	16984-48-8	<2.30e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Fluoride	16984-48-8	<2.30e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Nitrogen in Nitrite	NO2-N	<1.90e-2	n/a	mg/L	07/07/05	0.000	300.000	U

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: Anions by Ion Chromatography

SAF Number: F05-023
Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Nitrogen in Nitrate	NO3-N	<1.30e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Phosphate (P) by IC	PO4-P	<5.40e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Phosphate (P) by IC	PO4-P	<5.40e-2	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/a	mg/L	07/07/05	0.000	300.000	U
BLANK	Sulfate	14808-79-8	<1.00e-1	n/a	mg/L	07/07/05	0.000	300.000	U
LCS	Chloride	16887-00-6	1.83e+02	91.500	% Recov	07/07/05	80.000	120.000	
LCS	Fluoride	16984-48-8	9.09e+01	90.900	% Recov	07/07/05	80.000	120.000	
LCS	Nitrogen in Nitrite	NO2-N	9.05e+01	90.500	% Recov	07/07/05	80.000	120.000	
LCS	Nitrogen in Nitrate	NO3-N	8.66e+01	95.374	% Recov	07/07/05	80.000	120.000	
LCS	Phosphate (P) by IC	PO4-P	1.76e+02	90.815	% Recov	07/07/05	80.000	120.000	
LCS	Sulfate	14808-79-8	3.77e+02	94.486	% Recov	07/07/05	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: pH Soil and Waste Measurement

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

Lab ID: W050002028
BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	pH Soil and Waste Measurement	PH	9.176	0.207	RPD	07/06/05	0.000	3.000	

Date: 12 March 2010
To: CH2M Hill (technical representative)
From: Analytical Quality Associates, Inc.
Project: CPP 200 Area, D&D-200 Area
Subject: Radiochemical - Sample Data Groups (SDGs) WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 and WSCF20051350

INTRODUCTION

This memorandum presents the results of data validation for SDGs WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 and WSCF20051350 prepared by WSCF. A list of samples validated along with the analytical methods is provided in the following table.

Sample ID	Sample Date	Media	Validation Level	Analytical Methods
B17N67	8/23/2004	Soil	C	See note 1
B17N70	8/25/2004	Soil	C	See note 1
B17N73	9/09/2004	Soil	C	See note 1
B17NL5	9/09/2004	Soil	C	See note 1
B1D994	6/29/2005	Soil	C	See note 2
B1D995	6/30/2005	Soil	C	See note 2

1 – Gross αβ, Gamma Spectrometry, Am-241, Isotopic-Pu, Isotopic-U & Np-237
2 – Gamma Spectrometry, Sr-89/90, Am-241, Isotopic-Pu & Isotopic-U

Data validation was conducted in accordance with the CHPRC validation statement of work and the Sampling and Analysis Plan for Investigation of Dense, Nonaqueous-Phase Liquid Carbon Tetrachloride at the 216-Z-9 Trench, DOE/RL-2001-01, Rev. 0, Appendix E (SAP). 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. Annotated Laboratory Reports
Appendix 4. Laboratory Narrative and Chain-of-Custody Documentation
Appendix 5. Data Validation Supporting Documentation
Appendix 6. Additional Documentation Requested By Client

DATA QUALITY OBJECTIVES

- **Holding Times and Sample Preservation**

Holding times are calculated from Chain-of-Custody forms to determine the validity of the results. The maximum holding time for radiochemical analysis is 180 days, or five half-lives, whichever is shorter. There are no specific preservation requirements for radiochemical soil/solid analysis.

The samples were analyzed within the prescribed holding times.

- **Blanks**

The blank data results are reviewed to assess the extent of contamination introduced through sampling, sample preparation, and analysis.

Laboratory Blanks

All laboratory blank results were acceptable with the following exceptions.

For SDG WSCF20041457, the gross beta, Am-241, Pu-239 and U-238 laboratory blank results were > the minimum detectable concentrations (MDCs). The Am-241 and U-238 results for sample B17N67 were detects <5X the blank results and should be qualified as estimates and flagged "J." The gross beta result for sample B17N67 was a detect >5X the blank result and should not be qualified. The Pu-239 result for sample B17N67 was a non-detect and should not be qualified.

For SDG WSCF20041457, laboratory blank data was not provided for Pu-238, U-233/234 and U-235. The Pu-238 result for sample B17N67 was a non-detect and should be qualified as an estimate and flagged "UJ." The U-233/234 and U-235 results for sample B17N67 were detects and should be qualified as estimates and flagged "J."

For SDG WSCF20041487, the gross beta, Am-241, Pu-239 and U-238 laboratory blank results were > the MDCs. The gross beta, Am-241 and Pu-239 results for sample B17N70 were detects <5X the blank results and should be qualified as estimates and flagged "J." The U-238 result for sample B17N70 was a detect >5X the blank result and should not be qualified.

For SDG WSCF20041487, laboratory blank data was not provided for Pu-238, U-233/234 and U-235. The Pu-238 result for sample B17N70 was a non-detect and should be qualified as an estimate and flagged "UJ." The U-233/234 and U-235 results for sample B17N70 were detects and should be qualified as estimates and flagged "J."

For SDG WSCF20041594, the Pu-239 and U-238 laboratory blank results were > the MDCs. The Pu-239 results for samples B17N73 and B17NL5 were non-detects and should not be qualified. The U-238 results for samples B17N73 and B17NL5 were detects >5X the blank result and should not be qualified.

For SDG WSCF20041594, laboratory blank data was not provided for Pu-238, U-233/234 and U-235. The Pu-238 and U-235 results for samples B17N73 and B17NL5 were non-detects and should be qualified as estimates and flagged "UJ." The U-233/234 results for samples B17N73 and B17NL5 were detects and should be qualified as estimates and flagged "J."

For SDGs WSCF20051337 and WSCF20051350, the Sr-89/90 and U-238 laboratory blank results were > the MDCs. The Sr-89/90 results for samples B1D994 and B1D995 were non-detects and should not be qualified. The U-238 results for samples B1D994 and B1D995 were detects >5X the blank result and should not be qualified.

Trip Blanks

No trip blanks were submitted for analysis.

Field Blanks

No field blanks were submitted for analysis.

Equipment Blanks

No equipment blanks were submitted for analysis.

- **Accuracy**

Accuracy is evaluated by reviewing matrix spike sample results, laboratory control sample results, and chemical recovery factors. Chemical recovery factors are determined through use of a carrier or tracer and provide assessment of the chemical separation process that is affected by the laboratory procedure, sample matrix, and/or interference. Chemical recovery factors are used to correct sample concentration, uncertainty, and MDC results. According to the SAP, the laboratory control sample accuracy limits are 65% to 135%. The matrix spike sample accuracy limits, and limits for reported analytes not listed in the SAP are specified by the DV procedure.

Matrix Spike (MS) Samples

MS analyses were not performed nor required for the methods performed.

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable with the following exceptions.

For SDG WSCF20041457, the Np-237 LCS recovery was < the lower acceptance limit but ≥30%. The Np-237 result for sample B17N67 was a detect and should be qualified as an estimate and flagged "J."

For SDG WSCF20041594, the Np-237 LCS recovery was < the lower acceptance limit but ≥30%. The Np-237 results for samples B17N73 and B17NL5 were non-detects and should be qualified as estimates and flagged "UJ."

Carrier/Tracer Recovery Factors

All carrier/tracer recovery factors were acceptable with the following exceptions.

For SDG WSCF20041457, tracer was not used for Np-237 analysis and a matrix spike was not performed. The Np-237 result for sample B17N67 was a detect and should be qualified as an estimate and flagged "J."

For SDG WSCF20041487, tracer was not used for Np-237 analysis and a matrix spike was not performed. The Np-237 result for sample B17N70 was a non-detect and should be qualified as an estimate and flagged "UJ."

For SDG WSCF20041594, tracer was not used for Np-237 analysis and a matrix spike was not performed. The Np-237 results for samples B17N73 and B17NL5 were non-detects and should be qualified as estimates and flagged "UJ."

- **Precision**

Precision is evaluated by reviewing laboratory duplicate, field duplicate, and field split sample results. These QC results provide information on the laboratory reproducibility and whether sampling activities are adequate to acquire consistent sample results. According to the SAP, the relative percent difference (RPD) limits are ±35%. The RPD limits for reported analytes not listed in the SAP are specified by the DV procedure. When duplicate RPDs exceed the limits and have associated results <5X the SAP required detection limits (or <5X the laboratory required detection limits for analytes not listed in the SAP) with differences <2X the required detection limits no precision infraction occurred. When no required detection limits are provided and the sample and duplicate results are statistically equal (Duplicate Error Ratio <3) no precision infraction occurred.

Laboratory Duplicate Samples

All laboratory duplicate results were acceptable with the following exceptions.

For SDG WSCF20041457, laboratory duplicate data was not provided for Pu-238, U-233/234 and U-235. The Pu-238 result for sample B17N67 was a non-detect and should be qualified as an estimate and flagged "UJ." The U-233/234 and U-235 results for sample B17N67 were detects and should be qualified as estimates and flagged "J."

For SDG WSCF20041487, laboratory duplicate data was not provided for Pu-238, U-233/234 and U-235. The Pu-238 result for sample B17N70 was a non-detect and should be qualified as an estimate and flagged "UJ." The U-233/234 and U-235 results for sample B17N70 were detects and should be qualified as estimates and flagged "J."

For SDG WSCF20041594, laboratory duplicate data was not provided for Pu-238, U-233/234 and U-235. The Pu-238 and U-235 results for samples B17N73 and B17NL5 were non-detects and should be qualified as estimates and flagged "UJ." The U-233/234 results for samples B17N73 and B17NL5 were detects and should be qualified as estimates and flagged "J."

Field Duplicate Samples

No field duplicates were submitted for analysis.

Field Split Samples

No field splits were submitted for analysis.

- **Detection Limits**

Reported MDCs are compared against the contractually required detection limits (CRDLs) to ensure that laboratory detection limits meet the required criteria.

All reported sample MDCs were below the CRDLs.

- **Completeness**

SDGs WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 and WSCF20051350 were 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

Multiple minor deficiencies leading to qualification of sample results as estimates occurred. See the table in Appendix 2 for a listing of all affected sample results.

For SDG WSCF20041594, the laboratory narrative incorrectly states sample B07N73 in the Radiochemical Tracer Percent Recovery table. This is a typo and the actual sample is B17N73.

REFERENCES

HNF-20434, Rev. 0, *Data Validation Procedure for Radiochemical Analyses*, June 2004.

DOE/RL-2001-01, Rev. 0, Appendix E, *Sampling and Analysis Plan for Investigation of Dense, Nonaqueous-Phase Liquid Carbon Tetrachloride at the 216-Z-9 Trench*.

Appendix 1

Glossary of Data Reporting Qualifiers

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

- **U** ─ The constituent was analyzed for and was not detected. The data should be considered usable for decision-making purposes.

- **UJ** ─ The constituent was analyzed for and was not detected. Due to a quality control deficiency identified during data validation the value reported may not accurately reflect the MDC. The data should be considered usable for decision-making purposes.

- **J** ─ Indicates the constituent was analyzed for and detected. The associated value is estimated due to a quality control deficiency identified during data validation. The data should be considered usable for decision-making purposes.

- **UR** ─ Indicates the constituent was analyzed for and not detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

- **R** ─ Indicates the constituent was analyzed for and detected; however, due to an identified quality control deficiency the data should be considered unusable for decision-making purposes.

Appendix 2

Summary of Data Qualification

Radiochemical Data Qualification Summary			
SDGs: See comments	Reviewer: AQA	Project: CPP 200 Area, D&D-200 Area	Page 1 of 1
Analyte(s)	**Qualifier**	**Samples Affected**	**Reason**
Am-241 U-238	J	B17N67	Laboratory blank contamination
Np-237	J	B17N67, B17N73, B17NL5	Low LCS recovery and lack of tracer data
Pu-238	UJ	B17N67, B17N70, B17N73, B17NL5	Lack of laboratory blank and duplicate data
U-235	UJ	B17N73, B17NL5	Lack of laboratory blank and duplicate data
U-235	J	B17N67, B17N70	Lack of laboratory blank and duplicate data
U-233/234	J	B17N67, B17N70, B17N73, B17NL5	Lack of laboratory blank and duplicate data
Gross beta Am-241 Pu-239	J	B17N70	Laboratory blank contamination
Np-237	UJ	B17N70	Lack of tracer data

Comments: SDGs WSCF20041457, WSCF20041487, WSCF20041594, WSCF20051337 & WSCF20051350

Appendix 3

Annotated Laboratory Reports

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041457

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Radiochemistry															
W040001533	B17N67	TRENT	J	14596-10-2	Americium-241	SOIL	LA-508-471		0.0380	pCi/g	1.00	0.016	09/23/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	Am-241 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.019	pCi/g	1.00	0.0	09/23/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		14234-35-6	Antimony-125	SOIL	LA-508-481	U	-4.90e-03	pCi/g	1.00	0.032	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	Sb-125 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.019	pCi/g	1.00	0.0	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		10198-40-0	Cobalt-60	SOIL	LA-508-481	U	7.70e-04	pCi/g	1.00	0.012	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	Co-60 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 7.0e-03	pCi/g	1.00	0.0	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		13967-70-9	Cesium-134	SOIL	LA-508-481	U	0.0294	pCi/g	1.00	0.030	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	Cs-134 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.014	pCi/g	1.00	0.0	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		10045-97-3	Cesium-137	SOIL	LA-508-481	U	1.46e-04	pCi/g	1.00	0.012	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	Cs-137 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 1.5e-03	pCi/g	1.00	0.0	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		14683-23-9	Europium-152	SOIL	LA-508-481	U	-6.49e-03	pCi/g	1.00	0.035	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	Eu-152 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.022	pCi/g	1.00	0.0	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		15585-10-1	Europium-154	SOIL	LA-508-481	U	-0.0193	pCi/g	1.00	0.036	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	Eu-154 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.022	pCi/g	1.00	0.0	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		14391-16-3	Europium-155	SOIL	LA-508-481		0.0574	pCi/g	1.00	0.046	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	Eu-155 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.037	pCi/g	1.00	0.0	09/01/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		12587-46-1	Gross alpha	SOIL	LA-508-415		2.10	pCi/g	1.00	0.72	09/02/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	Gross Alpha Method Error	SOIL	LA-508-415		+- 0.74	pCi/g	1.00	0.0	09/02/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		12587-47-2	Gross beta	SOIL	LA-508-415		2.10	pCi/g	1.00	0.55	09/02/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	Gross Beta Method Error	SOIL	LA-508-415		+- 0.63	pCi/g	1.00	0.0	09/02/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	J	13994-20-2	Neptunium-237	SOIL	LA-508-471	X	5.00e-03	pCi/g	1.00	2.4e-03	09/23/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	Np-237 by AEA Total Ctng Error	SOIL	LA-508-471		+- 4.1e-03	pCi/g	1.00	0.0	09/23/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	UJ	13981-16-3	Plutonium-238	SOIL	LA-508-471	U	-4.10e-03	pCi/g	1.00	0.062	09/23/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	Pu-238 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.034	pCi/g	1.00	0.0	09/23/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		PU-239/240	Pu-239/240 by AEA	SOIL	LA-508-471	U	4.10e-03	pCi/g	1.00	0.019	09/23/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	Pu-239/240 AEA Total Cntg Err	SOIL	LA-508-471		+- 0.010	pCi/g	1.00	0.0	09/23/04	08/23/04	08/23/04

MDL = Minimum Detection Limit
RQ = Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
X - Other flags and notes described in the comments/narrative.
E - Analyte is an estimate, has potentially larger errors
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

2-9

3-12-2010

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041457

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001533	B17N67	TRENT	J	U-233/234	Uranium-233/234	SOIL	LA-508-471		0.100	pCi/g	1.00	0.026	09/23/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	U-233/234 AEA Total Cntg Error	SOIL	LA-508-471		+- 0.039	pCi/g	1.00	0.0	09/23/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	J	15117-96-1	Uranium-235	SOIL	LA-508-471		0.0260	pCi/g	1.00	5.4e-03	09/23/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	U-235 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.016	pCi/g	1.00	0.0	09/23/04	08/23/04	08/23/04
W040001533	B17N67	TRENT	J	U-238	Uranium-238	SOIL	LA-508-471		0.140	pCi/g	1.00	0.013	09/23/04	08/23/04	08/23/04
W040001533	B17N67	TRENT		E,T,C	U-238 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.048	pCi/g	1.00	0.10	09/23/04	08/23/04	08/23/04

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3-12-2010

MDL = Minimum Detection Limit
RQ = Result Qualifier

B - The analyte < the RDL but >= the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
X - Other flags and notes described in the comments/narrative.
E - Analyte is an estimate, has potentially larger errors
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

WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent
Project Number F03-018 :F03-018

Group #: WSCF20041457

Sample #	Client ID		Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error				10	%
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error				14	%
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error				14	%
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error				14	%
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error				15	%
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error				15	%
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	BI-212 Count Error				25	%
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	U-235 Count Error				32	%
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error				9.1	%
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error				9.3	%
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	U-235				0.069	pCi/g
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	TL-208				0.19	pCi/g
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	BI-212				0.41	pCi/g
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	BI-214				0.50	pCi/g
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	RA-226				0.50	pCi/g
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	AC-228				0.56	pCi/g
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	RA-228				0.56	pCi/g
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	PB-214				0.58	pCi/g
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	PB-212				0.62	pCi/g
W040001533	B17N67	TRENT	Gamma Energy Analysis-grd H2O	K-40				14	pCi/g
~~W040001533~~	~~B17N67~~	~~TRENT~~	~~SW-846 8270B Semi-Vols~~	~~SMP 11.177 Unknown~~	~~Unknown~~	~~11.17755~~	~~J~~	~~4.1e+03~~	~~ug/kg~~

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RQ=Result Qualifier J - Analyte is an estimate, has potentially larger errors

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041487

Sample #	Client ID				CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Radiochemistry																
W040001543	B17N70	GRP	TRENT	J	14596-10-2	Americium-241	SOIL	LA-508-471		0.180	pCi/g	1.00	0.017	09/26/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	Am-241 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.054	pCi/g	1.00	0.0	09/26/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		14234-35-6	Antimony-125	SOIL	LA-508-481	U	-8.99e-03	pCi/g	1.00	0.034	09/01/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	Sb-125 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.021	pCi/g	1.00	0.0	09/01/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		10198-40-0	Cobalt-60	SOIL	LA-508-481	U	-3.89e-03	pCi/g	1.00	0.011	09/01/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	Co-60 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 6.6e-03	pCi/g	1.00	0.0	09/01/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		13967-70-9	Cesium-134	SOIL	LA-508-481	U	0.0428	pCi/g	1.00	0.050	09/01/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	Cs-134 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.015	pCi/g	1.00	0.0	09/01/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		10045-97-3	Cesium-137	SOIL	LA-508-481		0.0472	pCi/g	1.00	0.013	09/01/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	Cs-137 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.015	pCi/g	1.00	0.0	09/01/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		14683-23-9	Europium-152	SOIL	LA-508-481	U	7.62e-03	pCi/g	1.00	0.039	09/01/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	Eu-152 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.044	pCi/g	1.00	0.0	09/01/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		15585-10-1	Europium-154	SOIL	LA-508-481	U	7.75e-03	pCi/g	1.00	0.038	09/01/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	Eu-154 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.026	pCi/g	1.00	0.0	09/01/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		14391-16-3	Europium-155	SOIL	LA-508-481	U	-5.91e-03	pCi/g	1.00	0.067	09/01/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	Eu-155 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.040	pCi/g	1.00	0.0	09/01/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		12587-46-1	Gross alpha	SOIL	LA-508-415		2.10	pCi/g	1.00	0.52	09/03/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	Gross Alpha Method Error	SOIL	LA-508-415		+- 0.63	pCi/g	1.00	0.0	09/03/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	J	12587-47-2	Gross beta	SOIL	LA-508-415		1.00	pCi/g	1.00	0.33	09/03/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	Gross Beta Method Error	SOIL	LA-508-415		+- 0.30	pCi/g	1.00	0.0	09/03/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	UJ	13994-20-2	Neptunium-237	SOIL	LA-508-471	U	-3.00e-03	pCi/g	1.00	0.012	09/23/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	Np-237 by AEA Total Ctng Error	SOIL	LA-508-471		+- 0.030	pCi/g	1.00	0.0	09/23/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	UJ	13981-16-3	Plutonium-238	SOIL	LA-508-471	U	6.40e-03	pCi/g	1.00	0.065	09/26/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	Pu-238 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.037	pCi/g	1.00	0.0	09/26/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	J	PU-239/240	Pu-239/240 by AEA	SOIL	LA-508-471		0.0300	pCi/g	1.00	0.020	09/26/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	Pu-239/240 AEA Total Cntg Err	SOIL	LA-508-471		+- 0.020	pCi/g	1.00	0.0	09/26/04	08/25/04	08/25/04

MDL = Minimum Detection Limit
RQ = Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
E - Analyte is an estimate, has potentially larger errors
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DF = Dilution Factor

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

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25

3-12-2010

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041487

Sample #	Client ID				CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001543	B17N70	GRP	TRENT	J	U-233/234	Uranium-233/234	SOIL	LA-508-471		0.0800	pCi/g	1.00	0.026	09/23/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	U-233/234 AEA Total Cntg Error	SOIL	LA-508-471		+- 0.034	pCi/g	1.00	0.0	09/23/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT	J	15117-96-1	Uranium-235	SOIL	LA-508-471		0.0190	pCi/g	1.00	0.016	09/23/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	U-235 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.015	pCi/g	1.00	0.0	09/23/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		U-238	Uranium-238	SOIL	LA-508-471		0.0940	pCi/g	1.00	0.021	09/23/04	08/25/04	08/25/04
W040001543	B17N70	GRP	TRENT		E,T,C	U-238 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.038	pCi/g	1.00	0.10	09/23/04	08/25/04	08/25/04

LS
3-12-2010

MDL=Minimum Detection Limit
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B - The analyte < the RDL but > = the IDL/MDL (inorganic)
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* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols

WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent
Project Number F03-018 :F03-018

Group #: WSCF20041487

Sample #	Client ID			Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error				14	%
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error				14	%
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error				15	%
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error				17	%
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error				17	%
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error				17	%
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error				18	%
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error				18	%
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	BA-133 Count Error				24	%
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	BI-212 Count Error				24	%
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	SN-126 Count Error				33	%
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	U-235 Count Error				34	%
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	TH-234 Count Error				39	%
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	BA-133				0.059	pCi/g
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	U-235				0.070	pCi/g
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	SN-126				0.12	pCi/g
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	TL-208				0.24	pCi/g
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	BI-214				0.48	pCi/g
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	RA-226				0.48	pCi/g
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	PB-214				0.54	pCi/g
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	BI-212				0.58	pCi/g
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	AC-228				0.72	pCi/g
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	RA-228				0.72	pCi/g
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	PB-212				0.84	pCi/g
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	TH-234				0.89	pCi/g

RQ=Result Qualifier

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WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent
Project Number F03-018 :F03-018

Group #: WSCF20041487

Sample #	Client ID			Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W040001543	B17N70	GRP	TRENT	Gamma Energy Analysis-grd H2O	K-40				15	pCi/g

RQ=Result Qualifier

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Radiochemistry															
W040001610	B17N73	TRENT		14596-10-2	Americium-241	SOIL	LA-508-471	U	0.0170	pCi/g	1.00	0.033	10/04/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	Am-241 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.020	pCi/g	1.00	0.0	10/04/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		14234-35-6	Antimony-125	SOIL	LA-508-481	U	0.0190	pCi/g	1.00	0.035	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	Sb-125 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.020	pCi/g	1.00	0.0	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		10198-40-0	Cobalt-60	SOIL	LA-508-481	U	-7.64e-03	pCi/g	1.00	0.014	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	Co-60 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 8.4e-03	pCi/g	1.00	0.0	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		13967-70-9	Cesium-134	SOIL	LA-508-481	U	0.0383	pCi/g	1.00	0.017	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	Cs-134 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.014	pCi/g	1.00	0.0	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		10045-97-3	Cesium-137	SOIL	LA-508-481	U	-1.36e-04	pCi/g	1.00	0.013	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	Cs-137 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 1.4e-03	pCi/g	1.00	0.0	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		14683-23-9	Europium-152	SOIL	LA-508-481	U	-0.0179	pCi/g	1.00	0.036	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	Eu-152 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.028	pCi/g	1.00	0.0	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		15585-10-1	Europium-154	SOIL	LA-508-481	U	-0.0271	pCi/g	1.00	0.043	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	Eu-154 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.027	pCi/g	1.00	0.0	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		14391-16-3	Europium-155	SOIL	LA-508-481		0.0673	pCi/g	1.00	0.051	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	Eu-155 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.044	pCi/g	1.00	0.0	09/21/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		12587-46-1	Gross alpha	SOIL	LA-508-415		2.60	pCi/g	1.00	0.57	09/26/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	Gross Alpha Method Error	SOIL	LA-508-415		+- 0.78	pCi/g	1.00	0.0	09/26/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		12587-47-2	Gross beta	SOIL	LA-508-415		0.630	pCi/g	1.00	0.62	09/26/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	Gross Beta Method Error	SOIL	LA-508-415		+- 0.41	pCi/g	1.00	0.0	09/26/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	UJ	13994-20-2	Neptunium-237	SOIL	LA-508-471	U	9.40e-04	pCi/g	1.00	6.9e-03	10/11/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	Np-237 by AEA Total Ctng Error	SOIL	LA-508-471		+- 9.4e-03	pCi/g	1.00	0.0	10/11/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	UJ	13981-16-3	Plutonium-238	SOIL	LA-508-471	U	0.0250	pCi/g	1.00	0.054	10/04/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	Pu-238 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.032	pCi/g	1.00	0.0	10/04/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		PU-239/240	Pu-239/240 by AEA	SOIL	LA-508-471	U	2.10e-03	pCi/g	1.00	0.020	10/04/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	Pu-239/240 AEA Total Cntg Err	SOIL	LA-508-471		+- 9.4e-03	pCi/g	1.00	0.0	10/04/04	09/09/04	09/09/04

MDL = Minimum Detection Limit
RQ = Result Qualifier

B - The analyte < the RDL but > = the IDL/MDL (inorganic)
J - Analyte is an estimate, has potentially larger errors
E - Analyte is an estimate, has potentially larger errors
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

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3-12-2010

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001610	B17N73	TRENT	J	U-233/234	Uranium-233/234	SOIL	LA-508-471		0.150	pCi/g	1.00	0.019	10/03/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	U-233/234 AEA Total Cntg Error	SOIL	LA-508-471		+- 0.051	pCi/g	1.00	0.0	10/03/04	09/09/04	09/09/04
W040001610	B17N73	TRENT	UJ	15117-96-1	Uranium-235	SOIL	LA-508-471	U	0.0130	pCi/g	1.00	0.014	10/03/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	U-235 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.012	pCi/g	1.00	0.0	10/03/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		U-238	Uranium-238	SOIL	LA-508-471		0.160	pCi/g	1.00	0.016	10/03/04	09/09/04	09/09/04
W040001610	B17N73	TRENT		E,T,C	U-238 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.053	pCi/g	1.00	0.10	10/03/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		14596-10-2	Americium-241	SOIL	LA-508-471	U	9.20e-03	pCi/g	1.00	0.028	10/04/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		E,T,C	Am-241 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.017	pCi/g	1.00	0.0	10/04/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		14234-35-6	Antimony-125	SOIL	LA-508-481	U	2.26e-04	pCi/g	1.00	0.041	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		E,T,C	Sb-125 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 2.3e-03	pCi/g	1.00	0.0	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		10198-40-0	Cobalt-60	SOIL	LA-508-481	U	2.21e-03	pCi/g	1.00	0.015	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		E,T,C	Co-60 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 8.9e-03	pCi/g	1.00	0.0	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		13967-70-9	Cesium-134	SOIL	LA-508-481	U	0.0364	pCi/g	1.00	0.040	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		E,T,C	Cs-134 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.014	pCi/g	1.00	0.0	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		10045-97-3	Cesium-137	SOIL	LA-508-481	U	-5.44e-03	pCi/g	1.00	0.015	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		E,T,C	Cs-137 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 9.4e-03	pCi/g	1.00	0.0	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		14683-23-9	Europium-152	SOIL	LA-508-481	U	0.0143	pCi/g	1.00	0.044	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		E,T,C	Eu-152 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.043	pCi/g	1.00	0.0	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		15585-10-1	Europium-154	SOIL	LA-508-481	U	0.0175	pCi/g	1.00	0.052	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		E,T,C	Eu-154 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.033	pCi/g	1.00	0.0	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		14391-16-3	Europium-155	SOIL	LA-508-481		0.0495	pCi/g	1.00	0.066	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		E,T,C	Eu-155 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.055	pCi/g	1.00	0.0	09/21/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		12587-46-1	Gross alpha	SOIL	LA-508-415		1.80	pCi/g	1.00	0.55	09/26/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		E,T,C	Gross Alpha Method Error	SOIL	LA-508-415		+- 0.63	pCi/g	1.00	0.0	09/26/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		12587-47-2	Gross beta	SOIL	LA-508-415		0.800	pCi/g	1.00	0.60	09/26/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		E,T,C	Gross Beta Method Error	SOIL	LA-508-415		+- 0.42	pCi/g	1.00	0.0	09/26/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	UJ	13994-20-2	Neptunium-237	SOIL	LA-508-471	U	1.80e-03	pCi/g	1.00	9.7e-03	10/11/04	09/09/04	09/09/04

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3-12-2010

WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F03-018: F03-018

Group #: WSCF20041594

Sample #	Client ID			CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
W040001612	B17NL5	TRENT		E,T,C	Np-237 by AEA Total Ctng Error	SOIL	LA-508-471		+- 1.8e-03	pCi/g	1.00	0.0	10/11/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	UJ	13981-16-3	Plutonium-238	SOIL	LA-508-471	U	1.80e-03	pCi/g	1.00	0.047	10/04/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		E,T,C	Pu-238 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.018	pCi/g	1.00	0.0	10/04/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		PU-239/240	Pu-239/240 by AEA	SOIL	LA-508-471	U	5.50e-03	pCi/g	1.00	0.017	10/04/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		E,T,C	Pu-239/240 AEA Total Cntg Err	SOIL	LA-508-471		+- 9.9e-03	pCi/g	1.00	0.0	10/04/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	J	U-233/234	Uranium-233/234	SOIL	LA-508-471		0.100	pCi/g	1.00	0.017	10/03/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		E,T,C	U-233/234 AEA Total Cntg Error	SOIL	LA-508-471		+- 0.037	pCi/g	1.00	0.0	10/03/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT	UJ	15117-96-1	Uranium-235	SOIL	LA-508-471	U	5.90e-03	pCi/g	1.00	0.015	10/03/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		E,T,C	U-235 by AEA Total Cntg Error	SOIL	LA-508-471		+- 8.8e-03	pCi/g	1.00	0.0	10/03/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		U-238	Uranium-238	SOIL	LA-508-471		0.120	pCi/g	1.00	4.9e-03	10/03/04	09/09/04	09/09/04
W040001612	B17NL5	TRENT		E,T,C	U-238 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.042	pCi/g	1.00	0.10	10/03/04	09/09/04	09/09/04

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WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent
Project Number F03-018 :F03-018

Group #: WSCF20041594

Sample #	Client ID		Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error				13	%
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error				14	%
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error				15	%
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error				16	%
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error				16	%
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error				17	%
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error				17	%
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error				17	%
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	BI-212 Count Error				25	%
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	SN-126 Count Error				27	%
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	TH-234 Count Error				28	%
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	U-235 Count Error				34	%
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	U-235				0.056	pCi/g
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	SN-126				0.15	pCi/g
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	TL-208				0.22	pCi/g
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	BI-214				0.42	pCi/g
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	RA-226				0.42	pCi/g
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	PB-214				0.50	pCi/g
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	BI-212				0.55	pCi/g
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	AC-228				0.71	pCi/g
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	RA-228				0.71	pCi/g
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	PB-212				0.74	pCi/g
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	TH-234				0.85	pCi/g
W040001610	B17N73	TRENT	Gamma Energy Analysis-grd H2O	K-40				15	pCi/g
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error				13	%

RQ=Result Qualifier J - Analyte is an estimate, has potentially larger errors

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WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent
Project Number F03-018 :F03-018

Group #: WSCF20041594

Sample #	Client ID		Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error				14	%
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error				16	%
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error				18	%
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error				18	%
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error				19	%
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error				19	%
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error				19	%
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	SN-126 Count Error				22	%
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	BI-212 Count Error				30	%
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	TH-234 Count Error				30	%
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	U-235 Count Error				33	%
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	U-235				0.092	pCi/g
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	SN-126				0.18	pCi/g
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	TL-208				0.25	pCi/g
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	BI-214				0.46	pCi/g
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	RA-226				0.46	pCi/g
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	BI-212				0.54	pCi/g
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	PB-214				0.56	pCi/g
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	AC-228				0.74	pCi/g
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	RA-228				0.74	pCi/g
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	PB-212				0.77	pCi/g
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	TH-234				1.2	pCi/g
W040001612	B17NL5	TRENT	Gamma Energy Analysis-grd H2O	K-40				16	pCi/g
~~W040001612~~	~~B17NL5~~	~~TRENT~~	~~SW-846 8270B Semi-Vols~~	~~SMP 14-769 Diphenyl sulfone~~	~~127-63-9~~	~~14.76991~~	~~J~~	~~2.4e+02~~	~~ug/kg~~

RQ=Result Qualifier J - Analyte is an estimate, has potentially larger errors

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051337

Sample #	Client ID	CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Radiochemistry													
W050002028	81D994 TRENT	14596-10-2	Americium-241	SOIL	LA-508-471	U	8.40e-03	pCi/g	1.00	0.047	07/18/05	06/29/05	06/29/05
W05000202B	81D994 TRENT	E,T,C	Am-241 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.027	pCi/g	1.00	0.0	07/18/05	06/29/05	06/29/05
W050002028	81D994 TRENT	10198-40-0	Cobalt-60	SOIL	LA-508-481	U	1.19e-03	pCi/g	1.00	0.013	07/07/05	06/29/05	06/29/05
W050002028	B1D994 TRENT	E,T,C	Co-60 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 7.6e-03	pCi/g	1.00	0.0	07/07/05	06/29/05	06/29/05
W05000202B	B1D994 TRENT	10045-97-3	Cesium-137	SOIL	LA-508-481	U	2.77e-03	pCi/g	1.00	0.013	07/07/05	06/29/05	06/29/05
W050002028	B1D994 TRENT	E,T,C	Cs-137 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 8.4e-03	pCi/g	1.00	0.0	07/07/05	06/29/05	06/29/05
W05000202B	B1D994 TRENT	14683-23-9	Europium-152	SOIL	LA-508-481	U	-5.40e-03	pCi/g	1.00	0.038	07/07/05	06/29/05	06/29/05
W050002028	81D994 TRENT	E,T,C	Eu-152 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.024	pCi/g	1.00	0.0	07/07/05	06/29/05	06/29/05
W050002028	B1D994 TRENT	15585-10-1	Europium-154	SOIL	LA-508-481	U	0.0116	pCi/g	1.00	0.042	07/07/05	06/29/05	06/29/05
W050002028	B1D994 TRENT	E,T,C	Eu-154 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.027	pCi/g	1.00	0.0	07/07/05	06/29/05	06/29/05
W05000202B	B1D994 TRENT	14391-16-3	Europium-155	SOIL	LA-508-481	U	0.0392	pCi/g	1.00	0.053	07/07/05	06/29/05	06/29/05
W050002028	B1D994 TRENT	E,T,C	Eu-155 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.036	pCi/g	1.00	0.0	07/07/05	06/29/05	06/29/05
W050002028	B1D994 TRENT	13981-16-3	Plutonium-238	SOIL	LA-508-471	U	-1.80e-03	pCi/g	1.00	0.051	07/18/05	06/29/05	06/29/05
W050002028	B1D994 TRENT	E,T,C	Pu-238 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.018	pCi/g	1.00	0.0	07/18/05	06/29/05	06/29/05
W05000202B	B1D994 TRENT	PU-239/240	Pu-239/240 by AEA	SOIL	LA-508-471	U	7.00e-03	pCi/g	1.00	0.016	07/18/05	06/29/05	06/29/05
W050002028	B1D994 TRENT	E,T,C	Pu-239/240 AEA Total Cntg Err	SOIL	LA-508-471		+- 9.8e-03	pCi/g	1.00	0.0	07/18/05	06/29/05	06/29/05
W05000202B	B1D994 TRENT	SR-RAD	Strontium-89/90	SOIL	LA-508-415	U	-0.390	pCi/g	1.00	0.25	07/14/05	06/29/05	06/29/05
W050002028	B1D994 TRENT	E,T,C	Sr-89/90 Rel. Count Error	SOIL	LA-508-415		+- 0.39	pCi/g	1.00	0.0	07/14/05	06/29/05	06/29/05
W050002028	B1D994 TRENT	U-233/234	Uranium-233/234	SOIL	LA-508-471		0.140	pCi/g	1.00	4.9e-03	07/18/05	06/29/05	06/29/05
W050002028	B1D994 TRENT	E,T,C	U-233/234 AEA Total Cntg Error	SOIL	LA-508-471		+- 0.048	pCi/g	1.00	0.0	07/18/05	06/29/05	06/29/05
W050002028	B1D994 TRENT	15117-96-1	Uranium-235	SOIL	LA-508-471		0.0200	pCi/g	1.00	0.015	07/18/05	06/29/05	06/29/05
W050002028	B1D994 TRENT	E,T,C	U-235 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.015	pCi/g	1.00	0.0	07/18/05	06/29/05	06/29/05
W050002028	B1D994 TRENT	U-238	Uranium-238	SOIL	LA-508-471		0.140	pCi/g	1.00	0.020	07/18/05	06/29/05	06/29/05
W050002028	B1D994 TRENT	E,T,C	U-238 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.049	pCi/g	1.00	0.10	07/18/05	06/29/05	06/29/05

MDL = Minimum Detection Limit B - Tho analyta < 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

WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent
Project Number F05-023 :F05-023

Group #: WSCF20051337

Sample #	Client ID		Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error				13	%
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error				14	%
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error				15	%
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error				17	%
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error				17	%
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error				17	%
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error				18	%
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error				18	%
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	SN-126 Count Error				24	%
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	BI-212 Count Error				30	%
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	CS-134 Count Error				44	%
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	CS-134				0.030	pCi/g
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	SN-126				0.18	pCi/g
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	BI-214				0.52	pCi/g
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	RA-226				0.52	pCi/g
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	PB-214				0.61	pCi/g
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	AC-228				0.74	pCi/g
W050002028	B1D994	TRENT	Gamma Energy Analysis-grd H2O	RA-228				0.74	pCi/g

RQ=Result Qualifier J - Analyte is an estimate, has potentially larger errors

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WSCF
ANALYTICAL RESULTS REPORT

Attention: Steve Trent
Project: F05-023: F05-023

Group #: WSCF20051350

Sample #	Client ID		CAS #	Test Performed	Matrix	WSCF Method	RQ	Result	Unit	DF	MDL	Analyze	Sample	Receive
Radiochemistry														
W050002036	B1D995	TRENT	14596-10-2	Americium-241	SOIL	LA-508-471	U	-6.80e-03	pCi/g	1.00	0.055	07/18/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	E,T,C	Am-241 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.030	pCi/g	1.00	0.0	07/18/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	10198-40-0	Cobalt-60	SOIL	LA-508-481	U	6.65e-04	pCi/g	1.00	6.4e-03	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	E,T,C	Co-60 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 3.7e-03	pCi/g	1.00	0.0	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	10045-97-3	Cesium-137	SOIL	LA-508-481	U	2.15e-03	pCi/g	1.00	6.4e-03	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	E,T,C	Cs-137 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 4.2e-03	pCi/g	1.00	0.0	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	14683-23-9	Europium-152	SOIL	LA-508-481	U	-7.23e-03	pCi/g	1.00	0.019	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	E,T,C	Eu-152 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.012	pCi/g	1.00	0.0	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	15585-10-1	Europium-154	SOIL	LA-508-481	U	-8.27e-03	pCi/g	1.00	0.020	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	E,T,C	Eu-154 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.012	pCi/g	1.00	0.0	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	14391-16-3	Europium-155	SOIL	LA-508-481	U	-7.53e-03	pCi/g	1.00	0.029	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	E,T,C	Eu-155 Rel. Count Error (GEA)	SOIL	LA-508-481		+- 0.017	pCi/g	1.00	0.0	07/07/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	13981-16-3	Plutonium-238	SOIL	LA-508-471	U	0.0410	pCi/g	1.00	0.058	07/18/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	E,T,C	Pu-238 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.038	pCi/g	1.00	0.0	07/18/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	PU-239/240	Pu-239/240 by AEA	SOIL	LA-508-471		0.0110	pCi/g	1.00	4.8e-03	07/18/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	E,T,C	Pu-239/240 AEA Total Cntg Err	SOIL	LA-508-471		+- 9.5e-03	pCi/g	1.00	0.0	07/18/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	SR-RAD	Strontium-89/90	SOIL	LA-508-415	U	0.0330	pCi/g	1.00	0.24	07/14/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	E,T,C	Sr-89/90 Rel. Count Error	SOIL	LA-508-415		+- 0.33	pCi/g	1.00	0.0	07/14/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	U-233/234	Uranium-233/234	SOIL	LA-508-471		0.0690	pCi/g	1.00	0.013	07/18/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	E,T,C	U-233/234 AEA Total Cntg Error	SOIL	LA-508-471		+- 0.029	pCi/g	1.00	0.0	07/18/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	15117-96-1	Uranium-235	SOIL	LA-508-471		0.0120	pCi/g	1.00	5.4e-03	07/18/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	E,T,C	U-235 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.010	pCi/g	1.00	0.0	07/18/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	U-238	Uranium-238	SOIL	LA-508-471		0.0980	pCi/g	1.00	0.017	07/18/05	06/30/05	06/30/05
W050002036	B1D995	TRENT	E,T,C	U-238 by AEA Total Cntg Error	SOIL	LA-508-471		+- 0.037	pCi/g	1.00	0.10	07/18/05	06/30/05	06/30/05

MDL=Minimum Detection Limit 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

WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent
Project Number F05-023 :F05-023

Group #: WSCF20051350

Sample #	Client ID		Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error				13	%
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error				14	%
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error				14	%
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error				16	%
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error				16	%
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error				16	%
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error				17	%
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error				17	%
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	SN-126 Count Error				21	%
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	BI-212 Count Error				26	%
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	U-235 Count Error				28	%
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	TH-234 Count Error				32	%
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	CS-134 Count Error				38	%
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	CS-134				0.017	pCi/g
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	U-235				0.041	pCi/g
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	SN-126				0.084	pCi/g
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	TL-208				0.13	pCi/g
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	BI-212				0.22	pCi/g
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	BI-214				0.28	pCi/g
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	RA-226				0.28	pCi/g
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	PB-214				0.35	pCi/g
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	TH-234				0.36	pCi/g
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	PB-212				0.38	pCi/g
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	AC-228				0.42	pCi/g
W050002036	B1D995	TRENT	Gamma Energy Analysis-grd H2O	RA-228				0.42	pCi/g

RQ=Result Qualifier

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WSCF
TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent
Project Number F05-023 :F05-023

Group #: WSCF20051350

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W050002036	B1D995 TRENT	Gamma Energy Analysis-grd H2O	K-40				10	pCi/g

RQ=Result Qualifier

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Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041457**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-Z-9/C3426 – Interval 174'-176-5' Trench Characterization Borehole - Soil (B17N67) was received at the WSCF Laboratory on August 23, 2004. The sample was 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- ICP-AES Metals by EPA Method 6010. Analytical work was performed with no deviations to the approved method.
- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- PCB by EPA Method 8080. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. 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.

- Ammonia by EPA Method 300.7. 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.

- Percent Solids by Method 160.3. Analytical work was performed with no deviations to the approved method.

- All RadChem analyses (AEA (Plutonium, Americium, Uranium and Neptunium), GEA, and Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Comments

ICP-MS Metals (Mercury and Uranium only) – 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 GRP Letter of Instruction. See pages 2-18 through 2-19 for QC details. All QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See page(s) 2-17 through 2-20 for QC details. Analytical Notes:

- Sodium – Matrix spike and spike duplicates exceeded the established laboratory limits. Sample result was E (estimate) flagged.

- Aluminum, Iron, Calcium and Magnesium – the spike concentration was insufficient for the sample concentration.

- Aluminum – laboratory control sample exceeds the established laboratory limits, but is within manufacturer's limits. Sample result was not flagged.

All other QC controls are within the established limits.

Anions - 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 GRP Letter of Instruction. See pages 2-20 through 2-21 for QC details. Analytical Notes:

- Chloride - Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

- Sulfate – Duplicate Relative Percent Difference exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

PCB – 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 GRP Letter of Instruction. See pages 2-29 through 2-30 for QC details. Analytical Notes:

- Sample results are moisture corrected and reported on a dry weight basis.
- Decachlorobiphenyl surrogate spike Relative Percent Difference slightly exceeded established limits. Matrix Spike and Matrix Spike Duplicate recoveries were within limit; sample results were not flagged.

All other QC controls are within the established limits

Semi-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 GRP Letter of Instruction. See pages 2-32 through 2-38 for QC details. Analytical Notes:

- Sample results are moisture corrected and reported on a dry weight basis.
- Pentachlorophenol – laboratory control sample recovery was below established laboratory limits. Matrix spike duplicate recoveries are below established limits. Sample result was J (estimate) flagged.
- N-Nitrosodi-n-dipropylamine – The matrix spike duplicate exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.
- Di-n-butylphthalate – Sample result J flagged; the target compound indicates that it was found at a concentration below that of the lowest calibration standard but above the detection limit.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 2-28 for QC details. Analytical Note:

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

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 GRP Letter of Instruction. See pages 2-25 through 2-27 for QC details. Analytical Note:

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

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 the GRP Letter of Instruction. See page 2-22 for QC details. Analytical Note:

- The matrix spike recovery is below established limits. The laboratory control sample is within established limits. The sample result is not flagged.

All QC controls are within the established limits.

Ammonia - 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 GRP Letter of Instruction. See pages 2-31 for QC details. Analytical Notes:

- Matrix spike and matrix spike duplicate were analyzed on sample delivery group 20041487, sample B17N70 for this batch.

- Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

All other QC controls are within the established limits.

pH - All laboratory QC controls were within the established limits.

Percent Solid – Analyzed for organic moisture correction only.

RadChem – There are no hold times associated with these WDOE accredited methods. A Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 2-23, 2-24 and 2-45 through 48 for QC details. Analytical Notes:

- Gross Alpha and Gross Beta – The duplicate Relative Percent Differences exceeded the established limits; sample results were not flagged since the sample had low activity and the RPD criteria does not apply.

- Neptunium-237 – the laboratory control sample recovery was below the established laboratory limits. Duplicate relative percent difference exceeded established laboratory limits. Sample result is X (estimated) flagged.

- Americium-241 – duplicate relative percent difference exceeded established laboratory limits; sample result was not flagged since the sample had low activity and the RPD criterion does not apply.

- Pu-239/240 - duplicate relative percent difference exceeded established laboratory limits; sample result was not flagged since the sample had low activity and the RPD criterion does not apply.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		Am-243	65.0
LCS		Am-243	80.14
B17N57	W040001533	Am-243	78.2
DUPLICATE	W040001533	Am-243	68.8
BLANK		Pu-242	77.3
LCS		Pu-242	71.9
B17N57	W040001533	Pu-242	81.0
DUPLICATE	W040001533	Pu-242	70.7
BLANK		U-232	83.1
LCS		U-232	71.7
B17N57	W040001533	U-232	80.7
DUPLICATE	W040001533	U-232	82.4

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.

Herlene S. Rich
WSCF Production Control

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

0000007

9/22

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-019	Page 1 of 1

Collector Pope/Pfister/Hughes	**Company Contact** Steve Trent **Telephone No.** 373-5869	**Project Coordinator** TRENT, SJ	**Price Code** 8N **Data Turnaround** 45 Days
Project Designation 216-Z-9 Trench Characterization Borehole - Soil	**Sampling Location** 216-Z-9/C3426 - Interval 174'-176.5'	**SAF No.** F03-018	**Air Quality** ☐
Ice Chest No.	**Field Logbook No.** HNF-~~N-9361~~ 361-1 1st 8/14/04 **COA** 119152ES10	**Method of Shipment** Government Vehicle	
Shipped To Waste Sampling & Characterization 20041457	**Offsite Property No.** N/A	**Bill of Lading/Air Bill No.** N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage
RADIOACTIVE TIE TO: B17NN7

Preservation	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None					
Type of Container	aGs*	P	aG	aG	aG	aG					
No. of Container(s)	3	1	1	1	1	1					
Volume	40mL	500mL	60mL	120mL	60mL	60mL					
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	See item (5) in Special Instructions.					
Sample No.	Matrix *	Sample Date	Sample Time								
B17N67	SOIL	8/23/04	1309	X	X	X	X	X	X		
W04000153 3											

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From	Date/Time 14:12 8/23/04	Received By/Stored In	Date/Time 8/23/04 14:12
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** The laboratory is to achieve a detection limit of 5 pCi/g and 10 pCi/g for gross alpha and gross beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

CCC 10/11/04 3-2

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041487**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-Z-9/C3426 – Interval 184'-186.5' Trench Characterization Borehole - Soil GRP sample (B17N70) was received at the WSCF Laboratory on August 25, 2004. The sample was 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

- ICP-MS Metals by EPA Method 200.8. Analytical work was performed with no deviations to the approved method.
- ICP-AES Metals by EPA Method 6010. Analytical work was performed with no deviations to the approved method.
- Anions by EPA Method 300. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. 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.

- Ammonia by EPA Method 300.7. 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.

- Percent Solids by EPA Method 160.3. Analytical work was performed with no deviations to the approved method.

- All RadChem analyses (AEA (Plutonium, Americium, Uranium, Neptunium) GEA, Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Comments

ICP-MS Metals (Uranium and Mercury only) – 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 GRP Letter of Instruction. See page 2-18 through 2-19 for QC details. All GRP sample delivery groups associated with this batch QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See pages 2-37 through 2-42 for QC details. Analytical Notes:

- Sodium – The matrix spike and matrix spike duplicate for sample B190V5 (SDG# 20041417) associated with this batch exceeded established laboratory limits. The sample result was E (estimate) flagged.

- Potassium - The matrix spike duplicate for sample B190V5 (SDG# 20041417) associated with this batch exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.

- Aluminum, Iron, Magnesium and Calcium - the spike concentration was insufficient for the sample concentration.

- Aluminum – the Laboratory Control Sample recovery exceeded established laboratory limits but was within the manufacturer's limits. Sample result was not flagged.

All other QC controls are within the established limits.

Anions - The hold times for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 2-20 through 2-21 for QC details. Analytical Notes:

- Chloride – Sample result was B flagged; result was less than the reporting detection limit, but greater than the method detection limit.

- Sulfate - Duplicate Relative Percent Difference for the batch exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 2-30 through 2-36 for QC details. Analytical Notes:

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

- Pentachlorophenol - laboratory control sample recovery was below established laboratory limits. The sample result was less than the detection limit and not flagged.

- N-Nitrosodi-n-dipropylamine - The matrix spike duplicate for sample B17N67 (SDG# 20041457) associated with this batch exceeded established laboratory limits. All other QC controls were within established limits. Sample result was not flagged.

All other QC controls are within the established limits.

TPHD-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See page 2-26 for QC details. Analytical Note:

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

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 GRP Letter of Instruction. See page(s) 2-22 through 2-24 for QC details. Analytical Notes:

- Styrene – Sample result J flagged; the target compound indicates that it was found at a concentration below that of the lowest calibration standard but above the detection limit.

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

All other 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 the GRP Letter of Instruction. See page 2-27 for QC details. Analytical Note:

- The matrix spike recovery was below established laboratory limits. The matrix spike duplicate was within limits and all other QC controls were within limits. The sample result was not flagged.

All other QC controls are within the established limits.

Ammonia - 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 GRP Letter of Instruction. See page 2-28 for QC details. Analytical Note:

- Duplicate Relative Percent Difference for the batch exceeded established limits. The RPD criterion did not apply since the result was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

All other QC controls are within the established limits.

pH - All laboratory QC controls are within the established limits.

Percent Solids – run for organic analysis moisture correction only.

RadChem – There are no hold times associated with these WDOE accredited methods. A Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 2-25, 2-29, 2-43 through 2-46 for QC details. Analytical Notes:

- Neptunium-237 – The Duplicate Relative Percent Difference is below the established laboratory limit. The RPD criterion is not applicable to sample activity below the detection limit.

- Americium-241 and Plutonium-239-240 – Duplicate Relative Percent Differences are above the established laboratory limits. The sample was in a soil matrix and non-homogeneous. Sample results were not flagged.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery

Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		Pu-242	64.3
LCS		Pu-242	72.6
B17N70	W040001543	Pu-242	77.4
DUPLICATE	W040001543	Pu-242	72.3
BLANK		Am-243	80.1
LCS		Am-243	88.7
B17N70	W040001543	Am-243	70.4

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
DUPLICATE	W040001543	Am-243	89.1
BLANK		U-232	86.1
LCS		U-232	80.1
B17N70	W040001543	U-232	84.3
DUPLICATE	W040001543	U-232	89.2

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.

Herlene S. Rich
WSCF Production Control

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

9/23/04

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-021	Page 1 of 1

Collector Pope/Pfister/Hughes	**Company Contact** Steve Trent **Telephone No.** 373-5869	**Project Coordinator** TRENT, SJ	**Price Code** 8N **Data Turnaround** 45 Days
Project Designation 216-Z-9 Trench Characterization Borehole - Soil	**Sampling Location** 216-Z-9/C3426 - Interval 184'-186.5'	**SAF No.** F03-018	**Air Quality** ☐
Ice Chest No.	**Field Logbook No.** HNF-~~N3361~~ 360-1 4/8/04 **COA** 119152ES10	**Method of Shipment** Government Vehicle	
Shipped To Waste Sampling & Characterization	**Offsite Property No.** N/A	**Bill of Lading/Air Bill No.** N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage
RADIOACTIVE TIE TO: B17NN8

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None						
Type of Container	aGs*	P	aG	aG	aG						
No. of Container(s)	3	1	1	1	1						
Volume	40mL	500mL	60mL	120mL	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	See item (5) in Special Instructions.						

SDG # 20041487

Sample No.	Matrix *	Sample Date	Sample Time										
B17N70 W04000543	SOIL	8/25/04	1135	X	X	X	X	X					

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

Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
[signature] / David Tyler	8/25/04 1300	[signature] / Bobbs	8/25/04 1300
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

** The laboratory is to achieve a detection limit of 5 pCi/g and 10 pCi/g for gross alpha and gross beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA – 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *
S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

Attachment 1
Narrative

Sample Delivery Group	**WSCF20041594**
Sample Matrix	**SOIL**
Sample Visual	**N/A**
SAF Number	**F03-018**
Data Deliverable	**Summary Report**

Introduction

Two (2) 216-Z-9/C3426 – Interval 224'-226.5' Trench Characterization Borehole - Soil GRP samples (B17N73 and B17NL5) were received at the WSCF Laboratory on September 9, 2004. 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 Request for Sample Analysis forms are included as Attachment 3.

Analytical Methodology for Requested Analyses

Inorganic

- Ammonia by EPA Method 300.7. Analytical work was performed with no deviations to the approved method.
- 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-AES Metals by EPA Method 6010. 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

- PCBs by EPA Method 8082. Analytical work was performed with no deviations to the approved method.
- Semi-VOA by EPA Method 8270. Analytical work was performed with no deviations to the approved method.
- TPH Diesel Range by WDOE Method NWTPH-Dx/Gx. Analytical work was performed with no deviations to the approved method.
- VOA by EPA Method 8260A. Analytical work was performed with no deviations to the approved method.

Radiochemistry

- All RadChem analyses (AEA (Plutonium, Americium, Uranium, Neptunium) GEA, Gross Alpha/Beta) were run by internal WDOE accredited WSCF procedures. Analytical work was performed with no deviations to the approved method.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 13 for QC details. Analytical Note:

- The sample results were less than the reporting detection limit, but greater than the method detection limit. The sample results were B flagged.

All QC controls are within the established limits.

Anions - The hold times for this analysis was met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 14 through 15 for QC details. Analytical Note:

- Chloride - The sample results for B17N73 and B17NL5 were less than the reporting detection limit, but greater than the method detection limit. The sample results were B flagged.
- Sulfate - The sample result for B17N73 was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.
- Nitrate - The sample result for B17NL5 was less than the reporting detection limit, but greater than the method detection limit. The sample result was B flagged.

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 the GRP Letter of Instruction. See page 16 for QC details. Analytical Note:

- The Matrix and Matrix Spike Duplicate recoveries were below established laboratory limits. Sample results were below the detection limit and not flagged.

All other QC controls are within the established limits.

ICP-AES Metals – 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 GRP Letter of Instruction. See pages 17 through 21 for QC details. Analytical Notes:

- Potassium – The Matrix Spike exceeded established laboratory limits. All other QC samples were within limits and the sample results were not flagged.

- Sodium – The Matrix Spike, Matrix Spike Duplicate and Relative Percent Difference were above established laboratory limits. Sample results were E (estimate) flagged.

- Silver – The Matrix Spike Duplicate was below established laboratory limits, making the Matrix Spike and Matrix Spike Duplicate Relative Percent Difference above established limits. The Laboratory Control Sample recovery was low. Sample B17N73 result was E (estimate) flagged.

- Phosphorus – The Matrix Spike Duplicate was below established laboratory limits. All other QC samples were within limits and the sample results were not flagged.

- Aluminum – the Laboratory Control Sample recovery exceeded established limits. The recovery was within manufacturer's limits and the sample results were not flagged.

- Iron and Strontium – the Laboratory Control Sample recoveries were above established limits. The recoveries were within manufacturer's limits and the sample results were not flagged.

All other QC controls are within the established limits.

ICP-MS Metals (Mercury and Uranium) – 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 GRP Letter of Instruction. See page 22 for QC details. Analytical Note:

- Mercury – The Laboratory Control Sample recovery exceeded established laboratory limits. All other QC controls were within limits, sample results were not flagged.

All other QC controls are within the established limits.

Percent Solids – analyzed for organic analysis correction only.

pH - The hold time for this analysis was met. All laboratory QC controls are within the established limits.

Organic Comments

- Organic sample results are moisture corrected and reported on dry weight basis.

PCBs – 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 GRP Letter of Instruction. See pages 32 through 33 for QC details. All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 34 through 41 for QC details. Analytical Note:

- Diethylphthalate and Di-n-butylphthalate- sample results were J flagged; results were less than the lowest calibration standard but greater than the detection limit.

All QC controls are within the established limits.

TPHD/G-WA - The hold time for this analysis were met. A Blank, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 42 through 43 for QC details. 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 GRP Letter of Instruction. See pages 44 through 47 for QC details. Analytical Notes:

- A Matrix Spike and Matrix Spike Duplicate were analyzed on sample B191F8 (SDG#20041555, SAF#F03-025). All recoveries were within established laboratory limits.

- Toluene – Laboratory Control Sample Recovery was above established limits due to column carry over from sample W04DC00159. All other QC controls were within limits and the sample results were not flagged.

All other QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with these WDOE accredited methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 48 through 56 for QC details. Analytical Note:

- Americium-241 - The Duplicate Relative Percent Difference exceeded the established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

- Europium-155, Gross Alpha, Gross Beta and Plutonium-239/240 - The Duplicate Relative Percent Difference exceeded established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

- Neptunium-137 - The Duplicate Relative Percent Difference and Laboratory Control Sample recovery exceeded established limits. The sample results were under the detection limit and not flagged. Sample results should be considered suspect.

- Gross Alpha and Gross Beta - The Duplicate Relative Percent Difference exceeded the established laboratory limits. The RPD criterion does not apply for low level sample activity with greater than 25% counting error.

All other QC controls are within the established limits.

Radiochemical Tracer Percent Recovery

Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
BLANK		U-232	74.6
LCS		U-232	73.2
B1B625	W040001577	U-232	79.1
DUPLICATE	W040001577	U-232	90.1
B07N73	W040001610	U-232	82.2
B17NL5	W040001612	U-232	88.3
BLANK		Sr-85	90.0
LCS		Sr-85	86.9
B1B625	W040001577	Sr-85	101.7
DUPLICATE	W040001577	Sr-85	89.5
BLANK		Pu-242	75.6
LCS		Pu-242	79.3
B1B625	W040001577	Pu-242	74.0

Radiochemical Tracer Percent Recovery			
Sample Number	Lab Sample ID	Isotope	Tracer Recovery (Percent)
DUPLICATE	W040001577	Pu-242	78.6
B07N73	W040001610	Pu-242	71.7
B17NL5	W040001612	Pu-242	86.2
BLANK		Am-243	89.6
LCS		Am-243	68.7
B1B625	W040001577	Am-243	84.2
DUPLICATE	W040001577	Am-243	77.4
B07N73	W040001610	Am-243	79.0
B17NL5	W040001612	Am-243	83.3

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.

Herlene S. Rich
WSCF Production Control

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

10/7

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-023	Page 1 of 1
Collector: Pope/Pfister/Hughes	Company Contact: Steve Trent; Telephone No.: 373-5869	Project Coordinator: TRENT, SJ	Price Code: 8N; Air Quality ☐; Data Turnaround: 45 Days
Project Designation: 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location: 216-Z-9/C3426 - Interval 224'-226.5'	SAF No.: F03-018	
Ice Chest No.	Field Logbook No.: HNF-N-~~3361~~ 361-1 4/8/04; COA: 119152ES10	Method of Shipment: Government Vehicle	
Shipped To: Waste Sampling & Characterization	Offsite Property No.: N/A	Bill of Lading/Air Bill No.: N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NN9

20041594

Preservation	Cool 4C	None	Cool 4C	Cool 4C	None						
Type of Container	aGs*	P	aG	aG	aG						
No. of Container(s)	3	1	1	1	1						
Volume	40mL	500mL	60mL	120mL	60mL						
SAMPLE ANALYSIS	See item (1) in Special Instructions.	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										
B17N73	SOIL	9/9/04	0820	X	X	X	X	X					
W04000160													

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From: Dana Wikoy Wanning	Date/Time: 9/9/04 1005	Received By/Stored In: [signature]	Date/Time: 9/9/04 1005
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

The lab is to achieve a detection limit of 5 pCi/g & 10 pCi/g for gross alpha and beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}

(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237

(3) Semi-VOA - 8270A (TCL); Semi-VOA -- 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}

(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}

(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *

S=Soil
SE=Sediment
SO=Solid
SL=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

FLUOR Hanford Inc.	CENTRAL PLATEAU CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST	F03-018-026	Page 1 of 1
Collector Pope/Pfister/Hughes	Company Contact Steve Trent Telephone No. 373-5869	Project Coordinator TRENT, SJ	Price Code 8N Air Quality ☐
Project Designation 216-Z-9 Trench Characterization Borehole - Soil	Sampling Location 216-Z-9/C3426 - Interval 228.5'-233'	SAF No. F03-018	Data Turnaround 45 Days
Ice Chest No.	Field Logbook No. ASC 4/19/04 HNF-N-~~9361~~ 361-1 COA 117506ES10	Method of Shipment Government Vehicle	
Shipped To Waste Sampling & Characterization	Offsite Property No. N/A	Bill of Lading/Air Bill No. N/A	

POSSIBLE SAMPLE HAZARDS/REMARKS

Special Handling and/or Storage

RADIOACTIVE TIE TO: B17NP0

Preservation	Cool 4C	None	Cool 4C	Cool 4C	Cool 4C	None				
Type of Container	aGs*	P	aG	aG	aG	aG				
No. of Container(s)	3	1	1	1	1	1				
Volume	40mL	500mL	60mL	120mL	60mL	60mL				
SAMPLE ANALYSIS	See item (1) in Special Instructions.	See item (2) in Special Instructions.	See item (3) in Special Instructions.	See item (4) in Special Instructions.	PCBs - 8082	See item (5) in Special Instructions.				

Sample No.	Matrix *	Sample Date	Sample Time										
B17NL5	SOIL	9/9/04	0858	X	X	X	X	X	X				
WO4000161Z													

CHAIN OF POSSESSION		Sign/Print Names	
Relinquished By/Removed From R. Pfister 44 Pfister	Date/Time 9/9/04 1000	Received By/Stored In [illegible]	Date/Time 9/9/04 1000
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time
Relinquished By/Removed From	Date/Time	Received By/Stored In	Date/Time

SPECIAL INSTRUCTIONS

The lab is to achieve a detection limit of 5 pCi/g & 10 pCi/g for gross alpha and beta, respectively. The laboratory is to report kerosene range organics from the WTPH-D analysis.

(1) VOA - 8260A (TCL); VOA - 8260A (Add-On) {1-Butanol, Acetonitrile, cis-1,2-Dichloroethylene, Hexane, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2) Gross Alpha; Gross Beta; Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155}; Gamma Spec - Add-on {Antimony-125, Cesium-134}; Americium-241; Isotopic Plutonium; Isotopic Uranium; Neptunium-237
(3) Semi-VOA - 8270A (TCL); Semi-VOA – 8270A (Add-On) {1,2,4-Trimethylbenzene, Cyclohexanone, Tributyl phosphate}; TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(4) ICP Metals - 6010A (TAL); ICP Metals - 6010A (Add-on) {Arsenic, Beryllium, Bismuth, Lead, Lithium, Phosphorus, Selenium, Strontium}; ICP/MS - 200.8 (Add-on) {Mercury, Uranium}
(5) IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate}; Cations (IC) - 300.7 {Nitrogen in ammonium}; Total Cyanide - 9010; pH (Soil) - 9045

Matrix *

S=Soil
SE=Sediment
SO=Solid
SI=Sludge
W = Water
O=Oil
A=Air
DS=Drum Solids
DL=Drum Liquids
T=Tissue
WI=Wipe
L=Liquid
V=Vegetation
X=Other

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

A-6003-618(03/03)

Attachment 1
Narrative

Sample Delivery Group	**WSCF20051337**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F05-023**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-A-8 Crib Characterization Borehole sample/I-7 (B1D994) was received at the WSCF Laboratory on June 29, 2005. The sample was 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

Refer to *WSCF Method References Report,* pages 45 through 46, for a complete listing of approved analytical methods.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 11 for QC details. Analytical Notes:

- Sample B1D994 result was B-flagged; the analyte was less than the reportable detection limit, but greater than or equal to the method detection limit.
- Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. RPD criterion not applicable to low level sample.

All other QC controls are within the established limits.

Anions - The hold times for this analysis were met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 12 through 13 for QC details. Analytical Note:

- Preparation Date: 07-jul-2005.

All QC controls are within the established limits.

ICP-AES Metals (Bismuth and Phosphorus) – 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 GRP Letter of Instruction. See page 14 for QC details. Analytical Notes:

- Preparation Date: 18-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D7D0 (SDG# 20051234, F05-023).
- Phosphorus: insufficient spike concentration. Sample concentration was greater than four times the spike concentration.
- Bismuth: The analyte detected in the associated preparation Blank sample was evaluated and there was no significant effect on the sample result.

All other 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 GRP Letter of Instruction. See pages 15 through 17 for QC details. Analytical Notes:

- Preparation Date: 06-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D993 (SDG# 20051319, SAF# F05-023).

All QC controls are within the established limits.

Percent Solids – analyzed for organic moisture correction.

pH - See page 18 for QC details.

Organic Comments

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

PCBs – 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 GRP Letter of Instruction. See pages 24 through 25 for QC details. Analytical Note:

- Preparation Date: 08-jul-2005.

All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 26 through 31 for QC details. Analytical Note:

- Preparation Date: 08-jul-2005.

TPHD-WA - 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 GRP Letter of Instruction. See page 32 for QC details. Analytical Note:

- Preparation Date: 08-jul-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 GRP Letter of Instruction. See pages 33 through 36 for QC details. Analytical Note:

- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).

All QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with WSCF's radiochemical methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 38 through 42 for QC details. Analytical Notes:

- GEA – Duplicate QC sample was analyzed on sample# B1DCK1 (SDG# 20051304, F05-026).

- Americium-241, Plutonium-238, Plutonium-239/240, Uranium-233/234, Uranium-235 and Uranium-238 – Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).

- Uranium-235 and Uranium-238– Duplicate Relative Percent Difference (RPD) was above established limits due to batch sample and duplicate were not homogeneous.

All other QC controls are within the established limits.

Plutonium-242, Americium-243 and Uranium-232 – Radiochemical Tracer Recovery Data are summarized below:

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
Americium-243			
BLANK		Am-243	90.1%

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
LCS		Am-243	99.6%
B1D992	W050001997	Am-243	90.7%
DUPLICATE	W050001997	Am-243	88.3%
B1D994	W050002028	Am-243	91.7%
Plutonium-242			
BLANK		Pu-242	81.9%
LCS		Pu-242	89.4%
B1D992	W050001997	Pu-242	78.6%
DUPLICATE	W050001997	Pu-242	83.9%
B1D994	W050002028	Pu-242	89.5%
Strontium-85			
BLANK		Sr-85	89.6%
LCS		Sr-85	94.1%
B1D994	W050002028	Sr-85	87.0%
DUPLICATE	W050002028	Sr-85	95.7%
Uranium-232			
BLANK		U-232	64.1%
LCS		U-232	71.3%
B1D992	W050001997	U-232	92.1%
DUPLICATE	W050001997	U-232	75.6%
B1D994	W050002028	U-232	82.0%

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

F05-023-027

COLLECTOR Pope/Pfister/Mokler/Weis/Tyra 7/25	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ
PRICE CODE 8N	**DATA TURNAROUND** 45 Days / ~~45 Days~~ 4/29/5		
SAMPLING LOCATION 216-A-8, I-7	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole	**SAF NO.** F05-023	**AIR QUALITY** ☐
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 119152ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**

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

SPECIAL HANDLING AND/OR STORAGE

Z0051357

PRESERVATION			Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None				
TYPE OF CONTAINER			aGs*	aG	G/P	aG	G/P	Square Bottle - Poly				
NO. OF CONTAINER(S)			3	1	1	1	1	1				
VOLUME			40mL	120mL	120mL	120mL	120mL	500mL				
SAMPLE ANALYSIS			SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS				
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**									
B1D994	SOIL	6/29/5	0905	X	X	X	X	X	X			
W05C002028												

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
[signature]	6/29/05 1000	TA FRAZIER [signature]	6/29/05 1000

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

B1D989 IS TIED TO THIS CHAIN

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			F05-023-027	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Mokler/Weis/Tyra	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-5869	**PROJECT COORDINATOR** TRENT, SJ	**PRICE CODE** 8N	**DATA TURNAROUND**
SAMPLING LOCATION 216-A-8, I-7	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole		**SAF NO.** F05-023	**AIR QUALITY** ☐	45 Days
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 119152ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE		
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		

SPECIAL INSTRUCTIONS

P.D.M P.D.Mix 7/5/2005 P.D.M P.D.Mix 7/5/2005

(1)VOA - 8260B (TCL); VOA - 8260B (Add-On) {1-Butanol, 1-Propanol, 2-Pentanone, Acetonitrile, Cyclohexane, Ethanol, Hexane, Tetrahydrofuran, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2)Semi-VOA - 8270A (TCL); Semi-VOA - 8270B (Add-On) {1,2,4-Trimethylbenzene, 2-Butoxyethanol, 2-Naphthylamine, 3+4 Methylphenol (cresol, m+p), Benzyl alcohol, Cyclohexanone, Decane, Pyridine, Tributyl phosphate} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(3)ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Nickel, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8_HG - ICPMS; ICP Metals - 6010B (Add-On) {Bismuth, Phosphorus}
(4)IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate} Cations (IC) - 300.7 {Nitrogen in ammonium} pH - 150.1;
(5)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} ~~Gamma Spec - Add-on {Antimony-125, Cesium-134} Gross Alpha; Gross Beta;~~ Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr;

MAB 6/6/05

A-6003-618(03/03)

Attachment 1
Narrative

Sample Delivery Group	**WSCF20051350**
Sample Matrix	**Soil**
Sample Visual	**N/A**
SAF Number	**F05-023**
Data Deliverable	**Summary Report**

Introduction

One (1) 216-A-8 Crib Characterization Borehole sample/I-8 (B1D995) was received at the WSCF Laboratory on June 30, 2005. The sample was 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

Refer to *WSCF Method References Report,* pages 45 through 46, for a complete listing of approved analytical methods.

Inorganic Comments

Ammonia - 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 GRP Letter of Instruction. See page 11 for QC details. Analytical Notes:

- Duplicate, Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).
- Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. However, all other QC controls are within the established limits.

Anions - The hold times for this analysis were met. A Blank, Duplicate, Laboratory Control Sample, Matrix Spike and Matrix Spiked Duplicate were analyzed with each delivery group per GRP Letter of Instruction. See pages 12 through 13 for QC details. Analytical Notes:

- Preparation Date: 07-jul-2005.
- Duplicate, Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

All QC controls are within the established limits.

ICP-AES Metals (Bismuth and Phosphorus) – 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 GRP Letter of Instruction. See page 14 for QC details. Analytical Notes:

- Preparation Date: 18-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D7D0 (SDG# 20051234, SAF# F05-023).
- Phosphorus: insufficient spike concentration. Sample concentration was greater than four times the spike concentration.
- Bismuth: The analyte detected in the associated preparation Blank sample was evaluated and there was no significant effect on the sample result.

All other 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 GRP Letter of Instruction. See pages 15 through17 for QC details. Analytical Notes:

- Preparation Date: 06-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D993 (SDG# 20051319, SAF# F05-023).

All QC controls are within the established limits.

Percent Solids – analyzed for organic moisture correction.

pH - Duplicate QC sample was analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023). See page 18 for QC details.

Organic Comments

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

PCBs – 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 GRP Letter of Instruction. See pages 24 through 25 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

All QC controls are within the established limits.

Semi-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 GRP Letter of Instruction. See pages 26 through 31 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

TPHD-WA - 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 GRP Letter of Instruction. See page 32 for QC details. Analytical Notes:

- Preparation Date: 08-jul-2005.
- Matrix Spike and Matrix Spike Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).

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 GRP Letter of Instruction. See pages 33 through 35for QC details.

All QC controls are within the established limits.

Radiochemistry Comments

RadChem – There are no hold times associated with WSCF's radiochemical methods. A Blank, Laboratory Control Sample and Duplicate were analyzed with each delivery group per the GRP Letter of Instruction. See pages 37 through 41 for QC details. Analytical Notes:

- Americium-241, Plutonium-238, Plutonium-239/240, Uranium-233/234, Uranium-235 and Uranium-238 – Duplicate QC samples were analyzed on sample# B1D992 (SDG# 20051295, SAF# F05-023).
- Strontium-90 – Duplicate QC samples were analyzed on sample# B1D994 (SDG# 20051337, SAF# F05-023).
- Uranium-235 and Uranium-238– Duplicate Relative Percent Difference (RPD) was above established limits due to batch sample and duplicate were not homogeneous.

All other QC controls are within the established limits.

Americium-243, Plutonium-242, Strontium-85 and Uranium-232 – Radiochemical Tracer Recovery Data are summarized below:

Radiochemical Tracer Percent Recovery			
Sample Number	**Lab Sample ID**	**Isotope**	**Tracer Recovery (Percent)**
Americium-243			
BLANK		Am-243	90.1%
LCS		Am-243	99.6%
B1D992	W050001997	Am-243	90.7%
DUPLICATE	W050001997	Am-243	88.3%
B1D995	W050002036	Am-243	91.7%
Plutonium-242			
BLANK		Pu-242	81.9%
LCS		Pu-242	89.4%
B1D992	W050001997	Pu-242	78.6%
DUPLICATE	W050001997	Pu-242	83.9%
B1D995	W050002036	Pu-242	89.5%
Strontium-85			
BLANK		Sr-85	89.6%
LCS		Sr-85	94.1%
B1D994	W050002028	Sr-85	87.0%
DUPLICATE	W050002028	Sr-85	95.7%
B1D995	W050002036	Sr-85	92.6%
Uranium-232			
BLANK		U-232	64.1%
LCS		U-232	71.3%
B1D992	W050001997	U-232	92.1%
DUPLICATE	W050001997	U-232	75.6%
B1D995	W050002036	U-232	82.0%

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	F05-023-028	PAGE 1 OF 2

COLLECTOR	COMPANY CONTACT	TELEPHONE NO.	PROJECT COORDINATOR	PRICE CODE 8N	DATA TURNAROUND
Pope/Pfister/Mokler/Weis/Tyra	TRENT, SJ	373-5869	TRENT, SJ		45 Days / ~~45 Days~~ 6/30/05
SAMPLING LOCATION	**PROJECT DESIGNATION**		**SAF NO.**	**AIR QUALITY** ☐	
216-A-8, I-8	216-A-8 Crib Characterization Borehole		F05-023		
ICE CHEST NO.	**FIELD LOGBOOK NO.**	**COA**	**METHOD OF SHIPMENT**		
	HNF-N-336-1	119152ES10	GOVERNMENT VEHICLE		
SHIPPED TO	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**		
Waste Sampling & Characterization					

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

POSSI8LE SAMPLE HAZARDS/ REMARKS

SPECIAL HANDLING AND/OR STORAGE

20051350

PRESERVATION			Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	None			
TYPE OF CONTAINER			aGs*	aG	G/P	aG	G/P	Square Bottle - Poly			
NO. OF CONTAINER(S)			3	1	1	1	1	1			
VOLUME			40mL	120mL	120mL	120mL	120mL	500mL			
SAMPLE ANALYSIS			SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS			
SAMPLE NO.	**MATRIX***	**SAMPLE DATE**	**SAMPLE TIME**								
B1D995	SOIL	6/30/5	0705	X	X	X	X	X	X		
1005 0002036											

CHAIN OF POSSESSION / **SIGN/ PRINT NAMES**

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
J.W. [illegible]	6/30/5 0820	[illegible]	6/30/05 0820

SPECIAL INSTRUCTIONS

SEE PAGE 2 FOR ALL SPECIAL INSTRUCTIONS

TIE TO COC # B1D990

B1D 6/30/05

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		F05-023-028	PAGE 2 OF 2
COLLECTOR Pope/Pfister/Mokler/Weis/Tyra	**COMPANY CONTACT** TRENT, SJ	**TELEPHONE NO.** 373-S869	**PROJECT COORDINATOR** TRENT, SJ	**PRICE CODE** 8N **AIR QUALITY** ☐	**DATA TURNAROUND** **45 Days**
SAMPLING LOCATION 216-A-8, I-8	**PROJECT DESIGNATION** 216-A-8 Crib Characterization Borehole		**SAF NO.** F05-023	
ICE CHEST NO.	**FIELD LOGBOOK NO.** HNF-N-336-1	**COA** 1191S2ES10	**METHOD OF SHIPMENT** GOVERNMENT VEHICLE	
SHIPPED TO Waste Sampling & Characterization	**OFFSITE PROPERTY NO.**		**BILL OF LADING/AIR BILL NO.**	

SPECIAL INSTRUCTIONS

(1)VOA - 8260B (TCL); VOA - 8260B (Add-On) {1-Butanol, 1-Propanol, 2-Pentanone, Acetonitrile, Cyclohexane, Ethanol, Hexane, Tetrahydrofuran, Trichloromonofluoromethane, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
(2)Semi-VOA - 8270A (TCL); Semi-VOA - 8270B (Add-On) {1,2,4-Trimethylbenzene, 2-Butoxyethanol, 2-Naphthylamine, 3+4 Methylphenol (cresol, m+p), Benzyl alcohol, Cyclohexanone, Decane, Pyridine, Tributyl phosphate} TPH-Diesel Range - WTPH-D {Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range}
(3)ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Nickel, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8 HG - ICPMS; ICP Metals - 6010B (Add-On) {Bismuth, Phosphorus}
(4)IC Anions - 300.0 {Chloride, Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorous in phosphate, Sulfate} Cations (IC) - 300.7 {Nitrogen in ammonium} pH - 150.1;
(5)Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} ~~Gamma Spec - Add-on {Antimony-125, Cesium-134} Gross Alpha; Gross Beta~~; Isotopic Plutonium; Isotopic Uranium; Americium-241; Strontium-89,90 -- Total Sr;

MAB 6/6/05

A-6003-618(03/03)

Appendix 5

Data Validation Supporting Documentation

APPENDIX A

RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: CPP 200 Area, D&D-200 Area			DATA PACKAGE: VSR10-011		
VALIDATOR: Carl Schloesslin		LAB: WSCF		DATE: 3-12-2010	
SDG: WSCF2005-1337 & -1350			SDG: WSCF2004-1457, -1487 & -1594		
ANALYSES PERFORMED					
Gross Alpha/Beta X	Strontium-90	Technetium-99	Alpha Spectroscopy X	Gamma Spectroscopy X	
Total Uranium	Radium-22	Tritium	Carbon-14		

SAMPLES/MATRIX Soil samples

SDG WSCF20041457: B17N67
SDG WSCF20041487: B17N70
SDG WSCF20041594: B17N73 & B17NL5
SDG WSCF20051337: B1D994
SDG WSCF20051350: B1D995

1. Completeness ..... ☐ N/A

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

Comments:

Technical verification documentation present for SDG WSCF20041457 only.

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

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

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

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

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

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

Comments:

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

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

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

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

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

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

Comments:

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

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

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

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

Comments:

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

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

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

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

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

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

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

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

Comments:

WSCF20041457 MB detects (pCi/g): Gross beta (0.32), Am-241 (0.026), Pu-239 (0.015), U-238 (0.031)
No MB data provided for Pu-238, U-233/234 & U-235.
WSCF20041487 MB detects (pCi/g): Gross beta (0.24), Am-241 (0.097), Pu-239 (0.014), U-238 (0.012)
No MB data provided for Pu-238, U-233/234 & U-235.
WSCF20041594 MB detects (pCi/g): Pu-239 (0.026), U-238 (0.018)
No MB data provided for Pu-238, U-233/234 & U-235.
WSCF20051337 MB detects (pCi/g): Sr-89/90 (0.56), U-238 (0.007)
WSCF20051350 MB detects (pCi/g): Sr-89/90 (0.56), U-238 (0.007)

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

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

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

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

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

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

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

Comments:

WSCF20041457: Np-237 LCS %R = 64%
WSCF20041594: Np-237 LCS %R = 45%

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

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

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

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

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

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

Comments: None

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

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

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

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

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

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

Comments:
WSCF2004-1457, -1487 & -1594: No tracer used for Np-237 analysis and no MS performed.

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

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

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

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

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

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

Comments: None

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

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

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

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

Comments:

WSCF2004-1457, -1487 & -1594: No lab duplicate data provided for Pu-238, U-233/234 & U-235.

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

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

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

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

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

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

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

Comments: None

12. Holding Times (All levels)

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

Comments: None

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

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

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

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

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

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

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

Comments: None

Appendix 6

Additional Documentation Requested By Client

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: Gross Alpha/Gross Beta (AB32)

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

Lab ID: W040001533

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Gross alpha	12587-46-1	3.1	38.462	RPD	09/02/04	0.000	20.000	*
DUP	Gross beta	12587-47-2	1.4	40.000	RPD	09/02/04	0.000	20.000	*

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Gross alpha	12587-46-1	-6.1e-02	-0.061	pCi/g	09/02/04	-10.000	10.000	
BLANK	Gross beta	12587-47-2	3.2e-01	0.320	pCi/g	09/02/04	-10.000	10.000	
LCS	Gross alpha	12587-46-1	7.9	108.666	%rec	09/02/04	75.000	125.000	
LCS	Gross beta	12587-47-2	20.3	99.510	%rec	09/02/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: Gamma Energy Analysis-grd H2O

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

Lab ID: W040001533

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Cobalt-60	10198-40-0	U-2.11e-3	n/a	RPD	09/01/04	0.000	20.000	
DUP	Cesium-134	13967-70-9	U1.74e-02	n/a	RPD	09/01/04	0.000	20.000	
DUP	Cesium-137	10045-97-3	U3.84e-03	n/a	RPD	09/01/04	0.000	20.000	
DUP	Europium-152	14683-23-9	U-1.37e-2	n/a	RPD	09/01/04	0.000	20.000	
DUP	Europium-154	15585-10-1	U-1.19e-2	n/a	RPD	09/01/04	0.000	20.000	
DUP	Europium-155	14391-16-3	U1.21e-02	n/a	RPD	09/01/04	0.000	20.000	
DUP	Antimony-125	14234-35-6	U-4.35e-3	n/a	RPD	09/01/04	0.000	20.000	

BATCH QC

BLANK	Cobalt-60	10198-40-0	U-3.1e-4	n/a	pCi/g	09/01/04	-10.000	1000.000	
BLANK	Cesium-134	13967-70-9	U-2.7e-4	n/a	pCi/g	09/01/04	-10.000	1000.000	
BLANK	Cesium-137	10045-97-3	U-1.8e-3	n/a	pCi/g	09/01/04	-10.000	1000.000	
BLANK	Europium-152	14683-23-9	U-1.9e-3	n/a	pCi/g	09/01/04	-10.000	1000.000	
BLANK	Europium-154	15585-10-1	U9.18e-4	n/a	pCi/g	09/01/04	-10.000	1000.000	
BLANK	Europium-155	14391-16-3	U3.21e-3	n/a	pCi/g	09/01/04	-10.000	1000.000	
BLANK	Antimony-125	14234-35-6	U-2.0e-3	n/a	pCi/g	09/01/04	-10.000	1000.000	
LCS	Cobalt-60	10198-40-0	3.78e+03	90.215	% Recov	09/01/04	80.000	120.000	
LCS	Cesium-137	10045-97-3	3.72e+03	103.911	% Recov	09/01/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: Americium by AEA

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001533									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Americium-241	14596-10-2	8.3e-02	74.380	RPD	09/23/04	0.000	20.000	*
BATCH QC									
BLANK	Americium-241	14596-10-2	2.6e-02	0.026	pCi/g	09/23/04	-10.000	1000.000	
LCS	Americium-241	14596-10-2	13.93	105.932	% Recov	09/23/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: Plutonium Isotopics by AEA

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001533									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Pu-239/240 by AEA	PU-239/240	3.4e-02	156.955	RPD	09/23/04	0.000	20.000	*
BATCH QC									
BLANK	Pu-239/240 by AEA	PU-239/240	1.5e-02	0.015	pCi/g	09/23/04	-10.000	1000.000	
LCS	Pu-239/240 by AEA	PU-239/240	12.91	104.959	% Recov	09/23/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: Uranium Isotopics by AEA

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

Lab ID: W040001533

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Uranium-238	U-238	1.4e-01	0.000	RPD	09/23/04	0.000	20.000	

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Uranium-238	24678-82-8	3.1e-02	0.031	pCi/g	09/23/04	-10.000	1000.000	
LCS	Uranium-238	24678-82-8	19.54	103.086	% Recov	09/23/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041457
Matrix: SOLID
Test: Neptunium by AEA

SAF Number: F03-018
Sample Date: 08/23/04
Receive Date:08/23/04

Lab ID: W040001533

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Neptunium-237	13994-20-2	-3.3e-03	976.471	RPD	09/23/04	0.000	25.000	*

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Neptunium-237	13994-20-2	U1.5e-03	n/a	pCi/g	09/23/04	-10.000	1000.000	
LCS	Neptunium-237	13994-20-2	64.2	64.200	% Recov	09/23/04	75.000	125.000	*

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: Gross Alpha/Gross Beta (AB32)

SAF Number: F03-018
Sample Date: 08/25/04
Receive Date:08/25/04

Lab ID: W040001543

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Gross alpha	12587-46-1	2.4	13.333	RPD	09/03/04	0.000	20.000	
DUP	Gross beta	12587-47-2	9.1e-01	9.424	RPD	09/03/04	0.000	20.000	

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Gross alpha	12587-46-1	-6.9e-02	-0.069	pCi/g	09/03/04	-10.000	10.000	
BLANK	Gross beta	12587-47-2	2.4e-01	0.240	pCi/g	09/03/04	-10.000	10.000	
LCS	Gross alpha	12587-46-1	6.9	95.436	%rec	09/03/04	75.000	125.000	
LCS	Gross beta	12587-47-2	19.3	94.608	%rec	09/03/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: Gamma Energy Analysis-grd H2O

SAF Number: F03-018
Sample Date: 08/25/04
Receive Date:08/25/04

Lab ID: W040001543

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Cobalt-60	10198-40-0	U-2.65e-3	n/a	RPD	09/07/04	0.000	20.000	
DUP	Cesium-134	13967-70-9	U3.74e-02	n/a	RPD	09/07/04	0.000	20.000	
DUP	Cesium-137	10045-97-3	4.40e-02	7.018	RPD	09/07/04	0.000	20.000	
DUP	Europium-152	14683-23-9	U1.01e-02	n/a	RPD	09/07/04	0.000	20.000	
DUP	Europium-154	15585-10-1	U-2.05e-2	n/a	RPD	09/07/04	0.000	20.000	
DUP	Europium-155	14391-16-3	U6.95e-03	n/a	RPD	09/07/04	0.000	20.000	
DUP	Antimony-125	14234-35-6	U-1.08e-2	n/a	RPD	09/07/04	0.000	20.000	

BATCH QC

BLANK	Cobalt-60	10198-40-0	U-3.1e-4	n/a	pCi/g	09/07/04	-10.000	1000.000	
BLANK	Cesium-134	13967-70-9	U-2.7e-4	n/a	pCi/g	09/07/04	-10.000	1000.000	
BLANK	Cesium-137	10045-97-3	U-1.8e-3	n/a	pCi/g	09/07/04	-10.000	1000.000	
BLANK	Europium-152	14683-23-9	U-1.9e-3	n/a	pCi/g	09/07/04	-10.000	1000.000	
BLANK	Europium-154	15585-10-1	U9.18e-4	n/a	pCi/g	09/07/04	-10.000	1000.000	
BLANK	Europium-155	14391-16-3	U3.21e-3	n/a	pCi/g	09/07/04	-10.000	1000.000	
BLANK	Antimony-125	14234-35-6	U-2.0e-3	n/a	pCi/g	09/07/04	-10.000	1000.000	
LCS	Cobalt-60	10198-40-0	4.32e+03	103.103	% Recov	09/07/04	80.000	120.000	
LCS	Cesium-137	10045-97-3	3.76e+03	105.028	% Recov	09/07/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: Uranium Isotopics by AEA

SAF Number: F03-018
Sample Date: 08/25/04
Receive Date:08/25/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001543									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Uranium-238	U-238	8.8e-02	6.593	RPD	09/23/04	0.000	20.000	
BATCH QC									
BLANK	Uranium-238	24678-82-8	1.2e-02	0.012	pCi/g	09/23/04	-10.000	1000.000	
LCS	Uranium-238	24678-82-8	1.9e+01	100.237	% Recov	09/23/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: Neptunium by AEA

SAF Number: F03-018
Sample Date: 08/25/04
Receive Date:08/25/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001543									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Neptunium-237	13994-20-2	-3.1e-3	-6.250	RPD	09/23/04	0.000	25.000	*
BATCH QC									
BLANK	Neptunium-237	13994-20-2	0.0e+00	0.000	pCi/g	09/23/04	-10.000	1000.000	
LCS	Neptunium-237	13994-20-2	8.5e+01	85.000	% Recov	09/26/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: Plutonium Isotopics by AEA

SAF Number: F03-018
Sample Date: 08/25/04
Receive Date:08/25/04

Lab ID: W040001543

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Pu-239/240 by AEA	PU-239/240	1.4e-02	72.727	RPD	09/26/04	0.000	20.000	*

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Pu-239/240 by AEA	PU-239/240	1.4e-02	0.014	pCi/g	09/26/04	-10.000	1000.000	
LCS	Pu-239/240 by AEA	PU-239/240	12.22	99.350	% Recov	09/26/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041487
Matrix: SOLID
Test: Americium by AEA

SAF Number: F03-018
Sample Date: 08/25/04
Receive Date:08/25/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001543									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Americium-241	14596-10-2	1.1e-01	48.276	RPD	09/26/04	0.000	20.000	*
BATCH QC									
BLANK	Americium-241	14596-10-2	9.7e-02	0.097	pCi/g	09/26/04	-10.000	1000.000	
LCS	Americium-241	14596-10-2	12.57	95.589	% Recov	09/26/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: Americium by AEA

SAF Number: F03-018
Sample Date: 09/07/04
Receive Date:09/07/04

Lab ID: W040001577

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Americium-241	14596-10-2	-1.5e-02	2200.000	RPD	10/04/04	0.000	20.000	*

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Americium-241	14596-10-2	-4.0e-03	-0.004	pCi/g	10/04/04	-10.000	1000.000	
LCS	Americium-241	14596-10-2	11.58	96.259	% Recov	10/04/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: Gamma Energy Analysis-grd H2O

SAF Number: F03-018
Sample Date: 09/09/04
Receive Date:09/09/04

Lab ID: W040001610

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Cobalt-60	10198-40-0	U-2.63e-3	n/a	RPD	09/22/04	0.000	20.000	
DUP	Cesium-134	13967-70-9	U3.33e-2	n/a	RPD	09/22/04	0.000	20.000	
DUP	Cesium-137	10045-97-3	U-8.80e-4	n/a	RPD	09/22/04	0.000	20.000	
DUP	Europium-152	14683-23-9	U-1.56e-2	n/a	RPD	09/22/04	0.000	20.000	
DUP	Europium-154	15585-10-1	U-2.11e-2	n/a	RPD	09/22/04	0.000	20.000	
DUP	Europium-155	14391-16-3	3.71e-02	57.854	RPD	09/22/04	0.000	20.000	*
DUP	Antimony-125	14234-35-6	U-1.80e-4	n/a	RPD	09/22/04	0.000	20.000	

BATCH QC

BLANK	Cobalt-60	10198-40-0	U5.40e-4	n/a	pCi/g	09/26/04	-10.000	1000.000	
BLANK	Cesium-134	13967-70-9	U1.83e-3	n/a	pCi/g	09/26/04	-10.000	1000.000	
BLANK	Cesium-137	10045-97-3	U1.95e-3	n/a	pCi/g	09/26/04	-10.000	1000.000	
BLANK	Europium-152	14683-23-9	U-4.6e-3	n/a	pCi/g	09/26/04	-10.000	1000.000	
BLANK	Europium-154	15585-10-1	U-6.8e-4	n/a	pCi/g	09/26/04	-10.000	1000.000	
BLANK	Europium-155	14391-16-3	U-8.1e-3	n/a	pCi/g	09/26/04	-10.000	1000.000	
BLANK	Antimony-125	14234-35-6	U-4.3e-3	n/a	pCi/g	09/26/04	-10.000	1000.000	
LCS	Cobalt-60	10198-40-0	4.35e+03	103.819	% Recov	09/26/04	80.000	120.000	
LCS	Cesium-137	10045-97-3	3.88e+03	108.380	% Recov	09/26/04	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: Gross Alpha/Gross Beta (AB32)

SAF Number: F03-018
Sample Date: 09/09/04
Receive Date:09/09/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001610									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Gross alpha	12587-46-1	2.0	26.087	RPD	09/26/04	0.000	20.000	*
DUP	Gross beta	12587-47-2	4.2e-01	40.000	RPD	09/26/04	0.000	20.000	*
BATCH QC									
BLANK	Gross alpha	12587-46-1	6.0e-04	0.001	pCi/g	09/26/04	-10.000	10.000	
BLANK	Gross beta	12587-47-2	3.0e-02	0.030	pCi/g	09/26/04	-10.000	10.000	
LCS	Gross alpha	12587-46-1	7.1	97.662	%rec	09/26/04	75.000	125.000	
LCS	Gross beta	12587-47-2	19.4	95.098	%rec	09/26/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: Neptunium by AEA

SAF Number: F03-018
Sample Date: 09/09/04
Receive Date:09/09/04

Lab ID: W040001610

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Neptunium-237	13994-20-2	-8.9e-04	7320.000	RPD	10/11/04	0.000	25.000	*

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Neptunium-237	13994-20-2	-7.0e-04	-0.001	pCi/g	10/11/04	-10.000	1000.000	
LCS	Neptunium-237	13994-20-2	44.8	44.800	% Recov	10/11/04	75.000	125.000	*

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: Plutonium Isotopics by AEA

SAF Number: F03-018
Sample Date: 09/07/04
Receive Date:09/07/04

Lab ID: W040001577

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Pu-239/240 by AEA	PU-239/240	1.2e-02	280.000	RPD	10/04/04	0.000	20.000	*

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Pu-239/240 by AEA	PU-239/240	2.6e-02	0.026	pCi/g	10/04/04	-10.000	1000.000	
LCS	Pu-239/240 by AEA	PU-239/240	11.6	94.309	% Recov	10/04/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20041594
Matrix: SOLID
Test: Uranium Isotopics by AEA

SAF Number: F03-018
Sample Date: 09/07/04
Receive Date:09/07/04

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W040001577									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Uranium-238	U-238	9.4e-02	15.686	RPD	10/03/04	0.000	20.000	
BATCH QC									
BLANK	Uranium-238	24678-82-8	1.8e-02	0.018	pCi/g	10/03/04	-10.000	1000.000	
LCS	Uranium-238	24678-82-8	2.2e+01	116.064	% Recov	10/03/04	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: Gamma Energy Analysis-grd H2O

SAF Number: F05-023
Sample Date: 06/24/05
Receive Date:06/24/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050002009									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Cesium-137	10045-97-3	U2.13e-04	n/a	RPD	07/06/05	0.000	20.000	
BATCH QC									
BLANK	Cobalt-60	10198-40-0	U-1.3e-3	n/a	pCi/g	07/06/05	-10.000	1000.000	
BLANK	Cesium-137	10045-97-3	U-1.4e-3	n/a	pCi/g	07/06/05	-10.000	1000.000	
BLANK	Europium-152	14683-23-9	U8.85e-4	n/a	pCi/g	07/06/05	-10.000	1000.000	
BLANK	Europium-154	15585-10-1	U-4.0e-3	n/a	pCi/g	07/06/05	-10.000	1000.000	
BLANK	Europium-155	14391-16-3	U-1.4e-2	n/a	pCi/g	07/06/05	-10.000	1000.000	
LCS	Cobalt-60	10198-40-0	4.44e+03	105.967	% Recov	07/05/05	80.000	120.000	
LCS	Cesium-137	10045-97-3	3.91e+03	109.218	% Recov	07/05/05	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: Americium by AEA

SAF Number: F05-023
Sample Date: 06/23/05
Receive Date:06/23/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050001997									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Americium-241	14596-10-2	U-6.9e-03	n/a	RPD	07/18/05	0.000	20.000	
BATCH QC									
BLANK	Americium-241	14596-10-2	U1.4e-02	n/a	pCi/g	07/18/05	-10.000	1000.000	
LCS	Americium-241	14596-10-2	4.7e+01	105.665	% Recov	07/18/05	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: Plutonium Isotopics by AEA

SAF Number: F05-023
Sample Date: 06/23/05
Receive Date:06/23/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050001997									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Plutonium-238	13981-16-3	U-2.3e-02	n/a	RPD	07/18/05	0.000	20.000	
DUP	Pu-239/240 by AEA	PU-239/240	U1.9E-03	n/a	RPD	07/18/05	0.000	20.000	
BATCH QC									
BLANK	Plutonium-238	13981-16-3	U-1.3e-02	n/a	PCT	07/18/05	0.000	1000.000	
BLANK	Pu-239/240 by AEA	PU-239/240	U5.5e-03	n/a	pCi/g	07/18/05	-10.000	1000.000	
LCS	Pu-239/240 by AEA	PU-239/240	4.8e+01	93.422	% Recov	07/18/05	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: Strontium 89/90

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

Lab ID: W050002028

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Strontium-89/90	SR-RAD	U-7.3E-02	n/a	RPD	07/14/05	0.000	20.000	

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Strontium-89/90	10098-97-2	5.6e-01	0.560	pCi/g	07/14/05	-10.000	300.000	
LCS	Strontium-89/90	10098-97-2	70.7	99.577	% Recov	07/14/05	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051337
Matrix: SOLID
Test: Uranium Isotopics by AEA

SAF Number: F05-023
Sample Date: 06/23/05
Receive Date:06/23/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050001997									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Uranium-233/234	U-233/234	1.2e-01	28.571	RPD	07/18/05	0.000	20.000	*
DUP	Uranium-235	15117-96-1	1.1e-02	n/a	RPD	07/18/05	0.000	20.000	
DUP	Uranium-238	U-238	1.2e-01	22.222	RPD	07/18/05	0.000	20.000	*
BATCH QC									
BLANK	Uranium-233/234	13966-29-5	U1.2e-02	n/a	pCi/g	07/18/05	-10.000	1000.000	
BLANK	Uranium-235	15117-96-1	U7.8e-03	n/a	pCi/g	07/18/05	-10.000	1000.000	
BLANK	Uranium-238	24678-82-8	7.1e-03	0.007	pCi/g	07/18/05	-10.000	1000.000	
LCS	Uranium-238	24678-82-8	3.3e+01	97.059	% Recov	07/18/05	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: Gamma Energy Analysis-grd H2O

SAF Number: F05-023
Sample Date: 06/30/05
Receive Date:06/30/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050002036									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Cobalt-60	10198-40-0	U2.29e-03	n/a	RPD	07/07/05	0.000	20.000	
DUP	Cesium-137	10045-97-3	U1.61e-04	n/a	RPD	07/07/05	0.000	20.000	
DUP	Europium-152	14683-23-9	U-1.93e-3	n/a	RPD	07/07/05	0.000	20.000	
DUP	Europium-154	15585-10-1	U4.09e-03	n/a	RPD	07/07/05	0.000	20.000	
DUP	Europium-155	14391-16-3	U5.69e-03	n/a	RPD	07/07/05	0.000	20.000	
BATCH QC									
BLANK	Cobalt-60	10198-40-0	U-2.4e-3	n/a	pCi/g	07/06/05	-10.000	1000.000	
BLANK	Cesium-137	10045-97-3	U-1.6e-3	n/a	pCi/g	07/06/05	-10.000	1000.000	
BLANK	Europium-152	14683-23-9	U1.66e-3	n/a	pCi/g	07/06/05	-10.000	1000.000	
BLANK	Europium-154	15585-10-1	U-5.8e-3	n/a	pCi/g	07/06/05	-10.000	1000.000	
BLANK	Europium-155	14391-16-3	U-5.9e-3	n/a	pCi/g	07/06/05	-10.000	1000.000	
LCS	Cobalt-60	10198-40-0	4.51e+03	107.637	% Recov	07/05/05	80.000	120.000	
LCS	Cesium-137	10045-97-3	3.91e+03	109.218	% Recov	07/05/05	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: Americium by AEA

SAF Number: F05-023
Sample Date: 06/23/05
Receive Date:06/23/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050001997									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Americium-241	14596-10-2	U-6.9e-03	n/a	RPD	07/18/05	0.000	20.000	
BATCH QC									
BLANK	Americium-241	14596-10-2	U1.4e-02	n/a	pCi/g	07/18/05	-10.000	1000.000	
LCS	Americium-241	14596-10-2	4.7e+01	105.665	% Recov	07/18/05	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: Plutonium Isotopics by AEA

SAF Number: F05-023
Sample Date: 06/23/05
Receive Date:06/23/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050001997									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Plutonium-238	13981-16-3	U-2.3e-02	n/a	RPD	07/18/05	0.000	20.000	
DUP	Pu-239/240 by AEA	PU-239/240	U1.9E-03	n/a	RPD	07/18/05	0.000	20.000	
BATCH QC									
BLANK	Plutonium-238	13981-16-3	U-1.3e-02	n/a	PCT	07/18/05	0.000	1000.000	
BLANK	Pu-239/240 by AEA	PU-239/240	U5.5e-03	n/a	pCi/g	07/18/05	-10.000	1000.000	
LCS	Pu-239/240 by AEA	PU-239/240	4.8e+01	93.422	% Recov	07/18/05	75.000	125.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: Strontium 89/90

SAF Number: F05-023
Sample Date: 06/29/05
Receive Date:06/29/05

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
Lab ID: W050002028									
BATCH QC ASSOCIATED WITH SAMPLE									
DUP	Strontium-89/90	SR-RAD	U-7.3E-02	n/a	RPD	07/14/05	0.000	20.000	
BATCH QC									
BLANK	Strontium-89/90	10098-97-2	5.6e-01	0.560	pCi/g	07/14/05	-10.000	300.000	
LCS	Strontium-89/90	10098-97-2	70.7	99.577	% Recov	07/14/05	80.000	120.000	

WSCF ANALYTICAL LABORATORY QC REPORT

SDG Number: WSCF20051350
Matrix: SOLID
Test: Uranium Isotopics by AEA

SAF Number: F05-023
Sample Date: 06/23/05
Receive Date:06/23/05

Lab ID: W050001997

BATCH QC ASSOCIATED WITH SAMPLE

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
DUP	Uranium-233/234	U-233/234	1.2e-01	28.571	RPD	07/18/05	0.000	20.000	*
DUP	Uraninm-235	15117-96-1	1.1e-02	n/a	RPD	07/18/05	0.000	20.000	
DUP	Uranium-238	U-238	1.2e-01	22.222	RPD	07/18/05	0.000	20.000	*

BATCH QC

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Analysis Date	Lower Limit	Upper Limit	RQ
BLANK	Uranium-233/234	13966-29-5	U1.2e-02	n/a	pCi/g	07/18/05	-10.000	1000.000	
BLANK	Uranium-235	15117-96-1	U7.8e-03	n/a	pCi/g	07/18/05	-10.000	1000.000	
BLANK	Uranium-238	24678-82-8	7.1e-03	0.007	pCi/g	07/18/05	-10.000	1000.000	
LCS	Uranium-238	24678-82-8	3.3e+01	97.059	% Recov	07/18/05	75.000	125.000	