

Data Validation Report for Fluor Hanford

VSR08-002
Project CPP 200 Area

Chemical & Radiochemical Validation - Level C

Validation Performed By: Carl Schroeder Date: 02/05/2008

Validation Reviewed By: Cheryl A. Schroeder Date: 02/05/2008

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Date: 28 January 2008
To: Fluor Hanford Inc. (technical representative)
From: Analytical Quality Associates, Inc.
Project: CPP 200 Area
Subject: Volatile Organics - Sample Data Groups (SDGs) W05171 and WSCF20071485

INTRODUCTION

This memorandum presents the results of data validation for SDG W05171 prepared by STL St. Louis and SDG WSCF20071485 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
B1NRC6	06/27/07	Soil	C	8260B
B1NRC8	06/27/07	Soil	C	8260B
B1NRF6	08/21/07	Soil	C	8260B

Data validation was conducted in accordance with the FHI validation statement of work and the Sampling and Analysis Plan for Supplemental Remedial Investigation Activities at the 216-A-2 Crib and the 216-A-21 Crib, DOE/RL-2006-77, Rev. 0 Reissue (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.

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 matrix spike and laboratory control sample accuracy limits are 70% to 130%. The limits for reported analytes not listed in the SAP are specified by the DV procedure.

Surrogates

All surrogate recoveries were acceptable with the following exception. The 1,2-dichloroethane-d4 recovery for sample B1NRC6 was below the lower acceptance limit but >10%. The class of reported sample results associated with the surrogate were all non-detects and should be qualified as estimates and flagged "UJ." See the table in Appendix 2 for a listing of the all affected sample results.

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

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

For SDG W05171, an MSD was not performed. Due to software limitations, the MS recovery form was not included in the data package. The laboratory narrative stated that the MS recoveries for non-SAP analytes chloroethane and 1,2-dichloropropane were below the lower acceptance limits. The associated results for samples B1NRC6 and B1NRC8 were non-detects and should be qualified as estimates and flagged "UJ." It should be noted that although the MS recoveries for SAP analytes were *apparently* within laboratory-established limits, these analyte recoveries could not be confirmed to be within SAP limits (70% to 130%). No sample data were qualified as a result.

For SDG WSCF20071485, the only MS/MSD analytes reported were 1,1-dichloroethene, benzene, chlorobenzene, toluene and trichloroethene. As a result, 14 SAP analytes for sample B1NRF6 should be qualified as estimates and flagged "UJ." See the table in Appendix 2 for a listing of the all affected sample results. The 18 non-SAP analytes were not qualified for the

lack of MS/MSD data. It should be noted that the MS/MSD were performed on a solid sample from another SDG. No sample data were qualified as a result.

Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD)

All LCS/LCSD recoveries were acceptable with the following exceptions.

For SDG W05171, the LCS recoveries for acetone, carbon disulfide and 1,1-dichloroethene, and the LCS and LCSD recoveries for 2-hexanone were below the lower acceptance limits. The associated results for samples B1NRC6 and B1NRC8 were non-detects and should be qualified as estimates and flagged “UJ.” The LCS recovery for 1,2-dichloroethane was above the upper acceptance limit. The associated sample results were non-detects and should not be qualified.

For SDG WSCF20071485, the only LCS analytes reported were 1,1-dichloroethene, benzene, chlorobenzene, toluene and trichloroethene. As a result, 14 SAP analytes for sample B1NRF6 should be qualified as estimates and flagged “UJ.” See the table in Appendix 2 for a listing of the all affected sample results. The 18 non-SAP analytes were not qualified for the lack of LCS data.

- **Precision**

Precision is evaluated by reviewing LCS/LCSD results, MS/MSD results and field duplicate 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 limits are $\pm 30\%$. The limits for reported analytes not listed in the SAP are specified by the DV procedure.

MS/MSD Samples

All MS/MSD relative percent difference values were acceptable. For SDG W05171, an MSD was not performed. An LCSD was performed instead and used to assess precision for samples B1NRC6 and B1NRC8.

LCS/LCSD Samples (SDG W05171)

All LCS/LCSD relative percent difference values were acceptable with the following exceptions. The relative percent differences for carbon disulfide and 1,1-dichloroethene were above the acceptance limits. The associated results for samples B1NRC6 and B1NRC8 were non-detects and should be qualified as estimated and flagged “UJ.”

Field Duplicate Samples

All field duplicate results were acceptable.

- **Detection Limits**

Reported method detection limits (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 W05171 and WSCF20071485 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%.

It should be noted that for SDG W05171 methanol blank samples B1NRC7 and B1NRC9 did not need to be analyzed for volatile organics since high-level volatile analysis was not necessary.

MAJOR DEFICIENCIES

None found.

MINOR DEFICIENCIES

Minor deficiencies leading to qualification of sample results as estimates were due to surrogate, MS, and LCS/LCSD infractions, and lack of MS/MSD and LCS data. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

FHI, Contract #29774, *Validation of Radiological and Chemical Analytical Data*, Fluor Hanford Incorporated, August 24, 2006.

DOE/RL-2006-77, Rev. 0 Reissue, *Sampling and Analysis Plan for Supplemental Remedial Investigation Activities at the 216-A-2 Crib and the 216-A-21 Crib*, June 2007.

Appendix 1
Glossary of Data Reporting Qualifiers

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

SDGs: W05171 & WSCF20071485	Reviewer: AQA	Project: CPP 200 Area	Page 1 of 2
Analyte(s)	Qualifier	Samples Affected	Reason
trans-1,2-Dichloroethene 1,2-Dichloroethene (total) 1,2-Dichloropropane cis-1,3-Dichloropropene trans-1,3-Dichloropene n-Hexane Methylene chloride 4-Methyl-2-pentanone 1,1,2,2-Tetrachloroethane Tetrachloroethene 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl chloride Acetone Acetonitrile Bromodichloromethane Bromoform Bromomethane 1-Butanol 2-Butanone Carbon Disulfide Carbon Tetrachloride Chloroethane Chloroform Chloromethane Cyclohexanone 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene cis-1,2-Dichloroethene	UJ	B1NRC6	Low surrogate recovery
Acetone 2-Hexanone	UJ	B1NRC6 & B1NRC8	Low LCS recoveries
Carbon Disulfide 1,1-Dichloroethene	UJ	B1NRC6 & B1NRC8	Low LCS recoveries and poor LCS/LCSD precision
Chloroethane 1,2-Dichloropropane	UJ	B1NRC6 & B1NRC8	Low MS recoveries

Volatile Organics Data Qualification Summary			
SDGs: W05171 & WSCF20071485	Reviewer: AQA	Project: CPP 200 Area	Page 2 of 2
Analyte(s)	Qualifier	Samples Affected	Reason
1,1-Dichloroethane Ethylbenzene 1,2-Dichloroethane 4-Methyl-2-pentanone Tetrachloroethene Xylenes (total) Acetone 1,1,1-Trichloroethane Methylene chloride 2-Butanone 1-Butanol n-Butylbenzene trans-1,2-Dichloroethylene cis-1,2-Dichloroethylene	UJ	B1NRF6	Lack of MS/MSD & LCS data

Comments: None

Appendix 3

Annotated Laboratory Reports

Fluor Hanford Inc

Client Sample ID: B1NRC8

GC/MS Volatiles

Lot-Sample #....: F7G110133-003 Work Order #....: J2L262AC Matrix.....: SOLID
 Date Sampled....: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/11/07 Analysis Date...: 07/11/07
 Prep Batch #....: 7193167
 Dilution Factor: 1
 % Moisture.....: 2.2 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING			
		LIMIT	UNITS	MDL	
Acetone	ND UJ	20	ug/kg	3.9	
Acetonitrile	ND	51	ug/kg	2.0	
Benzene	ND	5.1	ug/kg	0.17	
Bromodichloromethane	ND	5.1	ug/kg	0.34	
Bromoform	ND	5.1	ug/kg	0.25	
Bromomethane	ND	10	ug/kg	0.32	
1-Butanol	ND	100	ug/kg	3.5	
2-Butanone	ND	20	ug/kg	1.4	
n-Butylbenzene	ND	5.1	ug/kg	0.54	
Carbon disulfide	ND UJ	5.1	ug/kg	0.56	
Carbon tetrachloride	ND	5.1	ug/kg	0.92	
Chlorobenzene	ND	5.1	ug/kg	0.13	
Dibromochloromethane	ND	5.1	ug/kg	0.29	
Chloroethane	ND UJ	10	ug/kg	0.36	
Chloroform	ND	5.1	ug/kg	0.15	
Chloromethane	ND	10	ug/kg	0.45	
Cyclohexanone	ND	100	ug/kg	14	
1,1-Dichloroethane	ND	5.1	ug/kg	0.97	
1,2-Dichloroethane	ND	5.1	ug/kg	0.45	
1,1-Dichloroethene	ND UJ	5.1	ug/kg	0.56	
cis-1,2-Dichloroethene	ND	5.1	ug/kg	0.44	
trans-1,2-Dichloroethene	ND	5.1	ug/kg	0.23	
1,2-Dichloroethene (total)	ND	10	ug/kg	0.56	
1,2-Dichloropropane	ND UJ	5.1	ug/kg	0.38	
cis-1,3-Dichloropropene	ND	5.1	ug/kg	0.74	
trans-1,3-Dichloropropene	ND	5.1	ug/kg	0.21	
Ethylbenzene	ND	5.1	ug/kg	0.19	
n-Hexane	ND	10	ug/kg	0.46	
2-Hexanone	ND UJ	20	ug/kg	0.29	
Methylene chloride	ND	5.1	ug/kg	2.6	
4-Methyl-2-pentanone	ND	20	ug/kg	1.6	
Styrene	ND	5.1	ug/kg	1.2	
1,1,2,2-Tetrachloroethane	ND	5.1	ug/kg	0.14	
Tetrachloroethene	ND <i>LS</i>	5.1	ug/kg	0.28	
Toluene	ND 01-28-08	5.1	ug/kg	0.13	
1,1,1-Trichloroethane	ND	5.1	ug/kg	0.15	
1,1,2-Trichloroethane	ND	5.1	ug/kg	0.29	

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Fluor Hanford Inc

Client Sample ID: B1NRC8

GC/MS Volatiles

Lot-Sample #....: F7G110133-003 Work Order #....: J2L262AC Matrix.....: SOLID

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
Trichloroethene	ND	5.1	ug/kg	0.37
1,2,4-Trimethylbenzene	ND	5.1	ug/kg	0.22
Vinyl chloride	ND	5.1	ug/kg	0.24
Xylenes (total)	ND	10	ug/kg	0.88

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Toluene-d8	127	(67 - 150)
Dibromofluoromethane	85	(59 - 133)
1,2-Dichloroethane-d4	71	(70 - 132)
4-Bromofluorobenzene	132	(57 - 150)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

Fluor Hanford Inc

B1NRC8

GC/MS Volatiles

Lot-Sample #: F7G110133-003

Work Order #: J2L262AC

Matrix: SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

<u>PARAMETER</u>	<u>CAS #</u>	<u>ESTIMATED RESULT</u>	<u>RETENTION TIME</u>	<u>UNITS</u>
None				ug/kg

Fluor Hanford Inc

Client Sample ID: B1NRC6

GC/MS Volatiles

Lot-Sample #....: F7G110133-004 Work Order #....: J2L3N1AC Matrix.....: SOLID
 Date Sampled....: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/11/07 Analysis Date...: 07/11/07
 Prep Batch #....: 7193167
 Dilution Factor: 1
 % Moisture.....: 2.1 Method.....: SW846 8260B

PARAMETER	RESULT		REPORTING		
			LIMIT	UNITS	MDL
trans-1,2-Dichloroethene	ND	UJ	5.1	ug/kg	0.23
1,2-Dichloroethene (total)	ND	UJ	10	ug/kg	0.55
1,2-Dichloropropane	ND	UJ	5.1	ug/kg	0.38
cis-1,3-Dichloropropene	ND	UJ	5.1	ug/kg	0.74
trans-1,3-Dichloropropene	ND	UJ	5.1	ug/kg	0.21
Ethylbenzene	ND	UJ	5.1	ug/kg	0.19
n-Hexane	ND	UJ	10	ug/kg	0.46
2-Hexanone	ND	UJ	20	ug/kg	0.29
Methylene chloride	ND	UJ	5.1	ug/kg	2.6
4-Methyl-2-pentanone	ND	UJ	20	ug/kg	1.6
Styrene	ND	UJ	5.1	ug/kg	1.2
1,1,2,2-Tetrachloroethane	ND	UJ	5.1	ug/kg	0.14
Tetrachloroethene	ND	UJ	5.1	ug/kg	0.28
Toluene	ND	UJ	5.1	ug/kg	0.13
1,1,1-Trichloroethane	ND	UJ	5.1	ug/kg	0.15
1,1,2-Trichloroethane	ND	UJ	5.1	ug/kg	0.29
Trichloroethene	ND	UJ	5.1	ug/kg	0.37
1,2,4-Trimethylbenzene	ND	UJ	5.1	ug/kg	0.22
Vinyl chloride	ND	UJ	5.1	ug/kg	0.24
Xylenes (total)	ND	UJ	10	ug/kg	0.88
Acetone	ND	UJ	20	ug/kg	3.9
Acetonitrile	ND	UJ	51	ug/kg	2.0
Benzene	ND	UJ	5.1	ug/kg	0.17
Bromodichloromethane	ND	UJ	5.1	ug/kg	0.34
Bromoform	ND	UJ	5.1	ug/kg	0.25
Bromomethane	ND	UJ	10	ug/kg	0.32
1-Butanol	ND	UJ	100	ug/kg	3.5
2-Butanone	ND	UJ	20	ug/kg	1.4
n-Butylbenzene	ND	UJ	5.1	ug/kg	0.54
Carbon disulfide	ND	UJ	5.1	ug/kg	0.56
Carbon tetrachloride	ND	UJ	5.1	ug/kg	0.92
Chlorobenzene	ND	UJ	5.1	ug/kg	0.13
Dibromochloromethane	ND	UJ	5.1	ug/kg	0.29
Chloroethane	ND	UJ	10	ug/kg	0.36
Chloroform	ND	UJ	5.1	ug/kg	0.15
Chloromethane	ND	UJ	10	ug/kg	0.45
Cyclohexanone	ND	UJ	100	ug/kg	14

(Continued on next page)


 01-28-08

Fluor Hanford Inc

Client Sample ID: B1NRC6

GC/MS Volatiles

Lot-Sample #...: F7G110133-004 Work Order #...: J2L3N1AC Matrix.....: SOLID

PARAMETER	RESULT		REPORTING		
			LIMIT	UNITS	MDL
1,1-Dichloroethane	ND	UJ	5.1	ug/kg	0.97
1,2-Dichloroethane	ND	UJ	5.1	ug/kg	0.45
1,1-Dichloroethene	ND	UJ	5.1	ug/kg	0.56
cis-1,2-Dichloroethene	ND	UJ	5.1	ug/kg	0.44
SURROGATE	PERCENT		RECOVERY		
	RECOVERY		LIMITS		
Toluene-d8	125		(67 - 150)		
Dibromofluoromethane	86		(59 - 133)		
1,2-Dichloroethane-d4	69 *		(70 - 132)		
4-Bromofluorobenzene	147		(57 - 150)		

NOTE(S):

* Surrogate recovery is outside stated control limits.

Results and reporting limits have been adjusted for dry weight.

LS
01-28-08

Fluor Hanford Inc

B1NRC6

GC/MS Volatiles

Lot-Sample #: F7G110133-004

Work Order #: J2L3N1AC

Matrix: SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

<u>PARAMETER</u>	<u>CAS #</u>	<u>ESTIMATED RESULT</u>	<u>RETENTION TIME</u>	<u>UNITS</u>
None				ug/kg

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-043
Sample # W07GR02214
Client ID: BINRF6 TREN WSCF
Matrix: SOIL
Group #: WSCF20071485
Department: Organic
Sampled: 08/21/07
Received: 08/21/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
VOA Ground Water Protection											
1,1-Dichloroethene	75-35-4	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
Trichloroethene	79-01-6	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
Benzene	71-43-2	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
Toluene	108-88-3	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
Chlorobenzene	108-90-7	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
1,1-Dichloroethane	75-34-3	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
Ethylbenzene	100-41-4	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
Styrene	100-42-5	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
cis-1,3-Dichloropropene	10061-01-5	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
trans-1,3-Dichloropropene	10061-02-6	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
1,2-Dichloroethane	107-06-2	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
4-Methyl-2-Pentanone	108-10-1	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
Dibromochloromethane	124-48-1	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
Tetrachloroethene	127-18-4	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
Xylenes (total)	1330-20-7	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
1,2-Dichloroethene(Total)	540-59-0	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
Carbon tetrachloride	56-23-5	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
2-Hexanone	591-78-6	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
Acetone	67-64-1	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
Chloroform	67-66-3	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
1,1,1-Trichloroethane	71-55-6	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
Bromomethane	74-83-9	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
Chloromethane	74-87-3	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07
Chloroethane	75-00-3	LA-523-455	U	<	1.00		ug/kg	1.00	1.0		08/29/07

MDL = Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorg) D - Analyte was identified at a secondary dilution factor (inorg)
RQ = Result Qualifier E - Analyte is an estimate, has potentially larger errors.(org) U - Analyzed for but not detected above limiting criteria.(inorg)
TP Err = Total Propagated Error U - Analyzed for but not detected above limiting criteria.(org)
DF = Dilution Factor

• - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols
Report WGPP/ver. 5.2
Groundwater Remediation Program

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-043
Sample # W07GR02214
Client ID: B1NRF6 TREN WSCF
Matrix: SOIL
Group #: WSCF20071485
Department: Organic
Sampled: 08/21/07
Received: 08/21/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Vinyl chloride	75-01-4	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		08/29/07
Methylenechloride	75-09-2	LA-523-455	U	< 1.00	ug/kg	UJ		1.00	1.0		08/29/07
Carbon disulfide	75-15-0	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		08/29/07
Bromoform	75-25-2	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		08/29/07
Bromodichloromethane	75-27-4	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		08/29/07
1,2-Dichloropropane	78-87-5	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		08/29/07
2-Butanone	78-93-3	LA-523-455	U	< 1.00	ug/kg	UJ		1.00	1.0		08/29/07
1,1,2-Trichloroethane	79-00-5	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		08/29/07
1,1,2,2-Tetrachloroethane	79-34-5	LA-523-455	U	< 1.00	ug/kg			1.00	1.0		08/29/07
1-Butanol	71-36-3	LA-523-455	U	< 1.00	ug/kg	UJ		1.00	1.0e+02		08/29/07
n-Butylbenzene	104-51-8	LA-523-455	U	< 1.00	ug/kg	UJ		1.00	1.0		08/29/07
trans-1,2-Dichloroethylene	156-60-5	LA-523-455	U	< 1.00	ug/kg	UJ		1.00	1.0		08/29/07
cis-1,2-Dichloroethylene	156-59-2	LA-523-455	U	< 1.00	ug/kg	UJ		1.00	1.0		08/29/07

MDL = Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorg) D - Analyte was identified at a secondary dilution factor (inorg)
RQ = Result Qualifier E - Analyte is an estimate, has potentially larger errors. (org) U - Analyzed for but not detected above limiting criteria (inorg)
TP Err = Total Propagated Error U - Analyzed for but not detected above limiting criteria. (org)
DF = Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols
 Report WGPP/ver. 5.2
 Groundwater Remediation Program

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Case Narrative
Lot Number: F7G110133
SDG: W05171

This report contains the analytical results for the six samples received under chain of custody by STL St. Louis on July 11, 2007. These samples are associated with your F07-043 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by STL St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Volatiles by SW846 8260B

Batch: 7193167

The CCV recovery was outside the upper QC limit (greater than 20% RSD) for Freon-114 (21.3%), Iodomethane (38.6%), Methyl Acetate (20.7%), trans-1,2-Dichloroethene (22.0%), cis-1,2-Dichloroethane (24.8%) and Bromochloromethane (31.4%) indicating a potential high bias for these analytes in the samples associated with this CCV. These analytes were not detected above the reporting limit in the associated samples or are not target analytes.

The LCS or LCSD recoveries for 1,2-Dichloroethene, Trichloroethene, cis-1,2-Dichloroethene and trans-1,2-Dichloroethene were above the upper QC limit, indicating a potential positive bias. These analytes were not detected above the reporting limit in the associated samples.

The LCS recoveries for 1,1-Dichloroethene, Carbon Disulfide and 2-Hexanone are below the lower QC limit, indicating a potential negative bias. However, the recoveries for these compounds are within the QC limit in the LCSD, indicating an anomaly isolated to the LCS alone. The RPDs for Acetone, 1,1-Dichloroethene and Carbon Disulfide are outside QC limits. The Acetone LCS/LCSD recoveries are acceptable.

The LCS and/or LCSD surrogate recoveries are outside the upper QC limit, indicating a potential high bias in spike compound recoveries.

The sample vial used for the MSD contained the wrong sample matrix (methanol), providing no data for the MSD. A matrix spike and LCS/LCSD were performed to demonstrate matrix accuracy and replicate precision. However, due to software limitations, the matrix spike cannot be reported. Matrix spike recoveries for Chloroethane (30%) and 1,2-Dichloropropane (60%) were below QC limits. All other analytes were within QC limits.

Affected Samples:

F7G110133 (3): B1NRC8

F7G110133 (4): B1NRC6

Batch: 7193167

In the original analysis, the associated sample's surrogate recovery was outside established QC limits. The sample was reprepared/reanalyzed within holding time. The reanalysis yielded acceptable results. Only the reanalysis results are reported.

Affected Samples:

F7G110133 (3): B1NRC8

Batches: 7193167 / 7194216

In the original analysis, the associated sample's internal standard (IS) recovery and Surrogate recovery was outside the lower QC limit. The sample was reprepared and reanalyzed 1 day past holding time (batch 7194216). The reanalysis, with acceptable IS and surrogate recoveries, yielded comparable sample results (non-detect). The original results, performed within hold time, are reported.

Affected Samples:

F7G110133 (4): B1NRC6

Volatile Petroleum Hydrocarbons by SW846 8015

Batch: 7198275

The surrogate recovery in the closing CCAL was outside of the upper acceptance limit. The surrogate recovery for the associated samples is within acceptance limits.

The ICV %D was outside QC limits (15%) for low boiling hydrocarbons (16% low). The associated samples were reprepared and reanalyzed outside of holding time in batch 7199166. The ICV %D for the reanalysis was acceptable. Both the original and reanalysis is reported.

In the original analysis, the MS/MSD was not spiked and is not reported. The MS/MSD is reported from the reanalysis batch.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

Reanalysis Batch: 7199166

The CCAL surrogate recoveries are outside the upper QC limit. The samples associated with the CCAL have surrogate recoveries that were within the established QC limits.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

For the first reanalysis, the associated sample's surrogate recovery was outside established QC limits. The sample was reprepared/reanalyzed within this same analysis batch. The second reanalysis yielded acceptable results. The results of the first reanalysis are reported in hard copy form only since this was the analysis used for the MS/MSD.

Affected Samples:

F7G110133 (1): B1NT07

ICP Metals by SW846 6010B

The associated samples were analyzed at a dilution for Cadmium, Lead and Selenium due to high concentrations of the interfering analyte Iron. The reporting limit has been adjusted only for those targets reported from the dilution run.

Due to an auto sampler error, the CCB after the initial instrument QC was missed. The sequence that followed the initial QC was: CCV, 10 samples, CCV, CCB. All initial instrument QC was within control limits. The ten samples affected were analyzed at the end of sequence.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

Ion Chromatography by SW846 9056A

The CCV recovery was outside the upper QC limit (greater than 110%) for Sulfate in batch 7199053 indicating a potential high bias for this analyte in the samples associated with this CCV. This analyte was not detected above the reporting limit in the associated samples.

The LCSD recovery for Sulfate in batch 7199053 is outside the upper QC limit, indicating a potential positive bias for this analyte. This analyte was not observed above the reporting limit in the associated samples; therefore the sample data was not adversely affected by this excursion.

The MS recovery for Orthophosphate in batch 7206141 is outside the established QC limits. A matrix interference is physically evident in the sample. Method performance is demonstrated by acceptable LCS recovery.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

There were no observations or nonconformances to report for the following analyses:

Cyanide by SW846 9012A

Extractable Petroleum Hydrocarbons

Mercury by SW846 7141A

PCBs by SW846 8082

Semivolatiles by SW846 8270C

Sample Delivery Group	WSCF20071485
Sample Matrix	Solid
Data Deliverable	Summary Report

Introduction

Three (3) groundwater samples were received at the WSCF Laboratory on August 21, 2007. Two of the three 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. Analyses of the high concentration soil VOA sample material and the corresponding Methanol Blank (B1NRF7) were not required.

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4. In addition, copy of the sample record sheet is included as Attachment 5.

It should be noted that the attached chain of custody was stamped “iced” and initialed by the WSCF Laboratory Sample Custodian during sample receiving, indicating the presence of ice in the sample container.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, pages 14 through 16, for a complete listing of approved analytical methods.

Inorganic Comments

Anions – The hold time requirements for this analysis were met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See pages 18 through 19 for QC details. Analytical Note(s):

- Duplicate, Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH7 (SDG# 20071366, SAF# F07-043).
- Sample results were D flagged (dilution).
- Sample results that were less than the reportable limit, however greater than the method detection limit were B flagged.
- Sulfate Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

Cyanide – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 20 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

ICP-MS Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 21 through 22 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).
- Copper contamination detected in the Blank was evaluated and there was no affect on sample result.

All other QC controls are within the established limits.

Percent Solids - Percent solids were performed for organic analyses result correction.

Organic Comments

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

PCB – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 28 through 29 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1PKK9 (SDG# 20071535, SAF# F03-015).
- Aroclor-1260 – Matrix Spike and Matrix Spike Duplicate exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

Semi-VOA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GPP Letter of Instruction. See pages 30 through 33 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1PKK6 (SDG# 20071535, SAF# F03-015).

All QC controls are within the established limits.

TPHD-WA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 34 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

TPHG-WA – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 35 for QC details. Analytical Note(s):

- Laboratory Control Sample recovery was slightly less than established laboratory limits. No flags issued.

All other QC controls are within the established limits.

VOA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 36 through 38 for QC details. Analytical Note(s):

- Analyses of the high concentration soil VOA sample material and the corresponding Methanol Blank (B1NRF7) were not required.
- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRF4 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

Radiochemistry Comments

Rad Chem – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 42 through 46 for QC details. Analytical Note(s):

- Americium-241 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Gamma Energy Analysis (GEA) – Duplicate QC was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Plutonium-238, 239/240 and 242 (Tracer) – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033). Duplicate Relative Percent Difference (RPD) for Plutonium 239/240 exceeded established laboratory limits due to low sample activity. No flags issued.

- Strontium-85, 89/90 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Uranium-232 (tracer), 233/234, 235 and 238 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).

All other QC controls are within the established limits.

I certify that this data package is in compliance with the LOI, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager and Client Services as verified by the following signatures.



Scot L. Fitzgerald
WSCF Analytical Laboratory Manager



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

FD7-043-009
 PROJECT COORDINATOR TRENT, SJ
 SAF NO. F07-043
 METHOD OF SHIPMENT GOVERNMENT VEHICLE

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 COMPANY CONTACT TRENT, SJ
 TELEPHONE NO. 373-5869
 PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil

FIELD LOGBOOK NO. COA 122868 ES3
 OFFSITE PROPERTY NO. N/A

SHIPPED TO Waste Sampling & Characterization

BILL OF LADING/AIR BILL NO. N/A

COLLECTOR #1050517 Fluor Hanford Inc.
 PIPE/PISTON/MOKIER Ripe/Pister/Mokier

SAMPLING LOCATION 551.5, I-006 29-23/5-1

ICE CHEST NO. 33

SAMPLE NO.	MATRIX*	SPECIAL HANDLING AND/OR STORAGE	PRESERVATION	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SPECIAL INSTRUCTIONS									
								Cool 4C	Cool 4C	Cool 4C	Cool 4C						
DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE					
6-27-07	SOIL		1	aG	1	120mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS G;	TPH-Gasoline Range - WTPH	120mL	aG	1	120mL	aG	1	120mL	500mL	SEE ITEM (4) IN SPECIAL INSTRUCTIONS
6-27-07	SOIL		1	aG	1	40mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS G;	TPH-Diesel Range - WTPH-D;	120mL	aG	1	120mL	aG	1	120mL	500mL	SEE ITEM (4) IN SPECIAL INSTRUCTIONS
6-27-07	SOIL		1	aG	1	40mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS G;	TPH-Diesel Range - WTPH-D;	120mL	aG	1	120mL	aG	1	120mL	500mL	SEE ITEM (4) IN SPECIAL INSTRUCTIONS

Handwritten: RUBB 7/10/07

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
J. Pister	6/27-07 1300	SJK Ref #1-2	6-27-07 1300
ARSENIC	6/27-07 1300	S. M. ...	7/17/07
STRONTIUM	6/27-07 1300	M.O. 745 Ref #3	7-2-07 1545
	6/27-07 1300	S. M. ...	07-11-07 0900

LABORATORY SECTION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

FINAL SAMPLE DISPOSITION

DISPOSAL METHOD	DATE/TIME

POSSIBLE SAMPLE HAZARDS/ REMARKS
 Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1/990/1993)

LEGEND
 A=Air
 DL=Drum
 L=Liquid
 DS=Drum
 S=Soil
 SE=Sediment
 T=Tissue
 V=Vegetation
 W=Water
 WL=Wipe
 X=Other

F07-043-067 PAGE 1 OF 1 PRICE CODE BN DATA TURNAROUND AIR QUALITY <input type="checkbox"/> 45 Days / 45 Days	
CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST PROJECT COORDINATOR: TRENT, SJ SAF NO.: F07-043 METHOD OF SHIPMENT: FEDERAL EXPRESS BILL OF LADING/AIR BILL NO.: <i>60008000</i>	
COMPANY CONTACT: Trent, SJ TELEPHONE NO.: 373-5869 PROJECT DESIGNATION: 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil FIELD LOGBOOK NO.: COA 122868ES10	OFFSITE PROPERTY NO.: <i>60008000</i> See RSR
MATRIX* A=Air DL=Drum POSSIBLE SAMPLE HAZARDS/ REMARKS L=Liquids DS=Drum Rad tie to B1MRB5 S=Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other	PRESERVATION: Cool 4C TYPE OF CONTAINER: G/P NO. OF CONTAINER(S): 1 VOLUME: 40mL SAMPLE ANALYSIS: SEE ITEM (1) IN SPECIAL INSTRUCTIONS SEE ITEM (2) IN SPECIAL INSTRUCTIONS
SHIPPED TO: Severn Trent St. Louis SHIPMENT NO.: <i>60008000</i>	SPECIAL HANDLING AND/OR STORAGE:

SAMPLE NO.	MATRIX*	SPECIAL INSTRUCTIONS	SIGN/ PRINT NAMES		DATE/TIME	
			RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
B1MRH1	SOIL	40 mL <i>See RSR 07.11.07</i>	<i>[Signature]</i>	<i>[Signature]</i>	07.11.07	07.11.07

CHAIN OF POSSESSION

RECEIVED BY/REMOVED FROM: *[Signature]* JUL 10 2007 0830

RELINQUISHED BY/REMOVED FROM: *[Signature]* JUL 10 2007 0830

RECEIVED BY/STORED IN: *[Signature]* 07.11.07 09:00

RECEIVED BY/STORED IN: *[Signature]* 07.11.07 09:00

RECEIVED BY/STORED IN: _____ DATE/TIME _____

A-6003-618(01/06)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
COMPANY CONTACT: Fluor Hanford Inc. **TELEPHONE NO.:** 373-5869
PROJECT COORDINATOR: TRENT, SJ
PRICE CODE: 8N **PAGE 1 OF 1**
COLLECTOR: [Signature] **SAF NO.:** F07-043 **AIR QUALITY:** **TURNAROUND DATA:** 45 Days / 45 Days
SAMPLING LOCATION: 5515, 1-006 P 29'-31.5'
METHOD OF SHIPMENT: **GOVERNMENT VEHICLE:**
FIELD LOGBOOK NO.: COA 122868 ES3
OFFSITE PROPERTY NO.: N/A
BILL OF LADING/AIR BILL NO.:

MATRIX*	PREPARATION	COOL 4C					
POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	None	None	None	None	None	None	None
TYPE OF CONTAINER Square Bottle - Poly	aG	aG	aG	aG	aG	aG	aG
NO. OF CONTAINER(S) 1	1	1	1	1	1	1	1
VOLUME 120ml	40ml	120ml	120ml	120ml	120ml	120ml	500ml
SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS G; SEE ITEM (2) IN SPECIAL INSTRUCTIONS SEE ITEM (3) IN SPECIAL INSTRUCTIONS SEE ITEM (4) IN SPECIAL INSTRUCTIONS	TPH-Gasoline Range - WPH- PCBs - 3082;	PCBs - 3082;					
SPECIAL HANDLING AND/OR STORAGE							
SAMPLE DATE 6-27-07	SAMPLE TIME 1055						

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	[Signature]	5146 Ref A2	6-27-07 1700
RELINQUISHED BY/REMOVED FROM	[Signature]	[Signature]	7-9-07 1545
RELINQUISHED BY/REMOVED FROM	[Signature]	MO-245 R.F.#3	7-9-07 1545
RELINQUISHED BY/REMOVED FROM	[Signature]	[Signature]	07.11.07 0900
RELINQUISHED BY/REMOVED FROM			

SPECIAL INSTRUCTIONS
 (1) Semi-VQA - 8270B (Add-On) {Tributyl phosphate} TPH-Diesel Range - WPH-D;
 (2) ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8_HG - ICP/MS;
 (3) IC Anions - 300.0 {Fluoride, Nitrogen in Nitrate, Phosphorus in phosphate, Sulfate}
 (4) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Americium-241; Isotopic Plutonium; Strontium-90, 90 - Total Sr;

LABORATORY SECTION RECEIVED BY: _____ DATE/TIME: _____
FINAL SAMPLE DISPOSITION DISPOSED BY: _____ DATE/TIME: _____

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		PAGE 1 OF 1
COMPANY CONTACT Trent, SI	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SI
PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil	COA 122868ES10	SAF NO. F07-043
FIELD LOGBOOK NO. OFFSITE PROPERTY NO. See RSR 670008000	PRESERVATION Frozen	METHOD OF SHIPMENT FEDERAL EXPRESS
MATRIX* A-Air DL-Drum L-Liquids DS-Drum S-Solids L-Liquid O-Oil S-Soil SE-Sediment T-Tissue V-Vegetation W-Water WI-Wipe X-Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Rad tie to B1NR85	BILL OF LADING/AIR BILLING See RSR 670008000
SHIPPED TO Savern Trent St. Louis	TYPE OF CONTAINER 4	PRICE CODE BN
COLLECTOR Pops/Pfister/Mokler	NO. OF CONTAINER(S) 4	AIR QUALITY <input type="checkbox"/>
SAMPLING LOCATION C515, I-006	VOLUME 40mL	DATA TURNAROUND 45 Days / 45 Days
ICE CHEST NO. 670-06-10	SAMPLE ANALYSIS	
SPECIAL HANDLING AND/OR STORAGE	SAMPLE DATE 6/27/07 1055	
SAMPLE NO. 31NRC8	MATRIX* SOIL	
CHAIN OF POSSESSION	SIGN/ PRINT NAMES M.A. Baudry RECEIVED BY/STORER IN RECEIVED BY/STORER IN	SPECIAL INSTRUCTIONS NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION (1)VOA - 5035/8260 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) (1-Butanol, ds-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene) (2)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) (1-Butanol, ds-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene)
RECEIVED BY LABORATORY SECTION	RECEIVED BY/STORER IN M.A. Baudry DATE/TIME JUL 10 2007 0830	DATE/TIME 10 2007 0830
DISPOSAL METHOD FINAL SAMPLE DISPOSITION	RECEIVED BY/STORER IN Fed Ex DATE/TIME 07-11-07 0900	DATE/TIME 07-11-07 0900

FLUOR HANFORD INC. 1721st, SJ 373-5869		CHARTER OF CUSTODY/SAMPLE ANALYSIS REQUEST PROJECT COORDINATOR TRENT, SJ SAF NO. F07-043 METHOD OF SHIPMENT GOVERNMENT VEHICLE BILL OF LADING/AIR BILL NO. N/A		F07-043-011 PRICE CODE SN AIR QUALITY DATA TURNAROUND 45 Days / 45 Days		PAGE 1 OF 1	
COMPANY CONTACT TELEPHONE NO. 373-5869		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		FIELD LOGBOOK NO. COA 122868 ES3		OFFSITE PROPERTY NO. N/A	
COLLECTOR Pipe/Pfister/Mokler		FIELD LOGBOOK NO. COA 122868 ES3		OFFSITE PROPERTY NO. N/A		SHIPPED TO Waste Sampling & Characterization	
SAMPLING LOCATION 291-21-5-1		ICE CHEST NO. 33		PRESERVATION Frozen Cool: 4C		TYPE OF CONTAINER aGS*	
POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		NO. OF CONTAINER(S) 5		VOLUME 40mL		SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS SEE ITEM (2) IN SPECIAL INSTRUCTIONS	
SPECIAL HANDLING AND/OR STORAGE		SAMPLE DATE 10-6-77-07 1055		SAMPLE TIME X		SPECIAL INSTRUCTIONS (1)VOA - 5035/8260 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) {1- Butanol, dis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene} (2)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) {1- Butanol, dis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}	
CHAIN OF POSSESSION		SIGN/ PRINT NAMES		RECEIVED BY/STORED IN		DATE/TIME	
RELINQUISHED BY/REMOVED FROM J-Pfister/Mokler 6-27-07		RECEIVED BY/STORED IN A-2 Site Cooler 6-27-07		DATE/TIME 1300		DATE/TIME 1300	
RELINQUISHED BY/REMOVED FROM A-2 Site Cooler 7/9/77		RECEIVED BY/STORED IN J-Pfister/Mokler 7/9/77		DATE/TIME 1545		DATE/TIME 1545	
RELINQUISHED BY/REMOVED FROM J-Pfister/Mokler 7/9/77		RECEIVED BY/STORED IN M. J. R. 7-9-77		DATE/TIME 7-9-07-1545		DATE/TIME 7-9-07-1545	
RELINQUISHED BY/REMOVED FROM J-Pfister/Mokler 7/9/77		RECEIVED BY/STORED IN J-Pfister/Mokler 7-11-07		DATE/TIME 07-11-07 0900		DATE/TIME 07-11-07 0900	
LABORATORY SECTION 1-2		RECEIVED BY		DATE/TIME		TITLE	
ORIGINAL SAMPLE POSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME	

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST COMPANY CONTACT: Trent, SJ TELEPHONE NO.: 373-5869 PROJECT COORDINATOR: TRENT, SJ SAF NO.: F07-043 METHOD OF SHIPMENT: FEDERAL EXPRESS PRICE CODE: BN AIR QUALITY: <input type="checkbox"/> DATA TURNAROUND: 45 Days / 45 Days		PAGE 1 OF 1
PROJECT DESIGNATION: 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil FIELD LOGBOOK NO.: COA 122868ES10 OFFSITE PROPERTY NO.: 670008000 BILL OF LADING/AIR BILL NO.: 670008000 See RSR		
MATRIX* A=Air D=Drum L=Liquids S=Solids O=Oil S=Soil T=Tissue V=Vegetation W=Water WT=Wipe X=Other	PRESERVATION: Frozen TYPE OF CONTAINER: 40mL NO. OF CONTAINER(S): 4 VOLUME: 40mL SAMPLE ANALYSIS: SEE ITEM (1) IN SPECIAL INSTRUCTIONS SPECIAL HANDLING AND/OR STORAGE:	Cool IC 40mL 40mL SEE ITEM (2) IN SPECIAL INSTRUCTIONS
POSSIBLE SAMPLE HAZARDS/REMARKS: Rad tie to BINRBS	SAMPLE DATE: 6/27/07 1055 SAMPLE TIME: X X	
SAMPLE NO.: 31NR06 MATRIX*: SOIL		
CHAIN OF POSSESSION RECEIVED BY/REMOVED FROM: [Signature] JUL 10 2007 0830 RELINQUISHED BY/REMOVED FROM: [Signature] JUL 10 2007 0830 RECEIVED BY/STORAGED IN: [Signature] 07-11-07 0900 RELINQUISHED BY/REMOVED FROM: [Signature]		
SPECIAL INSTRUCTIONS NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION (1)VOA - 5035/8260 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene} (2)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}		
RECEIVED BY SECTION: 13	RECEIVED BY/REMOVED FROM DATE/TIME	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DATE/TIME

A-6003-618(01/06)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		F07-043-069	PAGE 1	OF 1
COMPANY CONTACT Trent, SJ TELEPHONE NO. 373-5869		PROJECT COORDINATOR TRENT, SJ		DATA TURNAROUND 45 Days / 45 Days
PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		SAF NO. F07-043		AIR QUALITY <input type="checkbox"/>
FIELD LOGBOOK NO. COA 122868ES10		METHOD OF SHIPMENT FEDERAL EXPRESS		
OFFSITE PROPERTY NO. See RSR 670008000		BILL OF LADING/AIR BILL NO. See RSR 670008000		
PRESERVATION Cool 4C				
TYPE OF CONTAINER ja65*				
NO. OF CONTAINER(S) 1				
VOLUME 40mL				
SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS				
SAMPLE DATE 6/27/07		SAMPLE TIME 1055		
SPECIAL HANDLING AND/OR STORAGE				
POSSIBLE SAMPLE HAZARDS/REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)				
MATRIX* A=Air DL=Drum L=Liquid DS=Drum S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other		MATRIX* SOIL		
SHIPPED TO Severn Trent St. Louis				
CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM RECEIVED BY/STORED IN DATE/TIME 10/28/07 DATE/TIME 07.11.07		SIGN/PRINT NAMES M.A. Bauder M.A. Bauder M.A. Bauder		SPECIAL INSTRUCTIONS NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION (1)VOA - 5035/8260 (TCL); VOA - 5035/8260 - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
RELINQUISHED BY/REMOVED FROM DATE/TIME		RECEIVED BY/STORED IN DATE/TIME		
RELINQUISHED BY/REMOVED FROM DATE/TIME		RECEIVED BY/STORED IN DATE/TIME		
RELINQUISHED BY/REMOVED FROM DATE/TIME		RECEIVED BY/STORED IN DATE/TIME		
RELINQUISHED BY/REMOVED FROM DATE/TIME		RECEIVED BY/STORED IN DATE/TIME		
LABORATORY I-SECTION		RECEIVED BY TITLE		DATE/TIME
FINAL SAMPLE DISPOSITION		DISPOSED BY		DATE/TIME

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST F07-043-008 PAGE 1 OF 1	
COLLECTOR Roper/Pfister/Mokler 29'-32.5' 515, I-006 ICE CHEST NO. 103	COMPANY CONTACT Trent, SJ 373-5869 PROJECT COORDINATOR TRENT, SJ SAF NO. F07-043 METHOD OF SHIPMENT GOVERNMENT VEHICLE BILL OF LADING/AIR BILL NO. N/A
FIELD LOGBOOK NO. COA 122868 ES3	PRICE CODE BN AIR QUALITY <input type="checkbox"/> DATA TURNAROUND 45 Days / 45 Days
OFFSITE PROPERTY NO. N/A	PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
Waste Sampling & Characterization MATRIX* A=Air DL=Drum L=Liquid DS=Drum S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	PRESERVATION Cool 4C TYPE OF CONTAINER #GS* NO. OF CONTAINER(S) 1 VOLUME 40mL SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS
POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	SPECIAL HANDLING AND/OR STORAGE
SAMPLE NO. W01171 MATRIX* SOIL	SAMPLE DATE 6-27-07 SAMPLE TIME 1055 DATE/TIME 6/27/07 1055
CHAIN OF POSSESSION	SPECIAL INSTRUCTIONS (1)VOA - 5035/8260 (TCL); VOA - 5035/8260 - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
RELINQUISHED BY/REMOVED FROM J. M. [Signature] 6/27/07 1300 DATE/TIME 6/27/07 1300	RECEIVED BY/STORED IN A. J. [Signature] 6/27/07 1300 DATE/TIME 6/27/07 1300
RELINQUISHED BY/REMOVED FROM A. J. [Signature] 7/9/07 1450 DATE/TIME 7/9/07 1450	RECEIVED BY/STORED IN M. O. [Signature] 7-9-07 1450 DATE/TIME 7-9-07 1450
RELINQUISHED BY/REMOVED FROM J. M. [Signature] 7/17/07 1545 DATE/TIME 7/17/07 1545	RECEIVED BY/STORED IN J. M. [Signature] 07-11-07 0900 DATE/TIME 07-11-07 0900
RELINQUISHED BY/REMOVED FROM [Blank]	RECEIVED BY/STORED IN [Blank]
RELINQUISHED BY/REMOVED FROM [Blank]	RECEIVED BY/STORED IN [Blank]
RELINQUISHED BY/REMOVED FROM [Blank]	RECEIVED BY/STORED IN [Blank]
LABORATORY SECTION	TITLE
FINAL SAMPLE DISPOSITION	DISPOSED BY

COLLECTOR: Pope/Pfister/Mokler
 TELEPHONE NO.: 373-5869
 PROJECT COORDINATOR: TRENT, SJ
 PRICE CODE: 8N
 DATA TURNAROUND: 45 Days / 45 Days

SAMPLING LOCATION: C5515, I-118 285'-287'
 PROJECT DESIGNATION: 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
 SAF NO.: F07-043
 AIR QUALITY:

ICE CHEST NO.:
 FIELD LOGBOOK NO.: COA 122868 ES3
 METHOD OF SHIPMENT: GOVERNMENT VEHICLE

SHIPPED TO: Waste Sampling & Characterization
 OFFSITE PROPERTY NO.: N/A
 BILL OF LADING/AIR BILL NO.: N/A

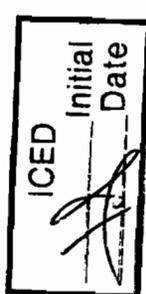
MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool 4C				
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	aG	aG	aG	aG	aG	aG
		1	1	1	1	1	1
		120mL	40mL	120mL	120mL	120mL	500mL

SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	TPH-Gasoline Range - WTPH-Range - WTPH-G	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	Oil/side (Total) - SEE ITEM (4) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1NRJ0 407602213	SOIL	8-21-07	0905

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	J.S. [Signature]	TA [Signature]	8/21/07 0925										
RELINQUISHED BY/REMOVED FROM													
RELINQUISHED BY/REMOVED FROM													
RELINQUISHED BY/REMOVED FROM													
RELINQUISHED BY/REMOVED FROM													
RELINQUISHED BY/REMOVED FROM													

SPECIAL INSTRUCTIONS:
 (1) Semi-VOA - 8270B (Add-On) {Tributyl phosphate} TPH-Diesel Range - WTPH-D;
 (2) ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Silver, ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8 HG - ICP/MS;
 (3) IC Anions - 300.0 {Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorus in phosphate, Sulfate}
 (4) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr;



LABORATORY SECTION: RECEIVED BY
 FINAL SAMPLE DISPOSITION: DISPOSAL METHOD

COLLECTOR Pope/Pfister/Mokler		COMPANY CONTACT Trent, NJ		TELEPHONE NO. 373-5869		PROJECT COORDINATOR TRENT, NJ		PRICE CODE 8N		DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION CS515, I-118 <i>Z85'-287'</i>		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		SAF NO. F07-043		METHOD OF SHIPMENT GOVERNMENT VEHICLE		AIR QUALITY <input type="checkbox"/>			
ICE CHEST NO.		FIELD LOGBOOK NO. 122868 ES3		COA		BILL OF LADING/AIR BILL NO. N/A					
SHIPPED TO Waste Sampling & Characterization		OFFSITE PROPERTY NO. N/A									
MATRIX* A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other		PRESERVATION Frozen		Cool 4C							
POSSIBLE SAMPLE HAZARDS / REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		TYPE OF CONTAINER		aGs*							
		NO. OF CONTAINER(S)		5							
		VOLUME		40mL							
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS		SEE ITEM (2) IN SPECIAL INSTRUCTIONS					
SAMPLE NO.		MATRIX*		SAMPLE DATE		SAMPLE TIME					
BINRF6 9214		SOIL		8-21-07		0805		X		X	
CHAIN OF POSSESSION		RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME		SPECIAL INSTRUCTIONS	
		<i>J. S. [Signature]</i>		8-20-07		JA FRAZ [Signature]		8/24/07 09:25		(1)VOA - 5035/8260 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}	
		RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME		(2)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}	
		RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME			
		RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME			
		RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME			
		RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME			
		RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME			
LABORATORY SECTION		RECEIVED BY		TITLE		DATE/TIME				<div style="border: 1px solid black; padding: 5px; display: inline-block;"> ICED Initial _____ Date _____ </div>	
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME					

COLLECTOR Pope/Pfister/Mokler		COMPANY CONTACT Trent, SJ		TELEPHONE NO. 373-5869		PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8N		DATA TURNOVER 45 Days / 45 Days	
SAMPLING LOCATION C5515, 1-118 285' - 287'		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		SAF NO. F07-043		METHOD OF SHIPMENT GOVERNMENT VEHICLE		AIR QUALITY <input type="checkbox"/>			
ICE CHEST NO.		FIELD LOGBOOK NO.		COA 122868 ES3		BILL OF LADING/AIR BILL NO. N/A					
SHIPPED TO Waste Sampling & Characterization		OFFSITE PROPERTY NO. N/A									
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Washer WI=Wipe X=Other		POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		PRESERVATION Cool 4C							
				TYPE OF CONTAINER 3Gs*							
		NO. OF CONTAINER(S) 1		VOLUME 40mL							
		SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS					
SAMPLE NO.		MATRIX*		SAMPLE DATE		SAMPLE TIME					
BINRF7 2215		SOIL		8-21-07		0605					
CHAIN OF POSSESSION		SIGN/ PRINT NAMES		RECEIVED BY/STORED IN		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME	
RELINQUISHED BY/REMOVED FROM J.S. McEl...		DATE/TIME 0925		T.A. P...		8/21/07 0925					
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					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
LABORATORY SECTION		RECEIVED BY		TITLE		DATE/TIME					
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME					

ICED Initial Date

SPECIAL INSTRUCTIONS
(1)VOA - 5035/8260 (TCL); VOA - 5035/8260 - (Add-On) {1-Butanol, ds-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}

Appendix 5

Data Validation Supporting Documentation

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: CPP 200 Area			DATA PACKAGE: VSR08-002		
VALIDATOR: Carl Schloesslin		LAB: STL St. Louis & WSCF		DATE: 01-28-2008	
			SDG: W05171 & WSCF20071485		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
X					
SAMPLES/MATRIX Soil samples B1NRC6 & B1NRC8 (SDG W05171)					
Soil sample B1NRF6 (SDG WSCF20071485)					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes **No** N/A

Comments: None

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: SDG W05171: B1NRC6 Surrogate 1,2-Dichloroethane-d4 %R = 69% (limits 70-132)

SDG W05171: Acetone LCS %R = 68%; 1,1-Dichloroethene LCS %R = 55%

SDG W05171: Carbon Disulfide LCS %R = 39%; 2-Hexanone LCS %R = 66%, LCSD %R = 69%

SDG W05171: 1,2-Dichloroethene LCS %R = 130%

SDG W05171: Chloroethane MS %R = 30%; 1,2-Dichloropropane MS %R = 60%

SDG W05171: MSD not performed. LCSD used to assess precision.

SDG WSCF20071485: LCS and MS/MSD only have five reported analytes. 14/17 SAP target analytes not represented in LCS and MS/MSD.

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: SDG W05171: MSD not performed. LCSD used to assess precision.
SDG W05171: 1,1-Dichloroethene LCS/LCSD RPD = 72%; Carbon Disulfide LCS/LCSD RPD = 72%

6. SYSTEM PERFORMANCE (Levels D and E)

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

Comments: _____

7. HOLDING TIMES (all levels)

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

Comments: 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

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: F7G110133
 MB Lot-Sample #: F7G120000-167

Work Order #...: J2PKJ1AA

Matrix.....: SOLID

Analysis Date...: 07/11/07

Prep Date.....: 07/11/07

Dilution Factor: 1

Prep Batch #...: 7193167

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	METHOD
Methylene chloride	ND	5.0	ug/kg	SW846 8260B
Acetone	ND	20	ug/kg	SW846 8260B
Acetonitrile	ND	50	ug/kg	SW846 8260B
Benzene	ND	5.0	ug/kg	SW846 8260B
Bromodichloromethane	ND	5.0	ug/kg	SW846 8260B
Bromoform	ND	5.0	ug/kg	SW846 8260B
Bromomethane	ND	10	ug/kg	SW846 8260B
1-Butanol	ND	100	ug/kg	SW846 8260B
2-Butanone	ND	20	ug/kg	SW846 8260B
n-Butylbenzene	ND	5.0	ug/kg	SW846 8260B
Carbon disulfide	ND	5.0	ug/kg	SW846 8260B
Carbon tetrachloride	ND	5.0	ug/kg	SW846 8260B
Chlorobenzene	ND	5.0	ug/kg	SW846 8260B
Dibromochloromethane	ND	5.0	ug/kg	SW846 8260B
Chloroethane	ND	10	ug/kg	SW846 8260B
Chloroform	ND	5.0	ug/kg	SW846 8260B
Chloromethane	ND	10	ug/kg	SW846 8260B
Cyclohexanone	ND	100	ug/kg	SW846 8260B
1,1-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethane	ND	5.0	ug/kg	SW846 8260B
1,1-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
cis-1,2-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
trans-1,2-Dichloroethene	ND	5.0	ug/kg	SW846 8260B
1,2-Dichloroethene (total)	ND	10	ug/kg	SW846 8260B
1,2-Dichloropropane	ND	5.0	ug/kg	SW846 8260B
cis-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
trans-1,3-Dichloropropene	ND	5.0	ug/kg	SW846 8260B
Ethylbenzene	ND	5.0	ug/kg	SW846 8260B
n-Hexane	ND	10	ug/kg	SW846 8260B
2-Hexanone	ND	20	ug/kg	SW846 8260B
4-Methyl-2-pentanone	ND	20	ug/kg	SW846 8260B
Styrene	ND	5.0	ug/kg	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	5.0	ug/kg	SW846 8260B
Tetrachloroethene	ND	5.0	ug/kg	SW846 8260B
Toluene	ND	5.0	ug/kg	SW846 8260B
1,1,1-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
1,1,2-Trichloroethane	ND	5.0	ug/kg	SW846 8260B
Trichloroethene	ND	5.0	ug/kg	SW846 8260B
1,2,4-Trimethylbenzene	ND	5.0	ug/kg	SW846 8260B
Vinyl chloride	ND	5.0	ug/kg	SW846 8260B

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #....: F7G110133

Work Order #....: J2PKJ1AA

Matrix.....: SOLID

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
Xylenes (total)	ND	10	ug/kg	SW846 8260B

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Toluene-d8	109	(67 - 150)
Dibromofluoromethane	125	(59 - 133)
1,2-Dichloroethane-d4	111	(70 - 132)
4-Bromofluorobenzene	100	(57 - 150)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Fluor Hanford Inc
Method Blank Report
GC/MS Volatiles

Lot-Sample #: F7G120000-167 B Work Order #: J2PKJ1AA Matrix: SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

<u>PARAMETER</u>	<u>CAS #</u>	<u>ESTIMATED RESULT</u>	<u>RETENTION TIME</u>	<u>UNITS</u>
None				ug/kg

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F7G110133 Work Order #...: J2PKJ1AC-LCS Matrix.....: SOLID
 LCS Lot-Sample#: F7G120000-167 J2PKJ1AD-LCSD
 Prep Date.....: 07/11/07 Analysis Date...: 07/11/07
 Prep Batch #...: 7193167
 Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
n-Hexane	50.0	48.8	ug/kg	98		SW846 8260B
	50.0	41.8	ug/kg	84	15	SW846 8260B
cis-1,3-Dichloropropene	50.0	55.3	ug/kg	111		SW846 8260B
	50.0	54.7	ug/kg	109	1.1	SW846 8260B
Dibromochloromethane	50.0	51.6	ug/kg	103		SW846 8260B
	50.0	54.7	ug/kg	109	5.8	SW846 8260B
Chloromethane	50.0	50.0	ug/kg	100		SW846 8260B
	50.0	52.8	ug/kg	106	5.5	SW846 8260B
Vinyl chloride	50.0	50.0	ug/kg	100		SW846 8260B
	50.0	53.9	ug/kg	108	7.5	SW846 8260B
Bromomethane	50.0	56.2	ug/kg	112		SW846 8260B
	50.0	52.0	ug/kg	104	7.7	SW846 8260B
Chloroethane	50.0	55.3	ug/kg	111		SW846 8260B
	50.0	57.1	ug/kg	114	3.2	SW846 8260B
Acetone	50.0	33.9	ug/kg	68		SW846 8260B
	50.0	43.1 p	ug/kg	86	24	SW846 8260B
1,1-Dichloroethene	50.0	27.5 a	ug/kg	55		SW846 8260B
	50.0	58.4 p	ug/kg	117	72	SW846 8260B
Methylene chloride	50.0	51.4	ug/kg	103		SW846 8260B
	50.0	52.2	ug/kg	104	1.6	SW846 8260B
Carbon disulfide	50.0	19.6 a	ug/kg	39		SW846 8260B
	50.0	41.6 p	ug/kg	83	72	SW846 8260B
1,1-Dichloroethane	50.0	53.8	ug/kg	108		SW846 8260B
	50.0	57.6	ug/kg	115	6.8	SW846 8260B
2-Butanone	50.0	49.4	ug/kg	99		SW846 8260B
	50.0	43.6	ug/kg	87	12	SW846 8260B
1,2-Dichloroethene (total)	100	130 a	ug/kg	130		SW846 8260B
	100	121	ug/kg	121	7.0	SW846 8260B
Chloroform	50.0	57.1	ug/kg	114		SW846 8260B
	50.0	58.1	ug/kg	116	1.7	SW846 8260B
1,1,1-Trichloroethane	50.0	56.9	ug/kg	114		SW846 8260B
	50.0	58.0	ug/kg	116	1.9	SW846 8260B
Carbon tetrachloride	50.0	56.4	ug/kg	113		SW846 8260B
	50.0	58.6	ug/kg	117	3.7	SW846 8260B
1,2-Dichloroethane	50.0	50.0	ug/kg	100		SW846 8260B
	50.0	51.9	ug/kg	104	3.8	SW846 8260B
Benzene	50.0	55.3	ug/kg	111		SW846 8260B
	50.0	54.8	ug/kg	110	0.94	SW846 8260B

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: F7G110133 Work Order #...: J2PKJ1AC-LCS Matrix.....: SOLID
 LCS Lot-Sample#: F7G120000-167 J2PKJ1AD-LCSD

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Trichloroethene	50.0	56.9	ug/kg	114		SW846 8260B
	50.0	60.2 a	ug/kg	120	5.6	SW846 8260B
1,2-Dichloropropane	50.0	51.7	ug/kg	103		SW846 8260B
	50.0	55.7	ug/kg	111	7.5	SW846 8260B
Bromodichloromethane	50.0	55.5	ug/kg	111		SW846 8260B
	50.0	57.3	ug/kg	115	3.2	SW846 8260B
1,1,2-Trichloroethane	50.0	49.2	ug/kg	98		SW846 8260B
	50.0	47.9	ug/kg	96	2.6	SW846 8260B
trans-1,3-Dichloropropene	50.0	47.9	ug/kg	96		SW846 8260B
	50.0	49.6	ug/kg	99	3.5	SW846 8260B
Toluene	50.0	46.5	ug/kg	93		SW846 8260B
	50.0	49.6	ug/kg	99	6.3	SW846 8260B
2-Hexanone	50.0	33.1 a	ug/kg	66		SW846 8260B
	50.0	34.6	ug/kg	69	4.2	SW846 8260B
4-Methyl-2-pentanone	50.0	35.6	ug/kg	71		SW846 8260B
	50.0	35.8	ug/kg	72	0.50	SW846 8260B
Chlorobenzene	50.0	48.9	ug/kg	98		SW846 8260B
	50.0	50.1	ug/kg	100	2.6	SW846 8260B
Bromoform	50.0	49.3	ug/kg	99		SW846 8260B
	50.0	51.4	ug/kg	103	4.2	SW846 8260B
Ethylbenzene	50.0	46.6	ug/kg	93		SW846 8260B
	50.0	48.8	ug/kg	98	4.7	SW846 8260B
Styrene	50.0	49.7	ug/kg	99		SW846 8260B
	50.0	52.7	ug/kg	105	5.9	SW846 8260B
1,1,2,2-Tetrachloroethane	50.0	46.6	ug/kg	93		SW846 8260B
	50.0	46.0	ug/kg	92	1.3	SW846 8260B
Tetrachloroethene	50.0	47.9	ug/kg	96		SW846 8260B
	50.0	54.2	ug/kg	108	12	SW846 8260B
n-Butylbenzene	50.0	49.0	ug/kg	98		SW846 8260B
	50.0	48.7	ug/kg	97	0.47	SW846 8260B
Cyclohexanone	500	395	ug/kg	79		SW846 8260B
	500	386	ug/kg	77	2.5	SW846 8260B
cis-1,2-Dichloroethene	50.0	64.6 a	ug/kg	129		SW846 8260B
	50.0	61.7	ug/kg	123	4.5	SW846 8260B
trans-1,2-Dichloroethene	50.0	65.2 a	ug/kg	130		SW846 8260B
	50.0	59.3	ug/kg	119	9.5	SW846 8260B
1-Butanol	500	416	ug/kg	83		SW846 8260B
	500	414	ug/kg	83	0.55	SW846 8260B
Acetonitrile	250	267	ug/kg	107		SW846 8260B
	250	243	ug/kg	97	9.6	SW846 8260B

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20071485

Matrix: SOLID

Test: VOA Ground Water Protection

Sample Date: 08/15/07

Receive Date: 08/15/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR02166											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	1,1-Dichloroethene	75-35-4	24.370	94.500	% Recov	63.000	117.000				08/29/07
MS	Benzene	71-43-2	26.010	101.000	% Recov	75.000	129.000				08/29/07
MS	4-Bromofluorobenzene(Surr)	460-00-4	51.440	99.700	% Recov	84.000	116.000				08/29/07
MS	Chlorobenzene	108-90-7	23.360	90.500	% Recov	79.000	119.000				08/29/07
MS	1,2-Dichloroethane-d4(Surr)	17060-07-0	44.040	85.300	% Recov	82.000	136.000				08/29/07
MS	Toluene-d8(Surr)	2037-26-5	54.300	105.000	% Recov	89.000	119.000				08/29/07
MS	Toluene	108-88-3	26.470	103.000	% Recov	76.000	120.000				08/29/07
MS	Trichloroethene	79-01-6	21.670	84.000	% Recov	73.000	123.000				08/29/07
MSD	1,1-Dichloroethene	75-35-4	22.620	87.700	% Recov	63.000	117.000				08/29/07
MSD	Benzene	71-43-2	26.860	104.000	% Recov	75.000	129.000				08/29/07
MSD	4-Bromofluorobenzene(Surr)	460-00-4	50.460	97.800	% Recov	84.000	116.000				08/29/07
MSD	Chlorobenzene	108-90-7	22.150	85.900	% Recov	79.000	119.000				08/29/07
MSD	1,2-Dichloroethane-d4(Surr)	17060-07-0	43.940	85.200	% Recov	82.000	136.000				08/29/07
MSD	Toluene-d8(Surr)	2037-26-5	57.800	112.000	% Recov	89.000	119.000				08/29/07
MSD	Toluene	108-88-3	26.970	105.000	% Recov	76.000	120.000				08/29/07
MSD	Trichloroethene	79-01-6	21.650	83.900	% Recov	73.000	123.000				08/29/07
SPK-RPD	1,1-Dichloroethene	75-35-4	87.700		RPD			7.464	20.000		08/29/07
SPK-RPD	Benzene	71-43-2	104.000		RPD			2.927	20.000		08/29/07
SPK-RPD	4-Bromofluorobenzene(Surr)	460-00-4	97.800		RPD			1.924	20.000		08/29/07
SPK-RPD	Chlorobenzene	108-90-7	85.900		RPD			5.215	20.000		08/29/07
SPK-RPD	1,2-Dichloroethane-d4(Surr)	17060-07-0	85.200		RPD			0.117	20.000		08/29/07
SPK-RPD	Toluene-d8(Surr)	2037-26-5	112.000		RPD			6.452	20.000		08/29/07
SPK-RPD	Toluene	108-88-3	105.000		RPD			1.923	20.000		08/29/07
SPK-RPD	Trichloroethene	79-01-6	83.900		RPD			0.119	20.000		08/29/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: **WSCF20071485**

Matrix: **SOLID**

Test: **VOA Ground Water Protection**

Sample Date: **08/21/07**

Receive Date: **08/21/07**

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR02214											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	4-Bromofluorobenzene(Surr)	460-00-4	49.240	95.100	% Recov	71.000	125.000			U	08/29/07
SURR	1,2-Dichloroethane-d4(Surr)	17060-07-0	44.320	85.600	% Recov	80.000	134.000			U	08/29/07
SURR	Toluene-d8(Surr)	2037-26-5	54.520	105.000	% Recov	80.000	126.000			U	08/29/07
BATCH QC											
BLANK	1,1-Dichloroethane	75-34-3	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	1,1,1-Trichloroethane	71-55-6	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	1,1,2-Trichloroethane	79-00-5	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	1,1,2,2-Tetrachloroethane	79-34-5	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	1,1-Dichloroethene	75-35-4	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	1,2-Dichloroethane	107-06-2	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	1,2-Dichloroethene(Total)	540-59-0	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	1-Butanol	71-36-3	< 100	n/a	ug/Kg					U	08/29/07
BLANK	2-Hexanone	591-78-6	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	4-Methyl-2-Pentanone	108-10-1	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Acetone	67-64-1	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Bromodichloromethane	75-27-4	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Benzene	71-43-2	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	4-Bromofluorobenzene(Surr)	460-00-4	48.030	96.100	% Recov	71.000	125.000			U	08/29/07
BLANK	Bromoform	75-25-2	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	n-Butylbenzene	104-51-8	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Carbon disulfide	75-15-0	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Carbon tetrachloride	56-23-5	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Dibromochloromethane	124-48-1	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Chloroform	67-66-3	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Chlorobenzene	108-90-7	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	cis-1,2-Dichloroethylene	156-59-2	< 1.0	n/a	ug/Kg					U	08/29/07

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WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: **WSCF20071485**

Matrix: **SOLID**

Test: **VOA Ground Water Protection**

Sample Date:

Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	cis-1,3-Dichloropropene	10061-01-5	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Chloroethane	75-00-3	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	1,2-Dichloroethane-d4(Surr)	17060-07-0	43.560	87.100	% Recov	80.000	134.000			U	08/29/07
BLANK	trans-1,2-Dichloroethylene	156-60-5	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	1,2-Dichloropropane	78-87-5	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Ethylbenzene	100-41-4	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Bromomethane	74-83-9	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Chloromethane	74-87-3	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	2-Butanone	78-93-3	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Methylenchloride	75-09-2	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Tetrachloroethene	127-18-4	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Styrene	100-42-5	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Xylenes (total)	1330-20-7	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Toluene-d8(Surr)	2037-26-5	49.670	99.300	% Recov	80.000	126.000			U	08/29/07
BLANK	Toluene	108-88-3	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	trans-1,3-Dichloropropene	10061-02-6	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Trichloroethene	79-01-6	< 1.0	n/a	ug/Kg					U	08/29/07
BLANK	Vinyl chloride	75-01-4	< 1.0	n/a	ug/Kg					U	08/29/07
LCS	1,1-Dichloroethene	75-35-4	23.980	95.900	% Recov	70.000	130.000			U	08/29/07
LCS	Benzene	71-43-2	25.760	103.000	% Recov	70.000	130.000			U	08/29/07
LCS	4-Bromofluorobenzene(Surr)	460-00-4	48.190	96.400	% Recov	71.000	125.000			U	08/29/07
LCS	Chlorobenzene	108-90-7	22.200	88.800	% Recov	70.000	130.000			U	08/29/07
LCS	1,2-Dichloroethane-d4(Surr)	17060-07-0	41.930	83.900	% Recov	80.000	134.000			U	08/29/07
LCS	Toluene-d8(Surr)	2037-26-5	50.420	101.000	% Recov	80.000	126.000			U	08/29/07
LCS	Toluene	108-88-3	26.070	104.000	% Recov	70.000	130.000			U	08/29/07
LCS	Trichloroethene	79-01-6	20.650	82.600	% Recov	70.000	130.000			U	08/29/07

Date: 28 January 2008
To: Fluor Hanford Inc. (technical representative)
From: Analytical Quality Associates, Inc.
Project: CPP 200 Area
Subject: Semivolatile Organics - Sample Data Groups (SDGs) W05171 and WSCF20071485

INTRODUCTION

This memorandum presents the results of data validation for SDG W05171 prepared by STL St. Louis and SDG WSCF20071485 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
B1NT07	06/27/07	Solid	C	See note 1
B1NRH1	06/27/07	Solid	C	See note 1
B1NRJ0	08/21/07	Solid	C	See note 1

1 - Semivolatile organics by 8270C and petroleum hydrocarbons by 8015

Data validation was conducted in accordance with the FHI validation statement of work and the Sampling and Analysis Plan for Supplemental Remedial Investigation Activities at the 216-A-2 Crib and the 216-A-21 Crib, DOE/RL-2006-77, Rev. 0 Reissue (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

Special note concerning WTPH-G analysis:

For SDG W05171, multiple WTPH-G analyses occurred for samples B1NT07 and B1NRH1. The first analysis (batch 7198275) apparently had low initial calibration verification results and no MS/MSD data (MS/MSD were not spiked). The second analysis (batch 7199166) was performed beyond the holding time and yielded acceptable results for sample B1NRH1. Sample B1NT07 had a low surrogate recovery and was reanalyzed on the same batch. The second analysis results for sample B1NT07 on batch 7199166 were acceptable. Form I's were supplied for all analysis results. Unacceptable WTPH-G sample results have been qualified as unusable and flagged "UR" due to the availability of more acceptable results.

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 semivolatile organics and WTPH-D are extraction

within 14 days of sample collection and analysis within 40 days of sample extraction. WTPH-G requires analysis within 14 days from 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 exception. For SDG W05171, samples B1NT07 and B1NRH1 were analyzed for WTPH-G (batch 7199166) beyond the holding time but within 2X the holding time. The acceptable WTPH-G results for these samples were non-detects and should be qualified as an estimate and flagged “UJ.” It should be noted that the SAP states that the WTPH-D holding time is 14 days from sample collection to analysis. This guidance is incorrect and was not followed for data validation.

- **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.

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 matrix spike and laboratory control sample accuracy limits are 70% to 130%. The limits for reported analytes not listed in the SAP are specified by the DV procedure.

Surrogates

All surrogate recoveries were acceptable with the following exceptions.

For SDG W05171, the first analysis of sample B1NT07 on batch 7199166 had a surrogate recovery below the lower acceptance limit but >10%. As described above, this result has been qualified as unusable and flagged “UR” due to the availability of a more acceptable result.

It should be noted that for SDG WSCF20071485 no surrogate data was reported for WTPH-G analysis. According to the DV procedure no sample results should be qualified for lack of surrogate data when an LCS is performed.

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

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

For SDG W05171, tributyl phosphate (SAP analyte) was not represented in the SVOA MS/MSD spiking solution. Since this was the only SVOA analyte reported, MS/MSD QC forms were not included in the data package. The tributyl phosphate results for samples B1NT07 and B1NRH1 were non-detects and should be qualified as estimates and flagged “UJ.”

For SDG WSCF20071485, tributyl phosphate was not represented in the SVOA MS/MSD spiking solution. The tributyl phosphate result for sample B1NRJ0 was a non-detect and should be qualified as an estimate and flagged “UJ.” It should be noted that the MS/MSD were performed on a solid sample from another SDG. No sample data were qualified as a result.

For SDG W05171, the WTPH-G MS/MSD was not spiked for batch 7198275. As described above, the associated results for samples B1NT07 and B1NRH1 have been qualified as unusable and flagged “UR” due to the availability of more acceptable results.

For SDG WSCF20071485, the WTPH-D MS/MSD were performed on a solid sample from another SDG. No sample data were qualified as a result.

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable with the following exceptions.

For SDG W05171, tributyl phosphate (SAP analyte) was not represented in the SVOA LCS spiking solution. Since this was the only SVOA analyte reported, an LCS QC form was not included in the data package. The tributyl phosphate results for samples B1NT07 and B1NRH1 were non-detects and should be qualified as estimates and flagged “UJ.”

For SDG WSCF20071485, tributyl phosphate was not represented in the SVOA LCS spiking solution. The tributyl phosphate result for sample B1NRJ0 was a non-detect and should be qualified as an estimate and flagged “UJ.”

- **Precision**

Precision is evaluated by reviewing MS/MSD results and field duplicate 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 limits are $\pm 30\%$. The limits for reported analytes not listed in the SAP are specified by the DV procedure.

MS/MSD Samples

All reported MS/MSD relative percent difference values were acceptable.

Field Duplicate Samples

All field duplicate results were acceptable.

- **Detection Limits**

Reported method detection limits (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 W05171 and WSCF20071485 were submitted for validation and verified for completeness. Completeness is based on the percentage of data determined to be valid (i.e., not rejected). Although some WTPH-G results were rejected, the completion percentage was still 100%.

MAJOR DEFICIENCIES

None found. Rejections of some WTPH-G results were due to the availability of more acceptable results.

MINOR DEFICIENCIES

Minor deficiencies leading to qualification of sample results as estimates were due to WTPH-G holding time infractions and lack of tributyl phosphate MS/MSD and LCS data. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

FHI, Contract #29774, *Validation of Radiological and Chemical Analytical Data*, Fluor Hanford Incorporated, August 24, 2006.

DOE/RL-2006-77, Rev. 0 Reissue, *Sampling and Analysis Plan for Supplemental Remedial Investigation Activities at the 216-A-2 Crib and the 216-A-21 Crib*, June 2007.

Appendix 1
Glossary of Data Reporting Qualifiers

Qualifiers that may be applied by data validators in compliance with the FHI 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			
SDGs: W05171 & WSCF20071485	Reviewer: AQA	Project: CPP 200 Area	Page 1 of 1
Analyte(s)	Qualifier	Samples Affected	Reason
WTPH-Gasoline	UR	B1NT07 (batch 7198275) B1NT07 (batch 7199166 – first result) B1NRH1 (batch 7198275)	Availability of more acceptable results
WTPH-Gasoline	UJ	B1NT07 (batch 7199166 – second result)) B1NRH1 (batch 7199166)	Analyzed beyond the holding time but within 2X the holding time
Tributyl phosphate	UJ	B1NT07, B1NRH1 & B1NRJ0	Lack of MS/MSD & LCS data

Comments: None

Appendix 3

Annotated Laboratory Reports

Fluor Hanford Inc

Client Sample ID: B1NT07

GC/MS Semivolatiles

Lot-Sample #...: F7G110133-001 Work Order #...: J2L041AN Matrix.....: SOLID
 Date Sampled...: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/11/07 Analysis Date...: 07/16/07
 Prep Batch #...: 7192306
 Dilution Factor: 1
 % Moisture.....: 3.3 Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Tributyl phosphate	70 J UJ	340	ug/kg	34
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
2-Fluorophenol	78	(41 - 87)		
Phenol-d5	82	(40 - 94)		
Nitrobenzene-d5	80 <i>LS</i> 01-28-08	(41 - 91)		
2-Fluorobiphenyl	86	(44 - 96)		
2,4,6-Tribromophenol	83	(37 - 105)		
Terphenyl-d14	100	(34 - 105)		

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

1 Estimated result. Result is less than RL.

Fluor Hanford Inc

B1NT07

GC/MS Semivolatiles

Lot-Sample #: F7G110133-001

Work Order #: J2L041AN

Matrix: SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

<u>PARAMETER</u>	<u>CAS #</u>	<u>ESTIMATED RESULT</u>	<u>RETENTION TIME</u>	<u>UNITS</u>
Heptane, 2,4-dimethyl-	2213-23-2	210	M 3.8973	ug/kg
Unknown alkane		190	M 3.9561	ug/kg
Unknown alkane		220	M 4.031	ug/kg
Unknown aldol condensate		7500	M 4.1487	ug/kg
Unknown		160	M 9.1336	ug/kg

NOTE(S) :

M: Result was measured against nearest internal standard assuming a response factor of 1.

Fluor Hanford Inc

Client Sample ID: B1NRH1

GC/MS Semivolatiles

Lot-Sample #....: F7G110133-002 Work Order #....: J2L211AN Matrix.....: SOLID
 Date Sampled....: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/11/07 Analysis Date...: 07/16/07
 Prep Batch #....: 7192306
 Dilution Factor: 1
 % Moisture.....: 1.5 Method.....: SW846 8270C

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Tributyl phosphate	120 J UJ	330	ug/kg	34
<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>		
2-Fluorophenol	76	(41 - 87)		
Phenol-d5	81	(40 - 94)		
Nitrobenzene-d5	80	(41 - 91)		
2-Fluorobiphenyl	86	(44 - 96)		
2,4,6-Tribromophenol	79	(37 - 105)		
Terphenyl-d14	97	(34 - 105)		

NOTE(S):

Results and reporting limits have been adjusted for dry weight.
 J Estimated result. Result is less than RL.

Fluor Hanford Inc

B1NRH1

GC/MS Semivolatiles

Lot-Sample #: F7G110133-002

Work Order #: J2L211AN

Matrix: SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

<u>PARAMETER</u>	<u>CAS #</u>	<u>ESTIMATED RESULT</u>	<u>RETENTION TIME</u>	<u>UNITS</u>
Heptane, 2,4-dimethyl-	2213-23-2	240	M 3.8971	ug/kg
Unknown alkane		210	M 3.9613	ug/kg
Unknown alkane		250	M 4.0308	ug/kg
Unknown aldol condensate		7800	M 4.1538	ug/kg
Unknown		150	M 9.1334	ug/kg
Phenol, 2,2'-methylenebis[6-(1	119-47-1	180	M 17.985	ug/kg

NOTE(S) :

M: Result was measured against nearest internal standard assuming a response factor of 1.

Fluor Hanford Inc

Client Sample ID: B1NT07

GC Volatiles

Lot-Sample #....: F7G110133-001 Work Order #....: J2L041AQ Matrix.....: SOLID
 Date Sampled....: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/11/07 Analysis Date...: 07/11/07
 Prep Batch #....: 7198275
 Dilution Factor: 1
 % Moisture.....: 3.3 Method.....: SW846 8015 MOD

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
TPH - Gasoline Range - WTPH-G	ND UR	0.10	mg/kg	0.018
<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>		
Trifluorotoluene	99	(70 - 130)		

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

LS
01-28-08

Fluor Hanford Inc

Client Sample ID: B1NF07

GC Volatiles

Lot-Sample #....: F7G110133-001 Work Order #....: J2L042AQ Matrix.....: SOLID
 Date Sampled....: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/17/07 Analysis Date...: 07/17/07
 Prep Batch #....: 7199166
 Dilution Factor: 1
 % Moisture.....: 3.3 Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
TPH - Gasoline Range - WTPH-G	ND UR	0.10	mg/kg	0.018

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	34 *	(70 - 130)

NOTE(S) :

* Surrogate recovery is outside stated control limits.
 Results and reporting limits have been adjusted for dry weight.

LS
 01-28-08

Fluor Hanford Inc

Client Sample ID: B1NT07

GC Volatiles

Lot-Sample #....: F7G110133-001 Work Order #....: J2L043AQ Matrix.....: SOLID
 Date Sampled....: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/17/07 Analysis Date...: 07/17/07
 Prep Batch #....: 7199166
 Dilution Factor: 1
 % Moisture.....: 3.3 Method.....: SW846 8015 MOD

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
TPH - Gasoline Range - WTPH-G	ND UJ	0.10	mg/kg	0.018

<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>
Trifluorotoluene	96	(70 - 130)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

LS
01-28-08

Fluor Hanford Inc

Client Sample ID: B1NRH1

GC Volatiles

Lot-Sample #....: F7G110133-002 Work Order #....: J2L211AQ Matrix.....: SOLID
 Date Sampled...: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/11/07 Analysis Date...: 07/11/07
 Prep Batch #....: 7198275
 Dilution Factor: 1
 % Moisture.....: 1.5 Method.....: SW846 8015 MOD

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>	<u>LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
TPH - Gasoline Range - WTPH-G	ND UR		0.10	mg/kg	0.018
<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>			
Trifluorotoluene	RECOVERY	LIMITS			
	96	(70 - 130)			

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

LS
01-28-08

Fluor Hanford Inc

Client Sample ID: B1NRH1

GC Volatiles

Lot-Sample #...: F7G110133-002 Work Order #...: J2L212AQ Matrix.....: SOLID
 Date Sampled...: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/17/07 Analysis Date...: 07/17/07
 Prep Batch #...: 7199166
 Dilution Factor: 1
 % Moisture.....: 1.5 Method.....: SW846 8015 MOD

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		
		<u>LIMIT</u>	<u>UNITS</u>	<u>MDL</u>
TPH - Gasoline Range - WTPH-G	ND UJ	0.10	mg/kg	0.018
<u>SURROGATE</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>		
Trifluorotoluene	94	(70 - 130)		

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

LS
01-28-08

Fluor Hanford Inc

Client Sample ID: B1NT07

GC Semivolatiles

Lot-Sample #...: F7G110133-001 Work Order #...: J2L041AP Matrix.....: SOLID
 Date Sampled...: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/11/07 Analysis Date...: 07/20/07
 Prep Batch #...: 7192307
 Dilution Factor: 1
 % Moisture.....: 3.3 Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Kerosene	ND	26	mg/kg	0.64
TPH - Diesel Range - WTPH-D	ND	26	mg/kg	1.6

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
o-Terphenyl	77	(59 - 164)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Fluor Hanford Inc

Client Sample ID: B1NRH1

GC Semivolatiles

Lot-Sample #...: F7G110133-002 Work Order #...: J2L211AP Matrix.....: SOLID
 Date Sampled...: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/11/07 Analysis Date...: 07/20/07
 Prep Batch #...: 7192307
 Dilution Factor: 1
 % Moisture.....: 1.5 Method.....: SW846 8015 MOD

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Kerosene	ND	25	mg/kg	0.63
TPH - Diesel Range - WTPH-D	ND	25	mg/kg	1.5

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	91	(59 - 164)

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-043
Sample # W07GR02213
Client ID: B1NRJ0 TREN
Matrix: SOIL

Group #: WSCF20071485
Department: Organic
Sampled: 08/21/07
Received: 08/21/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
NWTPH-D TPH Diesel Range (Wa) Prep											
NWTPH-D TPH Diesel Range (Wa)											08/22/07
Total Pet. Hydrocarbons Diesel	TPHDIESEL	LA-523-493	U	<	3.70		mg/kg	1.00	3.7		08/28/07
Kerosene	TPHKEROSENE	LA-523-493	U	<	3.70		mg/kg	1.00	3.7		08/28/07
NWTPH-GX TPH Gasoline Range Prep											
NWTPH-GX TPH Gasoline Range											
Total Pet. Hydrocarbons Gas	TPHGASOLINE	LA-523-443	U	<	250		ug/kg	1.00	2.5e+02		08/29/07
PCBs complete list Prep											
PCBs complete list											
Aroclor-1016	12674-11-2	LA-523-427	U	<	12.0		ug/kg	1.00	12		09/10/07
Aroclor-1221	11104-28-2	LA-523-427	U	<	24.0		ug/kg	1.00	24		09/10/07
Aroclor-1232	11141-16-5	LA-523-427	U	<	12.0		ug/kg	1.00	12		09/10/07
Aroclor-1242	53469-21-9	LA-523-427	U	<	12.0		ug/kg	1.00	12		09/10/07
Aroclor-1248	12672-29-6	LA-523-427	U	<	12.0		ug/kg	1.00	12		09/10/07
Aroclor-1254	11097-69-1	LA-523-427	U	<	12.0		ug/kg	1.00	12		09/10/07
Aroclor-1260	11096-82-5	LA-523-427	U	<	12.0		ug/kg	1.00	12		09/10/07
Aroclor-1262	37324-23-5	LA-523-427	U	<	12.0		ug/kg	1.00	12		09/10/07
Aroclor-1268	11100-44-4	LA-523-427	U	<	12.0		ug/kg	1.00	12		09/10/07
SW-846 8270C Semi-Vols Prep											
SW-846 8270C Semi-Vols											
4-Nitrophenol	100-02-7	LA-523-456	U	<	240		ug/kg	1.00	2.4e+02		09/10/07
1,4-Dichlorobenzene	106-46-7	LA-523-456	U	<	290		ug/kg	1.00	2.9e+02		09/10/07
Phenol	108-95-2	LA-523-456	U	<	170		ug/kg	1.00	1.7e+02		09/10/07
1,2,4-Trichlorobenzene	120-82-1	LA-523-456	U	<	170		ug/kg	1.00	1.7e+02		09/10/07
2,4-Dinitrotoluene	121-14-2	LA-523-456	U	<	170		ug/kg	1.00	1.7e+02		09/10/07

MDL = Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorg)
RQ = Result Qualifier E - Analyte is an estimate, has potentially larger errors.(org)
TP Err = Total Propagated Error U - Analyzed for but not detected above limiting criteria.(org)
DF = Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols
 Report WGPP/ver. 5.2
 Groundwater Remediation Program

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-043
Sample # W07GR02213
Client ID: B1NRJO

TRENT
WSCF

Matrix: SOIL

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Pyrene	129-00-0	LA-523-456	U	< 170	ug/kg			1.00	1.7e+02		09/10/07
4-Chloro-3-methylphenol	59-50-7	LA-523-456	U	< 170	ug/kg			1.00	1.7e+02		09/10/07
N-Nitrosodi-n-dipropylamine	621-64-7	LA-523-456	U	< 170	ug/kg			1.00	1.7e+02		09/10/07
Acenaphthene	83-32-9	LA-523-456	U	< 170	ug/kg			1.00	1.7e+02		09/10/07
Pentachlorophenol	87-86-5	LA-523-456	U	< 240	ug/kg			1.00	2.4e+02		09/10/07
2-Chlorophenol	95-57-8	LA-523-456	U	< 170	ug/kg			1.00	1.7e+02		09/10/07
Tributyl phosphate	126-73-8	LA-523-456	U	< 170	ug/kg	UJ		1.00	1.7e+02		09/10/07

LS
 01-28-08

MDL = Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorg)
RQ = Result Qualifier E - Analyte is an estimate, has potentially larger errors.(org)
TP Err = Total Propagated Error U - Analyzed for but not detected above limiting criteria.(org)
DF = Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols
 Report WGPP/ver. 5.2

Groundwater Remediation Program

D - Analyte was identified at a secondary dilution factor.(inorg)
 U - Analyzed for but not detected above limiting criteria.(inorg)

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Case Narrative
Lot Number: F7G110133
SDG: W05171

This report contains the analytical results for the six samples received under chain of custody by STL St. Louis on July 11, 2007. These samples are associated with your F07-043 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by STL St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Volatiles by SW846 8260B

Batch: 7193167

The CCV recovery was outside the upper QC limit (greater than 20% RSD) for Freon-114 (21.3%), Iodomethane (38.6%), Methyl Acetate (20.7%), trans-1,2-Dichloroethene (22.0%), cis-1,2-Dichloroethane (24.8%) and Bromochloromethane (31.4%) indicating a potential high bias for these analytes in the samples associated with this CCV. These analytes were not detected above the reporting limit in the associated samples or are not target analytes.

The LCS or LCSD recoveries for 1,2-Dichloroethene, Trichloroethene, cis-1,2-Dichloroethene and trans-1,2-Dichloroethene were above the upper QC limit, indicating a potential positive bias. These analytes were not detected above the reporting limit in the associated samples.

The LCS recoveries for 1,1-Dichloroethene, Carbon Disulfide and 2-Hexanone are below the lower QC limit, indicating a potential negative bias. However, the recoveries for these compounds are within the QC limit in the LCSD, indicating an anomaly isolated to the LCS alone. The RPDs for Acetone, 1,1-Dichloroethene and Carbon Disulfide are outside QC limits. The Acetone LCS/LCSD recoveries are acceptable.

The LCS and/or LCSD surrogate recoveries are outside the upper QC limit, indicating a potential high bias in spike compound recoveries.

The sample vial used for the MSD contained the wrong sample matrix (methanol), providing no data for the MSD. A matrix spike and LCS/LCSD were performed to demonstrate matrix accuracy and replicate precision. However, due to software limitations, the matrix spike cannot be reported. Matrix spike recoveries for Chloroethane (30%) and 1,2-Dichloropropane (60%) were below QC limits. All other analytes were within QC limits.

Affected Samples:

F7G110133 (3): B1NRC8

F7G110133 (4): B1NRC6

Batch: 7193167

In the original analysis, the associated sample's surrogate recovery was outside established QC limits. The sample was reprepared/reanalyzed within holding time. The reanalysis yielded acceptable results. Only the reanalysis results are reported.

Affected Samples:

F7G110133 (3): B1NRC8

Batches: 7193167 / 7194216

In the original analysis, the associated sample's internal standard (IS) recovery and Surrogate recovery was outside the lower QC limit. The sample was reprepared and reanalyzed 1 day past holding time (batch 7194216). The reanalysis, with acceptable IS and surrogate recoveries, yielded comparable sample results (non-detect). The original results, performed within hold time, are reported.

Affected Samples:

F7G110133 (4): B1NRC6

Volatile Petroleum Hydrocarbons by SW846 8015

Batch: 7198275

The surrogate recovery in the closing CCAL was outside of the upper acceptance limit. The surrogate recovery for the associated samples is within acceptance limits.

The ICV %D was outside QC limits (15%) for low boiling hydrocarbons (16% low). The associated samples were reprepared and reanalyzed outside of holding time in batch 7199166. The ICV %D for the reanalysis was acceptable. Both the original and reanalysis is reported.

In the original analysis, the MS/MSD was not spiked and is not reported. The MS/MSD is reported from the reanalysis batch.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

Reanalysis Batch: 7199166

The CCAL surrogate recoveries are outside the upper QC limit. The samples associated with the CCAL have surrogate recoveries that were within the established QC limits.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

For the first reanalysis, the associated sample's surrogate recovery was outside established QC limits. The sample was reprepared/reanalyzed within this same analysis batch. The second reanalysis yielded acceptable results. The results of the first reanalysis are reported in hard copy form only since this was the analysis used for the MS/MSD.

Affected Samples:

F7G110133 (1): B1NT07

ICP Metals by SW846 6010B

The associated samples were analyzed at a dilution for Cadmium, Lead and Selenium due to high concentrations of the interfering analyte Iron. The reporting limit has been adjusted only for those targets reported from the dilution run.

Due to an auto sampler error, the CCB after the initial instrument QC was missed. The sequence that followed the initial QC was: CCV, 10 samples, CCV, CCB. All initial instrument QC was within control limits. The ten samples affected were analyzed at the end of sequence.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

Ion Chromatography by SW846 9056A

The CCV recovery was outside the upper QC limit (greater than 110%) for Sulfate in batch 7199053 indicating a potential high bias for this analyte in the samples associated with this CCV. This analyte was not detected above the reporting limit in the associated samples.

The LCSD recovery for Sulfate in batch 7199053 is outside the upper QC limit, indicating a potential positive bias for this analyte. This analyte was not observed above the reporting limit in the associated samples; therefore the sample data was not adversely affected by this excursion.

The MS recovery for Orthophosphate in batch 7206141 is outside the established QC limits. A matrix interference is physically evident in the sample. Method performance is demonstrated by acceptable LCS recovery.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

There were no observations or nonconformances to report for the following analyses:

Cyanide by SW846 9012A

Extractable Petroleum Hydrocarbons

Mercury by SW846 7141A

PCBs by SW846 8082

Semivolatiles by SW846 8270C

Sample Delivery Group	WSCF20071485
Sample Matrix	Solid
Data Deliverable	Summary Report

Introduction

Three (3) groundwater samples were received at the WSCF Laboratory on August 21, 2007. Two of the three 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. Analyses of the high concentration soil VOA sample material and the corresponding Methanol Blank (B1NRF7) were not required.

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4. In addition, copy of the sample record sheet is included as Attachment 5.

It should be noted that the attached chain of custody was stamped “iced” and initialed by the WSCF Laboratory Sample Custodian during sample receiving, indicating the presence of ice in the sample container.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, pages 14 through 16, for a complete listing of approved analytical methods.

Inorganic Comments

Anions – The hold time requirements for this analysis were met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See pages 18 through 19 for QC details. Analytical Note(s):

- Duplicate, Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH7 (SDG# 20071366, SAF# F07-043).
- Sample results were D flagged (dilution).
- Sample results that were less than the reportable limit, however greater than the method detection limit were B flagged.
- Sulfate Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

Cyanide – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 20 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

ICP-MS Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 21 through 22 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).
- Copper contamination detected in the Blank was evaluated and there was no affect on sample result.

All other QC controls are within the established limits.

Percent Solids - Percent solids were performed for organic analyses result correction.

Organic Comments

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

PCB – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 28 through 29 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1PKK9 (SDG# 20071535, SAF# F03-015).
- Aroclor-1260 – Matrix Spike and Matrix Spike Duplicate exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

Semi-VOA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GPP Letter of Instruction. See pages 30 through 33 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1PKK6 (SDG# 20071535, SAF# F03-015).

All QC controls are within the established limits.

TPHD-WA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 34 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

TPHG-WA – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 35 for QC details. Analytical Note(s):

- Laboratory Control Sample recovery was slightly less than established laboratory limits. No flags issued.

All other QC controls are within the established limits.

VOA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 36 through 38 for QC details. Analytical Note(s):

- Analyses of the high concentration soil VOA sample material and the corresponding Methanol Blank (B1NRF7) were not required.
- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRF4 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

Radiochemistry Comments

Rad Chem – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 42 through 46 for QC details. Analytical Note(s):

- Americium-241 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Gamma Energy Analysis (GEA) – Duplicate QC was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Plutonium-238, 239/240 and 242 (Tracer) – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033). Duplicate Relative Percent Difference (RPD) for Plutonium 239/240 exceeded established laboratory limits due to low sample activity. No flags issued.

- Strontium-85, 89/90 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Uranium-232 (tracer), 233/234, 235 and 238 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).

All other QC controls are within the established limits.

I certify that this data package is in compliance with the LOI, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager and Client Services as verified by the following signatures.



Scot L. Fitzgerald
WSCF Analytical Laboratory Manager



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

FD7-043-009
 PROJECT COORDINATOR TRENT, SJ
 SAF NO. F07-043
 METHOD OF SHIPMENT GOVERNMENT VEHICLE

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 COMPANY CONTACT TELEPHONE NO. 373-5869
 PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
 FIELD LOGBOOK NO. COA 122868 ES3

OFFSITE PROPERTY NO. N/A
 BILL OF LADING/AIR BILL NO. N/A

COMPANY CONTACT Trent, SJ
 PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
 FIELD LOGBOOK NO. COA 122868 ES3

OFFSITE PROPERTY NO. N/A
 BILL OF LADING/AIR BILL NO. N/A

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 BILL OF LADING/AIR BILL NO. N/A

COMPANY CONTACT Trent, SJ
 PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
 FIELD LOGBOOK NO. COA 122868 ES3

SAMPLE NO.	MATRIX*	SPECIAL HANDLING AND/OR STORAGE	PRESERVATION	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SPECIAL INSTRUCTIONS	Cool 4C	Name				
W0171	SOIL				1	120mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS G;	TPH-Gasoline Range - WTPH-Range - 8092;	aG	1	1	1	1	500mL
					1	40mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS G;	PCBs - 8092;	aG	1	1	1	1	500mL
					1	120mL	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	aG	1	1	1	1	500mL
					1	120mL	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	aG	1	1	1	1	500mL

SHIPPED TO Waste Sampling & Characterization

POSSIBLE SAMPLE HAZARDS/ REMARKS
 Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1/99/1993)

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105571 Fluor Hanford Inc. COLLECTOR Poppe/Pfister/Mokler SAMPLING LOCATION C5515, 1-006 ICE-CHEST NO. GWO-06-10 SHIPPED TO Severn Trent St. Louis	CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST COMPANY CONTACT Trent, SJ TELEPHONE NO. 373-5869 PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil FIELD LOGBOOK NO. COA 122868ES10 OFFSITE PROPERTY NO. 60008000 See RSR	PROJECT COORDINATOR TRENT, SJ SAF NO. F07-043 METHOD OF SHIPMENT FEDERAL EXPRESS BILL OF LADING/AIR BILL NO. 60008000 See RSR	F07-043-067 PRICE CODE BN AIR QUALITY <input type="checkbox"/> DATA TURNAROUND 45 Days / 45 Days	PAGE 1 OF 1				
MATRIX* A=Air DL=Drum L=Liquids DS=Drum S=Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Rad tie to B1NRB5	PRESERVATION Cool 4C	TYPE OF CONTAINER G/P	NO. OF CONTAINER(S) 1	VOLUME 120mL	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SPECIAL HANDLING AND/OR STORAGE	
SAMPLE NO. B1NRH1 171	MATRIX* SOIL	PRESERVATION Cool 4C	TYPE OF CONTAINER G/P	NO. OF CONTAINER(S) 1	VOLUME 40mL	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SPECIAL HANDLING AND/OR STORAGE	
CHAIN OF POSSESSION								
RELINQUISHED BY/REMOVED FROM I.H. PACHA JUL 10 2007 0832	RECEIVED BY/STORED IN M.G. BAUBER 07.11.07 0910	DATE/TIME JUL 10 2007 0832	DATE/TIME 07.11.07 0910	SIGN/ PRINT NAMES I.H. PACHA M.G. BAUBER	DATE/TIME JUL 10 2007 0832	DATE/TIME 07.11.07 0910	SPECIAL INSTRUCTIONS NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION (1) Semi-VOA -- 8270A (Add-On) (Tributyl phosphate) TPH-Diesel Range - WTPH-D (Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range) TPH-Gasoline Range - WTPH-G; PCBs - 8082; (2) ICP Metals - 6010B (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver) ICP Metals - 6010B (Supertrace Add-On) (Copper) Mercury - 7471 - (CV); IC Anions - 300.0 (Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate) Total Cyanide - 9010;	
RELINQUISHED BY/REMOVED FROM I.H. PACHA JUL 10 2007 0832	RECEIVED BY/STORED IN M.G. BAUBER 07.11.07 0910	DATE/TIME JUL 10 2007 0832	DATE/TIME 07.11.07 0910	SIGN/ PRINT NAMES I.H. PACHA M.G. BAUBER	DATE/TIME JUL 10 2007 0832	DATE/TIME 07.11.07 0910	SPECIAL INSTRUCTIONS NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION (1) Semi-VOA -- 8270A (Add-On) (Tributyl phosphate) TPH-Diesel Range - WTPH-D (Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range) TPH-Gasoline Range - WTPH-G; PCBs - 8082; (2) ICP Metals - 6010B (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver) ICP Metals - 6010B (Supertrace Add-On) (Copper) Mercury - 7471 - (CV); IC Anions - 300.0 (Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate) Total Cyanide - 9010;	
RELINQUISHED BY/REMOVED FROM I.H. PACHA JUL 10 2007 0832	RECEIVED BY/STORED IN M.G. BAUBER 07.11.07 0910	DATE/TIME JUL 10 2007 0832	DATE/TIME 07.11.07 0910	SIGN/ PRINT NAMES I.H. PACHA M.G. BAUBER	DATE/TIME JUL 10 2007 0832	DATE/TIME 07.11.07 0910	SPECIAL INSTRUCTIONS NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION (1) Semi-VOA -- 8270A (Add-On) (Tributyl phosphate) TPH-Diesel Range - WTPH-D (Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range) TPH-Gasoline Range - WTPH-G; PCBs - 8082; (2) ICP Metals - 6010B (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver) ICP Metals - 6010B (Supertrace Add-On) (Copper) Mercury - 7471 - (CV); IC Anions - 300.0 (Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate) Total Cyanide - 9010;	
RELINQUISHED BY/REMOVED FROM I.H. PACHA JUL 10 2007 0832	RECEIVED BY/STORED IN M.G. BAUBER 07.11.07 0910	DATE/TIME JUL 10 2007 0832	DATE/TIME 07.11.07 0910	SIGN/ PRINT NAMES I.H. PACHA M.G. BAUBER	DATE/TIME JUL 10 2007 0832	DATE/TIME 07.11.07 0910	SPECIAL INSTRUCTIONS NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION (1) Semi-VOA -- 8270A (Add-On) (Tributyl phosphate) TPH-Diesel Range - WTPH-D (Total petroleum hydrocarbons - diesel range, Total petroleum hydrocarbons - kerosene range) TPH-Gasoline Range - WTPH-G; PCBs - 8082; (2) ICP Metals - 6010B (Supertrace) (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver) ICP Metals - 6010B (Supertrace Add-On) (Copper) Mercury - 7471 - (CV); IC Anions - 300.0 (Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphate, Sulfate) Total Cyanide - 9010;	
LABORATORY SECTION U	RECEIVED BY M.G. BAUBER	TITLE						DATE/TIME
FINAL SAMPLE DISPOSITION 00	DISPOSAL METHOD	DISPOSED BY						DATE/TIME

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
COMPANY CONTACT: Fluor Hanford Inc. **TELEPHONE NO.:** 373-5869
PROJECT COORDINATOR: TRENT, SJ
PRICE CODE: 8N **PAGE 1 OF 1**
COLLECTOR: [Signature] **SAF NO.:** F07-043 **AIR QUALITY:**
TURNAROUND DATA: 45 Days / 45 Days
SAMPLING LOCATION: 5515, 1-006 P 29'-31.5'
METHOD OF SHIPMENT: GOVERNMENT VEHICLE
FIELD LOGBOOK NO.: COA 122868 ES3
OFFSITE PROPERTY NO.: N/A
BILL OF LADING/AIR BILL NO.: N/A

MATRIX*	PREPARATION	COOL 4C							
POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	None	None	None	None	None	None	None	None	None
TYPE OF CONTAINER Square Bottle - Poly	aG	aG	aG	aG	aG	aG	aG	aG	aG
NO. OF CONTAINER(S) 1	1	1	1	1	1	1	1	1	1
VOLUME 120ml	40ml	120ml							
SPECIAL HANDLING AND/OR STORAGE	SEE ITEM (1) IN SPECIAL INSTRUCTIONS G;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SEE ITEM (4) IN SPECIAL INSTRUCTIONS	SEE ITEM (5) IN SPECIAL INSTRUCTIONS	SEE ITEM (6) IN SPECIAL INSTRUCTIONS	SEE ITEM (7) IN SPECIAL INSTRUCTIONS	SEE ITEM (8) IN SPECIAL INSTRUCTIONS	SEE ITEM (9) IN SPECIAL INSTRUCTIONS
SAMPLE DATE 6-27-07	SAMPLE TIME 1055	X	X	X	X	X	X	X	X

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	[Signature]	5146 Ref A2	6-27-07 1700
RELINQUISHED BY/REMOVED FROM	[Signature]	[Signature]	[Signature]
RELINQUISHED BY/REMOVED FROM	[Signature]	MO-245 R.F.#3	7-9-07 1545
RELINQUISHED BY/REMOVED FROM	[Signature]	[Signature]	07.11.07 0900
RELINQUISHED BY/REMOVED FROM			

SPECIAL INSTRUCTIONS
 (1) Semi-VQA - 8270B (Add-On) {Tributyl phosphate} TPH-Diesel Range - WTPH-D;
 (2) ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8_HG - ICP/MS;
 (3) IC Anions - 300.0 {Fluoride, Nitrogen in Nitrate, Phosphorus in phosphate, Sulfate}
 (4) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Americium-241; Isotopic Plutonium; Strontium-90, 90 - Total Sr;

LABORATORY SECTION RECEIVED BY: [Signature] DATE/TIME: [Signature]
FINAL SAMPLE DISPOSITION DISPOSED BY: [Signature] DATE/TIME: [Signature]

FLUOR HANFORD INC. 1721st, SJ 373-5869		CHAIRMAN OF CUSTODY/SAMPLE ANALYSIS REQUEST PROJECT COORDINATOR TRENT, SJ SAF NO. F07-043 METHOD OF SHIPMENT GOVERNMENT VEHICLE BILL OF LADING/AIR BILL NO. N/A		F07-043-011 PRICE CODE SN AIR QUALITY DATA TURNAROUND 45 Days / 45 Days		PAGE 1 OF 1	
COMPANY CONTACT TELEPHONE NO. 373-5869		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		FIELD LOGBOOK NO. COA 122868 ES3		OFFSITE PROPERTY NO. N/A	
COLLECTOR Pipe/Pfister/Mokler		FIELD LOGBOOK NO. COA 122868 ES3		OFFSITE PROPERTY NO. N/A		FIELD LOGBOOK NO. COA 122868 ES3	
SAMPLING LOCATION 291-21-5-1		FIELD LOGBOOK NO. COA 122868 ES3		OFFSITE PROPERTY NO. N/A		FIELD LOGBOOK NO. COA 122868 ES3	
ICE CHEST NO. 33		OFFSITE PROPERTY NO. N/A		FIELD LOGBOOK NO. COA 122868 ES3		OFFSITE PROPERTY NO. N/A	
SHIPPED TO Waste Sampling & Characterization		OFFSITE PROPERTY NO. N/A		FIELD LOGBOOK NO. COA 122868 ES3		OFFSITE PROPERTY NO. N/A	
MATRIX* A=Air DL=Drum L=Liquid DS=Drum S=Solids L=Liquid O=Oil S=Soil SE=Sludiment T=Tissue V=Vegetation W=Water WT=Wipe X=Other		PRESERVATION Frozen aGs* 5 40mL 40mL		TYPE OF CONTAINER aGs* 3 40mL		NO. OF CONTAINER(S) 5 40mL	
POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		PRESERVATION Frozen aGs* 5 40mL		TYPE OF CONTAINER aGs* 3 40mL		NO. OF CONTAINER(S) 5 40mL	
SPECIAL HANDLING AND/OR STORAGE		PRESERVATION Frozen aGs* 5 40mL		TYPE OF CONTAINER aGs* 3 40mL		NO. OF CONTAINER(S) 5 40mL	
SAMPLE NO. BUNRCS 171		MATRIX* SOIL		SAMPLE DATE 10-6-77 1055 6-27-87		SAMPLE TIME X X	
CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS (1)VOA - 5035/8260 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) {1- Butanol, dis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene} (2)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) {1- Butanol, dis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}		RECEIVED BY/STORER IN DATE/TIME 6-27-87 1300 RECEIVED BY/STORER IN DATE/TIME 7-9-87 1400 RECEIVED BY/STORER IN DATE/TIME 7-9-87 1545 RECEIVED BY/STORER IN DATE/TIME 7-11-87 0900	
RELINQUISHED BY/REMOVED FROM J. P. Miller 6-27-87		DATE/TIME 1300		RELINQUISHED BY/REMOVED FROM A-2 Site Cooler 7-9-87		DATE/TIME 1400	
RELINQUISHED BY/REMOVED FROM J. P. Miller 7-9-87		DATE/TIME 1545		RELINQUISHED BY/REMOVED FROM M. J. R. 7-9-87		DATE/TIME 07-11-87 0900	
RELINQUISHED BY/REMOVED FROM J. P. Miller 7-9-87		DATE/TIME 1545		RELINQUISHED BY/REMOVED FROM M. J. R. 7-9-87		DATE/TIME 07-11-87 0900	
RELINQUISHED BY/REMOVED FROM J. P. Miller 7-9-87		DATE/TIME 1545		RELINQUISHED BY/REMOVED FROM M. J. R. 7-9-87		DATE/TIME 07-11-87 0900	
LABORATORY SECTION 1-2		RECEIVED BY		TITLE		DATE/TIME	
ORIGINAL SAMPLE POSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME	

COLLECTOR Poppy Prister/Mokler Fluor Hanford Inc. 10517		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST PROJECT COORDINATOR TRENT, SJ SAF NO. F07-043 METHOD OF SHIPMENT FEDERAL EXPRESS BILL OF LADING/AIR BILL NO. 670008000		F07-043-069 PRICE CODE 8N AIR QUALITY <input type="checkbox"/> DATA TURNAROUND 45 Days / 45 Days	PAGE 1 OF 1
COMPANY CONTACT Trent, SJ TELEPHONE NO. 373-5869		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil FIELD LOGBOOK NO. COA 122868ES10			
OFFSITE PROPERTY NO. See RSR 670008000		PRESERVATION Cool 4C			
TYPE OF CONTAINER ja65*		NO. OF CONTAINER(S) 1			
VOLUME 40mL		SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS			
SPECIAL HANDLING AND/OR STORAGE		SAMPLE DATE 6/27/07		SAMPLE TIME 1055 X	
MATRIX* A-Air DL-Drum L-Liquid DS-Drum S-Soil SE-Sediment T-Tissue V-Vegetation W-Water WI-Wipe X-Other		MATRIX* SOIL			
POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		RECEIVED BY/STORER IN M.A. Bauder DATE/TIME JUL 10 2007 0830		RECEIVED BY/STORER IN M.A. Bauder DATE/TIME JUL 10 2007 0830	
RECEIVED BY/REMOVED FROM		RECEIVED BY/STORER IN M.A. Bauder DATE/TIME JUL 10 2007 0830		RECEIVED BY/STORER IN M.A. Bauder DATE/TIME JUL 10 2007 0830	
RECEIVED BY/REMOVED FROM		RECEIVED BY/STORER IN M.A. Bauder DATE/TIME JUL 10 2007 0830		RECEIVED BY/STORER IN M.A. Bauder DATE/TIME JUL 10 2007 0830	
RECEIVED BY/REMOVED FROM		RECEIVED BY/STORER IN M.A. Bauder DATE/TIME JUL 10 2007 0830		RECEIVED BY/STORER IN M.A. Bauder DATE/TIME JUL 10 2007 0830	
RECEIVED BY/REMOVED FROM		RECEIVED BY/STORER IN M.A. Bauder DATE/TIME JUL 10 2007 0830		RECEIVED BY/STORER IN M.A. Bauder DATE/TIME JUL 10 2007 0830	
LABORATORY I-SECTION		RECEIVED BY		TITLE	
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DATE/TIME	

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST COMPANY CONTACT: Trent, SJ TELEPHONE NO.: 373-5869 PROJECT COORDINATOR: TRENT, SJ PRICE CODE: 8N AIR QUALITY: <input type="checkbox"/> SAF NO.: F07-043 METHOD OF SHIPMENT: FEDERAL EXPRESS BILL OF LADING/AIR BILL NO.: 610008000 See RSR		F07-043-071 PAGE 1 OF 1 DATA TURNAROUND: 45 Days / 45 Days
PROJECT DESIGNATION: 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil FIELD LOGBOOK NO.: COA 122868ES10 OFFSITE PROPERTY NO.: 610008000 See RSR	PRESERVATION: Cool-AC TYPE OF CONTAINER: aGas* NO. OF CONTAINER(S): 1 VOLUME: 40ml SAMPLE ANALYSIS: SEE ITEM (1) IN SPECIAL INSTRUCTIONS	
MATRIX*: W BINC9 171	SAMPLE NO.: SOIL MATRIX*:	SAMPLE DATE: 6/27/07 SAMPLE TIME: 1055 X
SPECIAL HANDLING AND/OR STORAGE:		
CHAIN OF POSSESSION:		
RECEIVED BY: [Signature] DATE/TIME: JUL 10 2007 0830	RECEIVED BY/STORED IN: [Signature] DATE/TIME: 07.11.07 0900	SIGN / PRINT NAMES: [Signature] SPECIAL INSTRUCTIONS: NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION (1)VOA - 5035/8260 (TCL); VOA - 5035/8260 - (Add-On) (1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene)
RELINQUISHED BY/REMOVED FROM: [Signature] DATE/TIME:	RECEIVED BY/STORED IN: [Signature] DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: [Signature] DATE/TIME:	RECEIVED BY/STORED IN: [Signature] DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: [Signature] DATE/TIME:	RECEIVED BY/STORED IN: [Signature] DATE/TIME:	
RELINQUISHED BY/REMOVED FROM: [Signature] DATE/TIME:	RECEIVED BY/STORED IN: [Signature] DATE/TIME:	
LABORATORY SECTION: 17	RECEIVED BY:	DATE/TIME:
FINAL SAMPLE DISPOSITION:	DISPOSAL METHOD:	DATE/TIME:

A-6003-618(01/06)

COLLECTOR Roper/Pfister/Mokler Fluor Hanford Inc.		COMPANY CONTACT Trent, SJ 373-5869		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST PROJECT COORDINATOR TRENT, SJ		F07-043-012 PRICE CODE 8N AIR QUALITY <input type="checkbox"/>		PAGE 1 OF 1 DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION 515, I-006 P 29'-31.5'		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		SAF NO. F07-043		METHOD OF SHIPMENT GOVERNMENT VEHICLE			
ICE CHEST NO. 003		FIELD LOGBOOK NO. COA 122868 ES3		OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A			
SHIPPED TO Waste Sampling & Characterization		PRESERVATION Cool 4C		TYPE OF CONTAINER 9G3*		NO. OF CONTAINER(S) 1			
Possible Sample Hazards/ Remarks Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		VOLUME 40mL		SAMPLE ANALYSIS SEE ITEM (3) IN SPECIAL INSTRUCTIONS					
SPECIAL HANDLING AND/OR STORAGE		SAMPLE DATE 6-27-07		SAMPLE TIME 1055		X			
MATRIX* A=Air DL=Drum L=Liquid DS=Drum S=Soil SE=Sludgment T=Trucks V=Vegetation W=Water X=Other		MATRIX* SOIL							
RELINQUISHED BY/REMOVED FROM J. Roper 6/27/07 1300		RECEIVED BY/STORED IN A-2 Site Frigate 6-27-07 1300		DATE/TIME 6-27-07 1300					
RELINQUISHED BY/REMOVED FROM A-2 Site RFE 7/19/07 1450		RECEIVED BY/STORED IN J. Munkes 7/19/07 1450		DATE/TIME 7-19-07 1450					
RELINQUISHED BY/REMOVED FROM J. Munkes 7/19/07 1450		RECEIVED BY/STORED IN M. TYS R.F. #3 7-9-07 1555		DATE/TIME 7-9-07 1555					
RELINQUISHED BY/REMOVED FROM J. Munkes 7/19/07 1450		RECEIVED BY/STORED IN J. Munkes 07-11-07 0900		DATE/TIME 07-11-07 0900					
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM		RECEIVED BY/STORED IN		DATE/TIME					
LABORATORY SECTION		RECEIVED BY		TITLE		DATE/TIME			
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME			

SPECIAL INSTRUCTIONS
 (1)VOA - 5035/8260 (TCL); VOA - 5035/8260 - (Add-On) {1-Butanol, dis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}

COLLECTOR: Pope/Pfister/Mokler
 COMPANY CONTACT: Trent, NJ
 TELEPHONE NO.: 373-5869
 PROJECT COORDINATOR: TRENT, NJ
 PRICE CODE: 8N
 DATA TURNAROUND: 45 Days / 45 Days

SAMPLING LOCATION: C5515, I-118 285'-287'
 PROJECT DESIGNATION: 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
 SAF NO.: F07-043
 AIR QUALITY:
 ICE CHEST NO.:
 FIELD LOGBOOK NO.: COA 122868 ES3
 METHOD OF SHIPMENT: GOVERNMENT VEHICLE

SHIPPED TO: Waste Sampling & Characterization
 OFFSITE PROPERTY NO.: N/A
 BILL OF LADING/AIR BILL NO.: N/A

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool 4C				
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	aG	aG	G/P	aG	aG	None
		1	1	1	1	1	1
		120mL	40mL	120mL	120mL	120mL	500mL

SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	TPH-Gasoline Range - WTPH-Range - WTPH-G	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	Canister (Total) - SEE ITEM (4) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1NRJ0 407602213	SOIL	8-21-07	0905

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM: J.S. [Signature]		TA [Signature]	8/21/07 0525										
RELINQUISHED BY/REMOVED FROM:													
RELINQUISHED BY/REMOVED FROM:													
RELINQUISHED BY/REMOVED FROM:													
RELINQUISHED BY/REMOVED FROM:													
RELINQUISHED BY/REMOVED FROM:													

SPECIAL INSTRUCTIONS:
 (1) Semi-VOA - 8270B (Add-On) {Tributyl phosphate} TPH-Diesel Range - WTPH-D;
 (2) ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Silver, ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8 HG - ICP/MS;
 (3) IC Anions - 300.0 {Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorus in phosphate, Sulfate}
 (4) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr;



COLLECTOR Pope/Pfister/Mokler		COMPANY CONTACT Trent, NJ		TELEPHONE NO. 373-5869		PROJECT COORDINATOR TRENT, NJ		PRICE CODE 8N		DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION CS515, I-118 <i>Z85'-287'</i>		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		SAF NO. F07-043		METHOD OF SHIPMENT GOVERNMENT VEHICLE		AIR QUALITY <input type="checkbox"/>			
ICE CHEST NO.		FIELD LOGBOOK NO.		COA 122868 ES3		BILL OF LADING/AIR BILL NO. N/A					
SHIPPED TO Waste Sampling & Characterization		OFFSITE PROPERTY NO. N/A									
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other		PRESERVATION Frozen		Cool 4C							
POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		TYPE OF CONTAINER		aGs*							
		NO. OF CONTAINER(S)		5							
		VOLUME		40mL							
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS		SEE ITEM (2) IN SPECIAL INSTRUCTIONS					
SAMPLE NO.		MATRIX*		SAMPLE DATE		SAMPLE TIME					
BINRF6 9214		SOIL		8-21-07		0805					
CHAIN OF POSSESSION		SIGN/ PRINT NAMES		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM <i>J. S. [Signature]</i> 8-21-07		DATE/TIME 0825		RECEIVED BY/STORED IN <i>JA FRAZ</i>		DATE/TIME 8/24/07 0925					
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					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
LABORATORY SECTION		RECEIVED BY		TITLE		DATE/TIME					
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME					

ICED Initial Date

[Signature]

SPECIAL INSTRUCTIONS
 (1)VOA - 5035/8260 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
 (2)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}

COLLECTOR Pope/Pfister/Mokler		COMPANY CONTACT Trent, SJ		TELEPHONE NO. 373-5869		PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8N		DATA TURNOAROUND 45 Days / 45 Days	
SAMPLING LOCATION C5515, 1-118 285' - 287'		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		SAF NO. F07-043		METHOD OF SHIPMENT GOVERNMENT VEHICLE		AIR QUALITY			
ICE CHEST NO.		FIELD LOGBOOK NO.		COA 122868 ES3		BILL OF LADING/AIR BILL NO. N/A					
SHIPPED TO Waste Sampling & Characterization		OFFSITE PROPERTY NO. N/A									
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Washer WI=Wipe X=Other		POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		PRESERVATION Cool 4C							
				TYPE OF CONTAINER 3Gs*							
		NO. OF CONTAINER(S) 1		VOLUME 40mL							
		SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS					
SAMPLE NO.		MATRIX*		SAMPLE DATE		SAMPLE TIME					
B1NRF7 2215		SOIL		8-21-07		0605					
CHAIN OF POSSESSION		SIGN/ PRINT NAMES		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM J.S. McEl...		DATE/TIME 0925		T.A. P... J.S. McEl...		DATE/TIME 8/21/07 0925					
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					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
LABORATORY SECTION		RECEIVED BY		TITLE		DATE/TIME					
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME					

ICED Initial Date

SPECIAL INSTRUCTIONS
(1)VOA - 5035/8260 (TCL); VOA - 5035/8260 - (Add-On) {1-Butanol, ds-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}

Appendix 5

Data Validation Supporting Documentation

GC/MS ORGANIC DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: CPP 200 Area			DATA PACKAGE: VSR08-002		
VALIDATOR: Carl Schloesslin		LAB: STL St. Louis & WSCF		DATE: 01-28-2008	
			SDG: W05171 & WSCF20071485		
ANALYSES PERFORMED					
SW-846 8260		SW-846 8260 (TCLP)	SW-846 8270		SW-846 8270 (TCLP)
			X		
SAMPLES/MATRIX Soil samples B1NT07 & B1NRH1 (SDG W05171)					
Soil sample B1NRJ0 (SDG WSCF20071485)					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes **No** N/A

Comments: _____

Tributyl phosphate is the only SAP 8270C target analyte. SDG W05171 reported tributyl phosphate only. SDG WSCF20071485 reported 12 analytes, including tributyl phosphate.

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: SDG W05171: Tributyl phosphate not spiked in MS/MSD or LCS. MS/MSD and LCS QC forms not included in the data package since this was the only analyte reported.

SDG WSCF20071485: Tributyl phosphate not spiked in MS/MSD or LCS. Eleven analytes reported for MS/MSD & LCS.

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: Field duplicate tributyl phosphate RPD >30%, but measured values <5X
the RDL and value difference <2X the RDL.

6. SYSTEM PERFORMANCE (Levels D and E)

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

7. HOLDING TIMES (all levels)

Samples properly preserved? Yes No N/A
 Sample holding times acceptable? Yes No N/A
 Comments: 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: _____

GENERAL ORGANIC ANALYSIS DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: CPP 200 Area			DATA PACKAGE: VSR08-002		
VALIDATOR: Carl Schloesslin		LAB: STL St. Louis & WSCF		DATE: 01-28-2008	
			SDG: W05171 & WSCF20071485		
ANALYSES PERFORMED					
8015	8021	8141	8151	8315	
X		WTPH-HCID	WTPH-G	WTPH-D	
SAMPLES/MATRIX: Soil samples B1NT07 & B1NRH1 (SDG W05171)					
Soil sample B1NRJ0 (SDG WSCF20071485)					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes No N/A

Comments: None.

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: SDG W05171: WTPH-G batch 7198275 MS/MSD not spiked.

SDG W05171: WTPH-G batch 7199166 surrogate %R=34% for sample B1NT07, first analysis.
SDG WSCF20071485: no surrogate reported for WTPH-G - an LCS was performed.

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: SDG W05171: WTPH-G batch 7199166 samples analyzed 20 days after 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
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: 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 acceptable?..... 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

METHOD BLANK REPORT

GC/MS Semivolatiles

Client Lot #...: F7G110133 Work Order #...: J2M421AA Matrix.....: SOLID
 MB Lot-Sample #: F7G110000-306
 Analysis Date...: 07/16/07 Prep Date.....: 07/11/07
 Dilution Factor: 1 Prep Batch #...: 7192306

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	METHOD
Tributyl phosphate	ND	330	ug/kg	SW846 8270C
SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS		
2-Fluorophenol	79	(41 - 87)		
Phenol-d5	86	(40 - 94)		
Nitrobenzene-d5	82	(41 - 91)		
2-Fluorobiphenyl	88	(44 - 96)		
2,4,6-Tribromophenol	70	(37 - 105)		
Terphenyl-d14	104	(34 - 105)		

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Fluor Hanford Inc
Method Blank Report
GC/MS Semivolatiles

Lot-Sample #: F7G110000-306 B Work Order #: J2M421AA Matrix: SOLID

MASS SPECTROMETER/DATA SYSTEM (MSDS) TENTATIVELY IDENTIFIED COMPOUNDS

<u>PARAMETER</u>	<u>CAS #</u>	<u>ESTIMATED RESULT</u>	<u>RETENTION TIME</u>	<u>UNITS</u>
Heptane, 2,4-dimethyl-	2213-23-2	190	M 3.892	ug/kg
Unknown Alkane		170	M 3.951	ug/kg
Unknown Alkane		190	M 4.026	ug/kg
Unknown Aldol Condensate		8100	M 4.149	ug/kg
Unknown Organic Acid		160	M 9.128	ug/kg

NOTE(S) :

M: Result was measured against nearest internal standard assuming a response factor of 1.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: F7G110133 Work Order #...: J21V51AA Matrix.....: SOLID
MB Lot-Sample #: F7G170000-275 Prep Date.....: 07/11/07
Analysis Date...: 07/11/07 Prep Batch #...: 7198275
Dilution Factor: 1

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
TPH - Gasoline Range - WT	ND	0.10	mg/kg	SW846 8015 MOD
<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>		
Trifluorotoluene	98	(70 - 130)		

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

GC Volatiles

Client Lot #...: F7G110133 Work Order #...: J24AT1AA Matrix.....: SOLID
MB Lot-Sample #: F7G180000-166
Prep Date.....: 07/17/07
Analysis Date...: 07/17/07 Prep Batch #...: 7199166
Dilution Factor: 1

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>
TPH - Gasoline Range - WT	ND	0.10	mg/kg	SW846 8015 MOD

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
Trifluorotoluene	99	(70 - 130)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #....: F7G110133 Work Order #....: J21V51AC-LCS Matrix.....: SOLID
 LCS Lot-Sample#: F7G170000-275 J21V51AD-LCSD
 Prep Date.....: 07/11/07 Analysis Date...: 07/11/07
 Prep Batch #....: 7198275
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RPD</u>	<u>METHOD</u>
Volatile Petroleum	1.00	0.853	mg/kg	85		SW846 8015 MOD
Hydrocarbons	1.00	0.757	mg/kg	76	12	SW846 8015 MOD

<u>SURROGATE</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>RECOVERY</u> <u>LIMITS</u>
Trifluorotoluene	107	(76 - 119)
	114	(76 - 119)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.
 Bold print denotes control parameters

LABORATORY CONTROL SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: F7G110133 Work Order #...: J24AT1AC-LCS Matrix.....: SOLID
 LCS Lot-Sample#: F7G180000-166 J24AT1AD-LCSD
 Prep Date.....: 07/17/07 Analysis Date...: 07/17/07
 Prep Batch #...: 7199166
 Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Volatile Petroleum Hydrocarbons	1.00	1.05	mg/kg	105		SW846 8015 MOD
	1.00	0.966	mg/kg	97	8.3	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Trifluorotoluene	123 *	(76 - 119)
	121 *	(76 - 119)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

* Surrogate recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC Volatiles

Client Lot #...: F7G110133 Work Order #...: J2L041DD-MS Matrix.....: SOLID
 MS Lot-Sample #: F7G110133-001 J2L041DE-MSD
 Date Sampled...: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/17/07 Analysis Date...: 07/17/07
 Prep Batch #...: 7199166
 Dilution Factor: 1 % Moisture.....: 3.3

PARAMETER	SAMPLE	SPIKE	MEASRD	UNITS	PERCNT		METHOD
	AMOUNT	AMT	AMOUNT		RECVRY	RPD	
Volatile Petroleum	ND	1.02	0.996	mg/kg	97		SW846 8015 MOD
Hydrocarbons	ND	1.03	0.949	mg/kg	92	4.8	SW846 8015 MOD

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Trifluorotoluene	113	(70 - 130)
	106	(70 - 130)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F7G110133 Work Order #...: J2M471AA Matrix.....: SOLID
 MB Lot-Sample #: F7G110000-307
 Analysis Date...: 07/20/07 Prep Date.....: 07/11/07
 Dilution Factor: 1 Prep Batch #...: 7192307

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u>		<u>METHOD</u>
		<u>LIMIT</u>	<u>UNITS</u>	
Kerosene	ND	25	mg/kg	SW846 8015 MOD
TPH - Diesel Range - WTPH	ND	25	mg/kg	SW846 8015 MOD
	<u>PERCENT</u>	<u>RECOVERY</u>		
<u>SURROGATE</u>	<u>RECOVERY</u>	<u>LIMITS</u>		
o-Terphenyl	77	(59 - 164)		

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: F7G110133 Work Order #...: J2M471AC Matrix.....: SOLID
 LCS Lot-Sample#: F7G110000-307
 Prep Date.....: 07/11/07 Analysis Date...: 07/20/07
 Prep Batch #...: 7192307
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>METHOD</u>
TPH - Diesel Range - WTPH	83.3	71.6	mg/kg	86	SW846 8015 MO
<u>SURROGATE</u>		<u>PERCENT</u> <u>RECOVERY</u>		<u>RECOVERY</u> <u>LIMITS</u>	
o-Terphenyl		104		(71 - 153)	

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.
 Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: F7G110133 Work Order #...: J2L041CP-MS Matrix.....: SOLID
 MS Lot-Sample #: F7G110133-001 J2L041CQ-MSD
 Date Sampled...: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/11/07 Analysis Date...: 07/20/07
 Prep Batch #...: 7192307
 Dilution Factor: 1 % Moisture.....: 3.3

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
TPH - Diesel Range - WTPH	ND	85.8	71.8	mg/kg	84		SW846 8015 MOD
	ND	85.6	73.4	mg/kg	86	2.2	SW846 8015 MOD

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
o-Terphenyl	115	(59 - 164)
	117	(59 - 164)

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.
 Bold print denotes control parameters
 Results and reporting limits have been adjusted for dry weight.

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20071485
 Matrix: SOLID
 Test: SW-846 8270C Semi-Vols

Sample Date: 08/21/07
 Receive Date: 08/21/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR02213											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	2-Fluorophenol(Surr)	367-12-4	7480.6	77.000	% Recov	72.000	120.000				09/10/07
SURR	2-Fluorobiphenyl(Surr)	321-60-8	11096	114.000	% Recov	66.000	122.000				09/10/07
SURR	Nitrobenzene-d5(Surr)	4165-60-0	7234.8	74.400	% Recov	63.000	125.000				09/10/07
SURR	Phenol-d5(Surr)	4165-62-2	7396.4	76.100	% Recov	66.000	124.000				09/10/07
SURR	2,4,6-Tribromophenol(Surr)	118-79-6	9354.5	96.300	% Recov	49.000	120.000				09/10/07
SURR	Terphenyl-d14(Surr)	98904-43-9	8216.3	84.500	% Recov	58.000	128.000				09/10/07
Lab ID: W07GR02290											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	1,2,4-Trichlorobenzene	120-82-1	5536.7	79.400	% Recov	75.000	121.000				09/10/07
MS	1,4-Dichlorobenzene	106-46-7	5551.0	79.600	% Recov	68.000	121.000				09/10/07
MS	2,4-Dinitrotoluene	121-14-2	5317.1	76.300	% Recov	66.000	113.000				09/10/07
MS	2-Fluorophenol(Surr)	367-12-4	11386	81.700	% Recov	72.000	120.000				09/10/07
MS	Acenaphthene	83-32-9	5485.8	78.700	% Recov	69.000	125.000				09/10/07
MS	4-Chloro-3-methylphenol	59-50-7	7522.0	71.900	% Recov	68.000	116.000				09/10/07
MS	2-Chlorophenol	95-57-8	8309.7	79.500	% Recov	65.000	124.000				09/10/07
MS	N-Nitrosodi-n-dipropylamine	621-64-7	5107.2	73.300	% Recov	69.000	127.000				09/10/07
MS	2-Fluorobiphenyl(Surr)	321-60-8	13581	97.400	% Recov	66.000	122.000				09/10/07
MS	Phenol	108-95-2	8466.0	81.000	% Recov	71.000	122.000				09/10/07
MS	Nitrobenzene-d5(Surr)	4165-60-0	10077	72.300	% Recov	63.000	125.000				09/10/07
MS	4-Nitrophenol	100-02-7	6361.6	60.800	% Recov	55.000	113.000				09/10/07
MS	Pentachlorophenol	87-86-5	6551.3	62.600	% Recov	50.000	113.000				09/10/07
MS	Phenol-d5(Surr)	4165-62-2	11062	79.300	% Recov	66.000	124.000				09/10/07
MS	Pyrene	129-00-0	5739.5	82.300	% Recov	67.000	125.000				09/10/07
MS	2,4,6-Tribromophenol(Surr)	118-79-6	11418	81.900	% Recov	49.000	120.000				09/10/07
MS	Terphenyl-d14(Surr)	98904-43-9	12418	89.100	% Recov	58.000	128.000				09/10/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: **WSCF20071485**
 Matrix: **SOLID**
 Test: **SW-846 8270C Semi-Vols**

Sample Date: **08/28/07**
 Receive Date: **08/28/07**

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
MSD	1,2,4-Trichlorobenzene	120-82-1	5599.6	80.600	% Recov	75.000	121.000				09/10/07
MSD	1,4-Dichlorobenzene	106-46-7	5688.0	81.800	% Recov	68.000	121.000				09/10/07
MSD	2,4-Dinitrotoluene	121-14-2	5663.4	81.500	% Recov	66.000	113.000				09/10/07
MSD	2-Fluorophenol(Surr)	367-12-4	11274	81.100	% Recov	72.000	120.000				09/10/07
MSD	Acenaphthene	83-32-9	5696.4	81.900	% Recov	69.000	125.000				09/10/07
MSD	4-Chloro-3-methylphenol	59-50-7	7619.1	73.100	% Recov	68.000	116.000				09/10/07
MSD	2-Chlorophenol	95-57-8	8650.9	83.000	% Recov	65.000	124.000				09/10/07
MSD	N-Nitrosodi-n-dipropylamine	621-64-7	5171.5	74.400	% Recov	69.000	127.000				09/10/07
MSD	2-Fluorobiphenyl(Surr)	321-60-8	13710	98.600	% Recov	66.000	122.000				09/10/07
MSD	Phenol	108-95-2	8550.2	82.000	% Recov	71.000	122.000				09/10/07
MSD	Nitrobenzene-d5(Surr)	4165-60-0	10085	72.500	% Recov	63.000	125.000				09/10/07
MSD	4-Nitrophenol	100-02-7	6528.0	62.600	% Recov	55.000	113.000				09/10/07
MSD	Pentachlorophenol	87-86-5	6507.6	62.400	% Recov	50.000	113.000				09/10/07
MSD	Phenol-d5(Surr)	4165-62-2	11177	80.400	% Recov	66.000	124.000				09/10/07
MSD	Pyrene	129-00-0	6087.6	87.600	% Recov	67.000	125.000				09/10/07
MSD	2,4,6-Tribromophenol(Surr)	118-79-6	11801	84.900	% Recov	49.000	120.000				09/10/07
MSD	Terphenyl-d14(Surr)	98904-43-9	12659	91.100	% Recov	58.000	128.000				09/10/07
SPK-RPD	1,2,4-Trichlorobenzene	120-82-1	80.600		RPD			1.500	20.000		09/10/07
SPK-RPD	1,4-Dichlorobenzene	106-46-7	81.800		RPD			2.726	20.000		09/10/07
SPK-RPD	2,4-Dinitrotoluene	121-14-2	81.500		RPD			6.591	20.000		09/10/07
SPK-RPD	2-Fluorophenol(Surr)	367-12-4	81.100		RPD			0.737	20.000		09/10/07
SPK-RPD	Acenaphthene	83-32-9	81.900		RPD			3.985	20.000		09/10/07
SPK-RPD	4-Chloro-3-methylphenol	59-50-7	73.100		RPD			1.655	20.000		09/10/07
SPK-RPD	2-Chlorophenol	95-57-8	83.000		RPD			4.308	20.000		09/10/07
SPK-RPD	N-Nitrosodi-n-dipropylamine	621-64-7	74.400		RPD			1.490	20.000		09/10/07
SPK-RPD	2-Fluorobiphenyl(Surr)	321-60-8	98.600		RPD			1.224	20.000		09/10/07
SPK-RPD	Phenol	108-95-2	82.000		RPD			1.227	20.000		09/10/07
SPK-RPD	Nitrobenzene-d5(Surr)	4165-60-0	72.500		RPD			0.276	20.000		09/10/07
SPK-RPD	4-Nitrophenol	100-02-7	62.600		RPD			2.917	20.000		09/10/07
SPK-RPD	Pentachlorophenol	87-86-5	62.400		RPD			0.320	20.000		09/10/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: **WSCF20071485**
 Matrix: **SOLID**
 Test: **SW-846 8270C Semi-Vols**

Sample Date: **08/28/07**
 Receive Date: **08/28/07**

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Phenol-d5(Surr)	4165-62-2	80.400		RPD			1.378	20.000		09/10/07
SPK-RPD	Pyrene	129-00-0	87.600		RPD			6.239	20.000		09/10/07
SPK-RPD	2,4,6-Tribromophenol(Surr)	118-79-6	84.900		RPD			3.597	20.000		09/10/07
SPK-RPD	Terphenyl-d14(Surr)	98904-43-9	91.100		RPD			2.220	20.000		09/10/07
BATCH QC											
BLANK	1,2,4-Trichlorobenzene	120-82-1	< 140	n/a	ug/Kg					U	09/10/07
BLANK	1,4-Dichlorobenzene	106-46-7	< 240	n/a	ug/Kg					U	09/10/07
BLANK	2,4-Dinitrotoluene	121-14-2	< 140	n/a	ug/Kg					U	09/10/07
BLANK	2-Fluorophenol(Surr)	367-12-4	9410.3	84.000	% Recov	72.000	120.000				09/10/07
BLANK	Acenaphthene	83-32-9	< 140	n/a	ug/Kg					U	09/10/07
BLANK	4-Chloro-3-methylphenol	59-50-7	< 140	n/a	ug/Kg					U	09/10/07
BLANK	2-Chlorophenol	95-57-8	< 140	n/a	ug/Kg					U	09/10/07
BLANK	N-Nitrosodi-n-dipropylamine	621-64-7	< 140	n/a	ug/Kg					U	09/10/07
BLANK	2-Fluorobiphenyl(Surr)	321-60-8	12174	109.000	% Recov	66.000	122.000				09/10/07
BLANK	Phenol	108-95-2	< 140	n/a	ug/Kg					U	09/10/07
BLANK	Nitrobenzene-d5(Surr)	4165-60-0	9540.9	85.200	% Recov	63.000	125.000				09/10/07
BLANK	4-Nitrophenol	100-02-7	< 200	n/a	ug/Kg					U	09/10/07
BLANK	Pentachlorophenol	87-86-5	< 200	n/a	ug/Kg					U	09/10/07
BLANK	Phenol-d5(Surr)	4165-62-2	9006.7	80.400	% Recov	66.000	124.000				09/10/07
BLANK	Pyrene	129-00-0	< 140	n/a	ug/Kg					U	09/10/07
BLANK	Tributyl phosphate	126-73-8	< 140	n/a	ug/Kg					U	09/10/07
BLANK	2,4,6-Tribromophenol(Surr)	118-79-6	12759	114.000	% Recov	49.000	120.000				09/10/07
BLANK	Terphenyl-d14(Surr)	98904-43-9	11354	101.000	% Recov	58.000	128.000				09/10/07
LCS	1,2,4-Trichlorobenzene	120-82-1	4345.9	109.000	% Recov	76.000	118.000				09/10/07
LCS	1,4-Dichlorobenzene	106-46-7	4337.6	108.000	% Recov	68.000	121.000				09/10/07
LCS	2,4-Dinitrotoluene	121-14-2	4311.1	108.000	% Recov	68.000	112.000				09/10/07
LCS	2-Fluorophenol(Surr)	367-12-4	9030.9	94.100	% Recov	50.000	110.000				09/10/07
LCS	Acenaphthene	83-32-9	4459.9	111.000	% Recov	75.000	121.000				09/10/07
LCS	4-Chloro-3-methylphenol	59-50-7	5148.8	85.800	% Recov	68.000	117.000				09/10/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Organic

SDG Number: WSCF20071485
 Matrix: SOLID
 Test: SW-846 8270C Semi-Vols

Sample Date:
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
LCS	2-Chlorophenol	95-57-8	6480.6	108.000	% Recov	84.000	114.000				09/10/07
LCS	N-Nitrosodi-n-dipropylamine	621-64-7	4073.4	102.000	% Recov	76.000	119.000				09/10/07
LCS	2-Fluorobiphenyl(Surr)	321-60-8	10501	109.000	% Recov	58.000	109.000				09/10/07
LCS	Phenol	108-95-2	6082.7	101.000	% Recov	80.000	113.000				09/10/07
LCS	Nitrobenzene-d5(Surr)	4165-60-0	8816.1	91.800	% Recov	60.000	118.000				09/10/07
LCS	4-Nitrophenol	100-02-7	5989.1	99.800	% Recov	42.000	123.000				09/10/07
LCS	Pentachlorophenol	87-86-5	5930.0	98.800	% Recov	55.000	120.000				09/10/07
LCS	Phenol-d5(Surr)	4165-62-2	8407.3	87.600	% Recov	59.000	116.000				09/10/07
LCS	Pyrene	129-00-0	4389.5	110.000	% Recov	67.000	122.000				09/10/07
LCS	2,4,6-Tribromophenol(Surr)	118-79-6	9916.6	103.000	% Recov	60.000	120.000				09/10/07
LCS	Terphenyl-d14(Surr)	98904-43-9	9614.6	100.000	% Recov	60.000	120.000				09/10/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20071485

Matrix: SOLID

Test: NWTPH-D TPH Diesel Range (Wa)

Sample Date: 08/15/07
Receive Date: 08/15/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD (%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR02165											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	ortho-Terphenyl Surr	84-15-1	18.604	90.200	% Recov	70.000	130.000				08/28/07
MS	Total Pet. Hydrocarbons Diesel	TPHDIESEL	90.884	88.100	% Recov	75.000	125.000				08/28/07
MSD	ortho-Terphenyl Surr	84-15-1	19.195	93.400	% Recov	70.000	130.000				08/28/07
MSD	Total Pet. Hydrocarbons Diesel	TPHDIESEL	94.284	91.700	% Recov	75.000	125.000				08/28/07
SPK-RPD	ortho-Terphenyl Surr	84-15-1	93.400		RPD			3.486	20.000		08/28/07
SPK-RPD	Total Pet. Hydrocarbons Diesel	TPHDIESEL	91.700		RPD			4.004	20.000		08/28/07
Lab ID: W07GR02213											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	ortho-Terphenyl Surr	84-15-1	19.705	80.900	% Recov	70.000	130.000				08/28/07
BATCH QC											
BLANK	Kerosene	TPHKEROSENE	< 5.0	n/a	ug/Kg					U	08/28/07
BLANK	ortho-Terphenyl Surr	84-15-1	19.956	99.800	% Recov	70.000	130.000				08/28/07
BLANK	Total Pet. Hydrocarbons Diesel	TPHDIESEL	< 5.0	n/a	ug/Kg					U	08/28/07
LCS	ortho-Terphenyl Surr	84-15-1	17.973	89.900	% Recov	70.000	130.000				08/28/07
LCS	Total Pet. Hydrocarbons Diesel	TPHDIESEL	88.896	88.900	% Recov	80.000	120.000				08/28/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20071485

Matrix: SOLID

Test: NWTPH-GX TPH Gasoline Range

Sample Date: 08/21/07

Receive Date: 08/21/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date	
Lab ID: W07GR02213												
BATCH QC ASSOCIATED WITH SAMPLE												
DUP	Total Pet. Hydrocarbons Gas		< 250		RPD			n/a	20.000	U	08/29/07	
MS	Total Pet. Hydrocarbons Gas	4200	4200	87.500	% Recov	50.000	150.000				08/29/07	
MSD	Total Pet. Hydrocarbons Gas	4500	4500	90.000	% Recov	50.000	150.000				08/29/07	
SPK-RPD	Total Pet. Hydrocarbons Gas	90.000	90.000		RPD			2.817	20.000		08/29/07	
BATCH QC												
BLANK	Total Pet. Hydrocarbons Gas		< 250		mg/L	0.000	300.000			U	08/29/07	
LCS	Total Pet. Hydrocarbons Gas	4200	4200	84.000	% Recov	85.000	115.000				08/29/07	

Date: 28 January 2008
To: Fluor Hanford Inc. (technical representative)
From: Analytical Quality Associates, Inc.
Project: CPP 200 Area
Subject: PCBs - Sample Data Groups (SDGs) W05171 and WSCF20071485

INTRODUCTION

This memorandum presents the results of data validation for SDG W05171 prepared by STL St. Louis and SDG WSCF20071485 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
B1NT07	06/27/07	Solid	C	8082A
B1NRH1	06/27/07	Solid	C	8082A
B1NRJ0	08/21/07	Solid	C	8082A

Data validation was conducted in accordance with the FHI validation statement of work and the Sampling and Analysis Plan for Supplemental Remedial Investigation Activities at the 216-A-2 Crib and the 216-A-21 Crib, DOE/RL-2006-77, Rev. 0 Reissue (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. It should be noted that the SAP states that the PCB holding time is 14 days from sample collection to analysis. This guidance is incorrect and was not followed for data validation.

- **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.

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 matrix spike and laboratory control sample accuracy limits are 70% to 130%.

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 SDG WSCF20071485 the aroclor-1260 MS and MSD recoveries were above the upper acceptance limit. All sample aroclor results were non-detects and should not be qualified. It should be noted that aroclor-1260 was the only analyte reported for the MS/MSD. Method 8082A guidance specifies aroclor-1016 and aroclor-1260 for MS/MSD analyses. In addition, the MS/MSD were performed on a solid sample from another SDG. No sample data were qualified as a result.

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable. It should be noted that for SDG WSCF20071485 aroclor-1260 was the only LCS analyte reported. Method 8082A guidance specifies aroclor-1016 and aroclor-1260 for LCS analyses. No sample data were qualified as a result.

- **Precision**

Precision is evaluated by reviewing MS/MSD results and field duplicate 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 limits are $\pm 30\%$.

MS/MSD Samples

All MS/MSD relative percent difference values were acceptable.

Field Duplicate Samples

All field duplicate results were acceptable.

- **Detection Limits**

Reported method detection limits (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. The arochlor-1221 MDL for sample B1NRJ0 was $>$ the CRDL. No sample data were qualified as a result.

- **Completeness**

SDGs W05171 and WSCF20071485 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

FHI, Contract #29774, *Validation of Radiological and Chemical Analytical Data*, Fluor Hanford Incorporated, August 24, 2006.

DOE/RL-2006-77, Rev. 0 Reissue, *Sampling and Analysis Plan for Supplemental Remedial Investigation Activities at the 216-A-2 Crib and the 216-A-21 Crib*, June 2007.

Appendix 1
Glossary of Data Reporting Qualifiers

Qualifiers that may be applied by data validators in compliance with the FHI 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			
SDGs: W05171 & WSCF20071485	Reviewer: AQA	Project: CPP 200 Area	Page 1 of 1
Analyte(s)	Qualifier	Samples Affected	Reason
PCBs	None	N/A	N/A

Comments: None

Appendix 3

Annotated Laboratory Reports

Fluor Hanford Inc

Client Sample ID: B1NT07

GC Semivolatiles

Lot-Sample #...: F7G110133-001 Work Order #...: J2L041AR Matrix.....: SOLID
 Date Sampled...: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/11/07 Analysis Date...: 07/16/07
 Prep Batch #...: 7192308
 Dilution Factor: 1
 % Moisture.....: 3.3 Method.....: SW846 8082

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Aroclor 1016	ND	34	ug/kg	6.2
Aroclor 1221	ND	34	ug/kg	6.2
Aroclor 1232	ND	34	ug/kg	6.2
Aroclor 1242	ND	34	ug/kg	6.2
Aroclor 1248	ND	34	ug/kg	6.2
Aroclor 1254	52	34	ug/kg	6.8
Aroclor 1260	ND	34	ug/kg	6.8
Aroclor 1262	ND	34	ug/kg	6.8
Aroclor 1268	ND	34	ug/kg	6.8

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Decachlorobiphenyl	104	(51 - 145)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Fluor Hanford Inc

Client Sample ID: B1NRE1

GC Semivolatiles

Lot-Sample #...: F7G110133-002 Work Order #...: J2L211AR Matrix.....: SOLID
 Date Sampled...: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/11/07 Analysis Date...: 07/16/07
 Prep Batch #...: 7192308
 Dilution Factor: 1
 % Moisture.....: 1.5 Method.....: SW846 8082

PARAMETER	RESULT	REPORTING		
		LIMIT	UNITS	MDL
Aroclor 1016	ND	33	ug/kg	6.1
Aroclor 1221	ND	33	ug/kg	6.1
Aroclor 1232	ND	33	ug/kg	6.1
Aroclor 1242	ND	33	ug/kg	6.1
Aroclor 1248	ND	33	ug/kg	6.1
Aroclor 1254	ND	33	ug/kg	6.7
Aroclor 1260	ND	33	ug/kg	6.7
Aroclor 1262	ND	33	ug/kg	6.7
Aroclor 1268	ND	33	ug/kg	6.7

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Decachlorobiphenyl	100	(51 - 145)

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Case Narrative
Lot Number: F7G110133
SDG: W05171

This report contains the analytical results for the six samples received under chain of custody by STL St. Louis on July 11, 2007. These samples are associated with your F07-043 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by STL St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Volatiles by SW846 8260B

Batch: 7193167

The CCV recovery was outside the upper QC limit (greater than 20% RSD) for Freon-114 (21.3%), Iodomethane (38.6%), Methyl Acetate (20.7%), trans-1,2-Dichloroethene (22.0%), cis-1,2-Dichloroethane (24.8%) and Bromochloromethane (31.4%) indicating a potential high bias for these analytes in the samples associated with this CCV. These analytes were not detected above the reporting limit in the associated samples or are not target analytes.

The LCS or LCSD recoveries for 1,2-Dichloroethene, Trichloroethene, cis-1,2-Dichloroethene and trans-1,2-Dichloroethene were above the upper QC limit, indicating a potential positive bias. These analytes were not detected above the reporting limit in the associated samples.

The LCS recoveries for 1,1-Dichloroethene, Carbon Disulfide and 2-Hexanone are below the lower QC limit, indicating a potential negative bias. However, the recoveries for these compounds are within the QC limit in the LCSD, indicating an anomaly isolated to the LCS alone. The RPDs for Acetone, 1,1-Dichloroethene and Carbon Disulfide are outside QC limits. The Acetone LCS/LCSD recoveries are acceptable.

The LCS and/or LCSD surrogate recoveries are outside the upper QC limit, indicating a potential high bias in spike compound recoveries.

The sample vial used for the MSD contained the wrong sample matrix (methanol), providing no data for the MSD. A matrix spike and LCS/LCSD were performed to demonstrate matrix accuracy and replicate precision. However, due to software limitations, the matrix spike cannot be reported. Matrix spike recoveries for Chloroethane (30%) and 1,2-Dichloropropane (60%) were below QC limits. All other analytes were within QC limits.

Affected Samples:

F7G110133 (3): B1NRC8

F7G110133 (4): B1NRC6

Batch: 7193167

In the original analysis, the associated sample's surrogate recovery was outside established QC limits. The sample was reprepared/reanalyzed within holding time. The reanalysis yielded acceptable results. Only the reanalysis results are reported.

Affected Samples:

F7G110133 (3): B1NRC8

Batches: 7193167 / 7194216

In the original analysis, the associated sample's internal standard (IS) recovery and Surrogate recovery was outside the lower QC limit. The sample was reprepared and reanalyzed 1 day past holding time (batch 7194216). The reanalysis, with acceptable IS and surrogate recoveries, yielded comparable sample results (non-detect). The original results, performed within hold time, are reported.

Affected Samples:

F7G110133 (4): B1NRC6

Volatile Petroleum Hydrocarbons by SW846 8015

Batch: 7198275

The surrogate recovery in the closing CCAL was outside of the upper acceptance limit. The surrogate recovery for the associated samples is within acceptance limits.

The ICV %D was outside QC limits (15%) for low boiling hydrocarbons (16% low). The associated samples were reprepared and reanalyzed outside of holding time in batch 7199166. The ICV %D for the reanalysis was acceptable. Both the original and reanalysis is reported.

In the original analysis, the MS/MSD was not spiked and is not reported. The MS/MSD is reported from the reanalysis batch.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

Reanalysis Batch: 7199166

The CCAL surrogate recoveries are outside the upper QC limit. The samples associated with the CCAL have surrogate recoveries that were within the established QC limits.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

For the first reanalysis, the associated sample's surrogate recovery was outside established QC limits. The sample was reprepared/reanalyzed within this same analysis batch. The second reanalysis yielded acceptable results. The results of the first reanalysis are reported in hard copy form only since this was the analysis used for the MS/MSD.

Affected Samples:

F7G110133 (1): B1NT07

ICP Metals by SW846 6010B

The associated samples were analyzed at a dilution for Cadmium, Lead and Selenium due to high concentrations of the interfering analyte Iron. The reporting limit has been adjusted only for those targets reported from the dilution run.

Due to an auto sampler error, the CCB after the initial instrument QC was missed. The sequence that followed the initial QC was: CCV, 10 samples, CCV, CCB. All initial instrument QC was within control limits. The ten samples affected were analyzed at the end of sequence.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

Ion Chromatography by SW846 9056A

The CCV recovery was outside the upper QC limit (greater than 110%) for Sulfate in batch 7199053 indicating a potential high bias for this analyte in the samples associated with this CCV. This analyte was not detected above the reporting limit in the associated samples.

The LCSD recovery for Sulfate in batch 7199053 is outside the upper QC limit, indicating a potential positive bias for this analyte. This analyte was not observed above the reporting limit in the associated samples; therefore the sample data was not adversely affected by this excursion.

The MS recovery for Orthophosphate in batch 7206141 is outside the established QC limits. A matrix interference is physically evident in the sample. Method performance is demonstrated by acceptable LCS recovery.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

There were no observations or nonconformances to report for the following analyses:

Cyanide by SW846 9012A

Extractable Petroleum Hydrocarbons

Mercury by SW846 7141A

PCBs by SW846 8082

Semivolatiles by SW846 8270C

Sample Delivery Group	WSCF20071485
Sample Matrix	Solid
Data Deliverable	Summary Report

Introduction

Three (3) groundwater samples were received at the WSCF Laboratory on August 21, 2007. Two of the three 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. Analyses of the high concentration soil VOA sample material and the corresponding Methanol Blank (B1NRF7) were not required.

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4. In addition, copy of the sample record sheet is included as Attachment 5.

It should be noted that the attached chain of custody was stamped “iced” and initialed by the WSCF Laboratory Sample Custodian during sample receiving, indicating the presence of ice in the sample container.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, pages 14 through 16, for a complete listing of approved analytical methods.

Inorganic Comments

Anions – The hold time requirements for this analysis were met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See pages 18 through 19 for QC details. Analytical Note(s):

- Duplicate, Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH7 (SDG# 20071366, SAF# F07-043).
- Sample results were D flagged (dilution).
- Sample results that were less than the reportable limit, however greater than the method detection limit were B flagged.
- Sulfate Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

Cyanide – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 20 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

ICP-MS Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 21 through 22 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).
- Copper contamination detected in the Blank was evaluated and there was no affect on sample result.

All other QC controls are within the established limits.

Percent Solids - Percent solids were performed for organic analyses result correction.

Organic Comments

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

PCB – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 28 through 29 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1PKK9 (SDG# 20071535, SAF# F03-015).
- Aroclor-1260 – Matrix Spike and Matrix Spike Duplicate exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

Semi-VOA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GPP Letter of Instruction. See pages 30 through 33 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1PKK6 (SDG# 20071535, SAF# F03-015).

All QC controls are within the established limits.

TPHD-WA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 34 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

TPHG-WA – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 35 for QC details. Analytical Note(s):

- Laboratory Control Sample recovery was slightly less than established laboratory limits. No flags issued.

All other QC controls are within the established limits.

VOA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 36 through 38 for QC details. Analytical Note(s):

- Analyses of the high concentration soil VOA sample material and the corresponding Methanol Blank (B1NRF7) were not required.
- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRF4 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

Radiochemistry Comments

Rad Chem – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 42 through 46 for QC details. Analytical Note(s):

- Americium-241 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Gamma Energy Analysis (GEA) – Duplicate QC was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Plutonium-238, 239/240 and 242 (Tracer) – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033). Duplicate Relative Percent Difference (RPD) for Plutonium 239/240 exceeded established laboratory limits due to low sample activity. No flags issued.

- Strontium-85, 89/90 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Uranium-232 (tracer), 233/234, 235 and 238 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).

All other QC controls are within the established limits.

I certify that this data package is in compliance with the LOI, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager and Client Services as verified by the following signatures.



Scot L. Fitzgerald
WSCF Analytical Laboratory Manager



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

FD7-043-009
 PROJECT COORDINATOR TRENT, SJ
 SAF NO. F07-043
 METHOD OF SHIPMENT GOVERNMENT VEHICLE

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 COMPANY CONTACT TELEPHONE NO. 373-5869
 PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
 FIELD LOGBOOK NO. COA 122868 ES3

OFFSITE PROPERTY NO. N/A
 BILL OF LADING/AIR BILL NO. N/A

COMPANY CONTACT Trent, SJ
 PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
 FIELD LOGBOOK NO. COA 122868 ES3

OFFSITE PROPERTY NO. N/A
 BILL OF LADING/AIR BILL NO. N/A

COMPANY CONTACT Trent, SJ
 PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
 FIELD LOGBOOK NO. COA 122868 ES3

OFFSITE PROPERTY NO. N/A
 BILL OF LADING/AIR BILL NO. N/A

COMPANY CONTACT Trent, SJ
 PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
 FIELD LOGBOOK NO. COA 122868 ES3

SAMPLE NO.	MATRIX*	SPECIAL HANDLING AND/OR STORAGE	PRESERVATION	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	Cool 4C	Name	SEE ITEM (4) IN SPECIAL INSTRUCTIONS				
W0171	SOIL				1	120mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	aG	aG	aG	aG	aG	500mL	SEE ITEM (4) IN SPECIAL INSTRUCTIONS
					1	40mL	TPH-Gasoline Range - WTPH-Range G;	aG	aG	aG	aG	aG	120mL	SEE ITEM (3) IN SPECIAL INSTRUCTIONS
					1	120mL	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	G/P	aG	aG	aG	aG	120mL	SEE ITEM (3) IN SPECIAL INSTRUCTIONS
					1	120mL	PCBs - 8082;	aG	aG	aG	aG	aG	120mL	SEE ITEM (3) IN SPECIAL INSTRUCTIONS

CHAIN OF POSSESSION		SIGN/PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
J. P. [Signature]	6/27-07 1300	S. K. Ref #1-2	6-27-07 1300		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
A. [Signature]	6/27-07 1300	S. [Signature]	7/17-07 1300		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
S. [Signature]	7/19-07 1545	M. O. 745 Ref #3	7-19-07 1545		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
S. [Signature]	7/19-07 1545	S. [Signature]	07-11-07 0900		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

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

Handwritten: RUBB 7/10/07

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
COMPANY CONTACT: Fluor Hanford Inc. **TELEPHONE NO.:** 373-5869
PROJECT COORDINATOR: TRENT, SJ
PRICE CODE: 8N **PAGE 1 OF 1**
COLLECTOR: Gabe/Pfister/Mokler **AIR QUALITY:** **TURNAROUND DATA:** 45 Days / 45 Days
SAMPLING LOCATION: 5515, 1-006 P 29'-31.5'
FIELD LOGBOOK NO.: COA 122868 ES3
SAF NO.: F07-043
METHOD OF SHIPMENT: GOVERNMENT VEHICLE
OFFSITE PROPERTY NO.: N/A
BILL OF LADING/AIR BILL NO.: N/A

MATRIX*	Waste Sampling & Characterization	PRESCRIPTION	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C
A=Air D=Drum L=Liquids DS=Drum S=Solids L=Liquid O=Oil S=Soil SS=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION TYPE OF CONTAINER NO. OF CONTAINER(S) VOLUME	aG 1 120mL	aG 1 40mL	G/P 1 120mL	aG 1 120mL	aG 1 120mL	aG 1 120mL	None Square Bottle - Poly 1 500mL
SPECIAL HANDLING AND/OR STORAGE SEE ITEM (1) IN SPECIAL INSTRUCTIONS G; SEE ITEM (2) IN SPECIAL INSTRUCTIONS SEE ITEM (3) IN SPECIAL INSTRUCTIONS SEE ITEM (4) IN SPECIAL INSTRUCTIONS									
SAMPLE NO. B0171	MATRIX* SOIL	SAMPLE DATE 6-27-07	SAMPLE TIME 1055	<input checked="" type="checkbox"/>					

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM	5146 Ref A2	6-27-07 1700	
RELINQUISHED BY/REMOVED FROM	S. M. ...	7-9-07 1545	
RELINQUISHED BY/REMOVED FROM	M. O. ...	7-9-07 1545	
RELINQUISHED BY/REMOVED FROM	S. M. ...	7-11-07 0900	
RELINQUISHED BY/REMOVED FROM			

SPECIAL INSTRUCTIONS
 (1) Semi-VQA - 8270B (Add-On) {Tributyl phosphate} TPH-Diesel Range - WTPH-D;
 (2) ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Silver} ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8_HG - ICP/MS;
 (3) IC Anions - 300.0 {Fluoride, Nitrogen in Nitrate, Phosphorus in phosphate, Sulfate}
 (4) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Americium-241; Isotopic Plutonium; Strontium-90, 90 - Total Sr;

LABORATORY SECTION RECEIVED BY: _____ DATE/TIME: _____
FINAL SAMPLE DISPOSITION DISPOSED BY: _____ DATE/TIME: _____

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		PAGE 1 OF 1
COMPANY CONTACT Trent, SI	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SI
PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil	COA 122868ES10	SAF NO. F07-043
FIELD LOGBOOK NO. 670008000	METHOD OF SHIPMENT FEDERAL EXPRESS	PRICE CODE BN
OFFSITE PROPERTY NO. See RSR 670008000	BILL OF LADING/AIR BILLING See RSR 670008000	AIR QUALITY <input type="checkbox"/>
DATA TURNAROUND 45 Days / 45 Days		

COMPANY CONTACT Trent, SI	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SI
PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil	COA 122868ES10	SAF NO. F07-043
FIELD LOGBOOK NO. 670008000	METHOD OF SHIPMENT FEDERAL EXPRESS	PRICE CODE BN
OFFSITE PROPERTY NO. See RSR 670008000	BILL OF LADING/AIR BILLING See RSR 670008000	AIR QUALITY <input type="checkbox"/>
DATA TURNAROUND 45 Days / 45 Days		

MATRIX*	PRESERVATION	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SPECIAL HANDLING AND/OR STORAGE
A-Air DL-Drum L-Liquid DS-Drum S-Solids L-Liquid O-Oil S-Soil SE-Sediment T-Tissue V-Vegetation W-Water WI-Wipe X-Other	Frozen	aGs* 1	1	40mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS
31NRC8						
171						

SIGN / PRINT NAMES	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME	DATE/TIME
RECEIVED BY / STORED IN M.A. Baudry	JUL 10 2007	RECEIVED BY / STORED IN M.A. Baudry	JUL 10 2007	RECEIVED BY / STORED IN Fed Ex	07-11-07
RELINQUISHED BY / REMOVED FROM M.A. Baudry	JUL 10 2007	RELINQUISHED BY / REMOVED FROM M.A. Baudry	JUL 10 2007	RELINQUISHED BY / REMOVED FROM Fed Ex	07-11-07
RECEIVED BY / STORED IN M.A. Baudry	JUL 10 2007	RECEIVED BY / STORED IN M.A. Baudry	JUL 10 2007	RECEIVED BY / STORED IN Fed Ex	07-11-07
RELINQUISHED BY / REMOVED FROM M.A. Baudry	JUL 10 2007	RELINQUISHED BY / REMOVED FROM M.A. Baudry	JUL 10 2007	RELINQUISHED BY / REMOVED FROM Fed Ex	07-11-07
RECEIVED BY / STORED IN M.A. Baudry	JUL 10 2007	RECEIVED BY / STORED IN M.A. Baudry	JUL 10 2007	RECEIVED BY / STORED IN Fed Ex	07-11-07
RELINQUISHED BY / REMOVED FROM M.A. Baudry	JUL 10 2007	RELINQUISHED BY / REMOVED FROM M.A. Baudry	JUL 10 2007	RELINQUISHED BY / REMOVED FROM Fed Ex	07-11-07

CHAIN OF POSSESSION RECEIVED BY / STORED IN M.A. Baudry	SPECIAL INSTRUCTIONS NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION (1)VOA - 5035/8260 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) (1-Butanol, ds-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene) (2)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) (1-Butanol, ds-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene)
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RECEIVED BY M.A. Baudry	TITLE SOIL
DISPOSAL METHOD Fed Ex	DATE/TIME 07-11-07

FLUOR HANFORD INC. 1721st, SJ 373-5869		CHAIRMAN OF CUSTODY/SAMPLE ANALYSIS REQUEST PROJECT COORDINATOR TRENT, SJ SAF NO. F07-043 METHOD OF SHIPMENT GOVERNMENT VEHICLE BILL OF LADING/AIR BILL NO. N/A		F07-043-011 PRICE CODE SN AIR QUALITY DATA TURNAROUND 45 Days / 45 Days		PAGE 1 OF 1	
COMPANY CONTACT TELEPHONE NO. 373-5869		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		FIELD LOGBOOK NO. COA 122868 ES3		OFFSITE PROPERTY NO. N/A	
COLLECTOR Pipe/Pfister/Mokler		FIELD LOGBOOK NO. COA 122868 ES3		OFFSITE PROPERTY NO. N/A		SHIPPED TO Waste Sampling & Characterization	
SAMPLING LOCATION 291-21-5-1		ICE CHEST NO. 33		PRESERVATION Frozen Cool: 4C		TYPE OF CONTAINER aGS*	
MATRIX* A=Air DL=Drum L=Liquid DS=Drum S=Solids L=Liquid O=Oil S=Soil SE=Settlement T=Tissue V=Vegetation W=Water WT=Wipe X=Other		NO. OF CONTAINER(S) 5 40mL		VOLUME 40mL		SEE ITEM (1) IN SPECIAL INSTRUCTIONS SEE ITEM (2) IN SPECIAL INSTRUCTIONS	
POSSIBLE SAMPLE HAZARDS/REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		SPECIAL INSTRUCTIONS (1)VOA - 5035/8260 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) {1- Butanol, dis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene} (2)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) {1- Butanol, dis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}	
CHAIN OF POSSESSION		SIGN/PRINT NAMES		SAMPLE DATE		SAMPLE TIME	
RELINQUISHED BY/REMOVED FROM J-Pedro Lopez 6-27-07		DATE/TIME 1300		RECEIVED BY/STORED IN A-2 Site Cooler 6-27-07		DATE/TIME 1300	
RELINQUISHED BY/REMOVED FROM A-2 Site Cooler 7/9/07		DATE/TIME 1545		RECEIVED BY/STORED IN J-Pedro Lopez 7/9/07		DATE/TIME 1545	
RELINQUISHED BY/REMOVED FROM J-Pedro Lopez 7/9/07		DATE/TIME 1545		RECEIVED BY/STORED IN M. J. R. 7-9-07		DATE/TIME 1545	
RELINQUISHED BY/REMOVED FROM J-Pedro Lopez 7/9/07		DATE/TIME 1545		RECEIVED BY/STORED IN M. J. R. 7-9-07		DATE/TIME 1545	
RELINQUISHED BY/REMOVED FROM J-Pedro Lopez 7/9/07		DATE/TIME 1545		RECEIVED BY/STORED IN M. J. R. 7-9-07		DATE/TIME 1545	
RELINQUISHED BY/REMOVED FROM J-Pedro Lopez 7/9/07		DATE/TIME 1545		RECEIVED BY/STORED IN M. J. R. 7-9-07		DATE/TIME 1545	
LABORATORY SECTION 1-2		RECEIVED BY		TITLE		DATE/TIME	
ORIGINAL SAMPLE POSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME	

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST COMPANY CONTACT: Trent, SJ TELEPHONE NO.: 373-5869 PROJECT COORDINATOR: TRENT, SJ SAF NO.: F07-043 METHOD OF SHIPMENT: FEDERAL EXPRESS PRICE CODE: BN AIR QUALITY: <input type="checkbox"/> DATA TURNAROUND: 45 Days / 45 Days		PAGE 1 OF 1
PROJECT DESIGNATION: 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil FIELD LOGBOOK NO.: COA 122868ES10 OFFSITE PROPERTY NO.: 670008000 BILL OF LADING/AIR BILL NO.: 670008000 See RSR		
MATRIX* A=Air D=Drum L=Liquids S=Solids O=Oil S=Soil T=Tissue V=Vegetation W=Water Wt=Wipe X=Other	PRESERVATION: Frozen TYPE OF CONTAINER: 40mL NO. OF CONTAINER(S): 4 VOLUME: 40mL SAMPLE ANALYSIS: SEE ITEM (1) IN SPECIAL INSTRUCTIONS SAMPLE DATE: 6/27/07 1055 SAMPLE TIME: X X	
POSSIBLE SAMPLE HAZARDS/REMARKS: Rad tie to BINRBS SPECIAL HANDLING AND/OR STORAGE:	SIGN/PRINT NAMES: [Signature] RECEIVED BY/STORER IN: [Signature] RECEIVED BY/STORER IN: [Signature]	SPECIAL INSTRUCTIONS: NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION (1)VOA - 5035/8260 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene} (2)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
CHAIN OF POSSESSION RECEIVED BY/REMOVED FROM: [Signature] JUL 10 2007 0830 RELINQUISHED BY/REMOVED FROM: [Signature] JUL 10 2007 0830 RECEIVED BY/STORER IN: [Signature] 07-11-07 0900 RELINQUISHED BY/REMOVED FROM: [Signature]	DATE/TIME: [Signature] 07-11-07 0900 DATE/TIME: [Signature]	DATE/TIME: [Signature]
LABORATORY SECTION: [Signature] FINAL SAMPLE DISPOSITION:	RECEIVED BY: [Signature] DISPOSAL METHOD:	DATE/TIME: [Signature]

COLLECTOR Poppy Prister/Mokler Fluor Hanford Inc. 105171		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST F07-043-069 PAGE 1 OF 1	
COMPANY CONTACT Trent, SJ 373-5869		PROJECT COORDINATOR TRENT, SJ	
PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		PRICE CODE 8N DATA TURNAROUND 45 Days / 45 Days	
FIELD LOGBOOK NO. COA 122868ES10		AIR QUALITY <input type="checkbox"/>	
OFFSITE PROPERTY NO. See RSR 60008000		METHOD OF SHIPMENT FEDERAL EXPRESS	
PRESERVATION Cool 4C		BILL OF LADING/AIR BILL NO. See RSR 670008000	
TYPE OF CONTAINER ja65*			
NO. OF CONTAINER(S) 1			
VOLUME 40mL			
SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS			
SPECIAL HANDLING AND/OR STORAGE			
POSSIBLE SAMPLE HAZARDS/REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)			
SAMPLE NO. B1171		SAMPLE DATE 06/27/07 SAMPLE TIME 1055 X	
MATRIX* SOIL		MATRIX*	
CHAIN OF POSSESSION		SIGN/PRINT NAMES	
RELINQUISHED BY/REMOVED FROM: [Signature] JUL 10 2007 0830		RECEIVED BY/STORED IN: [Signature] JUL 10 2007 0830	
RELINQUISHED BY/REMOVED FROM: [Signature] JUL 10 2007 0830		RECEIVED BY/STORED IN: [Signature] JUL 10 2007 0830	
RELINQUISHED BY/REMOVED FROM: [Signature]		RECEIVED BY/STORED IN: [Signature] 07.11.07 0900	
RELINQUISHED BY/REMOVED FROM: [Signature]		RECEIVED BY/STORED IN: [Signature]	
RELINQUISHED BY/REMOVED FROM: [Signature]		RECEIVED BY/STORED IN: [Signature]	
RELINQUISHED BY/REMOVED FROM: [Signature]		RECEIVED BY/STORED IN: [Signature]	
RELINQUISHED BY/REMOVED FROM: [Signature]		RECEIVED BY/STORED IN: [Signature]	
LABORATORY SECTION U1		TITLE	
FINAL SAMPLE DISPOSITION		DISPOSED BY	
RECEIVED BY: [Signature]		DATE/TIME:	
DISPOSAL METHOD:		DATE/TIME:	

FLUOR HANFORD INC. COLLECTOR: Roper/Pfister/Mokler SAMPLING LOCATION: 515, I-006 P 29'-31.5' ICE CHEST NO.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST COMPANY CONTACT: Trent, SJ PROJECT DESIGNATION: 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil FIELD LOGBOOK NO. COA 122868 ES3 OFFSITE PROPERTY NO. N/A SHIPPED TO: Waste Sampling & Characterization		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST PROJECT COORDINATOR: TRENT, SJ SAF NO. F07-043 METHOD OF SHIPMENT: GOVERNMENT VEHICLE BILL OF LADING/AIR BILL NO. N/A		F07-043-012 PRICE CODE 8N AIR QUALITY <input type="checkbox"/> DATA TURNAROUND: 45 Days / 45 Days	PAGE 1 OF 1
MATRIX* A-Air DL-Drosm L-Liquid DS-Drosm S-Solid O-Oil SE-Sediment T-Tissue V-Vegetation W-Water X-Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION: Cool 4C TYPE OF CONTAINER: 9G3* NO. OF CONTAINER(S): 1 VOLUME: 40mL	SPECIAL HANDLING AND/OR STORAGE	SAMPLE DATE: 6-27-07 SAMPLE TIME: 1055 SEE ITEM (3) IN SPECIAL INSTRUCTIONS	SPECIAL INSTRUCTIONS (1)VOA - 5035/8260 (TCL); VOA - 5035/8260 - (Add-On) {1-Butanol, dis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}	SIGN/ PRINT NAMES RECEIVED BY/STORED IN: A-2 SITE Fridge RECEIVED BY/STORED IN: J. Mokler RECEIVED BY/STORED IN: MOTHYS R.F. #3 RECEIVED BY/STORED IN: J. Mokler	DATE/TIME: 6-27-07 1300 DATE/TIME: 7-9-07 1450 DATE/TIME: 7-9-07 1555 DATE/TIME: 07-11-07 0900
CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM: J. Mokler RELINQUISHED BY/REMOVED FROM: A-2 Site RELINQUISHED BY/REMOVED FROM: J. Mokler RELINQUISHED BY/REMOVED FROM: J. Mokler	DATE/TIME: 6-27-07 1300 DATE/TIME: 7-9-07 1450 DATE/TIME: 7-9-07 1555 DATE/TIME: 07-11-07 0900	RECEIVED BY/STORED IN: A-2 SITE Fridge RECEIVED BY/STORED IN: J. Mokler RECEIVED BY/STORED IN: MOTHYS R.F. #3 RECEIVED BY/STORED IN: J. Mokler	DATE/TIME: 6-27-07 1300 DATE/TIME: 7-9-07 1450 DATE/TIME: 7-9-07 1555 DATE/TIME: 07-11-07 0900	RECEIVED BY/STORED IN: A-2 SITE Fridge RECEIVED BY/STORED IN: J. Mokler RECEIVED BY/STORED IN: MOTHYS R.F. #3 RECEIVED BY/STORED IN: J. Mokler	DATE/TIME: 6-27-07 1300 DATE/TIME: 7-9-07 1450 DATE/TIME: 7-9-07 1555 DATE/TIME: 07-11-07 0900	RECEIVED BY/STORED IN: A-2 SITE Fridge RECEIVED BY/STORED IN: J. Mokler RECEIVED BY/STORED IN: MOTHYS R.F. #3 RECEIVED BY/STORED IN: J. Mokler	DATE/TIME: 6-27-07 1300 DATE/TIME: 7-9-07 1450 DATE/TIME: 7-9-07 1555 DATE/TIME: 07-11-07 0900
LABORATORY SECTION FINAL SAMPLE DISPOSITION	RECEIVED BY DISPOSAL METHOD	TITLE DISPOSED BY	DATE/TIME DATE/TIME	DATE/TIME DATE/TIME	DATE/TIME DATE/TIME	DATE/TIME DATE/TIME	

COLLECTOR Pope/Pfister/Mokler
 COMPANY CONTACT Trent, NJ
 TELEPHONE NO. 373-5869
 PROJECT COORDINATOR TRENT, NJ
 PRICE CODE 8N
 DATA TURNAROUND 45 Days / 45 Days

SAMPLING LOCATION C5515, I-118 285'-287'
 PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
 SAF NO. F07-043
 AIR QUALITY

ICE CHEST NO.
 FIELD LOGBOOK NO. COA 122868 ES3
 METHOD OF SHIPMENT GOVERNMENT VEHICLE

SHIPPED TO Waste Sampling & Characterization
 OFFSITE PROPERTY NO. N/A
 BILL OF LADING/AIR BILL NO. N/A

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

SAMPLE NO.	MATRIX*	SPECIAL HANDLING AND/OR STORAGE	PRESERVATION		NO. OF CONTAINER(S)	TYPE OF CONTAINER	VOLUME	SPECIAL ANALYSIS	COOL 4C						
			PRE	CON					1	2	3	4			
B1NRJ0 W07602213	SOIL				1	aG	120mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS							
					1	aG	40mL	TPH-Gasoline Range - WTPH-Range - WTPH-Instructions G;							
					1	G/P	120mL	SEE ITEM (2) IN SPECIAL INSTRUCTIONS							
					1	aG	120mL	PCBs - 8082;							
					1	aG	120mL	SEE ITEM (3) IN SPECIAL INSTRUCTIONS							
					1	aG	500mL	SEE ITEM (4) IN SPECIAL INSTRUCTIONS							

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	SIGN/PRINT NAMES	SPECIAL INSTRUCTIONS
J.S. [Signature]	0925	TA [Signature]	8/21/07 0905		(1) Semi-VOA - 8270B (Add-On) {Tributyl phosphate} TPH-Diesel Range - WTPH-D; (2) ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Silver, ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8 HG - ICP/MS; (3) IC Anions - 300.0 {Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorus in phosphate, Sulfate} (4) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr;



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

COLLECTOR Pope/Pfister/Mokler		COMPANY CONTACT Trent, NJ		TELEPHONE NO. 373-5869		PROJECT COORDINATOR TRENT, NJ		PRICE CODE 8N		DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION CS515, I-118 <i>Z85'-287'</i>		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		SAF NO. F07-043		METHOD OF SHIPMENT GOVERNMENT VEHICLE		AIR QUALITY <input type="checkbox"/>			
ICE CHEST NO.		FIELD LOGBOOK NO. 122868 ES3		COA		BILL OF LADING/AIR BILL NO. N/A					
SHIPPED TO Waste Sampling & Characterization		OFFSITE PROPERTY NO. N/A									
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other		PRESERVATION Frozen		Cool 4C							
POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		TYPE OF CONTAINER		aGs*							
		NO. OF CONTAINER(S)		5							
		VOLUME		40mL							
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS		SEE ITEM (2) IN SPECIAL INSTRUCTIONS					
SAMPLE NO.		MATRIX*		SAMPLE DATE		SAMPLE TIME					
BINRF6 9214		SOIL		8-21-07		0805					
CHAIN OF POSSESSION		SIGN/ PRINT NAMES		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM <i>J. S. [Signature]</i> 8-21-07		DATE/TIME 0825		RECEIVED BY/STORED IN <i>JA FRAZ</i>		DATE/TIME 8/24/07 0925					
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					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
LABORATORY SECTION		RECEIVED BY		TITLE		DATE/TIME					
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME					

ICED Initial Date

[Signature]

COLLECTOR Pope/Pfister/Mokler		COMPANY CONTACT Trent, SJ		TELEPHONE NO. 373-5869		PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8N		DATA TURNOVER 45 Days / 45 Days	
SAMPLING LOCATION C5515, 1-118 285' - 287'		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		SAF NO. F07-043		METHOD OF SHIPMENT GOVERNMENT VEHICLE		AIR QUALITY			
ICE CHEST NO.		FIELD LOGBOOK NO.		COA 122868 ES3		BILL OF LADING/AIR BILL NO. N/A					
SHIPPED TO Waste Sampling & Characterization		OFFSITE PROPERTY NO. N/A									
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Washer WI=Wipe X=Other		POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		PRESERVATION Cool 4C							
		TYPE OF CONTAINER		NO. OF CONTAINER(S)		VOLUME					
				1		40mL					
		SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS					
SAMPLE NO.		MATRIX*		SAMPLE DATE		SAMPLE TIME					
B1NRF7 2215		SOIL		8-21-07		0605					
CHAIN OF POSSESSION		SIGN/ PRINT NAMES		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM J.S. McEl...		DATE/TIME 0925		T.A. P...		DATE/TIME 8/21/07 0925					
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					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
LABORATORY SECTION		RECEIVED BY		TITLE		DATE/TIME					
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME					

ICED Initial Date

SPECIAL INSTRUCTIONS
(1)VOA - 5035/8260 (TCL); VOA - 5035/8260 - (Add-On) {1-Butanol, ds-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}

Appendix 5

Data Validation Supporting Documentation

PESTICIDE/PCB DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: CPP 200 Area			DATA PACKAGE: VSR08-002		
VALIDATOR: Carl Schloesslin		LAB: STL St. Louis & WSCF		DATE: 01-28-2008	
			SDG: W05171 & WSCF20071485		
ANALYSES PERFORMED					
SW-846 8081	SW-846 8081 (TCLP)	SW-846 8082 X	SW-846 8081 (TCLP)		
SAMPLES/MATRIX Soil samples B1NT07 & B1NRH1 (SDG W05171)					
Soil sample B1NRJ0 (SDG WSCF20071485)					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes No N/A

Comments: None.

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: SDG WSCF20071485: Aroclor-1260 MS %R = 137%, MSD %R = 144%
SDG WSCF20071485: Aroclor-1260 reported only for LCS & 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: Field replicates B1NT07 and B1NRH1 Aroclor-1254 results are 52 ug/kg and ND, respectively. RDL is 34 ug/kg. Result difference is <2X RDL.

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: SDG WSCF20071485: Aroclor-1221 sample B1NRJ0 MDL (24 ug/kg)
> CRDL (16.5 ug/kg)

9. SAMPLE CLEANUP (Levels D and E)

Fluorilicil ® (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

METHOD BLANK REPORT

GC Semivolatiles

Client Lot #...: F7G110133 Work Order #...: J2M5F1AA Matrix.....: SOLID
 MB Lot-Sample #: F7G110000-308
 Prep Date.....: 07/11/07
 Analysis Date...: 07/16/07 Prep Batch #...: 7192308
 Dilution Factor: 1

PARAMETER	RESULT	REPORTING		METHOD
		LIMIT	UNITS	
Aroclor 1016	ND	33	ug/kg	SW846 8082
Aroclor 1221	ND	33	ug/kg	SW846 8082
Aroclor 1232	ND	33	ug/kg	SW846 8082
Aroclor 1242	ND	33	ug/kg	SW846 8082
Aroclor 1248	ND	33	ug/kg	SW846 8082
Aroclor 1254	ND	33	ug/kg	SW846 8082
Aroclor 1260	ND	33	ug/kg	SW846 8082
Aroclor 1262	ND	33	ug/kg	SW846 8082
Aroclor 1268	ND	33	ug/kg	SW846 8082

SURROGATE	PERCENT	RECOVERY
	RECOVERY	LIMITS
Decachlorobiphenyl	104	(51 - 145)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: F7G110133 Work Order #...: J2MSFLAC Matrix.....: SOLID
 LCS Lot-Sample#: F7G110000-308
 Prep Date.....: 07/11/07 Analysis Date...: 07/16/07
 Prep Batch #...: 7192308
 Dilution Factor: 1

<u>PARAMETER</u>	<u>SPIKE</u> <u>AMOUNT</u>	<u>MEASURED</u> <u>AMOUNT</u>	<u>UNITS</u>	<u>PERCENT</u> <u>RECOVERY</u>	<u>METHOD</u>
Aroclor 1016	167	150	ug/kg	90	SW846 8082
Aroclor 1260	167	152	ug/kg	91	SW846 8082
<u>SURROGATE</u>		<u>PERCENT</u> <u>RECOVERY</u>		<u>RECOVERY</u> <u>LIMITS</u>	
Decachlorobiphenyl		102		(41 - 140)	

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

MATRIX SPIKE SAMPLE DATA REPORT

GC Semivolatiles

Client Lot #...: F7G110133 Work Order #...: J2L041CU-MS Matrix.....: SOLID
 MS Lot-Sample #: F7G110133-001 J2L041CV-MSD
 Date Sampled...: 06/27/07 Date Received...: 07/11/07
 Prep Date.....: 07/11/07 Analysis Date...: 07/16/07
 Prep Batch #...: 7192308
 Dilution Factor: 1 % Moisture.....: 3.3

<u>PARAMETER</u>	<u>SAMPLE</u>	<u>SPIKE</u>	<u>MEASRD</u>		<u>PERCNT</u>		<u>METHOD</u>
	<u>AMOUNT</u>	<u>AMT</u>	<u>AMOUNT</u>	<u>UNITS</u>	<u>RECVRY</u>	<u>RPD</u>	
Aroclor 1016	ND	172	155	ug/kg	90		SW846 8082
	ND	171	160	ug/kg	93	3.2	SW846 8082
Aroclor 1260	ND	172	178	ug/kg	104		SW846 8082
	ND	171	185	ug/kg	108	3.8	SW846 8082

<u>SURROGATE</u>	<u>PERCENT</u>	<u>RECOVERY</u>
	<u>RECOVERY</u>	<u>LIMITS</u>
Decachlorobiphenyl	98	(51 - 145)
	100	(51 - 145)

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

Results and reporting limits have been adjusted for dry weight.

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: WSCF20071485

Matrix: SOLID

Test: PCBs complete list

Sample Date: 08/21/07

Receive Date: 08/21/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR02213											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Decachlorobiphenyl	2051-24-3	489.64	102.000	% Recov	50.000	150.000		150.000		09/10/07
SURR	Tetrachloro-m-xylene	877-09-8	361.31	75.600	% Recov	50.000	150.000		150.000		09/10/07
Lab ID: W07GR02294											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Aroclor-1260	11096-82-5	349.63	137.000	% Recov	75.000	125.000		125.000	*	09/10/07
MS	Decachlorobiphenyl	2051-24-3	303.27	119.000	% Recov	50.000	150.000		150.000		09/10/07
MS	Tetrachloro-m-xylene	877-09-8	308.74	121.000	% Recov	50.000	150.000		150.000		09/10/07
MSD	Aroclor-1260	11096-82-5	371.75	144.000	% Recov	75.000	125.000		125.000	*	09/10/07
MSD	Decachlorobiphenyl	2051-24-3	336.53	130.000	% Recov	50.000	150.000		150.000		09/10/07
MSD	Tetrachloro-m-xylene	877-09-8	323.31	125.000	% Recov	50.000	150.000		150.000		09/10/07
SPK-RPD	Aroclor-1260	11096-82-5	144.000		RPD			4.982	25.000		09/10/07
SPK-RPD	Decachlorobiphenyl	2051-24-3	130.000		RPD			8.835	20.000		09/10/07
SPK-RPD	Tetrachloro-m-xylene	877-09-8	125.000		RPD			3.252	20.000		09/10/07
BATCH QC											
BLANK	Aroclor-1016	12674-11-2	< 10	n/a	UGKG					U	09/10/07
BLANK	Aroclor-1221	11104-28-2	< 20	n/a	ug/Kg					U	09/10/07
BLANK	Aroclor-1232	11141-16-5	< 10	n/a	ug/Kg					U	09/10/07
BLANK	Aroclor-1242	53469-21-9	< 10	n/a	ug/Kg					U	09/10/07
BLANK	Aroclor-1248	12672-29-6	< 10	n/a	ug/Kg					U	09/10/07
BLANK	Aroclor-1254	11097-69-1	< 10	n/a	ug/Kg					U	09/10/07
BLANK	Aroclor-1260	11096-82-5	< 10	n/a	ug/Kg					U	09/10/07
BLANK	Aroclor-1262	37324-23-5	< 10	n/a	ug/Kg					U	09/10/07
BLANK	Aroclor-1268	11100-14-4	< 10	n/a	ug/Kg					U	09/10/07
BLANK	Decachlorobiphenyl	2051-24-3	224.96	112.000	% Recov	50.000	150.000		150.000	U	09/10/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: **Organic**

SDG Number: **WSCF20071485**
 Matrix: **SOLID**
 Test: **PCBs complete list**

Sample Date:
 Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD (%)	RPD Limit	RQ	Analysis Date
BLANK	Tetrachloro-m-xylene	877-09-8	210.09	105.000	% Recov	50.000	150.000				09/10/07
LCS	Aroclor-1260	11096-82-5	418.95	105.000	% Recov	70.000	130.000				09/10/07
LCS	Decachlorobiphenyl	2051-24-3	457.64	114.000	% Recov	50.000	150.000				09/10/07
LCS	Tetrachloro-m-xylene	877-09-8	282.05	70.500	% Recov	50.000	150.000				09/10/07

Date: 28 January 2008
To: Fluor Hanford Inc. (technical representative)
From: Analytical Quality Associates, Inc.
Project: CPP 200 Area
Subject: Inorganics - Sample Data Groups (SDGs) W05171 and WSCF20071485

INTRODUCTION

This memorandum presents the results of data validation for SDG W05171 prepared by STL St. Louis and SDG WSCF20071485 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
B1NT07	06/27/07	Solid	C	6010B & 7471A
B1NRH1	06/27/07	Solid	C	6010B & 7471A
B1NRJ0	08/21/07	Solid	C	200.8

Data validation was conducted in accordance with the FHI validation statement of work and the Sampling and Analysis Plan for Supplemental Remedial Investigation Activities at the 216-A-2 Crib and the 216-A-21 Crib, DOE/RL-2006-77, Rev. 0 Reissue (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 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 exception. For SDG WSCF20071485 the Cu laboratory blank result was > the method detection limit (MDL). The Cu result for associated sample B1NRJ0 was a detect at >5X the blank result and should not be qualified.

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 accuracy limits for ICP analytes are 70% to 130%.

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

All MS/MSD recoveries were acceptable. It should be noted that for SDG WSCF20071485 the MS/MSD were performed on a solid sample from another SDG. No sample data were qualified as a result.

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable.

- **Precision**

Precision is evaluated by reviewing MS/MSD results and field duplicate 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 limits are $\pm 30\%$.

MS/MSD Samples

All MS/MSD relative percent difference values were acceptable.

Field Duplicate Samples

All field duplicate results were acceptable.

- **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 W05171 and WSCF20071485 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

FHI, Contract #29774, *Validation of Radiological and Chemical Analytical Data*, Fluor Hanford Incorporated, August 24, 2006.

DOE/RL-2006-77, Rev. 0 Reissue, *Sampling and Analysis Plan for Supplemental Remedial Investigation Activities at the 216-A-2 Crib and the 216-A-21 Crib*, June 2007.

Appendix 1
Glossary of Data Reporting Qualifiers

Qualifiers that may be applied by data validators in compliance with the FHI 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			
SDGs: W05171 & WSCF20071485	Reviewer: AQA	Project: CPP 200 Area	Page 1 of 1
Analyte(s)	Qualifier	Samples Affected	Reason
Metals	None	N/A	N/A

Comments: None

Appendix 3

Annotated Laboratory Reports

Fluor Hanford Inc

Client Sample ID: B1NF07

TOTAL Metals

Lot-Sample #...: F7G110133-001

Matrix.....: SOLID

Date Sampled...: 06/27/07

Date Received...: 07/11/07

% Moisture.....: 3.3

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
		LIMIT	UNITS				
Prep Batch #...: 7194072							
Mercury	80.0	34.4	ug/kg		SW846 7471A	07/13/07	J2L041AM
		Dilution Factor: 1			MDL.....: 6.9		
Prep Batch #...: 7197253							
Silver	ND	1.0	mg/kg		SW846 6010B	07/16-07/23/07	J2L041AG
		Dilution Factor: 1			MDL.....: 0.38		
Arsenic	2.5	1.0	mg/kg		SW846 6010B	07/16-07/23/07	J2L041AJ
		Dilution Factor: 1			MDL.....: 0.25		
Barium	51.0	5.2	mg/kg		SW846 6010B	07/16-07/23/07	J2L041AK
		Dilution Factor: 1			MDL.....: 0.24		
Cadmium	ND D	1.0	mg/kg		SW846 6010B	07/16-07/23/07	J2L041AD
		Dilution Factor: 2			MDL.....: 0.13		
Chromium	8.8	1.0	mg/kg		SW846 6010B	07/16-07/23/07	J2L041AH
		Dilution Factor: 1			MDL.....: 0.23		
Copper	7.2	2.6	mg/kg		SW846 6010B	07/16-07/23/07	J2L041AE
		Dilution Factor: 1			MDL.....: 0.41		
Lead	3.8 D	2.1	mg/kg		SW846 6010B	07/16-07/23/07	J2L041AF
		Dilution Factor: 2			MDL.....: 0.62		
Selenium	ND D	3.1	mg/kg		SW846 6010B	07/16-07/23/07	J2L041AL
		Dilution Factor: 2			MDL.....: 0.91		

NOTE(S) :

Results and reporting limits have been adjusted for dry weight.

D Result was obtained from the analysis of a dilution.

Fluor Hanford Inc

Client Sample ID: B1NRH1

TOTAL Metals

Lot-Sample #...: F7G110133-002

Matrix.....: SOLID

Date Sampled...: 06/27/07

Date Received...: 07/11/07

% Moisture.....: 1.5

PARAMETER	RESULT	REPORTING			METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
		LIMIT	UNITS				
Prep Batch #...: 7194072							
Mercury	112	33.8	ug/kg		SW846 7471A	07/13/07	J2L211AM
		Dilution Factor: 1			MDL.....: 6.8		
Prep Batch #...: 7197253							
Silver	0.63 B	1.0	mg/kg		SW846 6010B	07/16-07/23/07	J2L211AG
		Dilution Factor: 1			MDL.....: 0.37		
Arsenic	2.7	1.0	mg/kg		SW846 6010B	07/16-07/23/07	J2L211AJ
		Dilution Factor: 1			MDL.....: 0.24		
Barium	46.2	5.1	mg/kg		SW846 6010B	07/16-07/23/07	J2L211AK
		Dilution Factor: 1			MDL.....: 0.23		
Cadmium	ND D	1.0	mg/kg		SW846 6010B	07/16-07/23/07	J2L211AD
		Dilution Factor: 2			MDL.....: 0.12		
Chromium	9.3	1.0	mg/kg		SW846 6010B	07/16-07/23/07	J2L211AH
		Dilution Factor: 1			MDL.....: 0.23		
Copper	11.8	2.5	mg/kg		SW846 6010B	07/16-07/23/07	J2L211AE
		Dilution Factor: 1			MDL.....: 0.41		
Lead	3.1 D	2.0	mg/kg		SW846 6010B	07/16-07/23/07	J2L211AF
		Dilution Factor: 2			MDL.....: 0.61		
Selenium	ND D	3.0	mg/kg		SW846 6010B	07/16-07/23/07	J2L211AL
		Dilution Factor: 2			MDL.....: 0.89		

NOTE(S):

Results and reporting limits have been adjusted for dry weight.

B Estimated result. Result is less than RL.

D Result was obtained from the analysis of a dilution.

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

Case Narrative
Lot Number: F7G110133
SDG: W05171

This report contains the analytical results for the six samples received under chain of custody by STL St. Louis on July 11, 2007. These samples are associated with your F07-043 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by STL St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Volatiles by SW846 8260B

Batch: 7193167

The CCV recovery was outside the upper QC limit (greater than 20% RSD) for Freon-114 (21.3%), Iodomethane (38.6%), Methyl Acetate (20.7%), trans-1,2-Dichloroethene (22.0%), cis-1,2-Dichloroethane (24.8%) and Bromochloromethane (31.4%) indicating a potential high bias for these analytes in the samples associated with this CCV. These analytes were not detected above the reporting limit in the associated samples or are not target analytes.

The LCS or LCSD recoveries for 1,2-Dichloroethene, Trichloroethene, cis-1,2-Dichloroethene and trans-1,2-Dichloroethene were above the upper QC limit, indicating a potential positive bias. These analytes were not detected above the reporting limit in the associated samples.

The LCS recoveries for 1,1-Dichloroethene, Carbon Disulfide and 2-Hexanone are below the lower QC limit, indicating a potential negative bias. However, the recoveries for these compounds are within the QC limit in the LCSD, indicating an anomaly isolated to the LCS alone. The RPDs for Acetone, 1,1-Dichloroethene and Carbon Disulfide are outside QC limits. The Acetone LCS/LCSD recoveries are acceptable.

The LCS and/or LCSD surrogate recoveries are outside the upper QC limit, indicating a potential high bias in spike compound recoveries.

The sample vial used for the MSD contained the wrong sample matrix (methanol), providing no data for the MSD. A matrix spike and LCS/LCSD were performed to demonstrate matrix accuracy and replicate precision. However, due to software limitations, the matrix spike cannot be reported. Matrix spike recoveries for Chloroethane (30%) and 1,2-Dichloropropane (60%) were below QC limits. All other analytes were within QC limits.

Affected Samples:

F7G110133 (3): B1NRC8

F7G110133 (4): B1NRC6

Batch: 7193167

In the original analysis, the associated sample's surrogate recovery was outside established QC limits. The sample was reprepared/reanalyzed within holding time. The reanalysis yielded acceptable results. Only the reanalysis results are reported.

Affected Samples:

F7G110133 (3): B1NRC8

Batches: 7193167 / 7194216

In the original analysis, the associated sample's internal standard (IS) recovery and Surrogate recovery was outside the lower QC limit. The sample was reprepared and reanalyzed 1 day past holding time (batch 7194216). The reanalysis, with acceptable IS and surrogate recoveries, yielded comparable sample results (non-detect). The original results, performed within hold time, are reported.

Affected Samples:

F7G110133 (4): B1NRC6

Volatile Petroleum Hydrocarbons by SW846 8015

Batch: 7198275

The surrogate recovery in the closing CCAL was outside of the upper acceptance limit. The surrogate recovery for the associated samples is within acceptance limits.

The ICV %D was outside QC limits (15%) for low boiling hydrocarbons (16% low). The associated samples were reprepared and reanalyzed outside of holding time in batch 7199166. The ICV %D for the reanalysis was acceptable. Both the original and reanalysis is reported.

In the original analysis, the MS/MSD was not spiked and is not reported. The MS/MSD is reported from the reanalysis batch.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

Reanalysis Batch: 7199166

The CCAL surrogate recoveries are outside the upper QC limit. The samples associated with the CCAL have surrogate recoveries that were within the established QC limits.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

For the first reanalysis, the associated sample's surrogate recovery was outside established QC limits. The sample was reprepared/reanalyzed within this same analysis batch. The second reanalysis yielded acceptable results. The results of the first reanalysis are reported in hard copy form only since this was the analysis used for the MS/MSD.

Affected Samples:

F7G110133 (1): B1NT07

ICP Metals by SW846 6010B

The associated samples were analyzed at a dilution for Cadmium, Lead and Selenium due to high concentrations of the interfering analyte Iron. The reporting limit has been adjusted only for those targets reported from the dilution run.

Due to an auto sampler error, the CCB after the initial instrument QC was missed. The sequence that followed the initial QC was: CCV, 10 samples, CCV, CCB. All initial instrument QC was within control limits. The ten samples affected were analyzed at the end of sequence.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

Ion Chromatography by SW846 9056A

The CCV recovery was outside the upper QC limit (greater than 110%) for Sulfate in batch 7199053 indicating a potential high bias for this analyte in the samples associated with this CCV. This analyte was not detected above the reporting limit in the associated samples.

The LCSD recovery for Sulfate in batch 7199053 is outside the upper QC limit, indicating a potential positive bias for this analyte. This analyte was not observed above the reporting limit in the associated samples; therefore the sample data was not adversely affected by this excursion.

The MS recovery for Orthophosphate in batch 7206141 is outside the established QC limits. A matrix interference is physically evident in the sample. Method performance is demonstrated by acceptable LCS recovery.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

There were no observations or nonconformances to report for the following analyses:

Cyanide by SW846 9012A

Extractable Petroleum Hydrocarbons

Mercury by SW846 7141A

PCBs by SW846 8082

Semivolatiles by SW846 8270C

Sample Delivery Group	WSCF20071485
Sample Matrix	Solid
Data Deliverable	Summary Report

Introduction

Three (3) groundwater samples were received at the WSCF Laboratory on August 21, 2007. Two of the three 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. Analyses of the high concentration soil VOA sample material and the corresponding Methanol Blank (B1NRF7) were not required.

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4. In addition, copy of the sample record sheet is included as Attachment 5.

It should be noted that the attached chain of custody was stamped “iced” and initialed by the WSCF Laboratory Sample Custodian during sample receiving, indicating the presence of ice in the sample container.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, pages 14 through 16, for a complete listing of approved analytical methods.

Inorganic Comments

Anions – The hold time requirements for this analysis were met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See pages 18 through 19 for QC details. Analytical Note(s):

- Duplicate, Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH7 (SDG# 20071366, SAF# F07-043).
- Sample results were D flagged (dilution).
- Sample results that were less than the reportable limit, however greater than the method detection limit were B flagged.
- Sulfate Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

Cyanide – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 20 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

ICP-MS Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 21 through 22 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).
- Copper contamination detected in the Blank was evaluated and there was no affect on sample result.

All other QC controls are within the established limits.

Percent Solids - Percent solids were performed for organic analyses result correction.

Organic Comments

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

PCB – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 28 through 29 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1PKK9 (SDG# 20071535, SAF# F03-015).
- Aroclor-1260 – Matrix Spike and Matrix Spike Duplicate exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

Semi-VOA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GPP Letter of Instruction. See pages 30 through 33 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1PKK6 (SDG# 20071535, SAF# F03-015).

All QC controls are within the established limits.

TPHD-WA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 34 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

TPHG-WA – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 35 for QC details. Analytical Note(s):

- Laboratory Control Sample recovery was slightly less than established laboratory limits. No flags issued.

All other QC controls are within the established limits.

VOA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 36 through 38 for QC details. Analytical Note(s):

- Analyses of the high concentration soil VOA sample material and the corresponding Methanol Blank (B1NRF7) were not required.
- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRF4 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

Radiochemistry Comments

Rad Chem – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 42 through 46 for QC details. Analytical Note(s):

- Americium-241 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Gamma Energy Analysis (GEA) – Duplicate QC was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Plutonium-238, 239/240 and 242 (Tracer) – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033). Duplicate Relative Percent Difference (RPD) for Plutonium 239/240 exceeded established laboratory limits due to low sample activity. No flags issued.

- Strontium-85, 89/90 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Uranium-232 (tracer), 233/234, 235 and 238 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).

All other QC controls are within the established limits.

I certify that this data package is in compliance with the LOI, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager and Client Services as verified by the following signatures.



Scot L. Fitzgerald
WSCF Analytical Laboratory Manager



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

FD7-043-009
 PROJECT COORDINATOR TRENT, SJ
 SAF NO. F07-043
 AIR QUALITY

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST
 COMPANY CONTACT TRENT, SJ
 TELEPHONE NO. 373-5869
 PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil

FIELD LOGBOOK NO. COA 122868 ES3
 OFFSITE PROPERTY NO. N/A
 SHIPPED TO Waste Sampling & Characterization

COLLECTOR Ripe/Pister/Mokier
 SAMPLING LOCATION 351.5, 1-006 29-23/5-1
 ICE CHEST NO. 33

BILL OF LADING/AIR BILL NO. N/A
 METHOD OF SHIPMENT GOVERNMENT VEHICLE

MATRIX*	PRESERVATION	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Cool 4C	Name	Volume	Special Instructions
POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1/990/1993)		aG	aG	G/P	aG	aG	aG	500ml	120ml	SEE ITEM (4) IN SPECIAL INSTRUCTIONS
		1	1	1	1	1	1	500ml	120ml	SEE ITEM (3) IN SPECIAL INSTRUCTIONS
		120ml	40ml	120ml	120ml	120ml	120ml	500ml	120ml	SEE ITEM (3) IN SPECIAL INSTRUCTIONS
		SEE ITEM (1) IN SPECIAL INSTRUCTIONS	TPH-Gasoline Range - WTPH Range - 6;	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	Cyanide (Total) - SEE ITEM (4) IN SPECIAL INSTRUCTIONS			

W0171
 SOIL
 MATRIX*

6-27-07 1055
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514 Ref # 2
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7-9-07 1545
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SPECIAL INSTRUCTIONS
 (1)Semi-VOA - 8270B (Add-On) (Tributyl phosphate) TPH-Diesel Range - WTPH-D;
 (2)ICP/MS - 200.8 (TAL) (Barium, Cadmium, Chromium, Copper, Silver) ICP/MS - 200.8 (Add-on) (Arsenic, Lead, Selenium, Uranium) 200.8_HG - ICPMS;
 (3)IC Anions - 300.0 (Fluoride, Nitrogen in Nitrate, Phosphorus in phosphate, Sulfate)
 (4)Gamma Spectroscopy (Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155) Americium-241, Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr;

LABORATORY SECTION RECEIVED BY TITLE DATE/TIME
 ORIGINAL SAMPLE DISPOSITION DISPOSED BY DATE/TIME

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST COMPANY CONTACT: Trent, SJ TELEPHONE NO.: 373-5869 PROJECT COORDINATOR: TRENT, SJ SAF NO.: F07-043 METHOD OF SHIPMENT: FEDERAL EXPRESS PRICE CODE: BN AIR QUALITY: <input type="checkbox"/> DATA TURNAROUND: 45 Days / 45 Days		PAGE 1 OF 1
PROJECT DESIGNATION: 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil FIELD LOGBOOK NO.: COA 122868ES10 OFFSITE PROPERTY NO.: 670008000 BILL OF LADING/AIR BILL NO.: 670008000 See RSR		
MATRIX* A=Air D=Drum L=Liquids S=Solids O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other	PRESERVATION: Frozen TYPE OF CONTAINER: 40mL NO. OF CONTAINER(S): 4 VOLUME: 40mL SAMPLE ANALYSIS: SEE ITEM (1) IN SPECIAL INSTRUCTIONS SPECIAL HANDLING AND/OR STORAGE:	Cool IC 40mL 40mL SEE ITEM (2) IN SPECIAL INSTRUCTIONS
POSSIBLE SAMPLE HAZARDS/REMARKS: Rad tie to BINRBS	SAMPLE DATE: 6/27/07 1055 SAMPLE TIME: X X	
SIGN/PRINT NAMES: [Signature] RECEIVED BY/REMOVED FROM: [Signature] DATE/TIME: 07/11/07 0900	RECEIVED BY/STORAGED IN: [Signature] DATE/TIME: 07/11/07 0900	SPECIAL INSTRUCTIONS: NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION (1)VOA - 5035/8260 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene} (2)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
RECEIVED BY: [Signature] DATE/TIME:	RECEIVED BY/STORAGED IN: [Signature] DATE/TIME:	TITLE:
DISPOSAL METHOD:	DISPOSED BY:	DATE/TIME:

A-6003-618(01/06)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST F07-043-008 PAGE 1 OF 1	
PROJECT COORDINATOR TRENT, SJ	PRICE CODE BN AIR QUALITY <input type="checkbox"/>
COMPANY CONTACT Trent, SJ	TELEPHONE NO. 373-5869
PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil	SAF NO. F07-043
FIELD LOGBOOK NO.	COA 122868 ES3
OFFSITE PROPERTY NO. N/A	METHOD OF SHIPMENT GOVERNMENT VEHICLE
MATRICK* A=Air DL=Drum L=Liquid DS=Drum S=Solids O=Oil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	BILL OF LADING/AIR BILL NO. N/A
POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION Cool 4C
SPECIAL HANDLING AND/OR STORAGE	TYPE OF CONTAINER 8GS*
NO. OF CONTAINER(S) 1	VOLUME 40mL
SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS
SAMPLE NO. MATRIX*	SAMPLE DATE SAMPLE TIME
W01 SOIL	6-27-07 1055
CHAIN OF POSSESSION	SPECIAL INSTRUCTIONS (1)VOA - 5035/8260 (TCL); VOA - 5035/8260 - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
RELINQUISHED BY/REMOVED FROM J. M. [Signature] 4/23/07 1300	RECEIVED BY/STORED IN A. J. [Signature] 6/27/07 1055
RELINQUISHED BY/REMOVED FROM A. J. [Signature] 7/17/07 1450	RECEIVED BY/STORED IN J. M. [Signature] 7/17/07 1450
RELINQUISHED BY/REMOVED FROM J. M. [Signature] 7/17/07 1505	RECEIVED BY/STORED IN M. O. [Signature] 7-9-07 1045
RELINQUISHED BY/REMOVED FROM J. M. [Signature] 7/17/07 1505	RECEIVED BY/STORED IN J. M. [Signature] 07-11-07 0900
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN
RELINQUISHED BY/REMOVED FROM	RECEIVED BY/STORED IN
LABORATORY SECTION	RECEIVED BY
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD
TITLE	DATE/TIME
DISPOSED BY	DATE/TIME

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		PAGE 1 OF 1
COMPANY CONTACT Trent, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR Trent, SJ
PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil	SAF NO. F07-043	PRICE CODE 8N <input type="checkbox"/> AIR QUALITY <input type="checkbox"/>
FIELD LOGBOOK NO. COA 122868ES10	METHOD OF SHIPMENT FEDERAL EXPRESS	
OFFSITE PROPERTY NO. See RSR <i>6008800</i>		
BILL OF LADING/AIR BILL NO. See RSR <i>6008800</i>		
PRESERVATION Cool-4C	TYPE OF CONTAINER aGas*	
NO. OF CONTAINER(S) 1	VOLUME 40ml	
SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS		
SAMPLE DATE <i>6/27/07</i>	SAMPLE TIME <i>1055</i>	
SPECIAL HANDLING AND/OR STORAGE		
SAMPLE NO. W0171	MATRIX* SOIL	
CHAIN OF POSSESSION		
RELINQUISHED BY/REMOVED FROM <i>W0171</i>	DATE/TIME <i>JUL 10 2007 0830</i>	SIGN / PRINT NAMES <i>W0171</i>
RELINQUISHED BY/REMOVED FROM <i>W0171</i>	DATE/TIME <i>JUL 10 2007 0830</i>	RECEIVED BY/STORED IN <i>W0171</i>
RELINQUISHED BY/REMOVED FROM <i>W0171</i>	DATE/TIME <i>JUL 10 2007 0830</i>	RECEIVED BY/STORED IN <i>W0171</i>
RELINQUISHED BY/REMOVED FROM <i>W0171</i>	DATE/TIME <i>JUL 10 2007 0830</i>	RECEIVED BY/STORED IN <i>W0171</i>
SPECIAL INSTRUCTIONS NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION (1)VOA - 5035/8260 (TCL); VOA - 5035/8260 - (Add-On) (1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene)		
LABORATORY RECEIVED BY SECTION 17		
DISPOSAL METHOD		
FINAL SAMPLE DISPOSITION		
RECEIVED BY		DATE/TIME
DISPOSAL METHOD		DATE/TIME

A-6003-618(01/06)

FLUOR HANFORD INC. COLLECTOR: Roper/Pfister/Mokler SAMPLING LOCATION: 29'-31.5' ICE CHEST NO.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST COMPANY CONTACT: Trent, SJ TELEPHONE NO.: 373-5869 PROJECT COORDINATOR: TRENT, SJ SAF NO.: F07-043 METHOD OF SHIPMENT: GOVERNMENT VEHICLE BILL OF LADING/AIR BILL NO.: N/A		F07-043-012 PRICE CODE: 8N AIR QUALITY: <input type="checkbox"/> DATA TURNAROUND: 45 Days / 45 Days		PAGE 1 OF 1	
PROJECT DESIGNATION: 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil FIELD LOGBOOK NO.: COA 122868 ES3		OFFSITE PROPERTY NO.: N/A		PRESERVATION: Cool 4C		TYPE OF CONTAINER: 9G3*	
POSSIBLE SAMPLE HAZARDS/ REMARKS: Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		NO. OF CONTAINER(S): 1		VOLUME: 40mL		SEE ITEM (3) IN SPECIAL INSTRUCTIONS	
SPECIAL HANDLING AND/OR STORAGE		SAMPLE DATE: 6-27-07		SAMPLE TIME: 1055		X	
MATRIX*: A=Air, DL=Drum, DS=Drum, Solids, L=Liquid, O=Oil, S=Soil, SE=Sludiment, T=Trisubs, V=Vegetation, W=Water, X=Other		SAMPLE NO.: B11RC9		MATRIX*: SOIL		CHAIN OF POSSESSION	
RELINQUISHED BY/REMOVED FROM: J. Roper 6/27/07 1300		RECEIVED BY/STORED IN: A-2 SITE Fridge 6-27-07 1300		RELINQUISHED BY/REMOVED FROM: J. Roper 7/19/07 1450		RECEIVED BY/STORED IN: J. Mokler 7/19/07 1450	
RELINQUISHED BY/REMOVED FROM: J. Mokler 7/19/07 1450		RECEIVED BY/STORED IN: M745 R.F. #3 7-9-07 1555		RELINQUISHED BY/REMOVED FROM: J. Mokler 7/19/07 1450		RECEIVED BY/STORED IN: J. Mokler 07-11-07 0900	
RELINQUISHED BY/REMOVED FROM:		RECEIVED BY/STORED IN:		RELINQUISHED BY/REMOVED FROM:		RECEIVED BY/STORED IN:	
RELINQUISHED BY/REMOVED FROM:		RECEIVED BY/STORED IN:		RELINQUISHED BY/STORED IN:		RECEIVED BY/STORED IN:	
RELINQUISHED BY/REMOVED FROM:		RECEIVED BY/STORED IN:		RELINQUISHED BY/STORED IN:		RECEIVED BY/STORED IN:	
RECEIVED BY:		TITLE:		DATE/TIME:		DATE/TIME:	
DISPOSAL METHOD:		DISPOSED BY:		DATE/TIME:		DATE/TIME:	

COLLECTOR Pope/Pfister/Mokler		COMPANY CONTACT Trent, NJ		TELEPHONE NO. 373-5869		PROJECT COORDINATOR TRENT, NJ		PRICE CODE 8N		DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION CS515, I-118 <i>Z85'-287'</i>		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		SAF NO. F07-043		METHOD OF SHIPMENT GOVERNMENT VEHICLE		AIR QUALITY <input type="checkbox"/>			
ICE CHEST NO.		FIELD LOGBOOK NO. COA 122868 ES3		OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A					
SHIPPED TO Waste Sampling & Characterization		PRESERVATION Frozen		TYPE OF CONTAINER aGs*		NO. OF CONTAINER(S) 5					
MATRIX* A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other		POSSIBLE SAMPLE HAZARDS / REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		NO. OF CONTAINER(S) 40mL		VOLUME 40mL					
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS		SEE ITEM (2) IN SPECIAL INSTRUCTIONS					
SAMPLE NO.		MATRIX*		SAMPLE DATE		SAMPLE TIME					
BINRF6 9214		SOIL		8-21-07		0805					
CHAIN OF POSSESSION		SIGN/PRINT NAMES		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM <i>J. S. [Signature]</i> 8-21-07		DATE/TIME 0925		RECEIVED BY/STORED IN <i>JA FRAZ</i>		DATE/TIME 8/24/07 0925					
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					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
LABORATORY SECTION		RECEIVED BY		TITLE		DATE/TIME					
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME					

ICED Initial Date

[Signature]

Appendix 5

Data Validation Supporting Documentation

INORGANIC ANALYSIS DATA VALIDATION CHECKLIST

ALIDATION LEVEL:	A	B	C	D	E
PROJECT: CPP 200 Area			DATA PACKAGE: VSR08-002		
VALIDATOR: Carl Schloesslin		LAB: STL St. Louis & WSCF		DATE: 01-28-2008	
			SDG: W05171 & WSCF20071485		
ANALYSES PERFORMED					
SW-846/ICP	SW-846/GFAA	SW-846/Hg	SW-846 Cyanide		
X		X			
SAMPLES/MATRIX Soil samples B1NT07 & B1NRH1 (SDG W05171)					
Soil sample B1NRJ0 (SDG WSCF20071485)					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes No N/A

Comments: None

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: SDG WSCF20071485 MB detection: Cu 0.23 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: None

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: In cases where field replicate RPDs are >30% the associated results are <5X
the RDLs with differences <2X the RDLs.

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
- 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: Samples B1NT07 & B1NRH1 were diluted 2X for Cd, Pb and Se analyses
due to high Fe concentration (interfering analyte). All MDLs still <RDLs.

Appendix 6

Additional Documentation Requested By Client

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: F7G110133

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: F7G130000-072 Prep Batch #...: 7194072						
Mercury	ND	33.3	ug/kg	SW846 7471A	07/13/07	J2TAV1AA
		Dilution Factor: 1				
MB Lot-Sample #: F7G160000-253 Prep Batch #...: 7197253						
Arsenic	ND	1.0	mg/kg	SW846 6010B	07/16-07/23/07	J20J71AG
		Dilution Factor: 1				
Barium	ND	5.0	mg/kg	SW846 6010B	07/16-07/23/07	J20J71AH
		Dilution Factor: 1				
Cadmium	ND	0.50	mg/kg	SW846 6010B	07/16-07/23/07	J20J71AA
		Dilution Factor: 1				
Chromium	ND	1.0	mg/kg	SW846 6010B	07/16-07/23/07	J20J71AF
		Dilution Factor: 1				
Copper	ND	2.5	mg/kg	SW846 6010B	07/16-07/23/07	J20J71AC
		Dilution Factor: 1				
Lead	ND	1.0	mg/kg	SW846 6010B	07/16-07/23/07	J20J71AD
		Dilution Factor: 1				
Selenium	ND	1.5	mg/kg	SW846 6010B	07/16-07/23/07	J20J71AJ
		Dilution Factor: 1				
Silver	ND	1.0	mg/kg	SW846 6010B	07/16-07/23/07	J20J71AE
		Dilution Factor: 1				

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F7G110133

Matrix.....: SOLID

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECVRY	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
LCS Lot-Sample#: F7G130000-072 Prep Batch #...: 7194072							
Mercury	16900	14600	ug/kg	87	SW846 7471A	07/13/07	J2TAV1AC
			Dilution Factor: 20				
LCS Lot-Sample#: F7G160000-253 Prep Batch #...: 7197253							
Cadmium	128	135	mg/kg	105	SW846 6010B	07/16-07/23/07	J20J71AK
			Dilution Factor: 1				
Copper	148	151	mg/kg	102	SW846 6010B	07/16-07/23/07	J20J71AL
			Dilution Factor: 1				
Lead	142	146	mg/kg	103	SW846 6010B	07/16-07/23/07	J20J71AM
			Dilution Factor: 1				
Silver	130	152	mg/kg	117	SW846 6010B	07/16-07/23/07	J20J71AN
			Dilution Factor: 1				
Chromium	69.5	70.7	mg/kg	102	SW846 6010B	07/16-07/23/07	J20J71AP
			Dilution Factor: 1				
Arsenic	161	174	mg/kg	108	SW846 6010B	07/16-07/23/07	J20J71AQ
			Dilution Factor: 1				
Barium	252	257	mg/kg	102	SW846 6010B	07/16-07/23/07	J20J71AR
			Dilution Factor: 1				
Selenium	64.2	68.2	mg/kg	106	SW846 6010B	07/16-07/23/07	J20J71AT
			Dilution Factor: 1				

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F7G110133

Matrix.....: SOLID

Date Sampled...: 06/27/07

Date Received...: 07/11/07

PARAMETER	AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCENT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
-----------	--------	-----------	---------------	-------	----------------	-----	--------	----------------------------	--------------

MS Lot-Sample #: F7G110133-001 Prep Batch #...: 7194072

% Moisture.....: 3.3

Mercury

80.0	172	250	ug/kg	99			SW846 7471A	07/13/07	J2L041CK
80.0	172	260	ug/kg	105	4.0		SW846 7471A	07/13/07	J2L041CL

Dilution Factor: 1

MS Lot-Sample #: F7G110133-001 Prep Batch #...: 7197253

% Moisture.....: 3.3

Arsenic

2.5	103	102	mg/kg	96			SW846 6010B	07/16-07/23/07	J2L041CD
2.5	103	100	mg/kg	95	1.3		SW846 6010B	07/16-07/23/07	J2L041CE

Dilution Factor: 1

Barium

51.0	103	140	mg/kg	86			SW846 6010B	07/16-07/23/07	J2L041CF
51.0	103	146	mg/kg	92	4.5		SW846 6010B	07/16-07/23/07	J2L041CG

Dilution Factor: 1

Cadmium

ND	2.58	2.39 D	mg/kg	93			SW846 6010B	07/16-07/23/07	J2L041A2
ND	2.58	2.47 D	mg/kg	96	3.1		SW846 6010B	07/16-07/23/07	J2L041A3

Dilution Factor: 2

Chromium

8.8	10.3	17.5	mg/kg	84			SW846 6010B	07/16-07/23/07	J2L041CA
8.8	10.3	18.6	mg/kg	95	6.2		SW846 6010B	07/16-07/23/07	J2L041CB

Dilution Factor: 1

Copper

7.2	12.9	20.4	mg/kg	102			SW846 6010B	07/16-07/23/07	J2L041A4
7.2	12.9	20.9	mg/kg	106	2.6		SW846 6010B	07/16-07/23/07	J2L041A5

Dilution Factor: 1

Lead

3.8	25.8	27.6 D	mg/kg	92			SW846 6010B	07/16-07/23/07	J2L041A6
3.8	25.8	28.2 D	mg/kg	94	2.0		SW846 6010B	07/16-07/23/07	J2L041A7

Dilution Factor: 2

Selenium

ND	103	89.4 D	mg/kg	86			SW846 6010B	07/16-07/23/07	J2L041CH
ND	103	89.4 D	mg/kg	86	0.04		SW846 6010B	07/16-07/23/07	J2L041CJ

Dilution Factor: 2

(Continued on next page)

MATRIX SPIKE SAMPLE DATA REPORT

TOTAL Metals

Client Lot #...: F7G110133

Matrix.....: SOLID

Date Sampled...: 06/27/07

Date Received...: 07/11/07

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Silver									
	ND	2.58	2.60	mg/kg	100		SW846 6010B	07/16-07/23/07	J2L041A8
	ND	2.58	2.60	mg/kg	101	0.35	SW846 6010B	07/16-07/23/07	J2L041A9

Dilution Factor: 1

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

D Result was obtained from the analysis of a dilution.

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071485

Matrix: SOLID

Test: ICP-200.8 MS All possible meta

Sample Date: 08/15/07

Receive Date: 08/15/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date	
Lab ID: W07GR02165												
BATCH QC ASSOCIATED WITH SAMPLE												
MS	Silver	7440-22-4	178	89.000	% Recov	70.000	130.000				09/05/07	
MS	Arsenic	7440-38-2	198.419	99.210	% Recov	70.000	130.000				09/05/07	
MS	Barium	7440-39-3	195.86	97.930	% Recov	70.000	130.000				09/05/07	
MS	Cadmium	7440-43-9	197.1	98.550	% Recov	70.000	130.000				09/05/07	
MS	Chromium	7440-47-3	184.91	92.455	% Recov	70.000	130.000				09/05/07	
MS	Copper	7440-50-8	179.797	89.898	% Recov	70.000	130.000				09/05/07	
MS	Mercury	7439-97-6	2.175	108.750	% Recov	70.000	130.000				09/05/07	
MS	Lead	7439-92-1	200.049	100.025	% Recov	70.000	130.000				09/05/07	
MS	Selenium	7782-49-2	198.2	99.100	% Recov	70.000	130.000				09/05/07	
MS	Uranium	7440-61-1	198.9641	99.482	% Recov	70.000	130.000				09/05/07	
MSD	Silver	7440-22-4	199.4	99.700	% Recov	70.000	130.000				09/05/07	
MSD	Arsenic	7440-38-2	205.619	102.809	% Recov	70.000	130.000				09/05/07	
MSD	Barium	7440-39-3	212.06	106.030	% Recov	70.000	130.000				09/05/07	
MSD	Cadmium	7440-43-9	205.4	102.700	% Recov	70.000	130.000				09/05/07	
MSD	Chromium	7440-47-3	189.71	94.855	% Recov	70.000	130.000				09/05/07	
MSD	Copper	7440-50-8	185.897	92.948	% Recov	70.000	130.000				09/05/07	
MSD	Mercury	7439-97-6	2.194	109.700	% Recov	70.000	130.000				09/05/07	
MSD	Lead	7439-92-1	209.349	104.675	% Recov	70.000	130.000				09/05/07	
MSD	Selenium	7782-49-2	206.5	103.250	% Recov	70.000	130.000				09/05/07	
MSD	Uranium	7440-61-1	206.6641	103.332	% Recov	70.000	130.000				09/05/07	
SPK-RPD	Silver	7440-22-4	99.700		RPD			11.341	20.000		09/05/07	
SPK-RPD	Arsenic	7440-38-2	102.809		RPD			3.563	20.000		09/05/07	
SPK-RPD	Barium	7440-39-3	106.030		RPD			7.943	20.000		09/05/07	
SPK-RPD	Cadmium	7440-43-9	102.700		RPD			4.124	20.000		09/05/07	
SPK-RPD	Chromium	7440-47-3	94.855		RPD			2.563	20.000		09/05/07	
SPK-RPD	Copper	7440-50-8	92.948		RPD			3.336	20.000		09/05/07	

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071485

Matrix: SOLID

Test: ICP-200.8 MS All possible meta

Sample Date: 08/15/07

Receive Date: 08/15/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
SPK-RPD	Mercury	7439-97-6	109.700		RPD			0.870	20.000		09/05/07
SPK-RPD	Lead	7439-92-1	104.675		RPD			4.543	20.000		09/05/07
SPK-RPD	Selenium	7782-49-2	103.250		RPD			4.102	20.000		09/05/07
SPK-RPD	Uranium	7440-61-1	103.332		RPD			3.797	20.000		09/05/07
BATCH QC											
BLANK	Silver	7440-22-4	<0.1	n/a	ug/L					U	09/05/07
BLANK	Arsenic	7440-38-2	<0.4	n/a	ug/L					U	09/05/07
BLANK	Barium	7440-39-3	<0.2	n/a	ug/L					U	09/05/07
BLANK	Cadmium	7440-43-9	<0.1	n/a	ug/L					U	09/05/07
BLANK	Chromium	7440-47-3	<0.5	n/a	ug/L					U	09/05/07
BLANK	Copper	7440-50-8	0.2302	0.230	ug/L						09/05/07
BLANK	Mercury	7439-97-6	<5e-2	n/a	ug/L					U	09/05/07
BLANK	Lead	7439-92-1	<0.1	n/a	ug/L					U	09/05/07
BLANK	Selenium	7782-49-2	<0.3	n/a	ug/L					U	09/05/07
BLANK	Uranium	7440-61-1	<5e-2	n/a	ug/L					U	09/05/07
LCS	Silver	7440-22-4	109.5	108.416	% Recov	98.000	134.000				09/05/07
LCS	Arsenic	7440-38-2	145	90.062	% Recov	75.000	134.000				09/05/07
LCS	Barium	7440-39-3	328.8	103.072	% Recov	87.000	121.000				09/05/07
LCS	Cadmium	7440-43-9	68.75	103.383	% Recov	95.000	124.000				09/05/07
LCS	Chromium	7440-47-3	69.64	100.201	% Recov	77.000	125.000				09/05/07
LCS	Copper	7440-50-8	68.76	100.380	% Recov	84.000	122.000				09/05/07
LCS	Mercury	7439-97-6	7.87	95.048	% Recov	71.000	132.000				09/05/07
LCS	Lead	7439-92-1	136.9	96.408	% Recov	92.000	123.000				09/05/07
LCS	Selenium	7782-49-2	178.6	110.932	% Recov	52.000	157.000				09/05/07
LCS	Uranium	7440-61-1	407	101.750	% Recov	81.000	125.000				09/05/07

Date: 28 January 2008
 To: Fluor Hanford Inc. (technical representative)
 From: Analytical Quality Associates, Inc.
 Project: CPP 200 Area
 Subject: General Chemistry - Sample Data Groups (SDGs) H3546, H3570, W05171 and WSCF20071485

INTRODUCTION

This memorandum presents the results of data validation for SDGs H3546 and H3570 prepared by Lionville Laboratory, SDG W05171 prepared by STL St. Louis and SDG WSCF20071485 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
B1NT07	06/27/07	Solid	C	See note 1
B1NT08	06/27/07	Solid	C	7196A (Cr-VI)
B1NRH1	06/27/07	Solid	C	See note 1 & 7196A (Cr-VI)
B1NRJ0	08/21/07	Solid	C	See note 2
B1P3J9	08/15/07	Solid	C	7196A (Cr-VI)
B1P3K0	08/21/07	Solid	C	7196A (Cr-VI)
B1P3K1	08/22/07	Solid	C	7196A (Cr-VI)

1 – 9056A (fluoride, nitrate, nitrite, phosphate and sulfate); 9012A (total cyanide)
 2 – 300.0 (fluoride, nitrate, nitrite, phosphate and sulfate); 335.2 (total cyanide)

Data validation was conducted in accordance with the FHI validation statement of work and the Sampling and Analysis Plan for Supplemental Remedial Investigation Activities at the 216-A-2 Crib and the 216-A-21 Crib, DOE/RL-2006-77, Rev. 0 Reissue (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
- Chromium(VI) – analysis within 30 days of sample collection
- Total cyanide – analysis within 14 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.

- **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 W05171, the phosphate and total cyanide laboratory blank results were > the method detection limits (MDLs). The phosphate results for samples B1NT07 and B1NRH1 were detects at >5X the blank result and should not be qualified for the blank infraction. The total cyanide results for samples B1NT07 and B1NRH1 were detects at <5X the blank result and should be qualified as a non-detect estimates and flagged “UJ.”

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 and laboratory control sample accuracy limits are 70% to 130%.

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

All MS/MSD recoveries were acceptable with the following exceptions. For SDG W05171, the MS recovery for phosphate was 0%. The phosphate results for samples B1NT07 and B1NRH1 were detects and should be qualified as estimates and flagged “J.” It should be noted that for SDG WSCF20071485 the anions and total cyanide MS/MSD were performed on solid samples from other SDGs. No sample data were qualified as a result.

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable.

- **Precision**

Precision is evaluated by reviewing MS/MSD results, laboratory duplicate sample results, and field duplicate 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 limits are $\pm 30\%$.

MS/MSD Samples

All MS/MSD relative percent difference values were acceptable.

Laboratory Duplicate Samples

All laboratory duplicate results were acceptable. It should be noted that for SDG WSCF20071485 the anions duplicate was performed on a solid sample from another SDG. No sample data were qualified as a result.

Field Duplicate Samples

All field duplicate results were acceptable.

- **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 H3546, H3570, W05171 and WSCF20071485 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 phosphate and total cyanide sample results as estimates were due to laboratory blank and MS recovery infractions. See the table in Appendix 2 for a listing of all affected sample results.

REFERENCES

FHI, Contract #29774, *Validation of Radiological and Chemical Analytical Data*, Fluor Hanford Incorporated, August 24, 2006.

DOE/RL-2006-77, Rev. 0 Reissue, *Sampling and Analysis Plan for Supplemental Remedial Investigation Activities at the 216-A-2 Crib and the 216-A-21 Crib*, June 2007.

Appendix 1
Glossary of Data Reporting Qualifiers

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

SDGs H3546, H3570, W05171 & WSCF20071485	Reviewer: AQA	Project: CPP 200 Area	Page 1 of 1
Analyte(s)	Qualifier	Samples Affected	Reason
Total Cyanide	UJ	B1NT07 & B1NRH1	Laboratory blank contamination
Phosphate	J	B1NT07 & B1NRH1	Very low MS recovery

Comments: None

Appendix 3

Annotated Laboratory Reports

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 07/23/07

CLIENT: TNUHANFORD F07-043 H3546
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0707L581

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
-001	B1NT08	Chromium VI	0.20 u	MG/KG	0.20	1.0
-002	B1NRH1	Chromium VI	0.22	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS DATA SUMMARY REPORT 09/04/07

CLIENT: TNU-HANFORD F07-043 H3570
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0708L840

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
=====	=====	=====	=====	=====	=====	=====
-001	B1P3K0	% Solids	82.8	%	0.01	1.0
		Chromium VI	0.24 u	MG/KG	0.24	1.0
-002	B1P3K1	% Solids	97.1	%	0.01	1.0
		Chromium VI	0.21 u	MG/KG	0.21	1.0
-003	B1P3J9	% Solids	96.6	%	0.01	1.0
		Chromium VI	0.24	MG/KG	0.21	1.0

Fluor Hanford Inc

Client Sample ID: B1NT07

General Chemistry

Lot-Sample #....: F7G110133-001 Work Order #....: J2L04 Matrix.....: SOLID
 Date Sampled....: 06/27/07 Date Received...: 07/11/07
 % Moisture.....: 3.3

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Phosphate as P, Ortho	J 102 C,N	5.2	mg/kg	SW846 9056A	07/24/07	7206141
		Dilution Factor: 1		MDL.....: 1.7		
Cyanide, Total	UJ 0.23 B,C	0.52	mg/kg	SW846 9012A	07/11-07/12/07	7193496
		Dilution Factor: 1		MDL.....: 0.082		
Fluoride	ND	1.0	mg/kg	SW846 9056A	07/17/07	7199050
		Dilution Factor: 1		MDL.....: 0.26		
Nitrate	0.22	0.21	mg/kg	SW846 9056A	07/17/07	7199051
		Dilution Factor: 1		MDL.....: 0.089		
Nitrite	0.36	0.21	mg/kg	SW846 9056A	07/17/07	7199052
		Dilution Factor: 1		MDL.....: 0.052		
Percent Moisture	3.3	0.10	%	MCAWW 160.3 MOD	07/12-07/13/07	7193095
		Dilution Factor: 1		MDL.....:		
Sulfate	1.6 B	5.2	mg/kg	SW846 9056A	07/17/07	7199053
		Dilution Factor: 1		MDL.....: 0.52		

NOTE(S):

LS
01-28-08

- RL Reporting Limit
- Results and reporting limits have been adjusted for dry weight.
- C Analyte detected in method blank above the MDL/IDL.
- N Spiked analyte recovery is outside stated control limits.
- B Estimated result. Result is less than RL.

Fluor Hanford Inc

Client Sample ID: B1NRH1

General Chemistry

Lot-Sample #....: F7G110133-002 Work Order #....: J2L21 Matrix.....: SOLID
 Date Sampled....: 06/27/07 Date Received...: 07/11/07
 % Moisture.....: 1.5

PARAMETER	RESULT	RL	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Phosphate as P, Ortho	83.9 C,N	5.1	mg/kg	SW846 9056A	07/24/07	7206141
				Dilution Factor: 1		
				MDL.....: 1.6		
Cyanide, Total	0.12 B,C	0.51	mg/kg	SW846 9012A	07/11-07/12/07	7193496
				Dilution Factor: 1		
				MDL.....: 0.080		
Fluoride	ND	1.0	mg/kg	SW846 9056A	07/17/07	7199050
				Dilution Factor: 1		
				MDL.....: 0.25		
Nitrate	0.37	0.20	mg/kg	SW846 9056A	07/17/07	7199051
				Dilution Factor: 1		
				MDL.....: 0.087		
Nitrite	0.78	0.20	mg/kg	SW846 9056A	07/17/07	7199052
				Dilution Factor: 1		
				MDL.....: 0.051		
Percent Moisture	1.5	0.10	%	MCAWW 160.3 MOD	07/12-07/13/07	7193095
				Dilution Factor: 1		
				MDL.....:		
Sulfate	1.9 B	5.1	mg/kg	SW846 9056A	07/17/07	7199053
				Dilution Factor: 1		
				MDL.....: 0.51		

NOTE(S):

LS
01-28-08

RL Reporting Limit

Results and reporting limits have been adjusted for dry weight.

C Analyte detected in method blank above the MDL/IDL.

N Spiked analyte recovery is outside stated control limits.

B Estimated result. Result is less than RL.

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent **Group #:** WSCF20071485
SAF Number: F07-043 **Department:** Inorganic
Sample #: W07GR02213 **Sampled:** 08/21/07
Client ID: B1NRJ0 **Received:** 08/21/07
TRENT **Matrix:** SOIL
WSCF

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Anions by Ion Chromatography Prep											
Anions by Ion Chromatography											
Fluoride	16984-48-8	LA-533-410	DU	< 0.300	mg/kg			50.00	0.30		09/06/07
Nitrogen in Nitrite	NO2-N	LA-533-410	DU	< 0.500	mg/kg			50.00	0.50		09/06/07
Nitrogen in Nitrate	NO3-N	LA-533-410	D	12.9	mg/kg			50.00	0.25		09/06/07
Phosphate (P) by IC	PO4-P	LA-533-410	DU	< 2.00	mg/kg			50.00	2.0		09/06/07
Sulfate	14808-79-8	LA-533-410	BD	35.3	mg/kg			50.00	3.5		09/06/07
Cyanide											
Cyanide	57-12-5	LA-695-402	U	< 0.200	mg/kg			1.00	0.20		08/28/07
ICP-200.8 MS All possible meta Prep											
ICP-200.8 MS All possible meta											
Silver	7440-22-4	LA-505-412		0.127	mg/kg			1.01	0.101		09/05/07
Barium	7440-39-3	LA-505-412		117	mg/kg			1.01	0.202		09/05/07
Cadmium	7440-43-9	LA-505-412		0.351	mg/kg			1.01	0.101		09/05/07
Chromium	7440-47-3	LA-505-412		23.6	mg/kg			1.01	0.505		09/05/07
Copper	7440-50-8	LA-505-412		23.3	mg/kg			1.01	0.101		09/05/07
Lead	7439-92-1	LA-505-412		10.3	mg/kg			1.01	0.101		09/05/07
Mercury	7439-97-6	LA-505-412	U	< 0.0505	mg/kg			1.01	0.0505		09/05/07
Uranium	7440-61-1	LA-505-412		1.19	mg/kg			1.01	0.0505		09/05/07
Arsenic	7440-39-2	LA-505-412		6.37	mg/kg			1.01	0.404		09/05/07
Selenium	7782-49-2	LA-505-412		0.786	mg/kg			1.01	0.303		09/05/07
Total Solids											
Total Solids	76	LA-519-412		81.8	Percent			1.00	8.0		09/22/07

MDL = Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorg)
RQ = Result Qualifier E - Analyte is an estimate, has potentially larger errors.(org)
TP Err = Total Propagated Error U - Analyzed for but not detected above limiting criteria.(org)
DF = Dilution Factor U - Analyzed for but not detected above limiting criteria.(org)

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols
Report WGPP/ver. 5.2
Groundwater Remediation Program

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation



Analytical Report

Client: TNU-HANFORD F07-043 H3546
LVL#: 0707L581

W.O.#: 11343-606-001-9999-00
Date Received: 07-13-07

INORGANIC NARRATIVE

1. This narrative covers the analysis of 2 soil samples.
2. The samples were prepared and analyzed in accordance with the method checked on the attached glossary.

LvLI is NELAP accredited by the state of Pennsylvania and holds over 20 additional state accreditations. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvLI certifies that all test results meet the requirements of NELAC with any exception noted in the following statements.

3. Sample holding times as required by the method and/or contract were met.
4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. The method blank was within the method criteria.
6. The Laboratory Control Samples (LCS) were within the laboratory control limits.
7. The matrix spike recoveries were within the 75-125% control limits.
8. The replicate analysis was within the 20% Relative Percent Difference (RPD) control limit.
9. Results for these soil samples were reported on an "as-received" weight basis.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.


Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

7/26/07
Date

njp07-581

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 14 pages.



Analytical Report

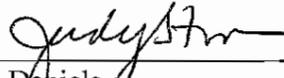
Client: TNU-HANFORD F07-043 H3570
LVL#: 0708L840

W.O.#: 11343-606-001-9999-00
Date Received: 08-31-07

INORGANIC NARRATIVE

1. This narrative covers the analyses of 3 soil samples.
2. The samples were prepared and analyzed in accordance with the methods checked on the attached glossary.

LvLI is NELAP accredited by the State of Pennsylvania. For a complete list of accrediting authorities and the corresponding analytes/methods, please contact your Project Manager. LvLI certifies that all test results meet the requirements of NELAC with any exception noted in the following statements.
3. Sample holding times as required by the method and/or contract were met.
4. The results presented in this report are derived from samples that met LvLI's sample acceptance policy.
5. The method blank for Chromium VI was within the method criteria.
6. The Laboratory Control Samples (LCS) for Chromium VI were within the laboratory control limits.
7. The matrix spike recoveries for Chromium VI were within the 75-125% control limits.
8. The replicate analysis for Percent Solids was within the 20% Relative Percent Difference (RPD) control limit however replicate analysis for Chromium VI was outside the control limit that may be attributed to sample inhomogeneity.
9. Results for solid samples are reported on a dry weight basis.
10. I certify that this sample data package is in compliance with SOW requirements, both technically and for completeness, other than the conditions detailed above. Release of the data contained in this hard copy package has been authorized by the Laboratory Manager or a designee, as verified by the following signature.



Iain Daniels
Laboratory Manager
Lionville Laboratory Incorporated

9/13/07
Date

ujp08-840

The results presented in this report relate to the analytical testing and conditions of the samples upon receipt and during storage. All pages of this report are integral parts of the analytical data. Therefore, this report should only be reproduced in its entirety of 13 pages.



Case Narrative
Lot Number: F7G110133
SDG: W05171

This report contains the analytical results for the six samples received under chain of custody by STL St. Louis on July 11, 2007. These samples are associated with your F07-043 project.

The analytical results included in this report meet all applicable quality control procedure requirements except as noted below.

The test results in this report meet all NELAP requirements for parameters in which accreditations are held by STL St. Louis. Any exceptions to NELAP requirements are noted in the case narrative. The case narrative is an integral part of this report.

All chemical analysis results are based upon sample as received, wet weight, unless noted otherwise. All radiochemistry results are based upon sample as dried and ground with the exception of tritium, unless requested wet weight by the client.

Observations/Nonconformances

Reference the chain of custody and condition upon receipt report for any variations on receipt conditions and temperature of samples on receipt.

Volatiles by SW846 8260B

Batch: 7193167

The CCV recovery was outside the upper QC limit (greater than 20% RSD) for Freon-114 (21.3%), Iodomethane (38.6%), Methyl Acetate (20.7%), trans-1,2-Dichloroethene (22.0%), cis-1,2-Dichloroethane (24.8%) and Bromochloromethane (31.4%) indicating a potential high bias for these analytes in the samples associated with this CCV. These analytes were not detected above the reporting limit in the associated samples or are not target analytes.

The LCS or LCSD recoveries for 1,2-Dichloroethene, Trichloroethene, cis-1,2-Dichloroethene and trans-1,2-Dichloroethene were above the upper QC limit, indicating a potential positive bias. These analytes were not detected above the reporting limit in the associated samples.

The LCS recoveries for 1,1-Dichloroethene, Carbon Disulfide and 2-Hexanone are below the lower QC limit, indicating a potential negative bias. However, the recoveries for these compounds are within the QC limit in the LCSD, indicating an anomaly isolated to the LCS alone. The RPDs for Acetone, 1,1-Dichloroethene and Carbon Disulfide are outside QC limits. The Acetone LCS/LCSD recoveries are acceptable.

The LCS and/or LCSD surrogate recoveries are outside the upper QC limit, indicating a potential high bias in spike compound recoveries.

The sample vial used for the MSD contained the wrong sample matrix (methanol), providing no data for the MSD. A matrix spike and LCS/LCSD were performed to demonstrate matrix accuracy and replicate precision. However, due to software limitations, the matrix spike cannot be reported. Matrix spike recoveries for Chloroethane (30%) and 1,2-Dichloropropane (60%) were below QC limits. All other analytes were within QC limits.

Affected Samples:

F7G110133 (3): B1NRC8

F7G110133 (4): B1NRC6

Batch: 7193167

In the original analysis, the associated sample's surrogate recovery was outside established QC limits. The sample was reprepared/reanalyzed within holding time. The reanalysis yielded acceptable results. Only the reanalysis results are reported.

Affected Samples:

F7G110133 (3): B1NRC8

Batches: 7193167 / 7194216

In the original analysis, the associated sample's internal standard (IS) recovery and Surrogate recovery was outside the lower QC limit. The sample was reprepared and reanalyzed 1 day past holding time (batch 7194216). The reanalysis, with acceptable IS and surrogate recoveries, yielded comparable sample results (non-detect). The original results, performed within hold time, are reported.

Affected Samples:

F7G110133 (4): B1NRC6

Volatile Petroleum Hydrocarbons by SW846 8015

Batch: 7198275

The surrogate recovery in the closing CCAL was outside of the upper acceptance limit. The surrogate recovery for the associated samples is within acceptance limits.

The ICV %D was outside QC limits (15%) for low boiling hydrocarbons (16% low). The associated samples were reprepared and reanalyzed outside of holding time in batch 7199166. The ICV %D for the reanalysis was acceptable. Both the original and reanalysis is reported.

In the original analysis, the MS/MSD was not spiked and is not reported. The MS/MSD is reported from the reanalysis batch.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

Reanalysis Batch: 7199166

The CCAL surrogate recoveries are outside the upper QC limit. The samples associated with the CCAL have surrogate recoveries that were within the established QC limits.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

For the first reanalysis, the associated sample's surrogate recovery was outside established QC limits. The sample was reprepared/reanalyzed within this same analysis batch. The second reanalysis yielded acceptable results. The results of the first reanalysis are reported in hard copy form only since this was the analysis used for the MS/MSD.

Affected Samples:

F7G110133 (1): B1NT07

ICP Metals by SW846 6010B

The associated samples were analyzed at a dilution for Cadmium, Lead and Selenium due to high concentrations of the interfering analyte Iron. The reporting limit has been adjusted only for those targets reported from the dilution run.

Due to an auto sampler error, the CCB after the initial instrument QC was missed. The sequence that followed the initial QC was: CCV, 10 samples, CCV, CCB. All initial instrument QC was within control limits. The ten samples affected were analyzed at the end of sequence.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

Ion Chromatography by SW846 9056A

The CCV recovery was outside the upper QC limit (greater than 110%) for Sulfate in batch 7199053 indicating a potential high bias for this analyte in the samples associated with this CCV. This analyte was not detected above the reporting limit in the associated samples.

The LCSD recovery for Sulfate in batch 7199053 is outside the upper QC limit, indicating a potential positive bias for this analyte. This analyte was not observed above the reporting limit in the associated samples; therefore the sample data was not adversely affected by this excursion.

The MS recovery for Orthophosphate in batch 7206141 is outside the established QC limits. A matrix interference is physically evident in the sample. Method performance is demonstrated by acceptable LCS recovery.

Affected Samples:

F7G110133 (1): B1NT07

F7G110133 (2): B1NRH1

There were no observations or nonconformances to report for the following analyses:

Cyanide by SW846 9012A

Extractable Petroleum Hydrocarbons

Mercury by SW846 7141A

PCBs by SW846 8082

Semivolatiles by SW846 8270C

Sample Delivery Group	WSCF20071485
Sample Matrix	Solid
Data Deliverable	Summary Report

Introduction

Three (3) groundwater samples were received at the WSCF Laboratory on August 21, 2007. Two of the three 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. Analyses of the high concentration soil VOA sample material and the corresponding Methanol Blank (B1NRF7) were not required.

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4. In addition, copy of the sample record sheet is included as Attachment 5.

It should be noted that the attached chain of custody was stamped “iced” and initialed by the WSCF Laboratory Sample Custodian during sample receiving, indicating the presence of ice in the sample container.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, pages 14 through 16, for a complete listing of approved analytical methods.

Inorganic Comments

Anions – The hold time requirements for this analysis were met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See pages 18 through 19 for QC details. Analytical Note(s):

- Duplicate, Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH7 (SDG# 20071366, SAF# F07-043).
- Sample results were D flagged (dilution).
- Sample results that were less than the reportable limit, however greater than the method detection limit were B flagged.
- Sulfate Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

Cyanide – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 20 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

ICP-MS Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 21 through 22 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).
- Copper contamination detected in the Blank was evaluated and there was no affect on sample result.

All other QC controls are within the established limits.

Percent Solids - Percent solids were performed for organic analyses result correction.

Organic Comments

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

PCB – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 28 through 29 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1PKK9 (SDG# 20071535, SAF# F03-015).
- Aroclor-1260 – Matrix Spike and Matrix Spike Duplicate exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

Semi-VOA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GPP Letter of Instruction. See pages 30 through 33 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1PKK6 (SDG# 20071535, SAF# F03-015).

All QC controls are within the established limits.

TPHD-WA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 34 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

TPHG-WA – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 35 for QC details. Analytical Note(s):

- Laboratory Control Sample recovery was slightly less than established laboratory limits. No flags issued.

All other QC controls are within the established limits.

VOA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 36 through 38 for QC details. Analytical Note(s):

- Analyses of the high concentration soil VOA sample material and the corresponding Methanol Blank (B1NRF7) were not required.
- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRF4 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

Radiochemistry Comments

Rad Chem – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 42 through 46 for QC details. Analytical Note(s):

- Americium-241 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Gamma Energy Analysis (GEA) – Duplicate QC was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Plutonium-238, 239/240 and 242 (Tracer) – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033). Duplicate Relative Percent Difference (RPD) for Plutonium 239/240 exceeded established laboratory limits due to low sample activity. No flags issued.

- Strontium-85, 89/90 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Uranium-232 (tracer), 233/234, 235 and 238 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).

All other QC controls are within the established limits.

I certify that this data package is in compliance with the LOI, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager and Client Services as verified by the following signatures.



Scot L. Fitzgerald
WSCF Analytical Laboratory Manager



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

F07-043-065

PAGE 1 OF 1

COLLECTOR

Pope/Pfister/Mokler

COMPANY CONTACT

Trent, SJ

TELEPHONE NO.

373-5869

PROJECT COORDINATOR

TRENT, SJ

PRICE CODE

8N

DATA TURNAROUND

45 Days / 45 Days

SAMPLING LOCATION

C5515, 1-006

PROJECT DESIGNATION

216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil

SAF NO.

F07-043

AIR QUALITY

ICE CHEST NO.

GRP-06-204

FIELD LOGBOOK NO.

COA

122868ES10

METHOD OF SHIPMENT

FEDERAL EXPRESS

SHIPPED TO

Lionville Laboratory Incorporated

OFFSITE PROPERTY NO.

See RSR

670009000

BILL OF LADING / AIR BILL NO.

See RSR

670009000

MATRIX*

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

POSSIBLE SAMPLE HAZARDS/ REMARKS

Rad tie to B1NRB5

PRESERVATION

Cool 4C

TYPE OF CONTAINER

GRP

NO. OF CONTAINER(S)

1

VOLUME

60mL

SAMPLE ANALYSIS

Chromium Hex - 7196;

SAMPLE NO.

B1NT08

MATRIX*

SOIL

SAMPLE DATE

6/27/07

SAMPLE TIME

1055

X

CHAIN OF POSSESSION

SIGN/ PRINT NAMES

RELINQUISHED BY/REMOVED FROM

MD-746 KPS

RELINQUISHED BY/REMOVED FROM

M.A. Baachley

RELINQUISHED BY/REMOVED FROM

Fed Ex

RELINQUISHED BY/REMOVED FROM

DATE/TIME

JUL 12 2007 0810

DATE/TIME

JUL 12 2007 0810

DATE/TIME

7-13-07 0945

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

RECEIVED BY/STORED IN

M.A. Baachley

RECEIVED BY/STORED IN

Fed Ex

RECEIVED BY/STORED IN

DATE/TIME

JUL 12 2007 0810

DATE/TIME

DATE/TIME

7-13-07 0945

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

SPECIAL INSTRUCTIONS

NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION

LABORATORY SECTION

RECEIVED BY

DISPOSAL METHOD

TITLE

DISPOSED BY

DATE/TIME

Fluor Hanford Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

F07-043-010

PAGE 1 OF 1

COLLECTOR Popeel/Pfister/Mokler
COMPANY CONTACT Trent, SJ
TELEPHONE NO. 373-5869
PROJECT COORDINATOR TRENT, SJ
PRICE CODE 8N
DATA TURNAROUND 45 Days / 45 Days

SAMPLING LOCATION CS515, 1-006
PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
FIELD LOGBOOK NO. 29'-31.5'
SAF NO. F07-043
METHOD OF SHIPMENT FEDERAL EXPRESS

ICE CHEST NO.
COA 122868 ES3

SHIPPED TO Eberline Services
OFFSITE PROPERTY NO. See PTR
BILL OF LADING/AIR BILL NO. See PTR

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

POSSIBLE SAMPLE HAZARDS/ REMARKS
 Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

PRESERVATION	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME
None	G/P	1	60ml

SPECIAL HANDLING AND/OR STORAGE

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1NT08	SOIL	6-27-87	1055 X

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	(1) Tritium - H3; Carbon-14; Iodine-129; Nickel-63; Technetium-99 {Technetium-99}	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

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

COLLECTOR Pope/Pfister/Mokler
COMPANY CONTACT Trent, SJ 373-5869
PROJECT COORDINATOR TRENT, SJ
PRICE CODE 8N
DATA TURNAROUND 45 Days / 45 Days

SAMPLING LOCATION C5515, 1-006
PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
FIELD LOGBOOK NO. 122868ES10
COA 122868ES10
METHOD OF SHIPMENT FEDERAL EXPRESS

ICE CHEST NO. *ARR-06-004*
OFFSITE PROPERTY NO. *675004000*
BILL OF LADING/AIR BILL NO. *675004000*
 See RSR

SHIPPED TO Lionville Laboratory Incorporated

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SPECIAL HANDLING AND/OR STORAGE	
							Chromium Hex - 7196	
A=Air DL=Drum L=Liquids DS=Drum S=Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	Rad tie to B1NRB5	Cool dC	G/P	1	60ml			

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME														
B1NRH1	SOIL	<i>6/27/07</i>	<i>1055</i>														

CHAIN OF POSSESSION

SIGN/ PRINT NAMES

SPECIAL INSTRUCTIONS
 NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
<i>MD-345</i>	<i>0810</i>	<i>M.A. Baechler</i>	<i>0810</i>
<i>M.A. Baechler</i>	<i>0810</i>	<i>M.A. Baechler</i>	<i>0810</i>
<i>F-28</i>	<i>0845</i>	<i>M.A. Baechler</i>	<i>0845</i>
	<i>0845</i>		<i>0845</i>

LABORATORY SECTION RECEIVED BY _____ DATE/TIME _____

FINAL SAMPLE DISPOSITION DISPOSED BY _____ DATE/TIME _____

COLLECTOR Jope/Priester/Moller
IMPLING LOCATION 5515, 1-006 D 29-3/5
COMPANY CONTACT Trent, SJ
TELEPHONE NO. 373-5869
PROJECT COORDINATOR TRENT, SJ
PRICE CODE 8N
DATA TURNAROUND 45 Days / 45 Days
PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
FIELD LOGBOOK NO.
COA 122868 ES3
METHOD OF SHIPMENT FEDERAL EXPRESS
SAF NO. F07-043
AIR QUALITY

SHIPPED TO belline Services
OFFSITE PROPERTY NO. See PTR
BILL OF LADING/AIR BILL NO. See PTR

MATRIX*
 Air
 =Drum
 =Jugs
 =Drum
 =Lids
 =Liquid
 =Oil
 =Soil
 =Sediment
 =Tissue
 =Vegetation
 =Water
 =Wipe
 =Other
POSSIBLE SAMPLE HAZARDS/ REMARKS
 Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)
PRESERVATION None
TYPE OF CONTAINER G/P
NO. OF CONTAINER(S) 1
VOLUME 60mL
SPECIAL HANDLING AND/OR STORAGE
 SEE ITEM (1) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	SIGN/ PRINT NAMES	SPECIAL INSTRUCTIONS
NRH1	SOIL	6-27-07	1055	X	(1)Tritium - H3; Carbon-14; Iodine-129; Nickel-63; Technetium-99 (Technetium-99)

UNQUISHED BY/REMOVED FROM [Signature] DATE/TIME 6/27/07 1300 RECEIVED BY/STORED IN [Signature] DATE/TIME 6/27/07 1300
UNQUISHED BY/REMOVED FROM [Signature] DATE/TIME 7/12/07 1550 RECEIVED BY/STORED IN [Signature] DATE/TIME 7/12/07 1550
UNQUISHED BY/REMOVED FROM [Signature] DATE/TIME 7-9-07 RECEIVED BY/STORED IN [Signature] DATE/TIME 7-9-07
UNQUISHED BY/REMOVED FROM [Signature] DATE/TIME 7-13-07 RECEIVED BY/STORED IN [Signature] DATE/TIME 7-13-07
UNQUISHED BY/REMOVED FROM [Signature] DATE/TIME 0905 RECEIVED BY/STORED IN [Signature] DATE/TIME 0905

LABORATORY SECTION RECEIVED BY [Signature] TITLE [Signature] DATE/TIME [Signature]
FINAL SAMPLE DISPOSITION DISPOSAL METHOD [Signature] DATE/TIME [Signature]

COLLECTOR: Pope/Priester/Mokler
 COMPANY CONTACT: Trent, SJ
 TELEPHONE NO.: 373-5869
 PROJECT COORDINATOR: TRENT, SJ
 PRICE CODE: 8N
 DATA TURNAROUND: 45 Days / 45 Days

AMPLING LOCATION: C515, I-118 265' - 287'
 PROJECT DESIGNATION: 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
 FIELD LOGBOOK NO.:
 COA: 122868ES10
 METHOD OF SHIPMENT: FEDERAL EXPRESS

CE CHEST NO: **GR-03-017**
 OFFSITE PROPERTY NO.: **20157**
 BILL OF LADING/AIR BILL NO.: **20157**

SHIPPED TO: Lionville Laboratory Incorporated

MATRIX*
 -Air
 -L-Drum
 -Quads
 -S-Drum
 -Solids
 -Liquid
 -Oil
 -Soil
 -Sediment
 -Tissue
 -Vegetation
 -Water
 -Wipe
 -Other

POSSIBLE SAMPLE HAZARDS/ REMARKS
 Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)

NO. OF CONTAINER(S): 1
 TYPE OF CONTAINER: g/p
 PRESERVATION: Cool 4C
 VOLUME: 60ml
 SAMPLE ANALYSIS: Chromium Hex-7136

SPECIAL HANDLING AND/OR STORAGE
Rad-Hu Bin 59

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	DATE/TIME	DATE/TIME	SPECIAL INSTRUCTIONS
IP3KO	SOIL	8-21-07	8805	X		
CHAIN OF POSSESSION						
SIGN/ PRINT NAMES						
ELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
5-10-14	8-21-07	M.A. Baechler	8-21-07	1416		
15-21-05	AUG 30 2007	M.A. Baechler	8-30-07	1100		
ELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
A. Baechler	8/30/07	M.A. Baechler	8/30/07	1100		
ELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
Ed Co	8/31/07	Ed Co	8/31/07	0945		
ELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
ELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
ELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION: _____ RECEIVED BY: _____ DATE/TIME: _____

FINAL SAMPLE DISPOSITION: _____ DISPOSAL METHOD: _____ DATE/TIME: _____

COLLECTOR Pope/Pfister/Mokler
COMPANY CONTACT Trent, SJ 373-5869
PROJECT COORDINATOR TRENT, SJ
PRICE CODE 8N
DATA TURNAROUND 45 Days / 45 Days

SAMPLING LOCATION CSS15, 1-132 577' - 319.5'
PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
FIELD LOGBOOK NO. COA 122868E510
METHOD OF SHIPMENT FEDERAL EXPRESS

ICE CHEST NO. HRP-03-017
OFFSITE PROPERTY NO. 28151
BILL OF LADING/AIR BILL NO. 20151

SHIPPED TO Lionville Laboratory Incorporated

MATRIX*	POSSIBLE SAMPLE HAZARDS/REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SIGN/PRINT NAMES	SPECIAL INSTRUCTIONS
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	SPECIAL HANDLING AND/OR STORAGE Food for BINKES							
B1P3K1		SOIL	8-22-07	1310	X			

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
J.S. Pflister	8-22-07 1500	Mo 745	8-22-07 1500
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
M. A. Baechler	8-30-2007 1100	M. A. Baechler	8-30-2007 1100
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
M. A. Baechler	8-30-2007 1100	M. A. Baechler	8-30-2007 1100
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
M. A. Baechler	8-30-2007 1100	M. A. Baechler	8-30-2007 1100
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
M. A. Baechler	8-30-2007 1100	M. A. Baechler	8-30-2007 1100
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
M. A. Baechler	8-30-2007 1100	M. A. Baechler	8-30-2007 1100

LABORATORY SECTION RECEIVED BY: _____ DATE/TIME: _____

FINAL SAMPLE DISPOSITION DISPOSED BY: _____ DATE/TIME: _____

Enviro Hazard Inc.

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST

800-643-077

PAGE 1 OF 1

COLLECTOR
Fogel/Shear/Padler

COMPANY CONTACT
Trent, SI
373-9865

PROJECT COORDINATOR
Trent, SI

PRICE CODE 8N
AIR QUALITY
DATA TURNAROUND
45 Days /
45 Days

SAMPLING LOCATION
CSN 8, 1-103 - 2003

PROJECT DESIGNATION
218-A-2 and 218-A-2L Remediation Sampling and Analysis - Soil

SAP NO.
R07-013

METHOD OF SHIPMENT
FEDERAL EXPRESS

ICE CREST NO.
6R-03-017

FIELD LOGBOOK NO.

CDM
122888210

BILL OF LADING/AIR BILL NO.
568 PIR 20157

SHIPPED TO
Lehigh University Incorporated

OFFSITE PROPERTY NO.
See PIR 20157

DATE OF LADING/AIR BILL NO.
568 PIR 20157

MATRIX*
Aside
Bulk
Liquid
Dust
Soils
1-1 (soil)
O-01
S-05
S-06
S-07
S-08
S-09
S-10
S-11
S-12
S-13
S-14
S-15
S-16
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S-80
S-81
S-82
S-83
S-84
S-85
S-86
S-87
S-88
S-89
S-90
S-91
S-92
S-93
S-94
S-95
S-96
S-97
S-98
S-99
S-100

POSSIBLE SAMPLE HAZARDS/ REMARKS
Contains Hazardous Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1973)

NO. OF CONTAINERS
1

VOLUME
60ml

PREPARATION
Code #C

TYPE OF CONTAINER
QIP

SPECIAL HANDLING AND/OR STORAGE
Hed to BIRCCA

SAMPLE ANALYSIS
Code #C

SAMPLE DATE
8/15/94

SAMPLE TIME
1200

RECEIVED BY/STANDARD IN
M.A. Biechler

DATE/TIME
8-31-97

CHAIN OF POSSESSION
RECEIVED BY/STANDARD IN
M.A. Biechler

DATE/TIME
8-31-97

LABORATORY SECTION
RECEIVED BY
DISPOSAL METHOD

DATE/TIME

RECEIVED BY/STANDARD IN

DATE/TIME

RECEIVED BY/STANDARD IN

DATE/TIME

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST		PAGE 1 OF 1
COMPANY CONTACT Trent, SI	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SI
PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil	COA 122868ES10	SAF NO. F07-043
FIELD LOGBOOK NO. 670008000	METHOD OF SHIPMENT FEDERAL EXPRESS	PRICE CODE BN
OFFSITE PROPERTY NO. See RSR 670008000	BILL OF LADING/AIR BILLING See RSR 670008000	AIR QUALITY <input type="checkbox"/>
DATA TURNAROUND 45 Days / 45 Days		

COMPANY CONTACT Trent, SI	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SI
PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil	COA 122868ES10	SAF NO. F07-043
FIELD LOGBOOK NO. 670008000	METHOD OF SHIPMENT FEDERAL EXPRESS	PRICE CODE BN
OFFSITE PROPERTY NO. See RSR 670008000	BILL OF LADING/AIR BILLING See RSR 670008000	AIR QUALITY <input type="checkbox"/>
DATA TURNAROUND 45 Days / 45 Days		

MATRIX*	PRESERVATION	TYPE OF CONTAINER	NO. OF CONTAINER(S)	VOLUME	SAMPLE ANALYSIS	SPECIAL HANDLING AND/OR STORAGE
A-Air DL-Drum L-Liquids DS-Drum S-Solids L-Liquid O-Oil S-Soil SE-Sediment T-Tissue V-Vegetation W-Water WI-Wipe X-Other	Frozen aCs* bCs* Cool -4C	1 1	1 1	40mL 40mL	SEE ITEM (1) IN SPECIAL INSTRUCTIONS SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SOIL

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
31NRC8	SOIL	6/27/07	1055
171			X

SIGN / PRINT NAMES	DATE/TIME	DATE/TIME	DATE/TIME
RECEIVED BY / STORED IN <i>A.G. Baudry</i>	DATE/TIME 10/20/07	RECEIVED BY / STORED IN <i>A.G. Baudry</i>	DATE/TIME 10/20/07
RECEIVED BY / STORED IN <i>Fed Ex</i>	DATE/TIME 07-11-07	RECEIVED BY / STORED IN <i>Fed Ex</i>	DATE/TIME 07-11-07
RECEIVED BY / STORED IN	DATE/TIME	RECEIVED BY / STORED IN	DATE/TIME
RECEIVED BY / STORED IN	DATE/TIME	RECEIVED BY / STORED IN	DATE/TIME
RECEIVED BY / STORED IN	DATE/TIME	RECEIVED BY / STORED IN	DATE/TIME
RECEIVED BY / STORED IN	DATE/TIME	RECEIVED BY / STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS	TITLE	DATE/TIME	DATE/TIME
NOTE: ORIGINAL COC ATTACHED TO DOCUMENT CHAIN OF POSSESSION (1)VOA - 5035/8260 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) (1-Butanol, ds-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene) (2)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) (1-Butanol, ds-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene)			

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

COLLECTOR Fluor Hanford Inc. 172nd St 373-5869		COMPANY CONTACT TRENT, SJ SAF NO. F07-043		CHAIRMAN OF CUSTODY/SAMPLE ANALYSIS REQUEST PROJECT COORDINATOR TRENT, SJ SAF NO. F07-043		F07-043-011 PRICE CODE SN AIR QUALITY <input type="checkbox"/>		PAGE 1 OF 1 DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		FIELD LOGBOOK NO. COA 122868 ES3		METHOD OF SHIPMENT GOVERNMENT VEHICLE		BILL OF LADING/AIR BILL NO. N/A	
SHIPPED TO Waste Sampling & Characterization		OFFSITE PROPERTY NO. N/A		PRESEVATION Frozen		TYPE OF CONTAINER aGs*		NO. OF CONTAINER(S) 5	
MATRIX* A=Air DL=Drum L=Liquid DS=Drum S=Solids L=Liquid O=Oil S=Soil SE=Sludgment T=Tissue V=Vegetation W=Water WT=Wipe X=Other		POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		TYPE OF CONTAINER aGs*		VOLUME 40mL		SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS SEE ITEM (2) IN SPECIAL INSTRUCTIONS	
SPECIAL HANDLING AND/OR STORAGE		SAMPLE DATE 10-6-77		SAMPLE TIME 1055		DATE/TIME 6-27-87		DATE/TIME 7-30-80	
CHAIN OF POSSESSION		MATRIX* SOIL		RECEIVED BY/STORER IN A-2 Site Cooler		RECEIVED BY/STORER IN A-2 Site Cooler		DATE/TIME 6-27-87	
RELINQUISHED BY/REMOVED FROM J. Anderson		DATE/TIME 6-27-87		RECEIVED BY/STORER IN J. Anderson		RECEIVED BY/STORER IN J. Anderson		DATE/TIME 7-9-87	
RELINQUISHED BY/REMOVED FROM A-2 Site		DATE/TIME 7-9-87		RECEIVED BY/STORER IN M. J. R.		RECEIVED BY/STORER IN M. J. R.		DATE/TIME 7-9-87	
RELINQUISHED BY/REMOVED FROM J. Anderson		DATE/TIME 7-9-87		RECEIVED BY/STORER IN M. J. R.		RECEIVED BY/STORER IN M. J. R.		DATE/TIME 7-9-87	
RELINQUISHED BY/REMOVED FROM J. Anderson		DATE/TIME 7-9-87		RECEIVED BY/STORER IN M. J. R.		RECEIVED BY/STORER IN M. J. R.		DATE/TIME 7-9-87	
RELINQUISHED BY/REMOVED FROM J. Anderson		DATE/TIME 7-9-87		RECEIVED BY/STORER IN M. J. R.		RECEIVED BY/STORER IN M. J. R.		DATE/TIME 7-9-87	
LABORATORY SECTION 1-2		RECEIVED BY		TITLE		DATE/TIME		DATE/TIME	
DISPOSAL METHOD		DISPOSED BY		DATE/TIME		DATE/TIME		DATE/TIME	

A-6003-518(01/06)

CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST F07-043-008 PAGE 1 OF 1	
PROJECT COORDINATOR TRENT, SJ	PRICE CODE BN AIR QUALITY <input type="checkbox"/>
SAF NO. F07-043	DATA TURNAROUND 45 Days / 45 Days
METHOD OF SHIPMENT GOVERNMENT VEHICLE	
BILL OF LADING/AIR BILL NO. N/A	
COMPANY CONTACT Trent, SJ	TELEPHONE NO. 373-5869
PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil	COA 122868 E53
FIELD LOGBOOK NO.	
OFFSITE PROPERTY NO. N/A	
PRESERVATION Cool 4C	
TYPE OF CONTAINER #GS*	
NO. OF CONTAINER(S) 1	
VOLUME 40mL	
SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS	
SAMPLE DATE 6-27-07 SAMPLE TIME 1055	
MATRIX* SOIL	
SPECIAL HANDLING AND/OR STORAGE	
POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	
WASTE SAMPLING & CHARACTERIZATION Waste Sampling & Characterization	
MATRIX* A=Air DL=Drum L=Liquid DS=Drum S=Solids O=Oil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	
CHAIN OF POSSESSION	SPECIAL INSTRUCTIONS (1)VOA - 5035/8260 (TCL); VOA - 5035/8260 - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
RELINQUISHED BY/REMOVED FROM DATE/TIME 5/22/07 1300	RECEIVED BY/STORED IN DATE/TIME 6/27/07 1055
RELINQUISHED BY/REMOVED FROM DATE/TIME 6/27/07 1450	RECEIVED BY/STORED IN DATE/TIME 7/9/07 1055
RELINQUISHED BY/REMOVED FROM DATE/TIME 7/9/07 1545	RECEIVED BY/STORED IN DATE/TIME 07-11-07 0900
RELINQUISHED BY/REMOVED FROM DATE/TIME	RECEIVED BY/STORED IN DATE/TIME
RELINQUISHED BY/REMOVED FROM DATE/TIME	RECEIVED BY/STORED IN DATE/TIME
RELINQUISHED BY/REMOVED FROM DATE/TIME	RECEIVED BY/STORED IN DATE/TIME
RELINQUISHED BY/REMOVED FROM DATE/TIME	RECEIVED BY/STORED IN DATE/TIME
LABORATORY SECTION	RECEIVED BY
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD
TITLE	DATE/TIME
DISPOSED BY	DATE/TIME

FLUOR HANFORD INC. COLLECTOR: Roper/Pfister/Mokler SAMPLING LOCATION: 29'-31.5' ICE CHEST NO.		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST COMPANY CONTACT: Trent, SJ PROJECT DESIGNATION: 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil FIELD LOGBOOK NO. COA 122868 ES3 OFFSITE PROPERTY NO. N/A SHIPPED TO: Waste Sampling & Characterization		TELEPHONE NO. 373-5869 PROJECT COORDINATOR: TRENT, SJ SAF NO. F07-043 METHOD OF SHIPMENT: GOVERNMENT VEHICLE BILL OF LADING/AIR BILL NO. N/A		F07-043-012 PRICE CODE 8N AIR QUALITY <input type="checkbox"/> DATA TURNAROUND: 45 Days / 45 Days	PAGE 1 OF 1
MATRIX* A=Air DL=Drum LS=Liquid DS=Drum S=Soil O=Oil L=Liquid S=Soil SE=Sludgment T=Trucks V=Vegetation W=Water X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION: Cool 4C TYPE OF CONTAINER: 9G3* NO. OF CONTAINER(S): 1 VOLUME: 40mL SPECIAL HANDLING AND/OR STORAGE	SAMPLE DATE: 6-27-07 SAMPLE TIME: 1055 MATRIX*: SOIL	RECEIVED BY/STORED IN: A-2 SITE Fridge DATE/TIME: 6-27-07 1300 RECEIVED BY/STORED IN: J. M... DATE/TIME: 7-9-07 1555 RECEIVED BY/STORED IN: M... DATE/TIME: 07-11-07 0900	SPECIAL INSTRUCTIONS (1)VOA - 5035/8260 (TCL); VOA - 5035/8260 - (Add-On) {1-Butanol, dis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}	SPECIAL INSTRUCTIONS	
CHAIN OF POSSESSION RELINQUISHED BY/REMOVED FROM: J. M... DATE/TIME: 6-27-07 1300 RELINQUISHED BY/REMOVED FROM: J. M... DATE/TIME: 7-9-07 1555 RELINQUISHED BY/REMOVED FROM: J. M... DATE/TIME: 07-11-07 0900	RECEIVED BY/STORED IN: A-2 SITE Fridge DATE/TIME: 6-27-07 1300 RECEIVED BY/STORED IN: J. M... DATE/TIME: 7-9-07 1555 RECEIVED BY/STORED IN: M... DATE/TIME: 07-11-07 0900	RECEIVED BY/STORED IN: A-2 SITE Fridge DATE/TIME: 6-27-07 1300 RECEIVED BY/STORED IN: J. M... DATE/TIME: 7-9-07 1555 RECEIVED BY/STORED IN: M... DATE/TIME: 07-11-07 0900	RECEIVED BY/STORED IN: A-2 SITE Fridge DATE/TIME: 6-27-07 1300 RECEIVED BY/STORED IN: J. M... DATE/TIME: 7-9-07 1555 RECEIVED BY/STORED IN: M... DATE/TIME: 07-11-07 0900	RECEIVED BY/STORED IN: A-2 SITE Fridge DATE/TIME: 6-27-07 1300 RECEIVED BY/STORED IN: J. M... DATE/TIME: 7-9-07 1555 RECEIVED BY/STORED IN: M... DATE/TIME: 07-11-07 0900	RECEIVED BY/STORED IN: A-2 SITE Fridge DATE/TIME: 6-27-07 1300 RECEIVED BY/STORED IN: J. M... DATE/TIME: 7-9-07 1555 RECEIVED BY/STORED IN: M... DATE/TIME: 07-11-07 0900	RECEIVED BY/STORED IN: A-2 SITE Fridge DATE/TIME: 6-27-07 1300 RECEIVED BY/STORED IN: J. M... DATE/TIME: 7-9-07 1555 RECEIVED BY/STORED IN: M... DATE/TIME: 07-11-07 0900	
LABORATORY SECTION: 80	RECEIVED BY:	TITLE:	DATE/TIME:	DISPOSAL METHOD:	DATE/TIME:	DISPOSED BY:	

COLLECTOR Pope/Pfister/Mokler
 COMPANY CONTACT Trent, NJ
 TELEPHONE NO. 373-5869
 PROJECT COORDINATOR TRENT, NJ
 PRICE CODE 8N
 DATA TURNAROUND 45 Days / 45 Days

SAMPLING LOCATION C5515, I-118 285'-287'
 PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
 SAF NO. F07-043
 AIR QUALITY

ICE CHEST NO.
 FIELD LOGBOOK NO. COA 122868 ES3
 METHOD OF SHIPMENT GOVERNMENT VEHICLE

SHIPPED TO Waste Sampling & Characterization
 OFFSITE PROPERTY NO. N/A
 BILL OF LADING/AIR BILL NO. N/A

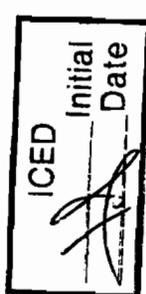
MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool 4C				
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	aG	aG	G/P	aG	aG	None
		1	1	1	1	1	1
		120mL	40mL	120mL	120mL	120mL	500mL

SPECIAL HANDLING AND/OR STORAGE	SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	TPH-Gasoline Range - WTPH-Range - WTPH-G	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	PCBs - 8082;	SEE ITEM (3) IN SPECIAL INSTRUCTIONS	Canister (Total) - SEE ITEM (4) IN SPECIAL INSTRUCTIONS

SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME
B1NRJ0 407602213	SOIL	8-21-07	0905

CHAIN OF POSSESSION	SIGN/ PRINT NAMES	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
RELINQUISHED BY/REMOVED FROM J.S. [Signature]		TA F0421 [Signature]	8/21/07 0525										
RELINQUISHED BY/REMOVED FROM													
RELINQUISHED BY/REMOVED FROM													
RELINQUISHED BY/REMOVED FROM													
RELINQUISHED BY/REMOVED FROM													
RELINQUISHED BY/REMOVED FROM													

SPECIAL INSTRUCTIONS
 (1) Semi-VOA - 8270B (Add-On) {Tributyl phosphate} TPH-Diesel Range - WTPH-D;
 (2) ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Silver, ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8 HG - ICP/MS;
 (3) IC Anions - 300.0 {Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorus in phosphate, Sulfate}
 (4) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Europium-155} Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr;



COLLECTOR Pope/Pfister/Mokler		COMPANY CONTACT Trent, NJ		TELEPHONE NO. 373-5869		PROJECT COORDINATOR TRENT, NJ		PRICE CODE 8N		DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION CS515, I-118 <i>Z85'-287'</i>		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		SAF NO. F07-043		METHOD OF SHIPMENT GOVERNMENT VEHICLE		AIR QUALITY <input type="checkbox"/>			
ICE CHEST NO.		FIELD LOGBOOK NO. COA 122868 ES3		OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A					
SHIPPED TO Waste Sampling & Characterization		PRESERVATION Frozen		TYPE OF CONTAINER aGs*		NO. OF CONTAINER(S) 5					
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other		POSSIBLE SAMPLE HAZARDS / REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		NO. OF CONTAINER(S) 40mL		VOLUME 40mL					
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS		SEE ITEM (2) IN SPECIAL INSTRUCTIONS					
SAMPLE NO.		MATRIX*		SAMPLE DATE		SAMPLE TIME					
BINRF6 9214		SOIL		8-21-07		0805					
CHAIN OF POSSESSION		SIGN/PRINT NAMES		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM <i>J. S. [Signature]</i> 8-21-07		DATE/TIME 0825		RECEIVED BY/STORED IN <i>JA FRAZ</i>		DATE/TIME 8/24/07 09:25					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
LABORATORY SECTION		RECEIVED BY		TITLE		DATE/TIME					
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME					

ICED Initial Date

[Signature]

COLLECTOR Pope/Pfister/Mokler		COMPANY CONTACT Trent, SJ		TELEPHONE NO. 373-5869		PROJECT COORDINATOR TRENT, SJ		PRICE CODE 8N		DATA TURNOAROUND 45 Days / 45 Days	
SAMPLING LOCATION C5515, 1-118 285' - 287'		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		SAF NO. F07-043		METHOD OF SHIPMENT GOVERNMENT VEHICLE		AIR QUALITY			
ICE CHEST NO.		FIELD LOGBOOK NO.		COA 122868 ES3		BILL OF LADING/AIR BILL NO. N/A					
SHIPPED TO Waste Sampling & Characterization		OFFSITE PROPERTY NO. N/A									
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Washer WI=Wipe X=Other		POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		PRESERVATION Cool 4C							
				TYPE OF CONTAINER 3Gs*							
		NO. OF CONTAINER(S) 1		VOLUME 40mL							
		SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS					
SAMPLE NO.		MATRIX*		SAMPLE DATE		SAMPLE TIME					
B1NRF7 2215		SOIL		8-21-07		0605					
CHAIN OF POSSESSION		SIGN/ PRINT NAMES		RECEIVED BY/STORED IN		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME	
RELINQUISHED BY/REMOVED FROM J.S. McEl...		DATE/TIME 0925		T.A. P...		8/21/07 0925					
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					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
LABORATORY SECTION		RECEIVED BY		TITLE		DATE/TIME					
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME					

ICED Initial Date

SPECIAL INSTRUCTIONS
(1)VOA - 5035/8260 (TCL); VOA - 5035/8260 - (Add-On) {1-Butanol, ds-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}

Appendix 5

Data Validation Supporting Documentation

GENERAL CHEMISTRY DATA VALIDATION CHECKLISTS

VALIDATION LEVEL:	A	B	C	D	E
PROJECT: CPP 200 Area			DATA PACKAGE: VSR08-002		
VALIDATOR: Carl Schloesslin	LAB: STL St. Louis, WSCF & Lionville		DATE: 08-28-2007		
			SDG: H3546, H3570, W05171 & WSCF20071485		
ANALYSES PERFORMED					
Anions/IC X	TOC	TOX	TPH-418.1	Oil and Grease	Alkalinity
Ammonia	BOD/COD	Chloride	Chromium-VI X	pH	NO ₃ /NO ₂
Sulfate	TDS	TKN	Phosphate	Total CN X	
SAMPLES/MATRIX Soil samples B1NT08 & B1NRH1 (SDG H3546)					
Soil samples B1P3J9, B1P3K0 & B1P3K1 (SDG H3570)					
Soil samples B1NT07 & B1NRH1 (SDG W05171)					
Soil sample B1NRJ0 (SDG WSCF20071485)					

1. DATA PACKAGE COMPLETENESS AND CASE NARRATIVE

Technical verification documentation present? Yes **No** N/A

Comments: None

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: SDG W05171 MB detections: Phosphate 2.3 mg/kg, Total CN 0.15 mg/kg

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

Spike samples analyzed? Yes No N/A
Spike recoveries acceptable? Yes No N/A
Spike standards NIST traceable? (Levels D, E)..... Yes No N/A
Spike standards expired? (Levels D, E)..... Yes No N/A
LCS/BSS samples analyzed? Yes No N/A
LCS/BSS results acceptable?..... Yes No N/A
Standards traceable? (Levels D, E)..... Yes No N/A
Standards expired? (Levels D, E) Yes No N/A
Transcription/calculation errors? (Levels D, E)..... Yes No N/A
Performance audit sample(s) analyzed? Yes No N/A
Performance audit sample results acceptable?..... Yes No N/A
Comments: SDG W05171 Phosphate MS %R = 0%

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: In cases where replicate RPDs are >30% the associated results are <5X
the RDLs with differences <2X the RDLs.

6. HOLDING TIMES (all levels)

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

Comments: None

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: None

Appendix 6

Additional Documentation Requested By Client

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 07/23/07

CLIENT: TNUHANFORD F07-043 H3546
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0707L581

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	07LVI054-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 07/23/07

CLIENT: TNUHANFORD P07-043 H3546
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0707L581

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-002	B1NRH1	Soluble Chromium VI	4.0	0.22	4.0	94.5	1.0
		Insoluble Chromium VI	1110	0.22	1180	93.9	100
BLANK10	07LVI054-MB1	Soluble Chromium VI	4.0	0.20u	4.0	99.8	1.0
		Insoluble Chromium VI	1050	0.20u	985	106.7	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 07/23/07

CLIENT: TNUHANFORD F07-043 H3546
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0707L581

SAMPLE	SITE ID	ANALYTE	INITIAL RESULT	REPLICATE	RPD	DILUTION FACTOR (REP)
-002REP	B1NRH1	Chromium VI	0.22	0.20u	66.7	1.0

Lionville Laboratory, Inc.

INORGANICS METHOD BLANK DATA SUMMARY PAGE 09/04/07

CLIENT: TNU-HANFORD F07-043 H3570
WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0708L840

SAMPLE	SITE ID	ANALYTE	RESULT	UNITS	REPORTING LIMIT	DILUTION FACTOR
BLANK10	07LVI072-MB1	Chromium VI	0.20 u	MG/KG	0.20	1.0

Lionville Laboratory, Inc.

INORGANICS ACCURACY REPORT 09/04/07

CLIENT: TNU-HANFORD F07-043 H3570
 WORK ORDER: 11343-606-001-9999-00

LVL LOT #: 0708L840

SAMPLE	SITE ID	ANALYTE	SPIKED SAMPLE	INITIAL RESULT	SPIKED AMOUNT	%RECOV	DILUTION FACTOR (SPK)
-003	B1P3J9	Soluble Chromium VI	4.3	0.24	4.1	98.0	1.0
		Insoluble Chromium VI	1170	0.24	1230	95.2	100
BLANK10	07LVI072-MB1	Soluble Chromium VI	4.1	0.20u	4.0	102.9	1.0
		Insoluble Chromium VI	1120	0.20u	1230	91.3	100

Lionville Laboratory, Inc.

INORGANICS PRECISION REPORT 09/04/07

CLIENT: TNU-HANFORD F07-043 H3570
 WORK ORDER: 11343-606-001-9999-00

LVL LCT #: 0708L840

SAMPLE	SITE ID	ANALYTE	INITIAL	REPLICATE		DILUTION FACTOR (REP)
			RESULT	RPD	RPD	
-001REP	B1P3K0	% Solids	82.8	83.0	0.25	1.0
-003REP	B1P3J9	Chromium VI	0.24	0.32	29.1	1.0

METHOD BLANK REPORT

General Chemistry

Client Lot #....: F7G110133

Matrix.....: SOLID

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Cyanide, Total	0.15 B	0.50	mg/kg	SW846 9012A	F7G120000-496 07/11-07/12/07	7193496
		Work Order #: J2RDG1AA MB Lot-Sample #: F7G120000-496				
		Dilution Factor: 1				
Fluoride	ND	1.0	mg/kg	SW846 9056A	F7G180000-050 07/17/07	7199050
		Work Order #: J23K51AA MB Lot-Sample #: F7G180000-050				
		Dilution Factor: 1				
Nitrate	ND	0.20	mg/kg	SW846 9056A	F7G180000-051 07/17/07	7199051
		Work Order #: J23K81AA MB Lot-Sample #: F7G180000-051				
		Dilution Factor: 1				
Nitrite	ND	0.20	mg/kg	SW846 9056A	F7G180000-052 07/17/07	7199052
		Work Order #: J23K91AA MB Lot-Sample #: F7G180000-052				
		Dilution Factor: 1				
Phosphate as P, Ortho	2.3 B	5.0	mg/kg	SW846 9056A	F7G250000-141 07/24/07	7206141
		Work Order #: J3HGF1AA MB Lot-Sample #: F7G250000-141				
		Dilution Factor: 1				
Sulfate	ND	5.0	mg/kg	SW846 9056A	F7G180000-053 07/17/07	7199053
		Work Order #: J23LE1AA MB Lot-Sample #: F7G180000-053				
		Dilution Factor: 1				

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

B Estimated result. Result is less than RL.

MATRIX SPIKE SAMPLE DATA REPORT

General Chemistry

Client Lot #...: F7G110133

Matrix.....: SOLID

Date Sampled...: 06/27/07

Date Received...: 07/11/07

Percent Moisture: 8.6

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Cyanide, Total	0.23	10.3	9.78	mg/kg	92	SW846 9012A	07/11-07/12/07	7193496
			Work Order #...: J2L041DA MS Lot-Sample #: F7G110133-001					
			Dilution Factor: 1					
Fluoride	ND	25.8	25.5	mg/kg	99	SW846 9056A	07/17/07	7199050
			Work Order #...: J2L041CW MS Lot-Sample #: F7G110133-001					
			Dilution Factor: 1					
Nitrate	0.22	5.17	5.68	mg/kg	106	SW846 9056A	07/17/07	7199051
			Work Order #...: J2L041CX MS Lot-Sample #: F7G110133-001					
			Dilution Factor: 1					
Nitrite	0.36	1.29	1.75	mg/kg	108	SW846 9056A	07/17/07	7199052
			Work Order #...: J2L041C0 MS Lot-Sample #: F7G110133-001					
			Dilution Factor: 1					
Phosphate as P, Ortho	102	51.7	97.1 N	mg/kg	0	SW846 9056A	07/24/07	7206141
			Work Order #...: J2L041C1 MS Lot-Sample #: F7G110133-001					
			Dilution Factor: 1					
Sulfate	1.6	51.7	56.2	mg/kg	106	SW846 9056A	07/17/07	7199053
			Work Order #...: J2L041C2 MS Lot-Sample #: F7G110133-001					
			Dilution Factor: 1					

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Results and reporting limits have been adjusted for dry weight.

N Spiked analyte recovery is outside stated control limits.

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071485

Matrix: SOLID

Test: Anions by Ion Chromatography

Sample Date: 07/24/07

Receive Date: 08/03/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date	
Lab ID: W07GR02025												
BATCH QC ASSOCIATED WITH SAMPLE												
DUP	Fluoride	16984-48-8	<0.294		RPD			n/a	20.000	U	09/06/07	
DUP	Nitrogen in Nitrite	NO2-N	<0.49		RPD			n/a	20.000	U	09/06/07	
DUP	Nitrogen in Nitrate	NO3-N	0.6684		RPD			17.390	20.000		09/06/07	
DUP	Phosphate (P) by IC	PO4-P	<1.96		RPD			n/a	20.000	U	09/06/07	
DUP	Sulfate	14808-79-8	4.6728		RPD			32.035	20.000 *		09/06/07	
MS	Fluoride	16984-48-8	0.473764	93.815	% Recov	75.000	125.000				09/06/07	
MS	Nitrogen in Nitrite	NO2-N	0.48264	96.528	% Recov	75.000	125.000				09/06/07	
MS	Nitrogen in Nitrate	NO3-N	0.501858	110.057	% Recov	75.000	125.000				09/06/07	
MS	Nitrogen in Nitrate	NO3-N	0.501858	110.057	% Recov	75.000	125.000				09/06/07	
MS	Phosphate (P) by IC	PO4-P	0.873348	90.596	% Recov	75.000	125.000				09/06/07	
MS	Sulfate	14808-79-8	1.84866	92.433	% Recov	75.000	125.000				09/06/07	
MSD	Fluoride	16984-48-8	0.473016	93.667	% Recov	75.000	125.000				09/06/07	
MSD	Nitrogen in Nitrite	NO2-N	0.480656	96.131	% Recov	75.000	125.000				09/06/07	
MSD	Nitrogen in Nitrate	NO3-N	0.439296	96.337	% Recov	75.000	125.000				09/06/07	
MSD	Nitrogen in Nitrate	NO3-N	0.439296	96.337	% Recov	75.000	125.000				09/06/07	
MSD	Phosphate (P) by IC	PO4-P	0.882362	91.531	% Recov	75.000	125.000				09/06/07	
MSD	Sulfate	14808-79-8	1.790018	89.501	% Recov	75.000	125.000				09/06/07	
SPK-RPD	Fluoride	16984-48-8	93.667		RPD			0.158	20.000		09/06/07	
SPK-RPD	Nitrogen in Nitrite	NO2-N	96.131		RPD			0.412	20.000		09/06/07	
SPK-RPD	Nitrogen in Nitrate	NO3-N	96.337		RPD			13.295	20.000		09/06/07	
SPK-RPD	Nitrogen in Nitrate	NO3-N	96.337		RPD			13.295	20.000		09/06/07	
SPK-RPD	Phosphate (P) by IC	PO4-P	91.531		RPD			1.027	20.000		09/06/07	
SPK-RPD	Sulfate	14808-79-8	89.501		RPD			3.223	20.000		09/06/07	
BATCH QC												
BLANK	Fluoride	16984-48-8	<6e-3	n/a	mg/L	0.000	0.030			U	09/06/07	
BLANK	Fluoride	16984-48-8	<6e-3	n/a	mg/L	0.000	0.030			U	09/06/07	
BLANK	Nitrogen in Nitrite	NO2-N	<1e-2	n/a	mg/L	0.000	0.020			U	09/06/07	
BLANK	Nitrogen in Nitrite	NO2-N	<1e-2	n/a	mg/L	0.000	0.020			U	09/06/07	

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071485

Matrix: SOLID

Test: Anions by Ion Chromatography

Sample Date:
Receive Date:

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BLANK	Nitrogen in Nitrate	NO3-N	< 5e-3	n/a	mg/L	0.000	0.040			U	09/06/07
BLANK	Nitrogen in Nitrate	NO3-N	< 5e-3	n/a	mg/L	0.000	0.040			U	09/06/07
BLANK	Phosphate (P) by IC	PO4-P	< 4e-2	n/a	mg/L	0.000	0.200			U	09/06/07
BLANK	Phosphate (P) by IC	PO4-P	< 4e-2	n/a	mg/L	0.000	0.200			U	09/06/07
BLANK	Sulfate	14808-79-8	< 7e-2	n/a	mg/L	0.000	0.200			U	09/06/07
BLANK	Sulfate	14808-79-8	< 7e-2	n/a	mg/L	0.000	0.200			U	09/06/07
LCS	Fluoride	16984-48-8	107.9148	106.846	% Recov	80.000	120.000				09/06/07
LCS	Nitrogen in Nitrite	NO2-N	101.4789	101.479	% Recov	80.000	120.000				09/06/07
LCS	Nitrogen in Nitrate	NO3-N	93.3153	102.319	% Recov	80.000	120.000				09/06/07
LCS	Phosphate (P) by IC	PO4-P	194.0297	100.638	% Recov	80.000	120.000				09/06/07
LCS	Sulfate	14808-79-8	394.1881	98.547	% Recov	80.000	120.000				09/06/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Inorganic

SDG Number: WSCF20071485
 Matrix: SOLID
 Test: Cyanide by Midi/Spectrophotom

Sample Date: 08/15/07
 Receive Date: 08/15/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR02165											
BATCH QC ASSOCIATED WITH SAMPLE											
MS	Cyanide by Midi/Spectrophotom	57-12-5	1.74	89.691	% Recov	75.000	125.000				08/28/07
MSD	Cyanide by Midi/Spectrophotom	57-12-5	1.79	92.268	% Recov	75.000	125.000				08/28/07
SPK-RPD	Cyanide by Midi/Spectrophotom	57-12-5	92.268		RPD			2.833	20.000		08/28/07
BATCH QC											
BLANK	Cyanide by Midi/Spectrophotom	57-12-5	-0.1	-0.100	ug/L	-4.000	4.000				08/28/07
LCS	Cyanide by Midi/Spectrophotom	57-12-5	47.3	96.728	% Recov	85.000	115.000				08/28/07

Date: 29 January 2008
 To: Fluor Hanford Inc. (technical representative)
 From: Analytical Quality Associates, Inc.
 Project: CPP 200 Area
 Subject: Radiochemical - Sample Data Groups (SDGs) H3546, H3566 and WSCF20071485

INTRODUCTION

This memorandum presents the results of data validation for SDGs H3546 and H3566 prepared by Eberline Services and SDG WSCF20071485 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
B1NT07	06/27/07	Solid	C	See notes 1, 2 & 3
B1NRH1	06/27/07	Solid	C	See notes 1, 2 & 3
B1NRH9	08/15/07	Solid	C	See note 2
B1NRJ0	08/21/07	Solid	C	See note 1 & 2
B1NRJ1	08/27/07	Solid	C	See note 2

- 1 - Alpha spectrometry, gamma spectrometry and strontium-89/90
- 2 - Carbon-14, iodine-129, nickel-63, technetium-99 and tritium
- 3 - Total uranium by KPA.

Data validation was conducted in accordance with the FHI validation statement of work and the Sampling and Analysis Plan for Supplemental Remedial Investigation Activities at the 216-A-2 Crib and the 216-A-21 Crib, DOE/RL-2006-77, Rev. 0 Reissue (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. 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 exception. For SDG WSCF20071485, the U-238 laboratory blank result was > the minimum detectable concentration (MDC). The U-238 result for sample B1NRJ0 was a detect at >5X the blank result and should not be qualified.

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 the sample concentration, uncertainty, and MDC results. According to the SAP, the matrix spike and laboratory control sample accuracy limits are 70% to 130% (65% to 135% for total uranium by KPA).

Matrix Spike (MS) Samples

For SDG H3546, MS analyses were not performed for C-14, tritium and total U by KPA. C-14 and tritium results for samples B1NT07 and B1NRH1 were non-detects and should be qualified as estimates and flagged "UJ." Total U by KPA results for samples B1NT07 and B1NRH1 were detects and should be qualified as estimates and flagged "J."

For SDG H3566, MS analyses were not performed for C-14 and tritium. C-14 results for samples B1NRH9, B1NRJ0 and B1NRJ1 were non-detects and should be qualified as estimates and flagged "UJ." Tritium results for samples B1NRH9, B1NRJ0 and B1NRJ1 were detects and should be qualified as estimates and flagged "J."

Laboratory Control Samples (LCSs)

All LCS recoveries were acceptable.

Carrier/Tracer Recovery Factors

All carrier/tracer recovery factors were acceptable with the following exception. For SDG H3546, the Am-243 tracer recovery for sample B1NRH1 was <20% but $\geq 5\%$. The Am-241 result for sample B1NRH1 was a detect and should be qualified as an estimate and flagged “J.”

- **Precision**

Precision is evaluated by reviewing laboratory and field duplicate 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 $\pm 30\%$.

Laboratory Duplicate Samples

All laboratory duplicate results were acceptable. It should be noted that for SDG WSCF20071485 the duplicates were performed on a solid sample from another SDG. No sample data were qualified as a result.

Field Duplicate Samples

All field duplicate results were acceptable with the following exceptions. Samples B1NT07 and B1NRH1 had Am-241 (alpha spectrometry), Cs-137, Pu-238, Pu-239/240, Sr-89/90 and total U by KPA RPDs $> 30\%$. No sample data were qualified as a result per data validation procedure guidance.

- **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 with the following exceptions.

For SDG H3546, all MDCs were $>$ the CRDLs for samples B1NT07 and B1NRH1 *except* Tc-99, tritium, and total U by KPA. In addition, the Ni-63 MDC for sample B1NT07 was $<$ the CRDL. The elevated MDCs were due to reduced sample aliquot sizes due to high sample activity. In all of these cases *except* SAP analytes C-14, Co-60, Eu-152, Eu-154, Eu-155, I-129, Ni-63 and U-235 the sample results were significantly $>$ the MDCs.

For SDG H3566, the C-14 MDCs for samples B1NRH9, B1NRJ0 and B1NRJ1 were $>$ the CRDL.

- **Completeness**

SDGs H3546, H3566 and WSCF20071485 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 an americium tracer recovery infraction and lack of MS analyses for tritium, C-14 and total U by KPA. See the table in Appendix 2 for a listing of all affected sample results

REFERENCES

FHI, Contract #29774, *Validation of Radiological and Chemical Analytical Data*, Fluor Hanford Incorporated, August 24, 2006.

DOE/RL-2006-77, Rev. 0 Reissue, *Sampling and Analysis Plan for Supplemental Remedial Investigation Activities at the 216-A-2 Crib and the 216-A-21 Crib*, June 2007.

Appendix 1
Glossary of Data Reporting Qualifiers

Qualifiers that may be applied by data validators in compliance with the FHI 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 H3546, H3566 & WSCF20071485	Reviewer: AQA	Project: CPP 200 Area	Page 1 of 1
Analyte(s)	Qualifier	Samples Affected	Reason
Am-241	J	B1NRH1	Low tracer recovery
C-14	UJ	B1NT07, B1NRH1, B1NRH9, B1NRJ0 & B1NRJ1	MSs not performed
Tritium	UJ	B1NT07 & B1NRH1	MSs not performed
Tritium	J	B1NRH9, B1NRJ0 & B1NRJ1	MSs not performed
Total U by KPA	J	B1NT07 & B1NRH1	MSs not performed

Comments: None

Appendix 3

Annotated Laboratory Reports

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3546

7667-001

B1NT07

DATA SHEET

SDG <u>7667</u>	Client/Case no <u>Hanford</u>	SDG <u>H3546</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R707083-01</u>	Client sample id <u>B1NT07</u>	
Dept sample id <u>7667-001</u>	Location/Matrix <u>C5515, I-006</u>	<u>SOLID</u>
Received <u>07/16/07</u>	Collected/Weight <u>06/27/07 10:55</u>	<u>736 g</u>
% solids <u>97.2</u>	Custody/SAF No <u>F07-043-010</u>	<u>F07-043</u>

LS
01-29-08

ANALYTE	CAS NO	RESULT	2σ ERR	MDA	RDL	QUALI-		TEST
		pCi/g	(COUNT)	pCi/g	pCi/g	FIERS		
Tritium	10028-17-8	-0.394	16	27.9	400	U	UJ	H
Carbon 14	14762-75-5	1.10	14	23.2	50.0	U	UJ	C
Nickel 63	13981-37-8	4.30	17	29.4	30.0	U		NI_L
Total Strontium	SR-RAD	11800	100	<u>6.92</u>	1.00			SR
Americium 241	14596-10-2	418	72	<u>8.38</u>	1.00			AM
Technetium 99	14133-76-7	4.70	1.5	2.75	15.0			TC
Total Uranium (ug/g)	7440-61-1	147	18	0.732	1.00		J	U_T
Uranium 233/234	U-233/234	42.1	7.3	<u>2.25</u>	1.00			U
Uranium 235	15117-96-1	4.28	2.3	<u>2.18</u>	1.00			U
Uranium 238	U-238	49.7	8.0	<u>2.25</u>	1.00			U
Plutonium 238	13981-16-3	31.7	6.5	<u>2.29</u>	1.00			PU
Plutonium 239/240	PU-239/240	1970	160	<u>2.29</u>	1.00			PU
Iodine 129	15046-84-1	-0.911	3.8	<u>8.60</u>	2.00	U		I
Potassium 40	13966-00-2	12.4	2.7	1.15				GAM
Cobalt 60	10198-40-0	0.294	0.11	<u>0.135</u>	0.050			GAM
Cesium 137	10045-97-3	1510	3.0	<u>1.07</u>	0.100			GAM
Radium 226	13982-63-3	U		<u>1.70</u>	0.100	U		GAM
Radium 228	15262-20-1	U		<u>0.963</u>	0.200	U		GAM
Europium 152	14683-23-9	U		<u>4.02</u>	0.100	U		GAM
Europium 154	15585-10-1	U		<u>1.12</u>	0.100	U		GAM
Europium 155	14391-16-3	U		<u>3.63</u>	0.100	U		GAM
Thorium 228	14274-82-9	U		2.42		U		GAM
Thorium 232	TH-232	U		0.963		U		GAM
Uranium 235	15117-96-1	U		5.28		U		GAM
Uranium 238	U-238	U		98.1		U		GAM
Americium 241	14596-10-2	U		246		U		GAM

216A2/216A21CharactrztnSamp&Ana-Soil

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Report date <u>09/06/07</u>

000013

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3546

7667-002

B1NRH1

DATA SHEET

SDG <u>7667</u>	Client/Case no <u>Hanford</u>	SDG <u>H3546</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R707083-02</u>	Client sample id <u>B1NRH1</u>	
Dept sample id <u>7667-002</u>	Location/Matrix <u>C5515, I-006</u>	<u>SOLID</u>
Received <u>07/16/07</u>	Collected/Weight <u>06/27/07 10:55</u>	<u>745 g</u>
% solids <u>98.1</u>	Custody/SAF No <u>F07-043-014</u>	<u>F07-043</u>

LS
01-29-08

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	-11.6	21	37.5	400	U UJ	H
Carbon 14	14762-75-5	12.4	19	31.0	50.0	U UJ	C
Nickel 63	13981-37-8	27.2	44	<u>73.4</u>	30.0	U	NI_L
Total Strontium	SR-RAD	18700	220	<u>19.4</u>	1.00		SR
Americium 241	14596-10-2	1140	210	<u>23.6</u>	1.00	J	AM
Technetium 99	14133-76-7	6.27	1.9	4.66	15.0		TC
Total Uranium (ug/g)	7440-61-1	103	12	0.183	1.00	J	U_T
Uranium 233/234	U-233/234	35.0	11	<u>5.70</u>	1.00		U
Uranium 235	15117-96-1	2.70	3.6	<u>6.90</u>	1.00	U	U
Uranium 238	U-238	38.0	11	<u>5.70</u>	1.00		U
Plutonium 238	13981-16-3	78.1	16	<u>5.74</u>	1.00		PU
Plutonium 239/240	PU-239/240	5350	420	<u>5.74</u>	1.00		PU
Iodine 129	15046-84-1	4.30	5.2	<u>11.8</u>	2.00	U	I
Potassium 40	13966-00-2	14.3	1.6	1.18			GAM
Cobalt 60	10198-40-0	0.382	0.13	<u>0.140</u>	0.050		GAM
Cesium 137	10045-97-3	3700	5.0	<u>1.64</u>	0.100		GAM
Radium 226	13982-63-3	U		<u>1.93</u>	0.100	U	GAM
Radium 228	15262-20-1	U		<u>2.04</u>	0.200	U	GAM
Europium 152	14683-23-9	U		<u>4.75</u>	0.100	U	GAM
Europium 154	15585-10-1	U		<u>3.09</u>	0.100	U	GAM
Europium 155	14391-16-3	U		<u>3.85</u>	0.100	U	GAM
Thorium 228	14274-82-9	U		2.37		U	GAM
Thorium 232	TH-232	U		2.04		U	GAM
Uranium 235	15117-96-1	U		5.56		U	GAM
Uranium 238	U-238	U		40.3		U	GAM
Americium 241	14596-10-2	U		607		U	GAM

216A2/216A21CharactrzttnSamp&Ana-Soil

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3566

7681-001

B1NRH9

D A T A S H E E T

SDG <u>7681</u>	Client/Case no <u>Hanford</u>	SDG <u>H3566</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R709005-01</u>	Client sample id <u>B1NRH9</u>	
Dept sample id <u>7681-001</u>	Location/Matrix <u>C5515, I-103 253'</u>	<u>SOLID</u>
Received <u>08/31/07</u>	Collected/Weight <u>08/15/07 12:20</u>	<u>85 g</u>
% solids <u>96.9</u>	Custody/SAF No <u>F07-043-054</u>	<u>F07-043</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	196	6.8	3.94	400	J	H
Carbon 14	14762-75-5	0.816	1.9	3.12	50.0	U	UJ C
Nickel 63	13981-37-8	1.10	1.8	3.07	30.0	U	NI_L
Technetium 99	14133-76-7	0.084	0.19	0.547	15.0	U	TC
Iodine 129	15046-84-1	-0.400	0.54	1.24	2.00	U	I

216A2 & 216A21 CharactSamp&Ana-Soil

LS
01-29-08

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Version <u>3.06</u>
Report date <u>10/19/07</u>

00000013

EBERLINE SERVICES / RICHMOND

SAMPLE DELIVERY GROUP H3566

7681-002

B1NRJ0

DATA SHEET

SDG <u>7681</u>	Client/Case no <u>Hanford</u>	SDG <u>H3566</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R709005-02</u>	Client sample id <u>B1NRJ0</u>	
Dept sample id <u>7681-002</u>	Location/Matrix <u>C5515, I-118 285'-287'</u>	<u>SOLID</u>
Received <u>08/31/07</u>	Collected/Weight <u>08/21/07 09:05</u>	<u>70 g</u>
% solids <u>83.8</u>	Custody/SAF No <u>F07-043-059</u>	<u>F07-043</u>

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALIFIERS	TEST
Tritium	10028-17-8	2860	25	4.01	400	J	H
Carbon 14	14762-75-5	1.14	1.9	3.08	50.0	U	UJ C
Nickel 63	13981-37-8	-1.02	1.8	3.17	30.0	U	NI_L
Technetium 99	14133-76-7	0.176	0.26	0.730	15.0	U	TC
Iodine 129	15046-84-1	0.508	0.65	1.47	2.00	U	I

216A2 & 216A21 CharactSamp&Ana-Soil

LS
01-29-08

DATA SHEETS
Page 2
SUMMARY DATA SECTION
Page 12

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>10/19/07</u>

00000014

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3566

7681-003

B1NRJ1

D A T A S H E E T

SDG <u>7681</u>	Client/Case no <u>Hanford</u>	SDG <u>H3566</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R709005-03</u>	Client sample id <u>B1NRJ1</u>	
Dept sample id <u>7681-003</u>	Location/Matrix <u>C5515, I-132 317'-319.5' SOLID</u>	
Received <u>08/31/07</u>	Collected/Weight <u>08/27/07 13:10</u> <u>109 g</u>	
% solids <u>86.2</u>	Custody/SAF No <u>F07-043-064</u> <u>F07-043</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	73.0	4.5	3.93	400	J	H
Carbon 14	14762-75-5	1.48	1.9	3.06	50.0	U	UJ C
Nickel 63	13981-37-8	1.14	1.9	3.19	30.0	U	NI_L
Technetium 99	14133-76-7	-0.088	0.31	0.540	15.0	U	TC
Iodine 129	15046-84-1	-0.296	0.63	1.43	2.00	U	I

216A2 & 216A21 CharactSamp&Ana-Soil

LS
01-29-08

DATA SHEETS

Page 3

SUMMARY DATA SECTION

Page 13

Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>10/19/07</u>

00000015

WSCF ANALYTICAL RESULTS REPORT

Attention: Steve Trent
SAF Number: F07-043
Sample # W07GR02213
Client ID: BINRJO TREN
 WSCF
Matrix: SOIL
Group #: WSCF20071485
Department: Radiochemistry
Sampled: 08/21/07
Received: 08/21/07

Test Performed	CAS #	Method	RQ	Result	Unit	TP Err	Unit	DF	MDL	PQL	Analysis Date
Americium by AEA											
Americium-241	14596-10-2	LA-508-471		0.0210	pCi/g	+ -0.0118	pCi/g	1.00	3.8e-03		09/19/07
Am-243 tracer by AEA	AM243	LA-508-471		3.90	pCi/g			1.00	0.013		09/19/07
Gamma Energy Analysis-grd H2O											
Cobalt-60	10198-40-0	LA-508-481	U	2.73e-03	pCi/g	+ -8.31e-03	pCi/g	1.00	0.014		09/11/07
Cesium-137	10045-97-3	LA-508-481	U	7.78e-03	pCi/g	+ -9.41e-03	pCi/g	1.00	0.014		09/11/07
Europium-152	14683-23-9	LA-508-481	U	0.0338	pCi/g	+ -0.0268	pCi/g	1.00	0.041		09/11/07
Europium-154	15585-10-1	LA-508-481	U	-7.43e-04	pCi/g	+ -7.43e-03	pCi/g	1.00	0.045		09/11/07
Europium-155	14391-16-3	LA-508-481	U	0.0734	pCi/g	+ -0.0513	pCi/g	1.00	0.056		09/11/07
Plutonium Isotopics by AEA											
Plutonium-238	13981-16-3	LA-508-471	U	-0.0100	pCi/g	+ -0.0307	pCi/g	1.00	0.057		09/25/07
Pu-239/240 by AEA	PU-239/240	LA-508-471	U	3.40e-03	pCi/g	+ -6.87e-03	pCi/g	1.00	0.012		09/25/07
Pu-242 tracer by AEA	PU242	LA-508-471		6.00	pCi/g			1.00	0.020		09/25/07
Strontium 89/90											
Strontium-89/90	SR-RAD	LA-508-415	U	-0.0530	pCi/g	+ -0.530	pCi/g	1.00	0.39		08/23/07
Sr-85 Tracer by Beta Counting	SR85	LA-508-415		98.0	Percent			1.00	0.0		08/23/07
Uranium Isotopics by AEA											
Uranium-233/234	U-233/234	LA-508-471		0.310	pCi/g	+ -0.0775	pCi/g	1.00	3.9e-03		09/19/07
Uranium-235	15117-96-1	LA-508-471		0.0110	pCi/g	+ -9.24e-03	pCi/g	1.00	4.9e-03		09/19/07
Uranium-238	U-238	LA-508-471		0.230	pCi/g	+ -0.0621	pCi/g	1.00	3.9e-03		09/19/07
U-232 tracer by AEA	U232	LA-508-471		4.00	pCi/g			1.00	0.014		09/19/07

MDL = Minimum Detection Limit B - The analyte < the RDL but > = the IDL/MDL (inorg)
RQ = Result Qualifier E - Analyte is an estimate, has potentially larger errors.(org)
TP Err = Total Propagated Error U - Analyzed for but not detected above limiting criteria.(org)
DF = Dilution Factor

* - Indicates results that have NOT been validated; + - Indicates more than six qualifier symbols
 Report WGPP/ver. 5.2

Groundwater Remediation Program

WSCF

TENTATIVELY IDENTIFIED PEAK REPORT

Attention: Steve Trent
Project Number F07-043

F07-043 :F07-043

Group #: WSCF20071485
Department: Radiochemistry

Sample #	Client ID	Test Name	Peak Name	CAS#	RT	RQ	Result	Units
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O				0.89	pCi/g
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	AC-228			18	%
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	AC-228 Count Error			0.74	pCi/g
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	BI-212			20	%
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	BI-212 Count Error			1.0	pCi/g
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	BI-214			12	%
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	BI-214 Count Error			0.044	pCi/g
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	CS-134			32	%
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	CS-134 Count Error			17	pCi/g
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	K-40			13	%
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	K-40 Count Error			1.1	pCi/g
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	PB-212			9.7	%
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	PB-212 Count Error			1.5	pCi/g
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	PB-214			18	%
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	PB-214 Count Error			0.86	pCi/g
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	RA-226			16	%
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	RA-226 Count Error			0.95	pCi/g
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	RA-228			16	%
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	RA-228 Count Error			0.24	pCi/g
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	SN-126			21	%
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	SN-126 Count Error			1.3	pCi/g
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	TH-234			25	%
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	TH-234 Count Error			0.30	pCi/g
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	TL-208			14	%
W07GR02213	B1NR-J0	TRENT	Gamma Energy Analysis-grd H2O	TL-208 Count Error				

RQ = Result Qualifier

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Groundwater Remediation Program

WGPPE v 5.2 Report#: WSCF20071485 Report Date: 26-sep-2007

Appendix 4

Laboratory Narrative and Chain-of-Custody Documentation

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H3546 was composed of two solid (soil) samples designated under SAF No. H3546 with a Project Designation of: 216-A-2 and 216-A-21 Characterization Sampling and Analysis-Soil.

Due to the high activity of the samples very small aliquots were taken for chemistry; as a consequence most MDA's were greater than their respective RDL's.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Tritium Analysis

No problems were encountered during the course of the analyses.

2.2 Carbon-14 Analysis

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

2.4 Total Strontium Analysis

No problems were encountered during the course of the analyses.

2.5 Technetium-99 Analysis

No problems were encountered during the course of the analyses.

2.6 Iodine-129 Analysis

No problems were encountered during the course of the analyses.

2.7 Total Uranium Analysis

No problems were encountered during the course of the analyses.

2.8 Isotopic Uranium Analysis

No problems were encountered during the course of the analyses.

2.9 Isotopic Plutonium Analysis

No problems were encountered during the course of the analyses.

2.10 Americium-241 Analysis

No problems were encountered during the course of the analyses.

0000002

1.0 GENERAL

Fluor Hanford Inc. (FH) Sample Delivery Group H3566 was composed of three solid (soil) samples designated under SAF No. F07-043 with a Project Designation of: 216-A-2 and 216-A-21 Characterization Sampling and Analysis-Soil.

The samples were received as stated on the Chain-of-Custody documents. Any discrepancies are noted on the Eberline Services Sample Receipt Checklist.

2.0 ANALYSIS NOTES

2.1 Tritium Analysis

Tritium activity at 3.06 pCi/g was observed in the QC blank greater than the sample MDA of 1.80 pCi/g, but much less than the RDL of 400 pCi/g. No other problems were encountered during the course of the analyses.

2.2 Carbon-14 Analysis

No problems were encountered during the course of the analyses.

2.3 Nickel-63 Analysis

No problems were encountered during the course of the analyses.

2.4 Technetium-99 Analysis

No problems were encountered during the course of the analyses.

2.5 Iodine-129 Analysis

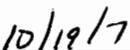
No problems were encountered during the course of the analyses.

3.0 Case Narrative Certification Statement

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



Melissa C. Mannion
Senior Program Manager



Date

00000001

Sample Delivery Group	WSCF20071485
Sample Matrix	Solid
Data Deliverable	Summary Report

Introduction

Three (3) groundwater samples were received at the WSCF Laboratory on August 21, 2007. Two of the three 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. Analyses of the high concentration soil VOA sample material and the corresponding Methanol Blank (B1NRF7) were not required.

The narrative (Attachment 2) will address sample characteristics, analyses requested and general information in performance of the analytical methods. A Data Summary Report (Attachment 3) includes analytical results, a comment report detailing method abnormalities, tentatively identified peaks if applicable, method references, and Laboratory QC information as applicable. Copies of the chain of custody and sample receipt documentation are included as Attachment 4. In addition, copy of the sample record sheet is included as Attachment 5.

It should be noted that the attached chain of custody was stamped “iced” and initialed by the WSCF Laboratory Sample Custodian during sample receiving, indicating the presence of ice in the sample container.

Analytical Methodology for Requested Analyses

Refer to *WSCF Method References Report*, pages 14 through 16, for a complete listing of approved analytical methods.

Inorganic Comments

Anions – The hold time requirements for this analysis were met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See pages 18 through 19 for QC details. Analytical Note(s):

- Duplicate, Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH7 (SDG# 20071366, SAF# F07-043).
- Sample results were D flagged (dilution).
- Sample results that were less than the reportable limit, however greater than the method detection limit were B flagged.
- Sulfate Duplicate Relative Percent Difference (RPD) exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

Cyanide – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per GRP Letter of Instruction. See page 20 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

ICP-MS Metals – The hold time requirements for this analysis were met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 21 through 22 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).
- Copper contamination detected in the Blank was evaluated and there was no affect on sample result.

All other QC controls are within the established limits.

Percent Solids - Percent solids were performed for organic analyses result correction.

Organic Comments

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

PCB – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GRP Letter of Instruction. See pages 28 through 29 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1PKK9 (SDG# 20071535, SAF# F03-015).
- Aroclor-1260 – Matrix Spike and Matrix Spike Duplicate exceeded established laboratory limits. No flags issued.

All other QC controls are within the established limits.

Semi-VOA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group per the GPP Letter of Instruction. See pages 30 through 33 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1PKK6 (SDG# 20071535, SAF# F03-015).

All QC controls are within the established limits.

TPHD-WA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 34 for QC details. Analytical Note(s):

- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRH9 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

TPHG-WA – The hold time requirement for this analysis was met. A Duplicate, Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See page 35 for QC details. Analytical Note(s):

- Laboratory Control Sample recovery was slightly less than established laboratory limits. No flags issued.

All other QC controls are within the established limits.

VOA – The hold time requirement for this analysis was met. A Matrix Spike, Matrix Spike Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 36 through 38 for QC details. Analytical Note(s):

- Analyses of the high concentration soil VOA sample material and the corresponding Methanol Blank (B1NRF7) were not required.
- Matrix Spike and Matrix Spike Duplicate were analyzed on sample# B1NRF4 (SDG# 20071462, SAF# F07-043).

All QC controls are within the established limits.

Radiochemistry Comments

Rad Chem – There are no hold times associated with WSCF's radiochemical methods. A Duplicate, Blank and Laboratory Control Sample were analyzed with this delivery group. See pages 42 through 46 for QC details. Analytical Note(s):

- Americium-241 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Gamma Energy Analysis (GEA) – Duplicate QC was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Plutonium-238, 239/240 and 242 (Tracer) – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033). Duplicate Relative Percent Difference (RPD) for Plutonium 239/240 exceeded established laboratory limits due to low sample activity. No flags issued.

- Strontium-85, 89/90 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).
- Uranium-232 (tracer), 233/234, 235 and 238 – Duplicate was analyzed on sample# B1PD72 (SDG# 20071483, SAF# F07-033).

All other QC controls are within the established limits.

I certify that this data package is in compliance with the LOI, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the Laboratory Analytical Manager and Client Services as verified by the following signatures.



Scot L. Fitzgerald
WSCF Analytical Laboratory Manager



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		F07-043-064	PAGE 1 OF 1
COLLECTOR Pope/Pfister/Mokler	COMPANY CONTACT Trent, SJ	TELEPHONE NO. 373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 8N	DATA TURNAROUND 45 Days / 45 Days
SAMPLING LOCATION C5515, I-132	PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil	SAF NO. F07-043	METHOD OF SHIPMENT FEDERAL EXPRESS	AIR QUALITY	
ICE CHEST NO. 3171-3185 GPP-03-027	FIELD LOGBOOK NO. COA 122868 E53				
SHIPPED TO Eberline Services	OFFSITE PROPERTY NO. See PTR	20166 H3566 (781)	BILL OF LADING/AIR BILL NO. See PTR	20166	
MATRIX* A=Air DL=Drum L=Liquid DS=Drum S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	PRESERVATION None				
POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	TYPE OF CONTAINER G/P				
SPECIAL HANDLING AND/OR STORAGE Rad to BINKL3	NO. OF CONTAINER(S) 1				
	VOLUME 60mL				
	SAMPLE ANALYSIS SEE ITEM (1) IN SPECIAL INSTRUCTIONS				
SAMPLE NO.	SAMPLE DATE	SAMPLE TIME			
B1NRJ1	8-27-07	1310	X		
	Lot#	023427			
CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	(1) Tritium - H3; Carbon-14; Iodine-129; Nickel-63; Technetium-99 {Technetium-99}	
J.S. Pope / GPP	8-27-07 1500	M. A. Baechler	8-23-07 1500		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
M.A. Baechler	AUG 30 2007 1800	M.A. Baechler	20071000		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
M.A. Baechler	AUG 30 2007 1800	M.A. Baechler	20071000		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
F.P.		F.P.	08/31/07 0940		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

COLLECTOR Pope/Pfister/Mokler
 COMPANY CONTACT Trent, NJ
 TELEPHONE NO. 373-5869
 PROJECT COORDINATOR TRENT, NJ
 PRICE CODE 8N
 DATA TURNAROUND 45 Days / 45 Days

SAMPLING LOCATION C5515, I-118 285'-287'
 PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil
 SAF NO. F07-043
 AIR QUALITY

ICE CHEST NO.
 FIELD LOGBOOK NO. COA 122868 ES3
 METHOD OF SHIPMENT GOVERNMENT VEHICLE

SHIPPED TO Waste Sampling & Characterization
 OFFSITE PROPERTY NO. N/A
 BILL OF LADING/AIR BILL NO. N/A

MATRIX*	POSSIBLE SAMPLE HAZARDS/ REMARKS	PRESERVATION	Cool 4C				
A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)	aG	aG	G/P	aG	aG	None
		1	1	1	1	1	1
		120mL	40mL	120mL	120mL	120mL	500mL

SPECIAL HANDLING AND/OR STORAGE

SAMPLE NO. MATRIX* SAMPLE DATE SAMPLE TIME

B1NRJ0 SOIL 8-21-07 0905

SEE ITEM (1) IN SPECIAL INSTRUCTIONS
 SEE ITEM (2) IN SPECIAL INSTRUCTIONS
 SEE ITEM (3) IN SPECIAL INSTRUCTIONS
 SEE ITEM (4) IN SPECIAL INSTRUCTIONS

CHAIN OF POSSESSION

RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME
J.S. [Signature]	0925	TA [Signature]	8/21/07 0525
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
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME

SPECIAL INSTRUCTIONS
 (1) Semi-VOA - 8270B (Add-On) {Tributyl phosphate} TPH-Diesel Range - WTPH-D;
 (2) ICP/MS - 200.8 (TAL) {Barium, Cadmium, Chromium, Copper, Silver, ICP/MS - 200.8 (Add-on) {Arsenic, Lead, Selenium, Uranium} 200.8 HG - ICP/MS;
 (3) IC Anions - 300.0 {Fluoride, Nitrogen in Nitrate, Nitrogen in Nitrite, Phosphorus in phosphate, Sulfate}
 (4) Gamma Spectroscopy {Cesium-137, Cobalt-60, Europium-152, Europium-154, Americium-241; Isotopic Plutonium; Isotopic Uranium; Strontium-89,90 -- Total Sr;



LABORATORY SECTION RECEIVED BY
 FINAL SAMPLE DISPOSITION DISPOSAL METHOD

TITLE DATE/TIME
 DISPOSED BY DATE/TIME

COLLECTOR Pope/Pfister/Mokler		COMPANY CONTACT Trent, NJ		TELEPHONE NO. 373-5869		PROJECT COORDINATOR TRENT, NJ		PRICE CODE 8N		DATA TURNAROUND 45 Days / 45 Days	
SAMPLING LOCATION CS515, I-118 <i>Z85'-287'</i>		PROJECT DESIGNATION 216-A-2 and 216-A-21 Characterization Sampling and Analysis - Soil		SAF NO. F07-043		METHOD OF SHIPMENT GOVERNMENT VEHICLE		AIR QUALITY			
ICE CHEST NO.		FIELD LOGBOOK NO. 122868 ES3		COA		BILL OF LADING/AIR BILL NO. N/A					
SHIPPED TO Waste Sampling & Characterization		OFFSITE PROPERTY NO. N/A									
MATRIX* A=Air DL=Drum L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WT=Wipe X=Other		PRESERVATION Frozen		Cool 4C							
POSSIBLE SAMPLE HAZARDS / REMARKS Contains Radioactive Material at concentrations that are not regulated for transportation per 49 CFR but are not releasable per DOE Order 5400.5 (1990/1993)		TYPE OF CONTAINER		aGs*							
		NO. OF CONTAINER(S)		5							
		VOLUME		40mL							
SPECIAL HANDLING AND/OR STORAGE		SAMPLE ANALYSIS		SEE ITEM (1) IN SPECIAL INSTRUCTIONS		SEE ITEM (2) IN SPECIAL INSTRUCTIONS					
SAMPLE NO.		MATRIX*		SAMPLE DATE		SAMPLE TIME					
BINRF6 9214		SOIL		8-21-07		0805					
CHAIN OF POSSESSION		SIGN/ PRINT NAMES		RECEIVED BY/STORED IN		DATE/TIME					
RELINQUISHED BY/REMOVED FROM <i>J. S. [Signature]</i> 8-21-07		DATE/TIME 0825		RECEIVED BY/STORED IN <i>JA FRAZ</i>		DATE/TIME 8/24/07 0925					
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					
RELINQUISHED BY/REMOVED FROM		DATE/TIME		RECEIVED BY/STORED IN		DATE/TIME					
LABORATORY SECTION		RECEIVED BY		TITLE		DATE/TIME					
FINAL SAMPLE DISPOSITION		DISPOSAL METHOD		DISPOSED BY		DATE/TIME					

ICED Initial Date

[Signature]

SPECIAL INSTRUCTIONS
 (1)VOA - 5035/8260 (LOW LEVEL); VOA - 5035/8260 (LOW LEVEL) - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}
 (2)VOA - 5035/8260 (HIGH LEVEL); VOA - 5035/8260 (HIGH LEVEL) - (Add-On) {1-Butanol, cis-1,2-Dichloroethylene, n-Butylbenzene, trans-1,2-Dichloroethylene}

Appendix 5

Data Validation Supporting Documentation

APPENDIX A
RADIOCHEMICAL DATA VALIDATION CHECKLIST

VALIDATION LEVEL:	A	B	(C)	D	E
PROJECT: CPP 200 Area			DATA PACKAGE: VSR08-002		
VALIDATOR: Carl Schloesslin		LAB: Eberline & WSCF		DATE: 01-29-2008	
			SDG: H3546, H3566 & WSCF20071485		
ANALYSES PERFORMED					
Gross Alpha/Beta	Strontium-90 <input checked="" type="checkbox"/>	Techneium-99 <input checked="" type="checkbox"/>	Alpha Spectroscopy <input checked="" type="checkbox"/>	Gamma Spectroscopy <input checked="" type="checkbox"/>	
Total Uranium <input checked="" type="checkbox"/>	Radium-22	Tritium <input checked="" type="checkbox"/>	Carbon-14 <input checked="" type="checkbox"/>	Nickel-63 <input checked="" type="checkbox"/>	Iodine-129 <input checked="" type="checkbox"/>
SAMPLES/MATRIX					
Soil samples B1NT07 & B1NRH1 (SDG H3546)					
Soil samples B1NRH9, B1NRJ0 & B1NRJ1 (SDG H3566)					
Soil sample B1NRJ0 (SDG WSCF20071485)					

1. Completeness N/A

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

Comments: None

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: SDG WSCF20071485 MB Detection: U-238 0.0063 pCi/g

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: None

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: SDG H3546: Sample B1NRH1 Am-243 %R = 17%, laboratory replicate

Am-243 %R = 18% (replicate performed on B1NRH1).

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: SDG H3546: MS not analyzed for C-14, tritium and total U by KPA.

SDG H3566: MS not analyzed for C-14 and tritium.

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: In cases where replicate RPDs are >30% the associated results are <5X the RDLs with differences <2X the RDLs. An exception to this is SDG H3546 Co-60 where the RPD is 34% but the results are <5X the MDCs. The MDCs are > the RDL due to reduced aliquot sizes. The Co-60 data will not be qualified in this case.

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: SDG H3546: Field replicates B1NT07 & B1NRH1 have Am-241 (alpha) Cs-137, Pu-238, Pu-239/240, Sr-89/90 and total U by KPA RPDs >30% and associated results >5X the RDLs and MDCs.

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: SDG H3546: All MDCs > CRDLs except tritium, Tc-99 and total U by KPA.

In addition, the Ni-63 MDC for sample B1NT07 was < the CRDL.

SDG H3566: All C-14 MDCs > CRDL

Appendix 6

Additional Documentation Requested By Client

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3546

7667-004

Method Blank

METHOD BLANK

SDG <u>7667</u>	Client/Case no <u>Hanford</u>	<u>SDG_H3546</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R707083-04</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7667-004</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F07-043</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	-14.3	24	42.2	400	U	H
Carbon 14	14762-75-5	7.50	22	37.6	50.0	U	C
Nickel 63	13981-37-8	5.18	45	<u>76.8</u>	30.0	U	NI_L
Total Strontium	SR-RAD	1.07	5.5	<u>9.84</u>	1.00	U	SR
Americium 241	14596-10-2	-2.60	5.2	<u>19.9</u>	1.00	U	AM
Technetium 99	14133-76-7	-0.002	1.5	5.12	15.0	U	TC
Total Uranium (ug/g)	7440-61-1	0	0.008	0.018	1.00	U	U_T
Uranium 233/234	U-233/234	0.652	1.3	<u>4.99</u>	1.00	U	U
Uranium 235	15117-96-1	0	1.6	<u>6.04</u>	1.00	U	U
Uranium 238	U-238	0.652	1.3	<u>4.99</u>	1.00	U	U
Plutonium 238	13981-16-3	0	4.2	<u>9.32</u>	1.00	U	PU
Plutonium 239/240	PU-239/240	0	1.4	<u>5.32</u>	1.00	U	PU
Iodine 129	15046-84-1	1.49	5.2	<u>11.8</u>	2.00	U	I
Potassium 40	13966-00-2	U		1.73		U	GAM
Cobalt 60	10198-40-0	U		<u>0.065</u>	0.050	U	GAM
Cesium 137	10045-97-3	U		0.076	0.100	U	GAM
Radium 226	13982-63-3	U		<u>0.145</u>	0.100	U	GAM
Radium 228	15262-20-1	U		<u>0.300</u>	0.200	U	GAM
Europium 152	14683-23-9	U		<u>0.186</u>	0.100	U	GAM
Europium 154	15585-10-1	U		<u>0.209</u>	0.100	U	GAM
Europium 155	14391-16-3	U		<u>0.161</u>	0.100	U	GAM
Thorium 228	14274-82-9	U		0.101		U	GAM
Thorium 232	TH-232	U		0.300		U	GAM
Uranium 235	15117-96-1	U		0.239		U	GAM
Uranium 238	U-238	U		7.44		U	GAM
Americium 241	14596-10-2	U		0.228		U	GAM

216A2/216A21CharactrztnSamp&Ana-Soil

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Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>09/06/07</u>

EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3546

7667-004

Method Blank

BLANK, cont.

SDG <u>7667</u>	Client/Case no <u>Hanford</u>	SDG <u>H3546</u>
Contact <u>Melissa C. Mannion</u>	Contract <u>No. 630</u>	
Lab sample id <u>R707083-04</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7667-004</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F07-043</u>	

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DS</u>
Version <u>3.06</u>
Report date <u>09/06/07</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

7667-003

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7667</u>	Client/Case no <u>Hanford</u> SDG <u>H3546</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>
Lab sample id <u>R707083-03</u>	Client sample id <u>Lab Control Sample</u>
Dept sample id <u>7667-003</u>	Material/Matrix <u>SOLID</u>
	SAF No <u>F07-043</u>

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	6080	120	40.5	400		H	6400	260	95	84-116	80-120
Carbon 14	16300	150	36.2	50.0		C	16000	640	102	84-116	80-120
Nickel 63	5380	140	<u>77.3</u>	30.0		NI_L	5550	220	97	84-116	80-120
Total Strontium	487	23	<u>10.5</u>	1.00		SR	475	19	102	82-118	80-120
Americium 241	257	50	<u>12.3</u>	1.00		AM	252	10	102	69-131	80-120
Technetium 99	1030	35	5.32	15.0		TC	1090	44	94	84-116	80-120
Total Uranium (ug/g)	88.5	11	0.183	1.00		U_T	82.5	3.3	107	75-125	80-120
Uranium 233/234	481	57	<u>23.9</u>	1.00		U	464	19	104	79-121	80-120
Uranium 235	340	45	<u>6.54</u>	1.00		U	378	15	90	80-120	80-120
Uranium 238	489	57	<u>22.9</u>	1.00		U	505	20	97	81-119	80-120
Plutonium 238	585	55	<u>6.72</u>	1.00		PU	590	24	99	83-117	80-120
Plutonium 239/240	636	58	<u>4.65</u>	1.00		PU	660	26	96	84-116	80-120
Iodine 129	1230	15	<u>16.1</u>	2.00		I	1160	46	106	83-117	80-120
Cobalt 60	2.20	0.17	<u>0.097</u>	0.050		GAM	2.18	0.087	101	74-126	80-120
Cesium 137	2.24	0.16	<u>0.121</u>	0.100		GAM	2.17	0.087	103	74-126	80-120

216A2/216A21CharactrztnSamp&Ana-Soil

QC-LCS 62412

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>09/06/07</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

7667-005

B1NRH1

DUPLICATE

SDG <u>7667</u> Contact <u>Melissa C. Mannion</u> DUPLICATE Lab sample id <u>R707083-05</u> Dept sample id <u>7667-005</u> % solids <u>98.1</u>	Client/Case no <u>Hanford</u> SDG <u>H3546</u> Contract <u>No. 630</u> ORIGINAL Lab sample id <u>R707083-02</u> Dept sample id <u>7667-002</u> Received <u>07/16/07</u> % solids <u>98.1</u>	Client sample id <u>B1NRH1</u> Location/Matrix <u>C5515, I-006</u> <u>SOLID</u> Collected/Weight <u>06/27/07 10:55</u> <u>745 g</u> Custody/SAF No <u>F07-043-014</u> <u>F07-043</u>
--	--	---

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3σ TOT	DER σ
Tritium	-15.2	21	37.0	400	U	H	-11.6	21	37.5	U	-		0.2
Carbon 14	7.59	18	30.7	50.0	U	C	12.4	19	31.0	U	-		0.4
Nickel 63	15.5	48	<u>81.1</u>	30.0	U	NI_L	27.2	44	<u>73.4</u>	U	-		0.4
Total Strontium	19800	170	<u>15.6</u>	1.00		SR	18700	220	<u>19.4</u>		6	21	0.8
Americium 241	1080	210	<u>26.3</u>	1.00		AM	1140	210	<u>23.6</u>		5	42	0.4
Technetium 99	6.08	1.7	4.45	15.0		TC	6.27	1.9	4.66		3	65	0.1
Total Uranium (ug/g)	101	12	0.183	1.00		U_T	103	12	0.183		2	31	0.2
Uranium 233/234	34.8	10	<u>5.43</u>	1.00		U	35.0	11	<u>5.70</u>		1	65	0
Uranium 235	1.72	1.7	<u>6.57</u>	1.00	U	U	2.70	3.6	<u>6.90</u>	U	-		0.5
Uranium 238	31.9	10	<u>5.43</u>	1.00		U	38.0	11	<u>5.70</u>		17	65	0.8
Plutonium 238	83.7	17	<u>5.38</u>	1.00		PU	78.1	16	<u>5.74</u>		7	45	0.5
Plutonium 239/240	5160	400	<u>5.38</u>	1.00		PU	5350	420	<u>5.74</u>		4	20	0.6
Iodine 129	4.73	5.2	<u>11.9</u>	2.00	U	I	4.30	5.2	<u>11.8</u>	U	-		0.1
Potassium 40	14.8	1.7	1.13			GAM	14.3	1.6	1.18		3	40	0.3
Cobalt 60	0.538	0.16	<u>0.162</u>	0.050		GAM	0.382	0.13	<u>0.140</u>		34	75	1.4
Cesium 137	3690	5.0	<u>1.74</u>	0.100		GAM	3700	5.0	<u>1.64</u>		0	32	0
Radium 226	U		<u>2.00</u>	0.100	U	GAM	U		<u>1.93</u>	U	-		0
Radium 228	U		<u>1.49</u>	0.200	U	GAM	U		<u>2.04</u>	U	-		0.4
Europium 152	U		<u>4.96</u>	0.100	U	GAM	U		<u>4.75</u>	U	-		0.1
Europium 154	U		<u>2.03</u>	0.100	U	GAM	U		<u>3.09</u>	U	-		0.6
Europium 155	U		<u>4.01</u>	0.100	U	GAM	U		<u>3.85</u>	U	-		0.1
Thorium 228	U		2.47		U	GAM	U		2.37	U	-		0.1
Thorium 232	U		1.49		U	GAM	U		2.04	U	-		0.4
Uranium 235	U		5.80		U	GAM	U		5.56	U	-		0.1
Uranium 238	U		40.8		U	GAM	U		40.3	U	-		0
Americium 241	U		602		U	GAM	U		607	U	-		0

216A2/216A21CharactrztnSamp&Ana-Soil

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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>09/06/07</u>

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

7667-005

B1NRH1

DUPLICATE, cont.

SDG <u>7667</u>		Client/Case no <u>Hanford</u>	<u>SDG H3546</u>
Contact <u>Melissa C. Mannion</u>		Contract No. <u>630</u>	
<u>DUPLICATE</u>	<u>ORIGINAL</u>		
Lab sample id <u>R707083-05</u>	Lab sample id <u>R707083-02</u>	Client sample id <u>B1NRH1</u>	
Dept sample id <u>7667-005</u>	Dept sample id <u>7667-002</u>	Location/Matrix <u>C5515, I-006</u>	<u>SOLID</u>
	Received <u>07/16/07</u>	Collected/weight <u>06/27/07 10:55</u>	<u>745 g</u>
% solids <u>98.1</u>	% solids <u>98.1</u>	Custody/SAF No <u>F07-043-014</u>	<u>F07-043</u>

QC-DUP#2 62414

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-DUP
 Version 3.06
 Report date 09/06/07

DUPLICATES
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 SUMMARY DATA SECTION
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900007

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test AM Matrix SOLID
 SDG 7667
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

AMERICIUM 241 IN SOLIDS
 ALPHA SPECTROSCOPY

Client Hanford
 Contract No. 630
 Contract SDG H3546

RESULTS

LAB	RAW	SUF-	Americium	
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	241
Preparation batch 6116-113				
R707083-01	7667-001	B1NT07		418
R707083-02	7667-002	B1NRH1		1140
R707083-03	7667-003	Lab Control Sample		ok
R707083-04	7667-004	Method Blank		U
R707083-05	7667-005	Duplicate (R707083-02)		ok
Nominal values and limits from method				
216A2/216A21CharactrztnSamp&Ana-Soil			RDLs (pCi/g)	1.00

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6116-113 2σ prep error 5.0 % Reference Lab Notebook #6116, pg.113															
R707083-01		B1NT07	<u>8.38</u>	0.0500			23		121			57	08/20/07	08/23	SS-040
R707083-02		B1NRH1	<u>23.6</u>	0.0200			<u>17</u>		123			57	08/20/07	08/23	SS-028
R707083-03		Lab Control Sample	<u>12.3</u>	0.0200			29		121				08/20/07	08/23	SS-061
R707083-04		Method Blank	<u>19.9</u>	0.0200			21		121				08/20/07	08/23	SS-062
R707083-05		Duplicate (R707083-02)	<u>26.3</u>	0.0200			<u>18</u>		121			57	08/20/07	08/23	SS-063
Nominal values and limits from method			1.00	0.0200			20-105		100	100		180			

PROCEDURES	REFERENCE	AMCMISO_IE_PLATE_AEA
SPP-061		Determination of Moisture Content in Solid Samples rev 0
SPP-070		Soil Dissolution, < 1.0g Aliquot, rev 7
CP-963		Americium and Curium in Water and Dissolved Samples by Extraction Chromatography, rev 6
CP-071		Soil Dissolution, > 1.0g Aliquot, rev 5
CP-008		Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD	MDA <u>18.1</u> ± <u>15.1</u>
FOR 5 SAMPLES	YIELD <u>22</u> ± <u>10</u>

METHOD SUMMARIES

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test PU Matrix SOLID
 SDG 7667
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG H3546

LAB METHOD SUMMARY

PLUTONIUM, ISOTOPIC IN SOLIDS
 ALPHA SPECTROSCOPY

RESULTS

LAB	RAW	SUF-		Plutonium	Plutonium
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	238	239/240
Preparation batch 6116-113					
R707083-01		7667-001	B1NT07	31.7	1970
R707083-02		7667-002	B1NRH1	78.1	5350
R707083-03		7667-003	Lab Control Sample	ok	ok
R707083-04		7667-004	Method Blank	U	U
R707083-05		7667-005	Duplicate (R707083-02)	ok	ok
Nominal values and limits from method					
216A2/216A21CharactrzttnSamp&Ana-Soil			RDLs (pCi/g)	1.00	1.00

METHOD PERFORMANCE

LAB	RAW	SUF-	MAX MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6116-113 2σ prep error 5.0 % Reference Lab Notebook #6116, pg.113															
R707083-01		B1NT07	<u>2.29</u>	0.0500			80		115			56	08/20/07	08/22	SS-066
R707083-02		B1NRH1	<u>5.74</u>	0.0200			72		116			56	08/20/07	08/22	SS-028
R707083-03		Lab Control Sample	<u>6.72</u>	0.0200			78		116				08/20/07	08/22	SS-035
R707083-04		Method Blank	<u>9.32</u>	0.0200			72		116				08/20/07	08/22	SS-036
R707083-05		Duplicate (R707083-02)	<u>5.38</u>	0.0200			73		146			56	08/20/07	08/22	SS-063
Nominal values and limits from method															
			1.00	0.0200			20-105		100	100		180			

PROCEDURES	REFERENCE	PUISO_PLATE_AEA
SPP-070		Soil Dissolution, < 1.0g Aliquot, rev 7
CP-941		Plutonium in Water and Dissolved Samples by Extraction Chromatography, rev 3
CP-008		Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD	MDA	<u>5.89</u> ± <u>5.07</u>
FOR 5 SAMPLES	YIELD	<u>75</u> ± <u>7</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test U Matrix SOLID
 SDG 7667
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG H3546

LAB METHOD SUMMARY

URANIUM, ISOTOPIC IN SOLIDS
 ALPHA SPECTROSCOPY

RESULTS

LAB SAMPLE ID	RAW TEST FIX	SUP- PLANCHET	CLIENT SAMPLE ID	1: Uranium			2: Uranium			3: Uranium			RESULT RATIOS (%)			
				233/234	235	238	1+3	2σ	2+3	2σ						
Preparation batch 6116-113																
R707083-01		7667-001	BLNT07	42.1	4.28	49.7	85	20	9	5						
R707083-02		7667-002	BLNRH1	35.0	2.70 U	38.0	92	39	7	10						
R707083-03		7667-003	Lab Control Sample	ok	ok	ok										
R707083-04		7667-004	Method Blank	U	U	U										
R707083-05		7667-005	Duplicate (R707083-02)	ok	- U	ok	109	46	5	6						
Nominal values and limits from method				RDLs (pCi/g)	1.00	1.00	1.00	100	4							
216A2/216A21CharacteriztnSamp&Ana-Soil							Averages	95	7							

METHOD PERFORMANCE

LAB SAMPLE ID	RAW TEST FIX	SUP- CLIENT SAMPLE ID	MAX MDA pCi/g	ALIQ g	PREP FAC	DILU- TION	YIELD %	EFF %	COUNT min	FWHM keV	DRIFT KeV	DAYS HELD	ANAL-		
													PREPARED	YZED	DETECTOR
Preparation batch 6116-113													2σ prep error	5.0 %	Reference Lab Notebook #6116, pg.113
R707083-01		BLNT07	<u>2.25</u>	0.0500			83		114		56	08/20/07	08/22	SS-061	
R707083-02		BLNRH1	<u>6.90</u>	0.0200			77		114		56	08/20/07	08/22	SS-062	
R707083-03		Lab Control Sample	<u>23.9</u>	0.0200			93		115			08/20/07	08/22	SS-063	
R707083-04		Method Blank	<u>6.04</u>	0.0200			78		115			08/20/07	08/22	SS-064	
R707083-05		Duplicate (R707083-02)	<u>6.57</u>	0.0200			82		115		56	08/20/07	08/22	SS-065	
Nominal values and limits from method			1.00	0.0200			20-105		100	100	180				

PROCEDURES	REFERENCE	UIISO_PLATE_AEA
SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7	
CP-921	Uranium in Water and Dissolved Samples by Extraction Chromatography, rev 1	
CP-008	Heavy Element Electroplating, rev 9	

AVERAGES ± 2 SD	MDA <u>9.13</u> ± <u>16.9</u>
FOR 5 SAMPLES	YIELD <u>83</u> ± <u>13</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test SR Matrix SOLID
 SDG 7667
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

TOTAL STRONTIUM IN SOLIDS
 BETA COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H3546

RESULTS

LAB	RAW	SUF-		Total
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Strontium
Preparation batch 6116-113				
R707083-01		7667-001	B1NT07	11800
R707083-02		7667-002	B1NRH1	18700
R707083-03		7667-003	Lab Control Sample	ok
R707083-04		7667-004	Method Blank	<u>1.07</u> U
R707083-05		7667-005	Duplicate (R707083-02)	ok

Nominal values and limits from method RDLs (pCi/g) 1.00
 216A2/216A21CharactrxtnSamp&Ana-Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	keV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6116-113 2σ prep error 10.0 % Reference Lab Notebook #6116, pg.113															
R707083-01		B1NT07	<u>6.92</u>	0.0500			81		100			51	08/17/07	08/17	GRB-221
R707083-02		B1NRH1	<u>19.4</u>	0.0200			70		100			51	08/17/07	08/17	GRB-222
R707083-03		Lab Control Sample	<u>10.5</u>	0.0200			78		168				08/17/07	08/17	GRB-227
R707083-04		Method Blank	<u>9.84</u>	0.0200			78		168				08/17/07	08/17	GRB-228
R707083-05		Duplicate (R707083-02)	<u>15.6</u>	0.0200			76		150			51	08/17/07	08/17	GRB-225

Nominal values and limits from method 1.00 0.0200 30-105 100 180

PROCEDURES REFERENCE SRTOT_SEP_PRECIP_GPC
 SPF-070 Soil Dissolution, < 1.0g Aliquot, rev 7
 CP-383 Strontium in Dissolved Solid of < 5.0g Aliquot,
 rev 1

AVERAGES ± 2 SD MDA 12.5 ± 9.97
 FOR 5 SAMPLES YIELD 77 ± 8

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 Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test TC Matrix SOLID
 SDG 7667
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOLIDS
 BETA COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H3546

RESULTS

LAB	RAW	SUF-	Technetium	
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	99
Preparation batch 6116-113				
R707083-01	7667-001	BINT07		4.70
R707083-02	7667-002	BINRHL		6.27
R707083-03	7667-003	Lab Control Sample		ok
R707083-04	7667-004	Method Blank		U
R707083-05	7667-005	Duplicate (R707083-02)		ok

Nominal values and limits from method RDLs (pCi/g) 15.0
 216A2/216A21CharactrztnSamp&Ana-Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6116-113 2σ prep error 10.0 % Reference Lab Notebook #6116, pg.113															
R707083-01		BINT07	2.75	0.140			92		100			59	08/22/07	08/25	GRB-224
R707083-02		BINRHL	4.66	0.120			91		50			62	08/22/07	08/28	GRB-222
R707083-03		Lab Control Sample	5.32	0.100			100		60				08/22/07	08/27	GRB-219
R707083-04		Method Blank	5.12	0.100			100		50				08/22/07	08/28	GRB-223
R707083-05		Duplicate (R707083-02)	4.45	0.120			97		50			61	08/22/07	08/27	GRB-228

Nominal values and limits from method 15.0 0.100 20-105 50 180

PROCEDURES	REFERENCE	TC99_TR_SEP_GPC
SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7	
CP-431	Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 2	
CP-008	Heavy Element Electroplating, rev 9	

AVERAGES ± 2 SD	MDA	<u>4.46</u> ± <u>2.03</u>
FOR 5 SAMPLES	YIELD	<u>96</u> ± <u>9</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test GAM Matrix SOLID
 SDG 7667
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG H3546

LAB METHOD SUMMARY

GAMMA SCAN
 GAMMA SPECTROSCOPY

RESULTS

LAB	RAW	SUF-				
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Cobalt 60	Cesium 137	
Preparation batch 6116-113						
R707083-01		7667-001	B1NT07	0.294	1510	
R707083-02		7667-002	B1NRH1	0.382	3700	
R707083-03		7667-003	Lab Control Sample	ok	ok	
R707083-04		7667-004	Method Blank	U	U	
R707083-05		7667-005	Duplicate (R707083-02)	ok	ok	
Nominal values and limits from method				RDLs (pCi/g)	0.050	0.100
216A2/216A21CharactrzttnSamp&Ana-Soil						

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6116-113 2σ prep error 15.0 % Reference Lab Notebook #6116, pg.113															
R707083-01		B1NT07	<u>246</u>	228					103			49	08/14/07	08/15	JR,02,00
R707083-02		B1NRH1	<u>305</u>	221					111			49	08/14/07	08/15	JR,01,00
R707083-03		Lab Control Sample	<u>0.097</u>	220					110				08/14/07	08/15	JR,06,00
R707083-04		Method Blank	<u>16.6</u>	220					110				08/14/07	08/15	JR,08,00
R707083-05		Duplicate (R707083-02)	<u>319</u>	221					102			49	08/14/07	08/15	JR,01,00
Nominal values and limits from method			0.050	220					100						180

PROCEDURES REFERENCE GAMMA_GS
 SPP-100 Ge(Li) Preparation for Commercial Samples, rev 7

AVERAGES ± 2 SD MDA 177 ± 314
 FOR 5 SAMPLES YIELD _____ ± _____

METHOD SUMMARIES
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 Protocol Hanford
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test I Matrix SOLID
 SDG 7667
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

IODINE 129 IN SOLIDS
 GAMMA SPECTROSCOPY

Client Hanford
 Contract No. 630
 Contract SDG H3546

RESULTS

LAB	RAW	SUF-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Iodine 129
Preparation batch 6116-113				
R707083-01	7667-001		BlNT07	U
R707083-02	7667-002		BlNRH1	4.30 U
R707083-03	7667-003		Lab Control Sample	ok
R707083-04	7667-004		Method Blank	U
R707083-05	7667-005		Duplicate (R707083-02)	- U

Nominal values and limits from method RDLs (pCi/g) 2.00
 216A2/216A21CharactrztnSamp&Ana-Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6116-113 2σ prep error 10.0 % Reference Lab Notebook #6116, pg.113															
R707083-01		BlNT07	<u>8.60</u>	0.140			65		798			64	08/29/07	08/30	XSPEC-004
R707083-02		BlNRH1	<u>11.8</u>	0.120			76		797			64	08/29/07	08/30	XSPEC-002
R707083-03		Lab Control Sample	<u>16.1</u>	0.100			81		612				08/29/07	08/31	XSPEC-004
R707083-04		Method Blank	<u>11.8</u>	0.100			87		613				08/29/07	08/31	XSPEC-002
R707083-05		Duplicate (R707083-02)	<u>11.9</u>	0.120			65		1062			65	08/29/07	08/31	XSPEC-002

Nominal values and limits from method 2.00 0.100 20-105 300 180

PROCEDURES REFERENCE I129_SEP_LEPS_GS
 CP-024 Iodine-129, Sample Dissolution, rev 5
 CP-530 Iodine-129 Purification, rev 1

AVERAGES ± 2 SD MDA 12.0 ± 5.33
 FOR 5 SAMPLES YIELD 75 ± 20

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test U T Matrix SOLID
 SDG 7667
 Contact Melissa C. Mannion

Client Hanford
 Contract No. 630
 Contract SDG H3546

LAB METHOD SUMMARY

URANIUM, TOTAL IN SOLIDS
 KINETIC PHOSPHORIMETRY, UG

RESULTS

LAB	RAW	SUF-		Total	
SAMPLE ID	TEST	FIX	PLANCHET	CLIENT SAMPLE ID	Uranium
Preparation batch 6116-113					
R707083-01			7667-001	B1NT07	147
R707083-02			7667-002	B1NRH1	103
R707083-03			7667-003	Lab Control Sample	ok
R707083-04			7667-004	Method Blank	U
R707083-05			7667-005	Duplicate (R707083-02)	ok

Nominal values and limits from method RDLs (ug/g) 1.00
 216A2/216A21CharactrztnSamp&Ana-Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST	FIX	ug/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6116-113 2σ prep error 9.0 % Reference Lab Notebook #6116, pg.113															
R707083-01			0.732	0.0500								58	08/22/07	08/24	KPA-001
R707083-02			0.183	0.0200								58	08/23/07	08/24	KPA-001
R707083-03			0.183	0.0200									08/23/07	08/24	KPA-001
R707083-04			0.018	0.0200									08/23/07	08/24	KPA-001
R707083-05			0.183	0.0200								58	08/23/07	08/24	KPA-001

Nominal values and limits from method 1.00 0.0200 180

PROCEDURES	REFERENCE	UTOT_KPA
CP-929	Calibration of the Kinetic Phosphorimeter, rev 9	
SPP-070	Soil Dissolution, < 1.0g Aliquot, rev 7	
CP-928	Total Uranium by Kinetic Phosphorimetry, rev 8	

AVERAGES ± 2 SD	MDA	0.260 ± 0.547
FOR 5 SAMPLES	YIELD	_____ ± _____

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3546

Test H Matrix SOLID
 SDG 7667
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

TRITIUM IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H3546

RESULTS

LAB	RAW	SUP-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Tritium
Preparation batch 6116-113				
R707083-01	7667-001		B1NT07	U
R707083-02	7667-002		B1NRH1	U
R707083-03	7667-003		Lab Control Sample	ok
R707083-04	7667-004		Method Blank	U
R707083-05	7667-005		Duplicate (R707083-02)	- U

Nominal values and limits from method RDLs (pCi/g) 400
 216A2/216A21CharactrztnSamp&Ana-Soil

METHOD PERFORMANCE

LAB	RAW	SUP-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HBLD	PREPARED	YZED	DETECTOR
Preparation batch 6116-113 2σ prep error 10.0 % Reference Lab Notebook #6116, pg.113															
R707083-01		B1NT07	27.9	0.0614			100		50		63	08/24/07	08/29	LSC-004	
R707083-02		B1NRH1	37.5	0.0459			100		50		63	08/24/07	08/29	LSC-004	
R707083-03		Lab Control Sample	40.5	0.0400			100		50			08/24/07	08/29	LSC-004	
R707083-04		Method Blank	42.2	0.0400			100		50			08/24/07	08/29	LSC-004	
R707083-05		Duplicate (R707083-02)	37.0	0.0462			100		50		63	08/24/07	08/29	LSC-004	

Nominal values and limits from method 400 0.0400 25 180

PROCEDURES REFERENCE TRITIUM_COX_LSC
 CP-251 Tritium/Carbon-14 Oxidation, rev 8

AVERAGES ± 2 SD MDA 37.0 ± 11.1
 FOR 5 SAMPLES YIELD 100 ± 0

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EBERLINE SERVICES / RICHMOND
SAMPLE DELIVERY GROUP H3566

7681-005

Method Blank

METHOD BLANK

SDG <u>7681</u>	Client/Case no <u>Hanford</u>	SDG <u>H3566</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>	
Lab sample id <u>R709005-05</u>	Client sample id <u>Method Blank</u>	
Dept sample id <u>7681-005</u>	Material/Matrix <u>SOLID</u>	
	SAF No <u>F07-043</u>	

ANALYTE	CAS NO	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST
Tritium	10028-17-8	-0.481	2.6	4.56	400	U	H
Carbon 14	14762-75-5	0.487	2.1	3.59	50.0	U	C
Nickel 63	13981-37-8	0.608	1.8	3.08	30.0	U	NI_L
Technetium 99	14133-76-7	0.065	0.27	0.513	15.0	U	TC
Iodine 129	15046-84-1	-0.251	0.55	1.24	2.00	U	I

216A2 & 216A21 CharactSamp&Ana-Soil

QC-BLANK #62750

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Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

7681-004

Lab Control Sample

LAB CONTROL SAMPLE

SDG <u>7681</u>	Client/Case no <u>Hanford</u> <u>SDG H3566</u>
Contact <u>Melissa C. Mannion</u>	Contract No. <u>630</u>
Lab sample id <u>R709005-04</u>	Client sample id <u>Lab Control Sample</u>
Dept sample id <u>7681-004</u>	Material/Matrix _____ <u>SOLID</u>
	SAF No <u>F07-043</u>

ANALYTE	RESULT pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS TEST	ADDED pCi/g	2σ ERR pCi/g	REC %	3σ LMTS (TOTAL)	PROTOCOL LIMITS
Tritium	597	12	4.61	400	H	635	25	94	84-116	80-120
Carbon 14	1620	15	3.61	50.0	C	1600	64	101	84-116	80-120
Nickel 63	219	6.0	3.05	30.0	NI_L	222	8.9	99	84-116	80-120
Technetium 99	108	3.9	0.484	15.0	TC	109	4.4	99	83-117	80-120
Iodine 129	127	1.6	<u>2.04</u>	2.00	I	118	4.7	108	83-117	80-120

216A2 & 216A21 CharactSamp&Ana-Soil

QC-LCS #62749

LAB CONTROL SAMPLES
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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-LCS</u>
Version <u>3.06</u>
Report date <u>10/19/07</u>

00000011

EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

7681-006

B1NRJ0

DUPLICATE

SDG <u>7681</u>		Client/Case no <u>Hanford</u> SDG <u>H3566</u>
Contact <u>Melissa C. Mannion</u>		Contract <u>No. 630</u>
DUPLICATE	ORIGINAL	
Lab sample id <u>R709005-06</u>	Lab sample id <u>R709005-02</u>	Client sample id <u>B1NRJ0</u>
Dept sample id <u>7681-006</u>	Dept sample id <u>7681-002</u>	Location/Matrix <u>C5515, I-118 285''-287' SOLID</u>
	Received <u>08/31/07</u>	Collected/Weight <u>08/21/07 09:05 70 g</u>
% solids <u>83.8</u>	% solids <u>83.8</u>	Custody/SAF No <u>F07-043-059</u> <u>F07-043</u>

ANALYTE	DUPLICATE pCi/g	2σ ERR (COUNT)	MDA pCi/g	RDL pCi/g	QUALI- FIERS	TEST	ORIGINAL pCi/g	2σ ERR (COUNT)	MDA pCi/g	QUALI- FIERS	RPD %	3σ TOT	DER σ
Tritium	2830	24	3.94	400		H	2860	25	4.01		1	21	0.1
Carbon 14	2.01	1.9	3.10	50.0	U	C	1.14	1.9	3.08	U	-		0.6
Nickel 63	1.15	1.9	3.10	30.0	U	NI_L	-1.02	1.8	3.17	U	-		1.7
Technetium 99	0.039	0.23	0.504	15.0	U	TC	0.176	0.26	0.730	U	-		0.8
Iodine 129	0.730	0.65	1.45	2.00	U	I	0.508	0.65	1.47	U	-		0.5

216A2 & 216A21 CharactSamp&Ana-Soil

QC-DUP#2 62751

DUPLICATES
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Lab id <u>EBRLNE</u>
Protocol <u>Hanford</u>
Version <u>Ver 1.0</u>
Form <u>DVD-DUP</u>
Version <u>3.06</u>
Report date <u>10/19/07</u>

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

Test TC Matrix SOLID
 SDG 7681
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

TECHNETIUM 99 IN SOLIDS

BETA COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H3566

RESULTS

LAB	RAW	SUF-	Technetium	
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	99
Preparation batch 6121-082				
R709005-01		7681-001	B1NRH9	U
R709005-02		7681-002	B1NRJ0	U
R709005-03		7681-003	B1NRJ1	U
R709005-04		7681-004	Lab Control Sample	ok
R709005-05		7681-005	Method Blank	U
R709005-06		7681-006	Duplicate (R709005-02)	- U

Nominal values and limits from method RDLs (pCi/g) 15.0
 216A2 & 216A21 CharactSamp&Ana-Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6121-082 2σ prep error 10.0 % Reference Lab Notebook #6121, pg. 82															
R709005-01		B1NRH9	0.547	1.00			98		50		48	09/25/07	10/02	GRB-204	
R709005-02		B1NRJ0	0.730	1.00			96		50		39	09/25/07	09/29	GRB-206	
R709005-03		B1NRJ1	0.540	1.00			102		50		33	09/25/07	09/29	GRB-207	
R709005-04		Lab Control Sample	0.484	1.00			<u>107</u>		50			09/25/07	09/28	GRB-228	
R709005-05		Method Blank	0.513	1.00			<u>107</u>		50			09/25/07	10/02	GRB-207	
R709005-06		Duplicate (R709005-02)	0.504	1.00			103		50		38	09/25/07	09/28	GRB-202	

Nominal values and limits from method 15.0 1.00 20-105 50 180

PROCEDURES	REFERENCE	TC99_TR_SEP_GPC
	SPP-062	Sample Aliquoting, rev 0
	CP-431	Technetium-99 Purification of Soil or Resin by Extraction Chromatography, rev 2
	CP-008	Heavy Element Electroplating, rev 9

AVERAGES ± 2 SD	MDA <u>0.553 ± 0.180</u>
FOR 6 SAMPLES	YIELD <u>102 ± 9</u>

Lab id EBRLNE
 Protocol Hanford
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METHOD SUMMARIES
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

Test I Matrix SOLID
 SDG 7681
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

IODINE 129 IN SOLIDS
 GAMMA SPECTROSCOPY

Client Hanford
 Contract No. 630
 Contract SDG H3566

RESULTS

LAB	RAW	SUF-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Iodine 129
Preparation batch 6121-082				
R709005-01		7681-001	B1NRH9	U
R709005-02		7681-002	B1NRJ0	U
R709005-03		7681-003	B1NRJ1	U
R709005-04		7681-004	Lab Control Sample	ok
R709005-05		7681-005	Method Blank	U
R709005-06		7681-006	Duplicate (R709005-02)	- U

Nominal values and limits from method RDLs (pCi/g) 2.00
 216A2 & 216A21 CharactSamp&Ana-Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-		
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD	PREPARED	YZED	DETECTOR
Preparation batch 6121-082 2σ prep error 10.0 % Reference Lab Notebook #6121, pg. 82															
R709005-01		B1NRH9	1.24	1.00			68					61	10/11/07	10/15	XSPEC-004
R709005-02		B1NRJ0	1.47	1.00			66					55	10/11/07	10/15	XSPEC-002
R709005-03		B1NRJ1	1.43	1.00			63					50	10/11/07	10/16	XSPEC-004
R709005-04		Lab Control Sample	<u>2.04</u>	1.00			84						10/11/07	10/16	XSPEC-002
R709005-05		Method Blank	1.24	1.00			64						10/11/07	10/16	XSPEC-004
R709005-06		Duplicate (R709005-02)	1.45	1.00			65					56	10/11/07	10/16	XSPEC-002

Nominal values and limits from method 2.00 1.00 20-105 300 180

PROCEDURES	REFERENCE	I129_SEP_LEPS_GS
	SPP-062	Sample Aliquoting, rev 0
	CP-024	Iodine-129, Sample Dissolution, rev 5
	CP-530	Iodine-129 Purification, rev 1

AVERAGES ± 2 SD	MDA <u>1.48</u> ± <u>0.588</u>
FOR 6 SAMPLES	YIELD <u>68</u> ± <u>16</u>

METHOD SUMMARIES
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Lab id EBRLNE
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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

Test H Matrix SOLID
 SDG 7681
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

TRITIUM IN SOLIDS

LIQUID SCINTILLATION COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H3566

RESULTS

LAB RAW SUF-
 SAMPLE ID TEST FIX PLANCHET CLIENT SAMPLE ID Tritium

Preparation batch 6121-082

R709005-01			7681-001	B1NRH9	196
R709005-02			7681-002	B1NRJ0	2860
R709005-03			7681-003	B1NRJ1	73.0
R709005-04			7681-004	Lab Control Sample	ok
R709005-05			7681-005	Method Blank	U
R709005-06			7681-006	Duplicate (R709005-02)	ok

Nominal values and limits from method RDLs (pCi/g) 400
 216A2 & 216A21 CharactSamp&Ana-Soil

METHOD PERFORMANCE

LAB RAW SUF- MDA ALIQ PREP DILU- YIELD EFF COUNT FWHM DRIFT DAYS ANAL-
 SAMPLE ID TEST FIX CLIENT SAMPLE ID pCi/g g FAC TION % % min keV KeV HELD PREPARED YZED DETECTOR

Preparation batch 6121-082 2σ prep error 10.0 % Reference Lab Notebook #6121, pg. 82

R709005-01			B1NRH9	3.94	0.460	100	50	57	10/10/07	10/11	LSC-004
R709005-02			B1NRJ0	4.01	0.458	100	50	51	10/10/07	10/11	LSC-004
R709005-03			B1NRJ1	3.93	0.460	100	50	45	10/10/07	10/11	LSC-004
R709005-04			Lab Control Sample	4.61	0.400	100	50		10/10/07	10/11	LSC-004
R709005-05			Method Blank	4.56	0.400	100	50		10/10/07	10/11	LSC-004
R709005-06			Duplicate (R709005-02)	3.94	0.461	100	50	51	10/10/07	10/11	LSC-004

Nominal values and limits from method 400 0.400 25 180

PROCEDURES REFERENCE TRITIUM_COX_LSC
 CP-251 Tritium/Carbon-14 Oxidation, rev 8

AVERAGES ± 2 SD MDA 4.16 ± 0.654
 FOR 6 SAMPLES YIELD 100 ± 0

METHOD SUMMARIES
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 SUMMARY DATA SECTION
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Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 10/19/07

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EBERLINE SERVICES/RICHMOND

SAMPLE DELIVERY GROUP H3566

Test NI L Matrix SOLID
 SDG 7681
 Contact Melissa C. Mannion

LAB METHOD SUMMARY

NICKEL 63 IN SOLIDS
 LIQUID SCINTILLATION COUNTING

Client Hanford
 Contract No. 630
 Contract SDG H3566

RESULTS

LAB	RAW	SUF-		
SAMPLE ID	TEST FIX	PLANCHET	CLIENT SAMPLE ID	Nickel 63
Preparation batch 6121-082				
R709005-01		7681-001	B1NRH9	U
R709005-02		7681-002	B1NRJ0	U
R709005-03		7681-003	B1NRJ1	U
R709005-04		7681-004	Lab Control Sample	ok
R709005-05		7681-005	Method Blank	U
R709005-06		7681-006	Duplicate (R709005-02)	- U

Nominal values and limits from method RDLs (pCi/g) 30.0
 216A2 & 216A21 CharactSamp&Ana-Soil

METHOD PERFORMANCE

LAB	RAW	SUF-	MDA	ALIQ	PREP	DILU-	YIELD	EFF	COUNT	FWHM	DRIFT	DAYS	ANAL-
SAMPLE ID	TEST FIX	CLIENT SAMPLE ID	pCi/g	g	FAC	TION	%	%	min	keV	KeV	HELD PREPARED	YZED DETECTOR
Preparation batch 6121-082 2σ prep error 10.0 % Reference Lab Notebook #6121, pg. 82													
R709005-01		B1NRH9	3.07	0.500			95	50			52	10/05/07 10/06	LSC-006
R709005-02		B1NRJ0	3.17	0.500			93	50			46	10/05/07 10/06	LSC-006
R709005-03		B1NRJ1	3.19	0.500			91	50			40	10/05/07 10/06	LSC-006
R709005-04		Lab Control Sample	3.05	0.500			96	50				10/05/07 10/06	LSC-006
R709005-05		Method Blank	3.08	0.500			95	50				10/05/07 10/06	LSC-006
R709005-06		Duplicate (R709005-02)	3.10	0.500			93	50			46	10/05/07 10/06	LSC-006
Nominal values and limits from method			30.0	0.500			30-105	25			180		

PROCEDURES REFERENCE NI63_LSC
 CP-070 Soil Dissolution, < 1.0g Aliquot, rev 7
 CP-280 Nickel-63 Purification, rev 3

AVERAGES ± 2 SD MDA 3.11 ± 0.114
 FOR 6 SAMPLES YIELD 94 ± 4

Lab id EBRLNE
 Protocol Hanford
 Version Ver 1.0
 Form DVD-LMS
 Version 3.06
 Report date 10/19/07

00000020

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20071485

Matrix: SOLID

Test: Americium by AEA

Sample Date: 08/20/07

Receive Date: 08/20/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD (%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR02197											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Americium-241	14596-10-2	2e-2		RPD			9.524	20.000		09/19/07
DUP	Am-243 tracer by AEA	AM243	3.755	78.830	% Recov	30.000	105.000				09/19/07
Lab ID: W07GR02213											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Am-243 tracer by AEA	AM243	3.857	97.590	% Recov	30.000	105.000				09/19/07
BATCH QC											
BLANK	Americium-241	14596-10-2	U2e-2	n/a	pCi/g	-10.000	1000.000				09/19/07
BLANK	Am-243 tracer by AEA	AM243	3.995	84.550	% Recov	30.000	105.000				09/19/07
LCS	Americium-241	14596-10-2	11.47	96.793	% Recov	80.000	120.000				09/19/07
LCS	Am-243 tracer by AEA	AM243	11.09	78.730	% Recov	30.000	105.000				09/19/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20071485

Matrix: SOLID

Test: Gamma Energy Analysis-grd H2O

Sample Date: 08/20/07

Receive Date: 08/20/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Cobalt-60	10198-40-0	U2.612e-3		RPD			n/a	20.000		08/31/07
DUP	Cesium-137	10045-97-3	U-1.203e-3		RPD			n/a	20.000		08/31/07
DUP	Europium-152	14683-23-9	U1.501e-4		RPD			n/a	20.000		08/31/07
DUP	Europium-154	15585-10-1	U-1.315e-2		RPD			n/a	20.000		08/31/07
DUP	Europium-155	14391-16-3	U3.085e-3		RPD			n/a	20.000		08/31/07
BATCH QC											
BLANK	Cobalt-60	10198-40-0	U4.288e-4	n/a	pCi/g	-10.000	1000.000				08/31/07
BLANK	Cesium-137	10045-97-3	U-9.354e-4	n/a	pCi/g	-10.000	1000.000				08/31/07
BLANK	Europium-152	14683-23-9	U-3.509e-3	n/a	pCi/g	-10.000	1000.000				08/31/07
BLANK	Europium-154	15585-10-1	U-1.395e-3	n/a	pCi/g	-10.000	1000.000				08/31/07
BLANK	Europium-155	14391-16-3	U1.073e-3	n/a	pCi/g	-10.000	1000.000				08/31/07
LCS	Cobalt-60	10198-40-0	10440	105.030	% Recov	80.000	120.000				08/31/07
LCS	Cesium-137	10045-97-3	6435	106.540	% Recov	80.000	120.000				08/31/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20071485

Matrix: SOLID

Test: Plutonium Isotopics by AEA

Sample Date: 08/20/07

Receive Date: 08/20/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR02197											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Plutonium-238	13981-16-3	U3.3e-2		RPD			n/a	20.000		09/25/07
DUP	Pu-239/240 by AEA	PU-239/240	1.9e-2		RPD			111.475	20.000 •		09/25/07
DUP	Pu-242 tracer by AEA	PU242	5.862	66.310	% Recov	30.000	105.000				09/25/07
Lab ID: W07GR02213											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Pu-242 tracer by AEA	PU242	6.021	94.740	% Recov	30.000	105.000				09/25/07
BATCH QC											
BLANK	Plutonium-238	13981-16-3	U-3.6e-2	n/a	pCi/g	-10.000	1000.000				09/25/07
BLANK	Pu-239/240 by AEA	PU-239/240	U1.9e-3	n/a	pCi/g	-10.000	1000.000				09/25/07
BLANK	Pu-242 tracer by AEA	PU242	6.238	87.300	% Recov	30.000	105.000				09/25/07
LCS	Pu-239/240 by AEA	PU-239/240	11.76	91.553	% Recov	80.000	120.000				09/25/07
LCS	Pu-242 tracer by AEA	PU242	17.31	96.830	% Recov	30.000	105.000				09/25/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20071485
 Matrix: SOLID
 Test: Strontium 89/90

Sample Date: 08/20/07
 Receive Date: 08/20/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR02197											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	Sr-85 Tracer by Beta Counting	SR85	85.9	85.900	% Recov	30.000	105.000				08/23/07
DUP	Strontium-89/90	SR-RAD	U2.0E-01		RPD			n/a	20.000		08/23/07
Lab ID: W07GR02213											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	Sr-85 Tracer by Beta Counting	SR85	98.0	98.000	% Recov	30.000	105.000				08/23/07
BATCH QC											
BLANK	Sr-85 Tracer by Beta Counting	SR85	100.2	100.200	% Recov	30.000	105.000				08/23/07
BLANK	Strontium-89/90	10098-97-2	U-1.3	n/a	pCi/g	-10.000	300.000				08/23/07
LCS	Sr-85 Tracer by Beta Counting	SR85	91	91.000	% Recov	30.000	105.000				08/23/07
LCS	Strontium-89/90	10098-97-2	82.1	98.559	% Recov	80.000	120.000				08/23/07

WSCF ANALYTICAL LABORATORY QC REPORT

Department: Radiochemistry

SDG Number: WSCF20071485
 Matrix: SOLID
 Test: Uranium Isotopics by AEA

Sample Date: 08/20/07
 Receive Date: 08/20/07

QC Type	Analyte	CAS #	QC Found	QC Yield	Units	Lower Limit	Upper Limit	RPD(%)	RPD Limit	RQ	Analysis Date
Lab ID: W07GR02197											
BATCH QC ASSOCIATED WITH SAMPLE											
DUP	U-232 tracer by AEA	U232	3.91	92.820	% Recov	30.000	105.000				09/19/07
DUP	Uranium-233/234	U-233/234	0.18		RPD			18.182	20.000		09/19/07
DUP	Uranium-235	15117-96-1	1.5e-2		RPD			0.000	20.000		09/19/07
DUP	Uranium-238	U-238	0.16		RPD			6.452	20.000		09/19/07
Lab ID: W07GR02213											
BATCH QC ASSOCIATED WITH SAMPLE											
SURR	U-232 tracer by AEA	U232	4.016	92.970	% Recov	30.000	105.000				09/19/07
BATCH QC											
BLANK	U-232 tracer by AEA	U232	4.16	83.720	% Recov	30.000	105.000				09/19/07
BLANK	Uranium-233/234	13966-29-5	U2.1e-2	n/a	pCi/g	-10.000	1000.000				09/19/07
BLANK	Uranium-235	15117-96-1	U6.8e-3	n/a	pCi/g	-10.000	1000.000				09/19/07
BLANK	Uranium-238	24678-82-8	6.3e-3	0.006	pCi/g	-10.000	1000.000				09/19/07
LCS	U-232 tracer by AEA	U232	11.55	79.380	% Recov	30.000	105.000				09/19/07
LCS	Uranium-233/234	13966-29-5	n/a	n/a	% Recov	75.000	125.000				09/19/07
LCS	Uranium-235	15117-96-1	n/a	n/a	% Recov	75.000	125.000				09/19/07
LCS	Uranium-238	24678-82-8	20.78	109.628	% Recov	80.000	120.000				09/19/07