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Solutia, Inc.
St. Louis, Missouri

Sauget Area 1 - Dead Creek Final Remedy Creek Bottom Soil Engineering Evaluation/Cost Analysis

Volume IV: Data Validation Report – Part B

Sauget and Cahokia, Illinois

Submitted To:
USEPA Region 5, Chicago, Illinois

Submitted By:
Solutia Inc.
St. Louis, Missouri

ENSR International
June 21, 2002
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APPENDIX A-3

ICP METALS, MERCURY AND CYANIDE

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 16, 2002
From:	Sheena Blair/Westford	**File:**	SO001inoSB.doc 06105-A17
RE:	Data Validation Inorganic Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL070	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for 16 sediment samples analyzed for total metals by SW-846 methods 6010B and 7471A and for total cyanide by SW-846 method 9012A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on November 8, 2001 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the samples and reported the results under sample delivery group (SDG) SIL070.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSB-T6-C1	CBS-CSB-T6-C1-D (field duplicate of CBS-CSB-T6-C1)
CBS-CSB-T6-E1	CBS-CSB-T6-W1
CBS-CSB-T7-E1	CBS-CSB-T7-W1
CBS-CSB-T8-E1	CBS-CSB-T7-C1
CBS-CSB-T8-W1	CBS-CSB-T8-C1
CBS-CSB-T9-C1	CBS-CSB-T9-E1
CBS-CSB-T9-W1	CBS-CSB-T10-E1
CBS-CSB-T10-W1	CBS-CSB-T10-C1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Laboratory blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field Duplicates
- Laboratory control sample (LCS) results
- Sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. No discrepancies were noted.

Holding Times/Sample Preservation

All samples were digested and analyzed within the method specified holding times for metals and cyanide.

The laboratory does not record cooler temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptance range of 4°C ± 2° C). Non-conformances were not observed for this sample set.

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected in the blanks and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
ICB/CCB	Thallium	6.24	3.12
	Barium	3.04	1.52
	Chromium	3.02	1.51
	Selenium	-5.12/+6.02	-2.56/3.01
	Manganese	3.08	1.54
	Vanadium	2.84	1.42
ICB/CCB 11/20/01	Mercury	0.0950	0.0238

* Corrected for percent solids for each sample.
Associated samples: Sample CBS-CSB-T7-W1 for mercury.
All sediment samples for the remaining compounds.

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

For negative contamination:

- Sample results ≥ MDL but ≤ the absolute value of the AL were qualified as estimated (J) at the reported concentration.
- Nondetected results (< MDL) were qualified as estimated nondetects (UJ).
- Sample results > the absolute value of the AL were not qualified.

For negative and positive contamination:

- Sample results ≤ the positive AL and ≤ the absolute value of the negative AL were qualified as estimated nondetects (UJ) at the reported concentration.

- Sample results > the positive AL but ≤ the absolute value of the negative AL were qualified as estimated (J) at the reported concentration.

MS/MSD Results

MS/MSD analyses were performed on sample CBS-CSB-T7-W1. The following table summarizes the percent recoveries (%Rs) and/or relative percent differences (RPDs) in the MS/MSD analyses that exceeded QC acceptance criteria and the actions taken for the affected analytes in all sediment samples in this SDG.

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
CBS-CSB-T7-W1	Mercury	ok/73	ok	Estimate positive results (J) and nondetects (UJ).
	Antimony	48/48	ok	Estimate positive results (J) and nondetects (UJ).
	Chromium	139/136	ok	Estimate positive results (J)
	Magnesium	132/ok	ok	Estimate positive results (J)

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

Field Duplicates

Samples CBS-CSB-T6-C1 and CBS-CSB-T6-C1-D were submitted as the field duplicate pair with this sample set. The following table summarizes the RPDs of the detected analytes in the field duplicate pair. The RPDs for chromium and lead exceeded the acceptance criteria. Positive and non detect results for these compounds were qualified as estimated (J/UJ) for all samples in the data set. The RPDs for all other compounds were within the QC acceptance criteria.

Compound	CBS-CSB-T6-C1 (mg/kg)	CBS-CSB-T6-C1-D (mg/kg)	RPD (%)
Aluminum	15000	16000	6
Arsenic	10	12	18
Barium	280	310	10
Beryllium	0.93	0.66	34
Cadmium	11	14	24
Calcium	5300	5500	4
Chromium	66	140	72
Cobalt	6.1	5.1	18
Copper	100	120	18
Iron	17000	17000	0
Lead	54	95	55
Magnesium	3300	3200	3
Manganese	120	95	23
Mercury	0.83	0.54	42
Nickel	180	190	5
Potassium	2100	2100	0
Sodium	160	170	6
Vanadium	42	39	7
Zinc	2100	2400	13

LCS Results

The %Rs of all spiked analytes met the QC acceptance criteria in the LCS analyses.

Sample Results

The percent solids for all samples in the data set were >50%.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T6-C1

ontract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

atrix (soil/water): SOIL Lab Sample ID: S117315-1

evel (low/med): LOW Date Received: 09-NOV-2001

Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	15000			P
7440-36-0	Antimony	2.8	~~U~~	~~N~~UJ-M	P
7440-38-2	Arsenic	10			P
7440-39-3	Barium	280			P
7440-41-7	Beryllium	0.93			P
7440-43-9	Cadmium	11			P
7440-70-2	Calcium	5300			P
7440-47-3	Chromium	66		~~N~~J-M-F	P
7440-48-4	Cobalt	6.1			P
7440-50-8	Copper	100			P
7439-89-6	Iron	17000			P
7439-92-1	Lead	54		J-F	P
7439-95-4	Magnesium	3300		~~N~~J-M	P
7439-96-5	Manganese	120			P
7439-98-7	Molybdenum	0.83	~~B~~		P
7440-02-0	Nickel	180			P
7440-09-7	Potassium	2100			P
7782-49-2	Selenium	1.4	~~B~~	UJ-B	P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	160			P
7440-28-0	Thallium	0.99	~~B~~	U-B	P
7440-31-5	Tin	6.9	U		P
7440-62-2	Vanadium	42			P
7440-66-6	Zinc	2100			P

Color Before: Clarity Before: Texture:

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Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T6-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-1

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.20		NJ-A	CV

Color Before: Clarity Before: Texture:

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Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T6-C1-D

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-2

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	16000			P
7440-36-0	Antimony	2.8	U	~~N~~UJ-N	P
7440-38-2	Arsenic	12			P
7440-39-3	Barium	310			P
7440-41-7	Beryllium	0.66			P
7440-43-9	Cadmium	14			P
7440-70-2	Calcium	5500			P
7440-47-3	Chromium	140		~~N~~J-N+F	P
7440-48-4	Cobalt	5.1			P
7440-50-8	Copper	120			P
7439-89-6	Iron	17000			P
7439-92-1	Lead	95		J-F	P
7439-95-4	Magnesium	3200		~~N~~J-N	P
7439-96-5	Manganese	95			P
7439-98-7	Molybdenum	0.54	~~B~~		P
7440-02-0	Nickel	190			P
7440-09-7	Potassium	2100			P
7782-49-2	Selenium	1.1	~~B~~	UJ-B	P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	170			P
7440-28-0	Thallium	0.87	~~B~~	U-B	P
7440-31-5	Tin	6.9	U		P
7440-62-2	Vanadium	39			P
7440-66-6	Zinc	2400			P

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TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T6-C1-D

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-2

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.21		MJ-M	CV

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Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T6-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-3

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 86.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9400			P
7440-36-0	Antimony	2.1	U	NUS-M	P
7440-38-2	Arsenic	8.7			P
7440-39-3	Barium	260			P
7440-41-7	Beryllium	0.42	B		P
7440-43-9	Cadmium	4.4			P
7440-70-2	Calcium	3800			P
7440-47-3	Chromium	82		NJ-M	P
7440-48-4	Cobalt	15			P
7440-50-8	Copper	570			P
7439-89-6	Iron	12000			P
7439-92-1	Lead	67		J-F	P
7439-95-4	Magnesium	2400		NJ-M	P
7439-96-5	Manganese	200			P
7439-98-7	Molybdenum	0.79	B		P
7440-02-0	Nickel	220			P
7440-09-7	Potassium	1600			P
7782-49-2	Selenium	0.86	B	UJ-B	P
7440-22-4	Silver	0.23	B		P
7440-23-5	Sodium	130			P
7440-28-0	Thallium	0.71	B	U-B	P
7440-31-5	Tin	5.3	U		P
7440-62-2	Vanadium	23			P
7440-66-6	Zinc	1500			P

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Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T6-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-3

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 86.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.15		NJ-N	CV

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Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T6-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-4

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10000			P
7440-36-0	Antimony	4.8	U	N,W,M	P
7440-38-2	Arsenic	3.9			P
7440-39-3	Barium	390			P
7440-41-7	Beryllium	0.68			P
7440-43-9	Cadmium	5.1			P
7440-70-2	Calcium	5100			P
7440-47-3	Chromium	38		N,J,M,F	P
7440-48-4	Cobalt	6.0			P
7440-50-8	Copper	38			P
7439-89-6	Iron	22000			P
7439-92-1	Lead	64		J-F	P
7439-95-4	Magnesium	3400		N,S,M	P
7439-96-5	Manganese	94			P
7439-98-7	Molybdenum	0.43	B		P
7440-02-0	Nickel	22			P
7440-09-7	Potassium	1900			P
7782-49-2	Selenium	2.1	B	W,J-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	210			P
7440-28-0	Thallium	1.2	U		P
7440-31-5	Tin	5.6	B		P
7440-62-2	Vanadium	29			P
7440-66-6	Zinc	2600			P

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TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T6-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-4

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.055		KJM	CV

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Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T7-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-5

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 75.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14000			P
7440-36-0	Antimony	4.8	U	~~N~~ UJ-M	P
7440-38-2	Arsenic	8.8			P
7440-39-3	Barium	220			P
7440-41-7	Beryllium	0.84			P
7440-43-9	Cadmium	22			P
7440-70-2	Calcium	5100			P
7440-47-3	Chromium	44		~~N~~ J-MHF	P
7440-48-4	Cobalt	8.4			P
7440-50-8	Copper	140			P
7439-89-6	Iron	16000			P
7439-92-1	Lead	55		J-F	P
7439-95-4	Magnesium	3600		~~N~~ J-M	P
7439-96-5	Manganese	130			P
7439-98-7	Molybdenum	0.85	~~B~~		P
7440-02-0	Nickel	190			P
7440-09-7	Potassium	1900			P
7782-49-2	Selenium	1.4	~~B~~	UJ-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	210			P
7440-28-0	Thallium	1.2	U		P
7440-31-5	Tin	6.1	U		P
7440-62-2	Vanadium	32			P
7440-66-6	Zinc	2900			P

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Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T7-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-5

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 75.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.094		NJ-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T7-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-6

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 78.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4400			P
7440-36-0	Antimony	2.6	~~U~~	~~N~~ WJ-M	P
7440-38-2	Arsenic	5.1			P
7440-39-3	Barium	180			P
7440-41-7	Beryllium	0.19	~~B~~		P
7440-43-9	Cadmium	3.1			P
7440-70-2	Calcium	2000			P
7440-47-3	Chromium	83		~~N~~J-M+F	P
7440-48-4	Cobalt	4.7			P
7440-50-8	Copper	500			P
7439-89-6	Iron	5900			P
7439-92-1	Lead	55		J-F	P
7439-95-4	Magnesium	1400		~~N~~J-M	P
7439-96-5	Manganese	59			P
7439-98-7	Molybdenum	0.28	~~B~~		P
7440-02-0	Nickel	110			P
7440-09-7	Potassium	1200			P
7782-49-2	Selenium	1.3	U	WJ-B	P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	130			P
7440-28-0	Thallium	1.3	U		P
7440-31-5	Tin	6.4	U		P
7440-62-2	Vanadium	13			P
7440-66-6	Zinc	710			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T7-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-6

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 78.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.12		J-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T8-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-7

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 70.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	17000			P
7440-36-0	Antimony	5.2	U	N,J-M	P
7440-38-2	Arsenic	18			P
7440-39-3	Barium	360			P
7440-41-7	Beryllium	0.75			P
7440-43-9	Cadmium	29			P
7440-70-2	Calcium	5100			P
7440-47-3	Chromium	76		N,J-M+F	P
7440-48-4	Cobalt	5.5			P
7440-50-8	Copper	470			P
7439-89-6	Iron	21000			P
7439-92-1	Lead	84		J-F	P
7439-95-4	Magnesium	3500		N,J-M	P
7439-96-5	Manganese	99			P
7439-98-7	Molybdenum	0.96	B		P
7440-02-0	Nickel	210			P
7440-09-7	Potassium	2200			P
7782-49-2	Selenium	2.6	U	U,J-B	P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	190			P
7440-28-0	Thallium	1.1	B	U-B	P
7440-31-5	Tin	6.2	B		P
7440-62-2	Vanadium	42			P
7440-66-6	Zinc	3400			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T8-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-7

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 70.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.073		WJ-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T7-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-8

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5800			P
7440-36-0	Antimony	2.3	~~U~~	~~N~~ UJ-M	P
7440-38-2	Arsenic	4.4			P
7440-39-3	Barium	180			P
7440-41-7	Beryllium	0.39	~~B~~		P
7440-43-9	Cadmium	0.31	~~B~~		P
7440-70-2	Calcium	11000			P
7440-47-3	Chromium	10		~~N~~ J-M+F	P
7440-48-4	Cobalt	7.4			P
7440-50-8	Copper	14			P
7439-89-6	Iron	16000			P
7439-92-1	Lead	7.4		J-F	P
7439-95-4	Magnesium	5500		~~N~~ J-M	P
7439-96-5	Manganese	190			P
7439-98-7	Molybdenum	0.87	~~B~~		P
7440-02-0	Nickel	16			P
7440-09-7	Potassium	1900			P
7782-49-2	Selenium	0.90	B	UJ-B	P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	200			P
7440-28-0	Thallium	1.1	U		P
7440-31-5	Tin	5.6	U		P
7440-62-2	Vanadium	18			P
7440-66-6	Zinc	210			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T7-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-8

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.022	B	N,J-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T8-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-9

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9600			P
7440-36-0	Antimony	2.3	U	~~N~~ UJ-M	P
7440-38-2	Arsenic	16			P
7440-39-3	Barium	260			P
7440-41-7	Beryllium	0.42	~~B~~		P
7440-43-9	Cadmium	4.4			P
7440-70-2	Calcium	3400			P
7440-47-3	Chromium	44		~~N~~ J.M-F	P
7440-48-4	Cobalt	5.5			P
7440-50-8	Copper	910			P
7439-89-6	Iron	12000			P
7439-92-1	Lead	43		J-F	P
7439-95-4	Magnesium	2700		~~N~~ J-M	P
7439-96-5	Manganese	80			P
7439-98-7	Molybdenum	0.54	~~B~~		P
7440-02-0	Nickel	180			P
7440-09-7	Potassium	1700			P
7782-49-2	Selenium	1.1	U	UJ-B	P
7440-22-4	Silver	0.24	~~B~~		P
7440-23-5	Sodium	160			P
7440-28-0	Thallium	1.1	U		P
7440-31-5	Tin	5.6	U		P
7440-62-2	Vanadium	28			P
7440-66-6	Zinc	1000			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T8-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-9

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.15		~~NJ~~-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T8-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-10

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4200			P
7440-36-0	Antimony	12	U	~~N~~ J-M	P
7440-38-2	Arsenic	3.3			P
7440-39-3	Barium	99			P
7440-41-7	Beryllium	0.32	~~B~~		P
7440-43-9	Cadmium	0.58	U		P
7440-70-2	Calcium	9900			P
7440-47-3	Chromium	7.6		~~N~~ J-M-F	P
7440-48-4	Cobalt	5.9			P
7440-50-8	Copper	6.2			P
7439-89-6	Iron	8700			P
7439-92-1	Lead	5.5		J-F	P
7439-95-4	Magnesium	6300		~~N~~ J-M	P
7439-96-5	Manganese	63			P
7439-98-7	Molybdenum	0.54	~~B~~		P
7440-02-0	Nickel	26			P
7440-09-7	Potassium	1000			P
7782-49-2	Selenium	5.8	U	J-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	190			P
7440-28-0	Thallium	1.2	U		P
7440-31-5	Tin	5.8	U		P
7440-62-2	Vanadium	12			P
7440-66-6	Zinc	5400			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T8-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-10

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.013	B	J-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T9-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-11

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7400			P
7440-36-0	Antimony	2.7	U	~~N~~ UJ-M	P
7440-38-2	Arsenic	5.0			P
7440-39-3	Barium	160			P
7440-41-7	Beryllium	0.47	~~B~~		P
7440-43-9	Cadmium	0.25	~~B~~		P
7440-70-2	Calcium	10000			P
7440-47-3	Chromium	13		~~N~~ J-M+F	P
7440-48-4	Cobalt	11			P
7440-50-8	Copper	15			P
7439-89-6	Iron	16000			P
7439-92-1	Lead	9.3		J-F	P
7439-95-4	Magnesium	6200		~~N~~ J-M	P
7439-96-5	Manganese	170			P
7439-98-7	Molybdenum	0.83	~~B~~		P
7440-02-0	Nickel	23			P
7440-09-7	Potassium	2100			P
7782-49-2	Selenium	0.94	~~B~~	UJ-B	P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	210			P
7440-28-0	Thallium	1.4	U		P
7440-31-5	Tin	6.8	U		P
7440-62-2	Vanadium	22			P
7440-66-6	Zinc	300			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T9-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-11

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.026		MS-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T9-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-12

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	2.4	U	~~N~~ UJ-M	P
7440-38-2	Arsenic	5.1			P
7440-39-3	Barium	260			P
7440-41-7	Beryllium	0.59			P
7440-43-9	Cadmium	10			P
7440-70-2	Calcium	3500			P
7440-47-3	Chromium	180		~~N~~ J-M-F	P
7440-48-4	Cobalt	4.3			P
7440-50-8	Copper	230			P
7439-89-6	Iron	10000			P
7439-92-1	Lead	76		J-F	P
7439-95-4	Magnesium	2300		~~N~~ J-M	P
7439-96-5	Manganese	70			P
7439-98-7	Molybdenum	0.34	~~B~~		P
7440-02-0	Nickel	200			P
7440-09-7	Potassium	1600			P
7782-49-2	Selenium	1.0	~~B~~	UJ-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	160			P
7440-28-0	Thallium	1.2	U		P
7440-31-5	Tin	6.0	U		P
7440-62-2	Vanadium	27			P
7440-66-6	Zinc	1900			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T9-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-12

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.077		MS-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T9-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-13

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 77.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9900			P
7440-36-0	Antimony	2.4	~~U~~	~~N~~ UJ-M	P
7440-38-2	Arsenic	7.3			P
7440-39-3	Barium	220			P
7440-41-7	Beryllium	0.46	~~B~~		P
7440-43-9	Cadmium	4.9			P
7440-70-2	Calcium	3800			P
7440-47-3	Chromium	52		~~N~~ J-M-F	P
7440-48-4	Cobalt	13			P
7440-50-8	Copper	500			P
7439-89-6	Iron	12000			P
7439-92-1	Lead	53		J-F	P
7439-95-4	Magnesium	2700		~~N~~ J-M	P
7439-96-5	Manganese	130			P
7439-98-7	Molybdenum	0.75	~~B~~		P
7440-02-0	Nickel	230			P
7440-09-7	Potassium	1700			P
7782-49-2	Selenium	0.58	~~B~~	UJ-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	130			P
7440-28-0	Thallium	1.2	U		P
7440-31-5	Tin	5.9	U		P
7440-62-2	Vanadium	24			P
7440-66-6	Zinc	1500			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T9-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-13

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 77.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.29		NJ-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T10-E1

:ontract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

latrix (soil/water): SOIL Lab Sample ID: S117315-14

evel (low/med): LOW Date Received: 09-NOV-2001

Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5800			P
7440-36-0	Antimony	2.5	~~U~~	~~N~~ UJ-M	P
7440-38-2	Arsenic	13			P
7440-39-3	Barium	340			P
7440-41-7	Beryllium	0.26	~~B~~		P
7440-43-9	Cadmium	16			P
7440-70-2	Calcium	3400			P
7440-47-3	Chromium	130		~~N~~ J-M-F	P
7440-48-4	Cobalt	3.0			P
7440-50-8	Copper	440			P
7439-89-6	Iron	10000			P
7439-92-1	Lead	80		J-F	P
7439-95-4	Magnesium	1200		~~N~~ J-M	P
7439-96-5	Manganese	39			P
7439-98-7	Molybdenum	0.96	~~B~~		P
7440-02-0	Nickel	140			P
7440-09-7	Potassium	1400			P
7782-49-2	Selenium	1.0	~~B~~	~~U~~ J-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	180			P
7440-28-0	Thallium	1.2	U		P
7440-31-5	Tin	6.1	U		P
7440-62-2	Vanadium	21			P
7440-66-6	Zinc	1900			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T10-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-14

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.16		NJ-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T10-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-15

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9700			P
7440-36-0	Antimony	2.7	U	~~N~~ UJ-M	P
7440-38-2	Arsenic	15			P
7440-39-3	Barium	270			P
7440-41-7	Beryllium	0.65			P
7440-43-9	Cadmium	8.8			P
7440-70-2	Calcium	3700			P
7440-47-3	Chromium	27		~~N~~ J-M-F	P
7440-48-4	Cobalt	16			P
7440-50-8	Copper	410			P
7439-89-6	Iron	13000			P
7439-92-1	Lead	27		J-F	P
7439-95-4	Magnesium	2900		~~N~~ J-M	P
7439-96-5	Manganese	170			P
7439-98-7	Molybdenum	0.90	~~B~~		P
7440-02-0	Nickel	280			P
7440-09-7	Potassium	1700			P
7782-49-2	Selenium	0.80	~~B~~	UJ-B	P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	170			P
7440-28-0	Thallium	0.91	~~B~~	U-B	P
7440-31-5	Tin	6.8	U		P
7440-62-2	Vanadium	33			P
7440-66-6	Zinc	1700			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T10-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-15

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.084		~~MJ~~-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T10-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-16

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 70.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7300			P
7440-36-0	Antimony	2.6	U	~~N~~ UJ-M	P
7440-38-2	Arsenic	5.5			P
7440-39-3	Barium	270			P
7440-41-7	Beryllium	0.46	~~B~~		P
7440-43-9	Cadmium	1.1			P
7440-70-2	Calcium	17000			P
7440-47-3	Chromium	13		~~N~~ J-M-~~F~~	P
7440-48-4	Cobalt	7.2			P
7440-50-8	Copper	150			P
7439-89-6	Iron	16000			P
7439-92-1	Lead	22		J-F	P
7439-95-4	Magnesium	6500		~~N~~ J-M	P
7439-96-5	Manganese	280			P
7439-98-7	Molybdenum	1.2	~~B~~		P
7440-02-0	Nickel	28			P
7440-09-7	Potassium	1800			P
7782-49-2	Selenium	0.64	~~B~~	UJ-B	P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	200			P
7440-28-0	Thallium	0.84	~~B~~	U-B	P
7440-31-5	Tin	6.5	U		P
7440-62-2	Vanadium	23			P
7440-66-6	Zinc	320			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T10-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL070

Matrix (soil/water): SOIL Lab Sample ID: S117315-16

Level (low/med): LOW Date Received: 09-NOV-2001

% Solids: 70.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.024	B	~~J~~-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Sample Number: S117315*1
Matrix: SS
Date Received: 11-09-2001

Sample Description: CBS-CSB-T6-C1
SDG#: SIL070

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.68U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	17000	mg/kg dw	11-16-2001	1	1116X

Sample Number: S117315*2
Matrix: SS
Date Received: 11-09-2001

Sample Description: CBS-CSB-T6-C1-D
SDG#: SIL070

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.69U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	18000	mg/kg dw	11-16-2001	1	1116X

Sample Number: S117315*3
Matrix: SS
Date Received: 11-09-2001

Sample Description: CBS-CSB-T6-E1
SDG#: SIL070

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.58U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	12000	mg/kg dw	11-16-2001	1	1116X

Sample Number: S117315*4
Matrix: SS
Date Received: 11-09-2001

Sample Description: CBS-CSB-T6-W1
SDG#: SIL070

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.66U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	15000	mg/kg dw	11-16-2001	1	1116X

Sample Number: S117315*5
Matrix: SS
Date Received: 11-09-2001

Sample Description: CBS-CSB-T7-E1
SDG#: SIL070

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.66U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	14000	mg/kg dw	11-16-2001	1	1116X

Sample Number: S117315*6
Matrix: SS
Date Received: 11-09-2001

Sample Description: CBS-CSB-T7-W1
SDG#: SIL070

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.63U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	6600	mg/kg dw	11-16-2001	1	1116X

Sample Number: S117315*7
Matrix: SS
Date Received: 11-09-2001

Sample Description: CBS-CSB-T8-E1
SDG#: SIL070

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.70U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	16000	mg/kg dw	11-16-2001	1	1116X

Sample Number: S117315*8 Sample Description: CBS-CSB-T7-C1
Matrix: SS SDG#: SIL070
Date Received: 11-09-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.66U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	10000	mg/kg dw	11-16-2001	1	1116X

Sample Number: S117315*9 Sample Description: CBS-CSB-T8-W1
Matrix: SS SDG#: SIL070
Date Received: 11-09-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.66U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	8800	mg/kg dw	11-16-2001	1	1116X

Sample Number: S117315*10
Matrix: SS
Date Received: 11-09-2001

Sample Description: CBS-CSB-T8-C1
SDG#: SIL070

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.68U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	4100	mg/kg dw	11-16-2001	1	1116X

Sample Number: S117315*11
Matrix: SS
Date Received: 11-09-2001

Sample Description: CBS-CSB-T9-C1
SDG#: SIL070

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.68U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	14000	mg/kg dw	11-16-2001	1	1116X

Sample Number: S117315*12
Matrix: SS
Date Received: 11-09-2001

Sample Description: CBS-CSB-T9-E1
SDG#: SIL070

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.66U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	11000	mg/kg dw	11-16-2001	1	1116X

Sample Number: S117315*13
Matrix: SS
Date Received: 11-09-2001

Sample Description: CBS-CSB-T9-W1
SDG#: SIL070

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.64U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	8300	mg/kg dw	11-16-2001	1	1116X

Sample Number: S117315*14 Sample Description: CBS-CSB-T10-E1
Matrix: SS SDG#: SIL070
Date Received: 11-09-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.68U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	14000	mg/kg dw	11-16-2001	1	1116X

Sample Number: S117315*15
Matrix: SS
Date Received: 11-09-2001

Sample Description: CBS-CSB-T10-W1
SDG#: SIL070

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.68U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	9400	mg/kg dw	11-16-2001	1	1116X

Sample Number: S117315*16 Sample Description: CBS-CSB-T10-C1
Matrix: SS SDG#: SIL070
Date Received: 11-09-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.71U	mg/kg_dw	11-16-2001	1	1114S
TOC-9060	17000	mg/kg dw	11-16-2001	1	1116X

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 19, 2002
From:	Sheena Blair/Westford	**File:**	SO007inoSB.doc 06105-012-201
RE:	Data Validation Inorganic Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL062	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for four sediment samples analyzed for total metals by SW-846 methods 6010B and 7471A, and total cyanide by SW-846 method 9010B. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on June 22, 2001 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the samples and reported the results under sample delivery group (SDG) SIL062.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
SED-M-S2 0-6"	SED-M-S5 0-6"
SED-M-S8 0-6"	SED-M-S10 0-6"

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Laboratory blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field Duplicates
- Laboratory control sample (LCS) results
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. No discrepancies were noted.

ENSR

Holding Times/Sample Preservation

All samples were digested and analyzed within the method specified holding times for metals and cyanide.

The laboratory does not record cooler temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptance range of 4°C ± 2° C). Non-conformances were not observed for this sample set.

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
Method Blank	Thallium	-0.638 mg/kg	-3.19
ICB/CCB 7/3/01	Molybdenum	2.41	1.205
	Selenium	6.04	3.02
ICB/CCB 7/4/01	Antimony	-5.07	-2.535
* Corrected for percent solids for each sample. Associated samples - Thallium and Molybdenum: all samples. Selenium: all samples except SED-M-S10 0-6". Antimony: sample SED-M-S10 0-6".			

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

For negative contamination:

- Sample results ≥ MDL but ≤ the absolute value of the AL were qualified as estimated (J) at the reported concentration.
- Nondetected results (< MDL) were qualified as estimated nondetects (UJ).
- Sample results > the absolute value of the AL were not qualified.

MS/MSD Results

Sample SED-M-S5 0-6" was selected for MS/MSD analyses for ICP metals and cyanide, and sample SED-M-S10 0-6" for mercury. The following table summarizes the percent recoveries (%Rs) and/or relative percent differences (RPDs) in the MS/MSD analyses that exceeded QC acceptance criteria and the actions for the affected analytes in all samples in this SDG.

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
SED-M-S5 0-6"	Antimony	54/52	Ok	Estimate positive results (J) and nondetects (UJ).
	Barium	60/60	Ok	Estimate positive results (J) and nondetects (UJ).

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
SED-M-S5 0-6"	Cadmium	27/27	Ok	Estimate positive results (J) and reject (R) nondetects
	Chromium	61/62	Ok	Estimate positive results (J) and nondetects (UJ).
	Magnesium	-269/-267	Ok	Estimate positive results (J) and reject (R) nondetects
	Manganese	5/5	Ok	Estimate positive results (J) and reject (R) nondetects
	Potassium	20/21	Ok	Estimate positive results (J) and reject (R) nondetects
SED-M-S10 (0-6")	Mercury	74/Ok	Ok	Estimate positive results (J) and nondetects (UJ).

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

Field Duplicates

There were no field duplicates submitted in this sample set. No action was taken on this basis.

LCS/LCSD Results

A LCS analyses was performed for mercury and LCS/LCSD analyses were performed for metals and cyanide.

The %Rs and RPDs (where applicable) of all spiked analytes met the QC acceptance criteria in the LCS and/or LCSD analyses.

Sample Results

The percent solids for all samples in the data set were >50%.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
SED-M-S2 0-6"

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL062

Matrix (soil/water): SOIL Lab Sample ID: S114015-1

Level (low/med): LOW Date Received: 25-JUN-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3800			P
7440-36-0	Antimony	2.7	UJ	N,J-M	P
7440-38-2	Arsenic	3.2			P
7440-39-3	Barium	190		N,J-M	P
7440-41-7	Beryllium	0.28	B		P
7440-43-9	Cadmium	2.3		N,J-M	P
7440-70-2	Calcium	10000			P
7440-47-3	Chromium	12		N,J-M	P
7440-48-4	Cobalt	4.8			P
7440-50-8	Copper	230			P
7439-89-6	Iron	7700			P
7439-92-1	Lead	19			P
7439-95-4	Magnesium	4000		N,J-M	P
7439-96-5	Manganese	86		N,J-M	P
7439-97-6	Mercury	0.026	B	J-M	CV
7439-98-7	Molybdenum	0.45	B	J-B	P
7440-02-0	Nickel	150			P
7440-09-7	Potassium	850		N,J-M	P
7782-49-2	Selenium	1.4	U		P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	86			P
7440-28-0	Thallium	1.4	UJ	BS-B	P
7440-62-2	Vanadium	11			P
7440-66-6	Zinc	1400			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SED-M-S2 0-6"

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL062A

Matrix (soil/water): SOIL Lab Sample ID: S114015A-1

Level (low/med): LOW Date Received: 25-JUN-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-31-5	Tin	6.8	U		P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SED-M-S5 0-6"

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL062

Matrix (soil/water): SOIL Lab Sample ID: S114015-2

Level (low/med): LOW Date Received: 25-JUN-2001

% Solids: 80.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	3200			P
7440-36-0	Antimony	2.5	~~U~~	~~N~~ UJ-M	P
7440-38-2	Arsenic	4.6			P
7440-39-3	Barium	130		~~N~~ J-M	P
7440-41-7	Beryllium	0.25	~~B~~		P
7440-43-9	Cadmium	4.8		~~N~~ J-M	P
7440-70-2	Calcium	4000			P
7440-47-3	Chromium	16		~~N~~ J-M	P
7440-48-4	Cobalt	4.2			P
7440-50-8	Copper	770			P
7439-89-6	Iron	8000			P
7439-92-1	Lead	27			P
7439-95-4	Magnesium	2500		~~N~~ J-M	P
7439-96-5	Manganese	73		~~N~~ J-M	P
7439-97-6	Mercury	0.06~~3~~2	J-M	Dam 7-9.01	CV
7439-98-7	Molybdenum	0.74	~~B~~	6-B	P
7440-02-0	Nickel	260			P
7440-09-7	Potassium	680		~~N~~ J-M	P
7782-49-2	Selenium	1.3	U		P
7440-22-4	Silver	0.37	~~B~~		P
7440-23-5	Sodium	63	U		P
7440-28-0	Thallium	1.3	~~U~~	6J-B	P
7440-62-2	Vanadium	9.1			P
7440-66-6	Zinc	1200			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SED-M-S5 0-6"

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL062A

Matrix (soil/water): SOIL Lab Sample ID: S114015A-2

Level (low/med): LOW Date Received: 25-JUN-2001

% Solids: 80.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-31-5	Tin	6.~~3~~ 2	U	8.15.01	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SED-M-S8 0-6"

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL062

Matrix (soil/water): SOIL Lab Sample ID: S114015-3

Level (low/med): LOW Date Received: 25-JUN-2001

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4900			P
7440-36-0	Antimony	3.0	U	NJ-M	P
7440-38-2	Arsenic	5.0			P
7440-39-3	Barium	410		NJ-M	P
7440-41-7	Beryllium	0.36	B		P
7440-43-9	Cadmium	2.2		NJ-M	P
7440-70-2	Calcium	7200			P
7440-47-3	Chromium	19		NJ-M	P
7440-48-4	Cobalt	5.7			P
7440-50-8	Copper	920			P
7439-89-6	Iron	10000			P
7439-92-1	Lead	82			P
7439-95-4	Magnesium	3600		NJ-M	P
7439-96-5	Manganese	95		NJ-M	P
7439-97-6	Mercury	0.092		J-M	CV
7439-98-7	Molybdenum	0.59	B	U-B	P
7440-02-0	Nickel	300			P
7440-09-7	Potassium	1100		NJ-M	P
7782-49-2	Selenium	1.3	B	U-B	P
7440-22-4	Silver	3.5			P
7440-23-5	Sodium	89			P
7440-28-0	Thallium	1.5	B	UJ-B	P
7440-62-2	Vanadium	15			P
7440-66-6	Zinc	2500			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SED-M-S8 0-6"

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL062A

Matrix (soil/water): SOIL Lab Sample ID: S114015A-3

Level (low/med): LOW Date Received: 25-JUN-2001

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-31-5	Tin	7.5	U		P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SED-M-S10 0-6"

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL062

Matrix (soil/water): SOIL Lab Sample ID: S114015-4

Level (low/med): LOW Date Received: 25-JUN-2001

% Solids: 66.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4400			P
7440-36-0	Antimony	15	B	NJ-M	P
7440-38-2	Arsenic	7.7			P
7440-39-3	Barium	1800		NJ-M	P
7440-41-7	Beryllium	0.32	B		P
7440-43-9	Cadmium	9.8		NJ-M	P
7440-70-2	Calcium	10000			P
7440-47-3	Chromium	23		NJ-M	P
7440-48-4	Cobalt	15			P
7440-50-8	Copper	4900			P
7439-89-6	Iron	18000			P
7439-92-1	Lead	270			P
7439-95-4	Magnesium	4000		NJ-M	P
7439-96-5	Manganese	150		NJ-M	P
7439-97-6	Mercury	0.30		J-M	CV
7439-98-7	Molybdenum	1.1	B	U-B	P
7440-02-0	Nickel	1500			P
7440-09-7	Potassium	930		NJ-M	P
7782-49-2	Selenium	7.6	U		P
7440-22-4	Silver	5.6			P
7440-23-5	Sodium	150			P
7440-28-0	Thallium	1.5	B	UJ-B	P
7440-62-2	Vanadium	16			P
7440-66-6	Zinc	12000			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SED-M-S10 0-6"

ontract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL062A

atrix (soil/water): SOIL Lab Sample ID: S114015A-4

evel (low/med): LOW Date Received: 25-JUN-2001

Solids: 66.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-31-5	Tin	18			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

LOG NO: S1-14015
Received: 25 JUN 01

Ms. Kimberly Perry
Solutia Inc.
575 Maryville Center Dr.
St. Louis, MO 63141

Client PO. No.: 4503273556

Project: Dead Creek/Sauget Area 1 Site M/SDG#SIL062
Sampled By: Client
Code: 14161079

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
14015-1	SED-M-S2 0-6"	06-22-01/12:00	SIL062
14015-2	SED-M-S5 0-6"	06-22-01/13:00	SIL062
14015-3	SED-M-S8 0-6"	06-22-01/14:00	SIL062
14015-4	SED-M-S10 0-6"	06-22-01/15:00	SIL062

PARAMETER	14015-1	14015-2	14015-3	14015-4
Cyanide, Total (9010), mg/kg dw	1.3U	1.2U	1.5U	0.99U
Dilution Factor	1	1	1	1
Prep Date	06.28.01	06.28.01	06.28.01	06.28.01
Analysis Date	06.29.01	06.29.01	06.29.01	06.29.01
Batch ID	0628S	0628S	0628S	0628S
Percent Solids	73	80	67	66

Michelle Owens, Project Manager

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 18, 2002
From:	Sheena Blair/Westford	**File:**	SO008inoSB.doc 06105-012-201
RE:	Data Validation Inorganic Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL063	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for three sediment samples analyzed for total metals by SW-846 methods 6010B and 7471A, and for total cyanide by SW-846 method 9010B. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on July 10, 2001 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the samples and reported the results under sample delivery group (SDG) SIL063.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
SED-M-S3-(0-6")	SED-M-S6-(0-6")
SED-M-S9-(0-6")	-

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Laboratory blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field Duplicates
- Laboratory control sample (LCS) results
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. No discrepancies were noted.

ENSR

Holding Times/Sample Preservation

All samples were prepared and analyzed within the method specified holding times for metals and cyanide.

The laboratory does not record cooler temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptance range of 4°C ± 2° C). Non-conformances were not observed for this sample set.

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
Method Blank	Selenium	-0.519 mg/kg	-2.595
	Thallium	-0.597 mg/kg	-2.985
ICB/CCB	Barium	2.16	1.08
	Chromium	2.21	1.105
	Manganese	2.12	1.06
	Mercury	-0.080	-0.020
	Vanadium	2.21	1.105
* Corrected for percent solids for each sample. Associated samples: all samples.			

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

For negative contamination:

- Sample results ≥ MDL but ≤ the absolute value of the AL were qualified as estimated (J) at the reported concentration.
- Nondetected results (< MDL) were qualified as estimated nondetects (UJ).
- Sample results > the absolute value of the AL were not qualified.

MS/MSD Results

MS/MSD analyses were performed on sample SED-M-S6-(0-6"). The following table summarizes the percent recoveries (%Rs) and/or relative percent differences (RPDs) in the MS/MSD analyses that exceeded QC acceptance criteria and the actions for the affected analytes in all samples in this SDG.

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
SED-M-S6-(0-6")	Cyanide	46/48	Ok	Estimate positive results (J) and nondetects (UJ).
	Copper	146/53	Ok	Estimate positive results (J) and nondetects (UJ).

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
SED-M-S6-(0-6")	Magnesium	Ok/63	Ok	Estimate positive results (J) and nondetects (UJ).

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

Field Duplicates

There were no field duplicates submitted in this sample set. No action was taken on this basis.

LCS/LCSD Results

A LCS analyses was performed for metals and LCS/LCSD analyses were performed for cyanide.

The %Rs and RPDs (where applicable) of all spiked analytes met the QC acceptance criteria in the LCS and/or LCSD analyses.

Sample Results

The percent solids for all samples in the data set were >50%.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
SED-M-S3-(0-6")

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL063

Matrix (soil/water): SOIL Lab Sample ID: S114342-1

Level (low/med): LOW Date Received: 11-JUL-2001

% Solids: 78.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2600			P
7440-36-0	Antimony	3.4			P
7440-38-2	Arsenic	2.9			P
7440-39-3	Barium	250			P
7440-41-7	Beryllium	0.20	B		P
7440-43-9	Cadmium	3.8			P
7440-70-2	Calcium	4500		~~J-N~~	P
7440-47-3	Chromium	9.4			P
7440-48-4	Cobalt	5.0			P
7440-50-8	Copper	610		NJ-N	P
7439-89-6	Iron	6700			P
7439-92-1	Lead	99			P
7439-95-4	Magnesium	2100		NJ-N	P
7439-96-5	Manganese	69			P
7439-97-6	Mercury	0.061			CV
7439-98-7	Molybdenum	0.23	B		P
7440-02-0	Nickel	500			P
7440-09-7	Potassium	570			P
7782-49-2	Selenium	1.2	U	UJ-B	P
7440-22-4	Silver	0.88	B		P
7440-23-5	Sodium	260			P
7440-28-0	Thallium	1.2	U	UJ-B	P
7440-62-2	Vanadium	9.0			P
7440-66-6	Zinc	4000		~~J-N~~	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SED-M-S3-(0-6")

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL063A

Matrix (soil/water): SOIL Lab Sample ID: S114342A-1

Level (low/med): LOW Date Received: 11-JUL-2001

% Solids: 78.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-31-5	Tin	5.8	B		P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

7

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SED-M-S6-(0-6")

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL063

Matrix (soil/water): SOIL Lab Sample ID: S114342-2

Level (low/med): LOW Date Received: 11-JUL-2001

% Solids: 78.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2100			P
7440-36-0	Antimony	0.59	B		P
7440-38-2	Arsenic	3.4			P
7440-39-3	Barium	68			P
7440-41-7	Beryllium	0.17	B		P
7440-43-9	Cadmium	0.68			P
7440-70-2	Calcium	3800		E-M	P
7440-47-3	Chromium	8.0			P
7440-48-4	Cobalt	4.3			P
7440-50-8	Copper	110		MS-M	P
7439-89-6	Iron	6600			P
7439-92-1	Lead	19			P
7439-95-4	Magnesium	2200		MS-M	P
7439-96-5	Manganese	63			P
7439-97-6	Mercury	0.050			CV
7439-98-7	Molybdenum	0.34	B		P
7440-02-0	Nickel	110			P
7440-09-7	Potassium	450			P
7782-49-2	Selenium	1.2	B	CJ-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	100			P
7440-28-0	Thallium	1.2	B	CJ-B	P
7440-62-2	Vanadium	9.0			P
7440-66-6	Zinc	310		E-M	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SED-M-S6-(0-6")

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL063A

Matrix (soil/water): SOIL Lab Sample ID: S114342A-2

Level (low/med): LOW Date Received: 11-JUL-2001

% Solids: 78.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-31-5	Tin	5.8	U		P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
SED-M-S9-(0-6")

ontract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL063

atrix (soil/water): SOIL Lab Sample ID: S114342-3

evel (low/med): LOW Date Received: 11-JUL-2001

Solids: 81.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2100			P
7440-36-0	Antimony	1.0	B		P
7440-38-2	Arsenic	4.4			P
7440-39-3	Barium	170			P
7440-41-7	Beryllium	0.16	B		P
7440-43-9	Cadmium	1.2			P
7440-70-2	Calcium	3400		J-M	P
7440-47-3	Chromium	7.2			P
7440-48-4	Cobalt	3.2			P
7440-50-8	Copper	750		J-M	P
7439-89-6	Iron	6300			P
7439-92-1	Lead	37			P
7439-95-4	Magnesium	1800		J-M	P
7439-96-5	Manganese	71			P
7439-97-6	Mercury	0.031			CV
7439-98-7	Molybdenum	1.2	U		P
7440-02-0	Nickel	110			P
7440-09-7	Potassium	430			P
7782-49-2	Selenium	1.2	W	UJ-B	P
7440-22-4	Silver	0.47	B		P
7440-23-5	Sodium	130			P
7440-28-0	Thallium	1.2	W	UJ-B	P
7440-62-2	Vanadium	8.7			P
7440-66-6	Zinc	740		J-M	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SED-M-S9-(0-6")

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL063A

Matrix (soil/water): SOIL Lab Sample ID: S114342A-3

Level (low/med): LOW Date Received: 11-JUL-2001

% Solids: 81.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7440-31-5	Tin	6.2	U		P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

LOG NO: S1-14342
Received: 11 JUL 01

Ms. Kimberly Perry
Solutia Inc.
575 Maryville Center Dr.
St. Louis, MO 63141

Client PO. No.: 4503273556

Project: Dead Creek/Sauget Area 1 Site M/SDG#SIL063
Sampled By: Client
Code: 090610726

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
14342-1	SED-M-S3-(0-6")	07-10-01/14:30	SIL063
14342-2	SED-M-S6-(0-6")	07-10-01/15:30	SIL063
14342-3	SED-M-S9-(0-6")	07-10-01/16:30	SIL063

PARAMETER	14342-1	14342-2	14342-3
Cyanide, Total (9010), mg/kg dw	1.3 UJ-M	1.2 UJ-M	1.2 UJ-M
Dilution Factor	1	1	1
Prep Date	07.13.01	07.13.01	07.13.01
Analysis Date	07.13.01	07.13.01	07.13.01
Batch ID	0713S	0713S	0713S
Percent Solids	78	78	81

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.

Michelle Owens, Project Manager

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 18, 2002
From:	Sheena Blair/Westford	**File:**	SO009inoSB.doc 06105-012-201
RE:	Data Validation Inorganic Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL065	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for three sediment samples analyzed for total metals by SW-846 methods 6010B and 7471A, and for total cyanide by SW-846 method 9010B. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on August 1, 2001 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the samples and reported the results under sample delivery group (SDG) SIL065.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
SED-M-S4-(0-6")	SED-M-S7-(0-6")
SED-M-S7-FD -(0-6") (field duplicate of SED-M-S7-(0-6"))	

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Laboratory blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field Duplicate
- Laboratory control sample (LCS) results
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. No discrepancies were noted.

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Holding Times/Sample Preservation

All samples were prepared and analyzed within the method specified holding times for metals and cyanide.

The laboratory does not record cooler temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptance range of 4°C ± 2° C). Non-conformances were not observed for this sample set.

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
Method Blank	Barium	0.293 mg/kg	1.465
	Chromium	0.244 mg/kg	1.22
ICB/CCB	Molybdenum	1.69	0.845
	Selenium	6.19	3.095
* Corrected for percent solids for each sample. Associated samples: all samples.			

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

MS/MSD Results

MS/MSD analyses were performed on sample SED-M-S4-(0-6"). The following table summarizes the percent recoveries (%Rs) and/or relative percent differences (RPDs) in the MS/MSD analyses that exceeded QC acceptance criteria and the actions for the affected analytes in all samples in this SDG.

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
SED-M-S4-(0-6")	Antimony	48/37	24.2	Estimate positive results (J) and nondetects (UJ).
	Barium	179/73	39.2	Estimate positive results (J) and nondetects (UJ).
	Cadmium	162/Ok	38.2	Estimate positive results (J)
	Chromium	135/Ok	Ok	Estimate positive results (J)
	Lead	205/Ok	40.3	Estimate positive results (J)
	Nickel	410/10	104	Estimate positive results (J)
	Potassium	204/Ok	30.5	Estimate positive results (J)
	Aluminum	NC/NC	45	Estimate positive results (J)
	Calcium	NC/NC	44	Estimate positive results (J)
	Iron	NC/NC	40	Estimate positive results (J)
	Zinc	NC/NC	123	Estimate positive results (J)
NC = not calculable due to a sample result >x4 the spike amount .				

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Laboratory Duplicate Results

Laboratory duplicate analyses were not performed. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

Field Duplicates

Samples SED-M-S7-(0-6") and SED-M-S7-FD-(0-6") were submitted as the field duplicate pair with this sample set. The following table summarizes the RPDs of the detected analytes in the field duplicate pair. The RPD for antimony was not calculable due to a nondetect result in the duplicate. Precision was considered acceptable since the detected result was <10x the sample quantitation limit (SQL). The RPDs for all other compounds were within the QC acceptance criteria.

Compound	SED-M-S7-(0-6") (mg/kg)	SED-M-S7-FD-(0-6") (mg/kg)	RPD (%)
Aluminum	4300	4200	2
Antimony	11	2.6 U	NC
Arsenic	30	20	40
Barium	870	450	64
Beryllium	0.34	0.37	8
Cadmium	21	13	47
Calcium	9000	9000	0
Chromium	73	37	65
Cobalt	30	17	55
Copper	5200	2900	57
Iron	17000	15000	13
Lead	250	180	33
Magnesium	2700	2900	7
Manganese	130	130	0
Mercury	0.25	0.33	28
Nickel	1700	840	68
Potassium	810	800	1
Silver	3.1	1.7	58
Sodium	140	95	38
Vanadium	17	19	11
Zinc	6400	3300	64
Tin	21	19	10
Molybdenum	3.8	2.5	41

LCS Results

The %Rs of all spiked analytes met the QC acceptance criteria in the LCS analyses.

Sample Results

The percent solids for all samples in the data set were >50%.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
SED-M-S4-(0-6)

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL065

Matrix (soil/water): SOIL Lab Sample ID: S114895-1

Level (low/med): LOW Date Received: 02-AUG-2001

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7500		J-D	P
7440-36-0	Antimony	2.6	U	UJ-M-D	P
7440-38-2	Arsenic	9.3			P
7440-39-3	Barium	380		J-M-D	P
7440-41-7	Beryllium	0.55			P
7440-43-9	Cadmium	2.5		J-M-D	P
7440-70-2	Calcium	16000		J-D	P
7440-47-3	Chromium	17		J-M-D	P
7440-48-4	Cobalt	8.5			P
7440-50-8	Copper	600		J-D	P
7439-89-6	Iron	15000		J-D	P
7439-92-1	Lead	63		J-M-D	P
7439-95-4	Magnesium	6500			P
7439-96-5	Manganese	360		J-D	P
7439-97-6	Mercury	0.22			CV
7439-98-7	Molybdenum	1.0	B	U-B	P
7440-02-0	Nickel	120		J-M-D	P
7440-09-7	Potassium	1500		J-M-D	P
7782-49-2	Selenium	0.85	B	U-B	P
7440-22-4	Silver	0.47	B		P
7440-23-5	Sodium	130			P
7440-28-0	Thallium	1.3	U		P
7440-31-5	Tin	5.9	B		P
7440-62-2	Vanadium	23			P
7440-66-6	Zinc	800		J-D	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SED-M-S7-(0-6")

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL065

Matrix (soil/water): SOIL Lab Sample ID: S114895-2

Level (low/med): LOW Date Received: 02-AUG-2001

% Solids: 78.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	4300		*J-D	P	
7440-36-0	Antimony	11		~~N*J~~-M	P	
7440-38-2	Arsenic	30			P	
7440-39-3	Barium	870		~~N*J-M~~	~~P~~	J-M-D
7440-41-7	Beryllium	0.34	~~B~~		P	
7440-43-9	Cadmium	21		~~N*J~~-M D	P	
7440-70-2	Calcium	9000		*J-D	P	
7440-47-3	Chromium	73		~~N~~J-M	~~P~~	
7440-48-4	Cobalt	30		~~J-F~~	P	
7440-50-8	Copper	5200		~~*J-F~~	P	J-D
7439-89-6	Iron	17000		*J-D	P	
7439-92-1	Lead	250		~~N*J~~-M D	P	
7439-95-4	Magnesium	2700			P	
7439-96-5	Manganese	130		*J-D	P	
7439-97-6	Mercury	0.25			CV	
7439-98-7	Molybdenum	3.8			P	
7440-02-0	Nickel	1700		~~N*J-M~~	~~P~~	J-M-D
7440-09-7	Potassium	810		~~N*J~~-M D	P	
7782-49-2	Selenium	2.7		U-B	P	
7440-22-4	Silver	3.1			P	
7440-23-5	Sodium	140			P	
7440-28-0	Thallium	1.3	U		P	
7440-31-5	Tin	21			P	
7440-62-2	Vanadium	17			P	
7440-66-6	Zinc	6400		*J-D	P	

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

SED-M-S7-FD(0-

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL065

Matrix (soil/water): SOIL Lab Sample ID: S114895-3

Level (low/med): LOW Date Received: 02-AUG-2001

% Solids: 77.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	4200		J-D	P	
7440-36-0	Antimony	2.6	U	N*J-M-D	P	
7440-38-2	Arsenic	20			P	
7440-39-3	Barium	450		N*J-M-D	P	J-M-D
7440-41-7	Beryllium	0.37	B		P	
7440-43-9	Cadmium	13		N*J-M-D	P	
7440-70-2	Calcium	9000		*	P	
7440-47-3	Chromium	37		N*J-M-D	P	J-M-D
7440-48-4	Cobalt	17		J-F	P	
7440-50-8	Copper	2900		J-F	P	J-D
7439-89-6	Iron	15000		J-D	P	
7439-92-1	Lead	180		N*J-M-D	P	
7439-95-4	Magnesium	2900			P	
7439-96-5	Manganese	130		J-D	P	
7439-97-6	Mercury	0.33			CV	
7439-98-7	Molybdenum	2.5			P	
7440-02-0	Nickel	840		N*J-M-D	P	J-M-D
7440-09-7	Potassium	800		N*J-M-D	P	
7782-49-2	Selenium	1.7		U-B	P	
7440-22-4	Silver	1.7			P	
7440-23-5	Sodium	95			P	
7440-28-0	Thallium	1.3	U		P	
7440-31-5	Tin	19			P	
7440-62-2	Vanadium	19			P	
7440-66-6	Zinc	3300		J-D	P	

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

LOG NO: S1-14895
Received: 02 AUG 01

Ms. Kimberly Perry
Solutia Inc.
575 Maryville Center Dr.
St. Louis, MO 63141

Client PO. No.: 4503273556

Project: Dead Creek/Sauget Area 1 Site M/SDG#SIL065
Sampled By: Client
Code: 091810815

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , SOLID OR SEMISOLID SAMPLES	DATE/ TIME SAMPLED	SDG#
14895-1	SED-M-S4-(0-6")	08-01-01/13:35	SIL065
14895-2	SED-M-S7-(0-6")	08-01-01/14:00	SIL065
14895-3	SED-M-S7-FD(0-6")	08-01-01/14:05	SIL065

PARAMETER	14895-1	14895-2	14895-3
Cyanide, Total (9010), mg/kg dw	1.3U	0.90~~B~~	1.3U
Dilution Factor	1	1	1
Prep Date	08.07.01	08.07.01	08.07.01
Analysis Date	08.07.01	08.07.01	08.07.01
Batch ID	0807S	0807S	0807S
Percent Solids	76	78	77

These test results meet all the requirements of NELAC. All questions regarding this test report should be directed to the STL Project Manager who signed this test report.

Michelle Owens, Project Manager

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 17, 2002
From:	Sheena Blair/Westford	**File:**	SO010inoSB.doc 06105-012-201
RE:	Data Validation Inorganic Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL069	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for 16 sediment samples analyzed for total metals by SW-846 methods 6010B and 7471A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on October 31, 2001 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the samples under project numbers S117083 and S117116. STL reported the results from both projects under sample delivery group (SDG) SIL069.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The regional and national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications project no S117083	
CBS-CSB-T1-C1	CBS-CSB-T1-E1
CBS-CSB-T1-W1	CBS-CSB-T2-C1
CBS-CSB-T2-E1	CBS-CSB-T3-W1
CBS-CSB-T3-C1	CBS-CSB-T3-E1
CBS-CSB-T3-W1	

Sample Identifications project no S117116	
CBS-CSB-T0-E1	CBS-CSB-T4-C1
CBS-CSB-T4-E1	CBS-CSB-T4-W1
CBS-CSB-T5-C1	CBS-CSB-T5-E1
CBS-CSB-T5-W1	

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Laboratory blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicates
- Laboratory control sample (LCS) results

- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. No discrepancies were noted.

Holding Times/Sample Preservation

All samples were digested and analyzed within the method specified holding times for metals.

The laboratory does not record cooler temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptance range of 4°C ± 2° C). Non-conformances were not observed for this sample set.

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
Method Blank 11/02/01	Chromium	0.25 mg/kg	1.25
	Mercury	0.00575 mg/kg	0.0288
	Selenium	-0.898 mg/kg	-4.49
ICB/CCB 11/19/01	Barium	2.33	1.17
	Beryllium	0.606	0.30
	Manganese	2.19	1.10
	Vanadium	2.24	1.12
	Molybdenum	1.76	0.88
* Corrected for percent solids for each sample. Associated samples: All samples in project S117083.			

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
Method Blank 11/05/01	Chromium	0.272 mg/kg	1.36
	Selenium	-0.902 mg/kg	-4.51
ICB/CCB 11/19/01	Barium	2.33	1.17
	Beryllium	0.606	0.30
	Manganese	2.19	1.10
	Vanadium	2.24	1.12
	Molybdenum	1.76	0.88
* Corrected for percent solids for each sample. Associated samples: All samples in project S117116.			

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

For negative contamination:

- Sample results ≥ MDL but ≤ the absolute value of the AL were qualified as estimated (J) at the reported concentration.
- Nondetected results (< MDL) were qualified as estimated nondetects (UJ).
- Sample results > the absolute value of the AL were not qualified.

For negative and positive contamination:

- Sample results ≤ the positive AL and ≤ the absolute value of the negative AL were qualified as estimated nondetects (UJ) at the reported concentration.
- Sample results > the positive AL but ≤ the absolute value of the negative AL were qualified as estimated (J) at the reported concentration.

MS/MSD Results

MS/MSD analyses were performed on samples CBS-CSB-T3-E1 for ICP metals and CBS-CSB-T1-C1 for mercury for project S117083 and CBS-CSB-T4-E1 for ICP metals for project S117116. The following tables summarize the percent recoveries (%Rs) and/or relative percent differences (RPDs) in the MS/MSD analyses that exceeded QC acceptance criteria. For mercury the indicated actions were applied to all samples in this SDG. For ICP metals the indicated actions were applied to the samples in the same project number as the MS/MSD sample.

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
CBS-CSB-T1-C1	Mercury	113/127	Ok	Estimate positive results (J)
CBS-CSB-T3-E1	Antimony	47/50	Ok	Estimate positive results (J) and nondetects (UJ).
	Calcium	139/Ok	Ok	Estimate positive results (J) and nondetects (UJ).
	Magnesium	150/136	Ok	Estimate positive results (J)
	Potassium	132/Ok	Ok	Estimate positive results (J)
	Iron	NC/NC	23.1	Estimate positive results (J) and nondetects (UJ).
NC = not calculable due to a sample result >x4 the spike amount.				

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
CBS-CSB-T4-E1	Antimony	33/29	Ok	Estimate positive results (J) and nondetects (UJ).
	Chromium	37/132	23	Estimate positive results (J) and nondetects (UJ).
	Magnesium	270/139	23	Estimate positive results (J)
	Manganese	209/36	43	Estimate positive results (J) and nondetects (UJ).
	Potassium	133/Ok	Ok	Estimate positive results (J)
	Copper	NC/NC	51	Estimate positive results (J) and nondetects (UJ).
	Lead	NC/NC	27	Estimate positive results (J) and nondetects (UJ).
NC = not calculable due to a sample result >x4 the spike amount.				

The laboratory performed MS/MSD analyses mercury for project S117116 on a sample from a different client. Although this practice is acceptable, the results could not be directly applied to the samples analyzed in this data package because of possible differences in the sample matrix and type.

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed. Precision in the laboratory was demonstrated by the

analyses of MS/MSDs (as discussed above).

Field Duplicates

There were no field duplicates submitted in this sample set. No validation action was taken on this basis.

LCS Results

The %Rs of all spiked analytes met the QC acceptance criteria in the LCS analyses.

Sample Results

The percent solids for all samples in the data set were >50%.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T1-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117083-1

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 66.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12000			P
7440-36-0	Antimony	2.8	~~U~~	~~N~~ UJ-M	P
7440-38-2	Arsenic	5.5			P
7440-39-3	Barium	280			P
7440-41-7	Beryllium	0.82			P
7440-43-9	Cadmium	0.43	~~B~~		P
7440-70-2	Calcium	11000		~~N~~ J-M	P
7440-47-3	Chromium	18		~~N*~~	P
7440-48-4	Cobalt	7.4			P
7440-50-8	Copper	23		~~*~~	P
7439-89-6	Iron	18000		~~*J-D~~	P
7439-92-1	Lead	48		~~*~~ J-D	P
7439-95-4	Magnesium	6700		~~N*~~ J-M	P
7439-96-5	Manganese	190		~~N*~~	P
7439-98-7	Molybdenum	0.66	~~B~~	U-B	P
7440-02-0	Nickel	21			P
7440-09-7	Potassium	2200		~~N~~ J-M	P
7782-49-2	Selenium	1.4	~~U~~	UJ-B	P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	340			P
7440-28-0	Thallium	1.4	U		P
7440-31-5	Tin	6.9	U		P
7440-62-2	Vanadium	30			P
7440-66-6	Zinc	220			P

Color Before: Clarity Before: Texture:

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Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T1-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117083-1

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 66.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.045		Mn	CV

Color Before: Clarity Before: Texture:

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Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T1-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117083-2

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	18000			P
7440-36-0	Antimony	2.7	U	N,J-M	P
7440-38-2	Arsenic	3.6			P
7440-39-3	Barium	210			P
7440-41-7	Beryllium	1.2			P
7440-43-9	Cadmium	7.4			P
7440-70-2	Calcium	9000		N,J-M	P
7440-47-3	Chromium	25		N*	P
7440-48-4	Cobalt	16			P
7440-50-8	Copper	130		*	P
7439-89-6	Iron	21000		~~*,J-D~~	P
7439-92-1	Lead	36		*,J-D	P
7439-95-4	Magnesium	5100		N*,J-M	P
7439-96-5	Manganese	300		N*	P
7439-98-7	Molybdenum	1.5			P
7440-02-0	Nickel	500			P
7440-09-7	Potassium	2600		N,J-M	P
7782-49-2	Selenium	1.3	U	UJ-B	P
7440-22-4	Silver	0.27	B		P
7440-23-5	Sodium	410			P
7440-28-0	Thallium	0.98	B		P
7440-31-5	Tin	6.7	U		P
7440-62-2	Vanadium	42			P
7440-66-6	Zinc	2600			P

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TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T1-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117083-2

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.16		NJ-M	CV

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Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T1-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117083-3

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10000			P
7440-36-0	Antimony	2.5	U	N*J-M	P
7440-38-2	Arsenic	4.8			P
7440-39-3	Barium	310			P
7440-41-7	Beryllium	0.74			P
7440-43-9	Cadmium	19			P
7440-70-2	Calcium	13000		N*J-M	P
7440-47-3	Chromium	31		N*	P
7440-48-4	Cobalt	14			P
7440-50-8	Copper	310		*	P
7439-89-6	Iron	14000		*J-D	P
7439-92-1	Lead	44		*J-D	P
7439-95-4	Magnesium	6900		N*J-M	P
7439-96-5	Manganese	160		N*	P
7439-98-7	Molybdenum	1.5		J-B	P
7440-02-0	Nickel	420			P
7440-09-7	Potassium	2000		N*J-M	P
7782-49-2	Selenium	1.3	U	UJ-B	P
7440-22-4	Silver	0.41	B		P
7440-23-5	Sodium	370			P
7440-28-0	Thallium	0.76	B		P
7440-31-5	Tin	6.3	U		P
7440-62-2	Vanadium	31			P
7440-66-6	Zinc	2700			P

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Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T1-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117083-3

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.23		Mun	CV

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Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T2-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117083-4

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 63.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	2.9	~~U~~	~~N~~ J-M	P
7440-38-2	Arsenic	23			P
7440-39-3	Barium	390			P
7440-41-7	Beryllium	0.36	~~B~~	U-B	P
7440-43-9	Cadmium	37			P
7440-70-2	Calcium	5500		~~N~~ J-M	P
7440-47-3	Chromium	170		~~N*~~	P
7440-48-4	Cobalt	2.7			P
7440-50-8	Copper	150		*	P
7439-89-6	Iron	12000		~~*J-D~~	P
7439-92-1	Lead	130		*J-D	P
7439-95-4	Magnesium	1600		~~N*~~ J-M	P
7439-96-5	Manganese	71		~~N*~~	P
7439-98-7	Molybdenum	1.3	~~B~~	U-B	P
7440-02-0	Nickel	190			P
7440-09-7	Potassium	1900		~~N~~ J-M	P
7782-49-2	Selenium	1.4	~~U~~	UJ-B	P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	460			P
7440-28-0	Thallium	1.4	U		P
7440-31-5	Tin	7.2	U		P
7440-62-2	Vanadium	24			P
7440-66-6	Zinc	2300			P

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Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T2-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117083-4

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 63.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.19		NJ-n	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T2-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117083-5

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	4400			P
7440-36-0	Antimony	2.5	~~U~~	~~N~~ UJ-M	P
7440-38-2	Arsenic	12			P
7440-39-3	Barium	300			P
7440-41-7	Beryllium	0.17	~~B~~	u-B	P
7440-43-9	Cadmium	4.1			P
7440-70-2	Calcium	2700		~~N~~ J-M	P
7440-47-3	Chromium	180		~~N*~~	P
7440-48-4	Cobalt	3.6			P
7440-50-8	Copper	2000		*	P
7439-89-6	Iron	10000		~~*J-D~~	P
7439-92-1	Lead	260		* J-D	P
7439-95-4	Magnesium	820		~~N*~~ J-M	P
7439-96-5	Manganese	50		~~N*~~	P
7439-98-7	Molybdenum	0.85	~~B~~	u-B	P
7440-02-0	Nickel	260			P
7440-09-7	Potassium	1200		~~N~~ J-M	P
7782-49-2	Selenium	1.3	~~U~~	UJ-B	P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	89			P
7440-28-0	Thallium	1.3	U		P
7440-31-5	Tin	470			P
7440-62-2	Vanadium	12			P
7440-66-6	Zinc	1200			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T2-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117083-5

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.24		~~N~~ J-n	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T2-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117083-6

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 75.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	2.7	~~U~~	~~N~~ UJ-M	P
7440-38-2	Arsenic	2.7			P
7440-39-3	Barium	250			P
7440-41-7	Beryllium	0.78			P
7440-43-9	Cadmium	0.34	~~B~~		P
7440-70-2	Calcium	12000		~~N~~ J-M	P
7440-47-3	Chromium	36		~~N*~~	P
7440-48-4	Cobalt	8.0			P
7440-50-8	Copper	17		*	P
7439-89-6	Iron	12000		~~J~~	P
7439-92-1	Lead	12		~~*~~ J-D	P
7439-95-4	Magnesium	6300		~~N*~~ J-M	P
7439-96-5	Manganese	140		~~N*~~	P
7439-98-7	Molybdenum	0.70	~~B~~	μ-B	P
7440-02-0	Nickel	54			P
7440-09-7	Potassium	1700		~~N~~ J-M	P
7782-49-2	Selenium	1.3	~~U~~	UJ-B	P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	200			P
7440-28-0	Thallium	1.3	U		P
7440-31-5	Tin	6.7	U		P
7440-62-2	Vanadium	29			P
7440-66-6	Zinc	490			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T2-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117083-6

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 75.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.015	B	~~NO-B~~	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T3-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117083-7

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 58.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1500			P
7440-36-0	Antimony	2.6	B	~~N~~ J-M	P
7440-38-2	Arsenic	44			P
7440-39-3	Barium	310			P
7440-41-7	Beryllium	0.63	U		P
7440-43-9	Cadmium	0.78	U		P
7440-70-2	Calcium	2100		~~N~~ J-M	P
7440-47-3	Chromium	5.7		~~N~~	P
7440-48-4	Cobalt	1.9			P
7440-50-8	Copper	390		~~*~~	P
7439-89-6	Iron	440		~~* J-D~~	P
7439-92-1	Lead	75		~~*~~ J-D	P
7439-95-4	Magnesium	100		~~N~~ J-M	P
7439-96-5	Manganese	4.0		~~N~~	P
7439-98-7	Molybdenum	2.8		~~U-B~~	P
7440-02-0	Nickel	23			P
7440-09-7	Potassium	1100		~~N~~ J-M	P
7782-49-2	Selenium	1.6	~~U~~	UJ-B	P
7440-22-4	Silver	1.6	U		P
7440-23-5	Sodium	220			P
7440-28-0	Thallium	1.6	U		P
7440-31-5	Tin	7.8	U		P
7440-62-2	Vanadium	4.4			P
7440-66-6	Zinc	20			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T3-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117083-7

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 58.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.11		NJ-p	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T3-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117083-8

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 79.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	2100			P
7440-36-0	Antimony	2.4		~~N~~ ~~J-M~~	P
7440-38-2	Arsenic	6.0			P
7440-39-3	Barium	320			P
7440-41-7	Beryllium	0.10	~~B~~	J-B	P
7440-43-9	Cadmium	0.58	U		P
7440-70-2	Calcium	1500		~~N~~ J-M	P
7440-47-3	Chromium	29		~~N*~~	P
7440-48-4	Cobalt	0.64	~~B~~		P
7440-50-8	Copper	38		~~*~~	P
7439-89-6	Iron	1800		~~*J-M~~	P
7439-92-1	Lead	400		~~*~~ J-M	P
7439-95-4	Magnesium	360		~~N*~~ J-M	P
7439-96-5	Manganese	7.1		~~N*~~	P
7439-98-7	Molybdenum	2.6		~~J-B~~	P
7440-02-0	Nickel	1.9	~~B~~		P
7440-09-7	Potassium	780		~~N~~ J-M	P
7782-49-2	Selenium	1.2	~~U~~	NJ-B	P
7440-22-4	Silver	0.71	~~B~~		P
7440-23-5	Sodium	87			P
7440-28-0	Thallium	1.2	U		P
7440-31-5	Tin	11			P
7440-62-2	Vanadium	5.2			P
7440-66-6	Zinc	21			P

J-M

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T3-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117083-8

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 79.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.27		~~N~~ S-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T3-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117083-9

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7900			P
7440-36-0	Antimony	2.3	U	NJ-M	P
7440-38-2	Arsenic	5.0			P
7440-39-3	Barium	260			P
7440-41-7	Beryllium	0.86			P
7440-43-9	Cadmium	10			P
7440-70-2	Calcium	6200		NJ-M	P
7440-47-3	Chromium	24		N*	P
7440-48-4	Cobalt	5.9			P
7440-50-8	Copper	180		*	P
7439-89-6	Iron	11000		*J-D	P
7439-92-1	Lead	13		*J-D	P
7439-95-4	Magnesium	4700		N*J-M	P
7439-96-5	Manganese	73		N*	P
7439-98-7	Molybdenum	0.53	B	U-B	P
7440-02-0	Nickel	130			P
7440-09-7	Potassium	1800		NJ-M	P
7782-49-2	Selenium	1.1	U	UJ-B	P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	160			P
7440-28-0	Thallium	1.1	U		P
7440-31-5	Tin	5.7	U		P
7440-62-2	Vanadium	23			P
7440-66-6	Zinc	2000			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T3-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117083-9

Level (low/med): LOW Date Received: 01-NOV-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.038		~~M~~ J-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO. C

CBS-CSB-T0-~~1~~1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117116-1

Level (low/med): LOW Date Received: 02-NOV-2001

% Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5800			P
7440-36-0	Antimony	3.9		~~N~~J-M	P
7440-38-2	Arsenic	14			P
7440-39-3	Barium	1500			P
7440-41-7	Beryllium	0.50	~~B~~		P
7440-43-9	Cadmium	11			P
7440-70-2	Calcium	21000		~~N~~	P
7440-47-3	Chromium	28		~~N*~~J-M	D P
7440-48-4	Cobalt	23			P
7440-50-8	Copper	10000		~~*~~J-D	P
7439-89-6	Iron	28000		~~*~~J-D	P
7439-92-1	Lead	700		~~*~~	P
7439-95-4	Magnesium	5100		~~N*~~J-M	D P
7439-96-5	Manganese	250		~~N*~~J-M	D P
7439-98-7	Molybdenum	1.4		~~U-B~~	P
7440-02-0	Nickel	600			P
7440-09-7	Potassium	1200		~~N~~J-M	P
7782-49-2	Selenium	1.3	~~U~~	UJ-B	P
7440-22-4	Silver	9.0			P
7440-23-5	Sodium	670			P
7440-28-0	Thallium	1.3	~~B~~		P
7440-31-5	Tin	54			P
7440-62-2	Vanadium	21			P
7440-66-6	Zinc	6800			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T0-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117116-1

Level (low/med): LOW Date Received: 02-NOV-2001

% Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.82		JN5-N	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T4-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117116-2

Level (low/med): LOW Date Received: 02-NOV-2001

% Solids: 61.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	20000			P
7440-36-0	Antimony	3.0	~~B~~	~~N~~ W-M	P
7440-38-2	Arsenic	7.4			P
7440-39-3	Barium	300			P
7440-41-7	Beryllium	1.3			P
7440-43-9	Cadmium	2.0			P
7440-70-2	Calcium	5200		~~N~~	P
7440-47-3	Chromium	60		~~N*~~ J-M+D	P
7440-48-4	Cobalt	14			P
7440-50-8	Copper	47		* J-D	P
7439-89-6	Iron	22000		* J-D	P
7439-92-1	Lead	28		*	P
7439-95-4	Magnesium	4200		~~N*~~ J-M+D	P
7439-96-5	Manganese	130		~~N*~~ J-M+D	P
7439-98-7	Molybdenum	0.89	~~B~~	C-13	P
7440-02-0	Nickel	190			P
7440-09-7	Potassium	3200		~~N~~ J-M	P
7782-49-2	Selenium	1.5	~~U~~	J-13	P
7440-22-4	Silver	1.5	U		P
7440-23-5	Sodium	290			P
7440-28-0	Thallium	1.5	U		P
7440-31-5	Tin	7.5	U		P
7440-62-2	Vanadium	47			P
7440-66-6	Zinc	7000			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T4-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117116-2

Level (low/med): LOW Date Received: 02-NOV-2001

% Solids: 61.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.068		~~J~~ J-H	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T4-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117116-3

Level (low/med): LOW Date Received: 02-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9100			P
7440-36-0	Antimony	2.3	U	N UJ-M	P
7440-38-2	Arsenic	5.0			P
7440-39-3	Barium	270			P
7440-41-7	Beryllium	0.42	B		P
7440-43-9	Cadmium	4.8			P
7440-70-2	Calcium	3900		N	P
7440-47-3	Chromium	77		N* J-M+D	P
7440-48-4	Cobalt	12			P
7440-50-8	Copper	440		* J-D	P
7439-89-6	Iron	13000		* J-D	P
7439-92-1	Lead	66		*	P
7439-95-4	Magnesium	2100		N* J-M+D	P
7439-96-5	Manganese	160		N* J-M+D	P
7439-98-7	Molybdenum	0.75	B	UJ-B	P
7440-02-0	Nickel	280			P
7440-09-7	Potassium	1800		N J-M	P
7782-49-2	Selenium	1.2	U	UJ-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	130			P
7440-28-0	Thallium	1.2	U		P
7440-31-5	Tin	5.8	U		P
7440-62-2	Vanadium	25			P
7440-66-6	Zinc	2100			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T4-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117116-3

Level (low/med): LOW Date Received: 02-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.099		N5-1	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T4-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117116-4

Level (low/med): LOW Date Received: 02-NOV-2001

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	1200			P
7440-36-0	Antimony	2.7	~~B~~	~~N~~UJ-M	P
7440-38-2	Arsenic	14			P
7440-39-3	Barium	380			P
7440-41-7	Beryllium	0.11	~~B~~	U-B	P
7440-43-9	Cadmium	0.75			P
7440-70-2	Calcium	520		~~N~~	P
7440-47-3	Chromium	4.6		~~N*~~J-M-D	P
7440-48-4	Cobalt	8.4			P
7440-50-8	Copper	30		~~*~~J-D	P
7439-89-6	Iron	1200		~~*~~J-D	P
7439-92-1	Lead	77		~~*~~	P
7439-95-4	Magnesium	94		~~N*~~J-M-D	P
7439-96-5	Manganese	6.4		~~N*~~J-M-D	P
7439-98-7	Molybdenum	0.79	~~B~~	U-B	P
7440-02-0	Nickel	130			P
7440-09-7	Potassium	790		~~N~~J-M	P
7782-49-2	Selenium	1.4	~~U~~	UJ-B	P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	200			P
7440-28-0	Thallium	1.4	U		P
7440-31-5	Tin	6.8	U		P
7440-62-2	Vanadium	3.8			P
7440-66-6	Zinc	58			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T4-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117116-4

Level (low/med): LOW Date Received: 02-NOV-2001

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.014	B	~~N~~ S-N	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T5-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117116-5

Level (low/med): LOW Date Received: 02-NOV-2001

% Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13000			P
7440-36-0	Antimony	2.5	~~U~~	~~N~~ UJ-M	P
7440-38-2	Arsenic	10			P
7440-39-3	Barium	250			P
7440-41-7	Beryllium	1.2			P
7440-43-9	Cadmium	1.4			P
7440-70-2	Calcium	4800		~~N~~	P
7440-47-3	Chromium	29		~~N~~ J-M-D	P
7440-48-4	Cobalt	10			P
7440-50-8	Copper	26		~~*~~ J-D	P
7439-89-6	Iron	19000		~~*~~ J-D	P
7439-92-1	Lead	20		~~*~~	P
7439-95-4	Magnesium	4200		~~N*~~ J-M-D	P
7439-96-5	Manganese	110		~~N*~~ J-M+D	P
7439-98-7	Molybdenum	0.83	~~B~~	U-B	P
7440-02-0	Nickel	180			P
7440-09-7	Potassium	3000		~~N~~ J-M	P
7782-49-2	Selenium	1.2	~~U~~	UJ-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	190			P
7440-28-0	Thallium	1.2	U		P
7440-31-5	Tin	6.1	U		P
7440-62-2	Vanadium	32			P
7440-66-6	Zinc	3300			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T5-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117116-5

Level (low/med): LOW Date Received: 02-NOV-2001

% Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.054		NT-H	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T5-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117116-6

Level (low/med): LOW Date Received: 02-NOV-2001

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12000			P
7440-36-0	Antimony	2.4	U	N,J-N	P
7440-38-2	Arsenic	6.4			P
7440-39-3	Barium	270			P
7440-41-7	Beryllium	0.59			P
7440-43-9	Cadmium	6.1			P
7440-70-2	Calcium	3900		N	P
7440-47-3	Chromium	39		N,J-N,D	P
7440-48-4	Cobalt	8.5			P
7440-50-8	Copper	250		J-D	P
7439-89-6	Iron	15000		J-D	P
7439-92-1	Lead	52			P
7439-95-4	Magnesium	2900		N,J-N,D	P
7439-96-5	Manganese	130		N,J-N,D	P
7439-98-7	Molybdenum	0.71	B	U-B	P
7440-02-0	Nickel	250			P
7440-09-7	Potassium	1800		N,J-N	P
7782-49-2	Selenium	1.2	U	UJ-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	140			P
7440-28-0	Thallium	1.2	U		P
7440-31-5	Tin	6.0	U		P
7440-62-2	Vanadium	26			P
7440-66-6	Zinc	2200			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

STL-Savannah

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T5-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117116-6

Level (low/med): LOW Date Received: 02-NOV-2001

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.049		~~N~~ J	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Form I - IN SW-846

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T5-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL069

Matrix (soil/water): SOIL Lab Sample ID: S117116-7

Level (low/med): LOW Date Received: 02-NOV-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7300			P
7440-36-0	Antimony	2.5	U	N-M	P
7440-38-2	Arsenic	4.5			P
7440-39-3	Barium	350			P
7440-41-7	Beryllium	0.58			P
7440-43-9	Cadmium	0.23	B		P
7440-70-2	Calcium	12000		N	P
7440-47-3	Chromium	13		N*J-M-D	P
7440-48-4	Cobalt	11			P
7440-50-8	Copper	14		*J-D	P
7439-89-6	Iron	13000		*J-D	P
7439-92-1	Lead	9.6		*	P
7439-95-4	Magnesium	6400		N*J-M-D	P
7439-96-5	Manganese	160		N*J-M-D	P
7439-98-7	Molybdenum	0.80	B	U-B	P
7440-02-0	Nickel	32			P
7440-09-7	Potassium	2400		N-M	P
7782-49-2	Selenium	1.2	U	UJ-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	230			P
7440-28-0	Thallium	1.2	U		P
7440-31-5	Tin	6.2	U		P
7440-62-2	Vanadium	24			P
7440-66-6	Zinc	390			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T5-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: 17083

Matrix (soil/water): SOIL Lab Sample ID: S117116-7

Level (low/med): LOW Date Received: 02-NOV-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.024		~~N~~ SA	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 22, 2002
From:	Sheena Blair/Westford	**File:**	SO011inoSB.doc 06105-012-201
RE:	Data Validation Inorganic Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL073	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for three sediment samples analyzed for total metals by SW-846 methods 6010B and 7471A, and for total cyanide by SW-846 method 9012A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on December 11, 2001 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the samples and reported the results under sample delivery group (SDG) SIL073.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSF-T2-1	CBS-CSF-T3-1
CBS-CSF-T4-1	-

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Laboratory blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field Duplicates
- Laboratory control sample (LCS) results
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. No discrepancies were noted.

Holding Times/Sample Preservation

All samples were digested and analyzed within the method specified holding times for metals and cyanide.

The laboratory does not record cooler temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptance range of 4°C ± 2° C). Non-conformances were not observed for this sample set.

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (mg/kg)	Action Level* (mg/Kg)
Method Blank	Aluminum	2.84	14.2
	Barium	0.323	1.615
	Cadmium	-0.0810	-0.405
	Calcium	5.19	25.95
	Chromium	0.232	1.16
	Iron	3.24	16.2
	Lead	0.253	1.265
	Molybdenum	0302	1.51
	Tin	1.14	5.7
* Corrected for percent solids for each sample. Associated samples: all samples.			

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
	Copper	1.63	0.815
	Manganese	2.30	1.15
	Selenium	7.57	3.785
	Thallium	6.71	3.355
	Vanadium	2.34	1.17
* Corrected for percent solids for each sample. Associated samples: all samples.			

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

For negative contamination:

- Sample results ≥ MDL but ≤ the absolute value of the AL were qualified as estimated (J) at the reported concentration.
- Nondetected results (< MDL) were qualified as estimated nondetects (UJ).
- Sample results > the absolute value of the AL were not qualified.

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MS/MSD Results

MS/MSD analyses for metals and cyanide were performed on sample CBS-CSF-T4-1. The MS/MSD percent recoveries (%Rs) for calcium and zinc were not calculable due to the sample result being greater than 4x the amount of the spike added. The following table summarizes %Rs and/or relative percent differences (RPDs) in the MS/MSD analyses that exceeded QC acceptance criteria and the actions for the affected analytes in all samples in this SDG.

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
CBS-CSF-T4-1	Antimony	44/46	Ok	Estimate positive results (J) and nondetects (UJ).
	Calcium	NC	44	Estimate positive results (J) and nondetects (UJ
	Zinc	NC	28	Estimate positive results (J) and nondetects (UJ

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

Field Duplicates

There were no field duplicates submitted in this sample set. No action was taken on this basis.

LCS/LCSD Results

A LCS analysis was performed for metals and LCS/LCSD were analyzed for cyanide.

The %Rs and RPDs (where applicable) of all spiked analytes met the QC acceptance criteria in the LCS and/or LCSD analyses.

Sample Results

The percent solids for all samples in the data set were >50%.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

STL-Savannah

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T2-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL073

Matrix (soil/water): SOIL Lab Sample ID: S118048-1

Level (low/med): LOW Date Received: 12-DEC-2001

% Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	2.7	U	N,UJ-M	P
7440-38-2	Arsenic	13			P
7440-39-3	Barium	330			P
7440-41-7	Beryllium	0.82			P
7440-43-9	Cadmium	4.4			P
7440-70-2	Calcium	15000		*,J-D	P
7440-47-3	Chromium	19			P
7440-48-4	Cobalt	12			P
7440-50-8	Copper	45			P
7439-89-6	Iron	26000			P
7439-92-1	Lead	29			P
7439-95-4	Magnesium	6900			P
7439-96-5	Manganese	550			P
7439-98-7	Molybdenum	1.3	B	U-B	P
7440-02-0	Nickel	95			P
7440-09-7	Potassium	2300			P
7782-49-2	Selenium	1.5		U-B	P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	220			P
7440-28-0	Thallium	1.7		U-B	P
7440-31-5	Tin	3.0	B	U-B	P
7440-62-2	Vanadium	31			P
7440-66-6	Zinc	1100		*J-D	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T2-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL073

Matrix (soil/water): SOIL Lab Sample ID: S118048-1

Level (low/med): LOW Date Received: 12-DEC-2001

% Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.074			CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T3-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL073

Matrix (soil/water): SOIL Lab Sample ID: S118048-2

Level (low/med): LOW Date Received: 12-DEC-2001

% Solids: 65.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12000			P
7440-36-0	Antimony	2.8	U	~~N~~ U-N	P
7440-38-2	Arsenic	9.0			P
7440-39-3	Barium	290			P
7440-41-7	Beryllium	0.89			P
7440-43-9	Cadmium	3.2			P
7440-70-2	Calcium	16000		~~J~~ J-D	P
7440-47-3	Chromium	23			P
7440-48-4	Cobalt	9.4			P
7440-50-8	Copper	27			P
7439-89-6	Iron	24000			P
7439-92-1	Lead	24			P
7439-95-4	Magnesium	6500			P
7439-96-5	Manganese	460			P
7439-98-7	Molybdenum	1.2	~~B~~	U-B	P
7440-02-0	Nickel	36			P
7440-09-7	Potassium	2300			P
7782-49-2	Selenium	0.82	~~B~~	U-B	P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	170		U-B	P
7440-28-0	Thallium	1.6		U-B	P
7440-31-5	Tin	2.9	~~B~~	U-B	P
7440-62-2	Vanadium	34			P
7440-66-6	Zinc	1200		~~J~~ J-D	P

Color Before: Clarity Before: Texture:

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Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T3-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL073

Matrix (soil/water): SOIL Lab Sample ID: S118048-2

Level (low/med): LOW Date Received: 12-DEC-2001

% Solids: 65.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.63			CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T4-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL073

Matrix (soil/water): SOIL Lab Sample ID: S118048-3

Level (low/med): LOW Date Received: 12-DEC-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	2.5	B	N,S-H	P
7440-38-2	Arsenic	7.9			P
7440-39-3	Barium	260			P
7440-41-7	Beryllium	0.78			P
7440-43-9	Cadmium	2.8			P
7440-70-2	Calcium	14000		E-J	P
7440-47-3	Chromium	21			P
7440-48-4	Cobalt	8.4			P
7440-50-8	Copper	24			P
7439-89-6	Iron	21000			P
7439-92-1	Lead	21			P
7439-95-4	Magnesium	5800			P
7439-96-5	Manganese	400			P
7439-98-7	Molybdenum	1.0	B	U-B	P
7440-02-0	Nickel	32			P
7440-09-7	Potassium	2000			P
7782-49-2	Selenium	1.1	B	U-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	150			P
7440-28-0	Thallium	1.6		U-B	P
7440-31-5	Tin	1.9	B	U-B	P
7440-62-2	Vanadium	30			P
7440-66-6	Zinc	1100		E-J	P

Color Before: Clarity Before: Texture:

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Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T4-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL073

Matrix (soil/water): SOIL Lab Sample ID: S118048-3

Level (low/med): LOW Date Received: 12-DEC-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.038			CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Sample Number: S118048*1
Matrix: SS
Date Received: 12-12-2001

Sample Description: CBS-CSF-T2-1
SDG#: SIL073

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.71U	mg/kg_dw	12-17-2001	1	1214S
TOC-9060	15000	mg/kg dw	12-19-2001	1	1219X

Sample Number: S118048*2
Matrix: SS
Date Received: 12-12-2001

Sample Description: CBS-CSF-T3-1
SDG#: SIL073

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.76U	mg/kg_dw	12-17-2001	1	1214S
TOC-9060	28000	mg/kg dw	12-19-2001	1	1219X

Sample Number: S118048*3
Matrix: SS
Date Received: 12-12-2001

Sample Description: CBS-CSF-T4-1
SDG#: SIL073

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.66U	mg/kg_dw	12-17-2001	1	1214S
TOC-9060	8800	mg/kg dw	12-19-2001	1	1219X

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MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 18, 2002
From:	Phuong Vu/Westford	**File:**	SO012inoDPV.doc 06105-012-202
RE:	Data Validation Inorganics Analyses Solutia Inc. Creek Bottom Sediment Removal Action Sauget and Cahokia, Illinois STL SDG SIL071	**CC:**	D. McGrath/Westford

SUMMARY

Full validation was performed on the data for eight sediment samples analyzed for total metals by SW-846 methods 6010B and 7471A, and for total cyanide by SW-846 method 9012A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on November 9, 2001 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the samples and reported the results under sample delivery group (SDG) SIL071.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSB-T17-C1	CBS-CSB-T18-C1
CBS-CSB-T17-E1	CBS-CSB-T18-W1
CBS-CSB-T17-E1D (field duplicate of CBS-CSB-T17-E1)	CBS-CSB-T18-W1D (field duplicate of CBS-CSB-T18-W1)
CBS-CSB-T17-W1	CBS-CSB-T18-E1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Calibrations
- Laboratory blanks
- Inductively coupled plasma (ICP) interference check sample (ICS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicates
- Laboratory control sample (LCS) results
- Serial dilution results
- Sample quantitation /detection limit results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. Samples SP-006 and SP-007 were listed on the COC; per the scope of validation for this project, results for these samples were not reported and reviewed in the data set. No discrepancies were noted.

Holding Times/Sample Preservation

All samples were digested and analyzed within the method specified holding times for metals and cyanide.

Calibrations

All criteria were met for the calibration curves and the initial and continuing calibration verification (ICV/CCV) standards. Although a Contract Required Detection Limit (CRDL) standard is not applicable to SW-846 methods, the laboratory chose to analyze a similar standard (CRI for ICP and CRA for AA analyses). A percent recovery (%R) acceptance limit of 100±20% was used to evaluate these standard. All CRI and CRA standards met the acceptance criteria with the following exceptions. Actions taken are indicated.

Calibration	Analyte	Failure	Action
CRI standard	Thallium	125%	Estimate positive results (J) < 2x CRI concentration.
	Iron Selenium	60% 78%	Estimate positive results (J) < 2x CRI concentration and nondetects (UJ).
Associated samples: All sediment samples.			

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected in the blanks and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
Preparation Blank	Cadmium	-0.09 (mg/Kg)	-0.45
	Mercury	-0.003 (mg/Kg)	-0.015
ICB/CCB	Barium	3.04	1.52
	Chromium	3.02	1.51
	Manganese	3.08	1.54
	Selenium	6.02, -5.12	3.01, -2.56
	Thallium	7.91	3.955
	Vanadium	2.84	1.42
	Molybdenum	1.44	0.72
* Corrected for percent solids for each sample. Associated samples: All sediment samples.			

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

For negative contamination:

- Sample results ≥ MDL but ≤ the absolute value of the AL were qualified as estimated (J) at the reported concentration.
- Nondetected results (< MDL) were qualified as estimated nondetects (UJ).
- Sample results > the absolute value of the AL were not qualified.

For negative and positive contamination:

- Sample results ≤ the positive AL and ≤ the absolute value of the negative AL were qualified as estimated nondetects (UJ) at the reported concentration.
- Sample results > the positive AL but ≤ the absolute value of the negative AL were qualified as estimated (J) at the reported concentration.

ICP ICS Results

All criteria were met for the analysis of the ICS AB solution. Various analytes that should not be present in the ICS A solutions were detected at greater than the MDL. Evaluation of the ICS was based on the highest of the PQL exceedances.

Antimony, cadmium, chromium, manganese, selenium, and zinc were detected as positive interference. Selenium and vanadium were detected as negative interference. The presence of ICS A interference indicates that false positives or false negative may exist for these analytes in the samples. Estimated interferences were calculated for these analytes in samples where one or more concentrations of an interfering element (aluminum, calcium, iron, and magnesium) were greater than 50% of that found in the ICS A solution. All sediments in this data set contained iron at more than 50% of that found in the ICS A solution. These estimated interferences were used to qualify the affected samples as follows.

For positive interference:

- If the estimated interference is < 10% of sample result, report the result unqualified.
- If the estimated interference is > 10% of sample result, qualify the positive result as estimated (J).
- If the sample result is a nondetected value, report the nondetect unqualified.

For negative interference:

- If the estimated interference is < 10% of sample result, report the result unqualified.
- If the estimated interference is > 10% of sample result, qualify the positive result as estimated (J).
- If the sample result is a nondetected value, qualify the nondetect as estimated (UJ).

MS/MSD Results

MS/MSD analyses were performed on sample CBS-CSB-T18-E1. The following table summarizes the %Rs and/or relative percent differences (RPDs) that exceeded QC acceptance criteria. Actions taken are indicated for the affected analytes in all sediment samples in this SDG.

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
CBS-CSB-T18-E1	Antimony	40/38	Ok	Estimate positive results (J) and nondetects (UJ).
	Nickel Mercury	Ok/143 Ok/139	Ok Ok	Estimate positive results (J) and accept nondetects.

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

Field Duplicates

Samples CBS-CSB-T17-E1/CBS-CSB-T17-E1D and CBS-CSB-T18-W1/CBS-CSB-T18-W1D were submitted as the field duplicate pairs with this sample set. The following tables summarize the RPDs of the detected analytes in the field duplicate pairs: all of which were within the QC acceptance criteria.

Results of field duplicate samples CBS-CSB-T17-E1 and CBS-CSB-T17-E1D:

Analyte	Sample (mg/Kg)	Duplicate (mg/Kg)	RPD (%)
Aluminum	13,000	9900	27%
Arsenic	14	14	0%
Barium	330	360	9%
Beryllium	0.86	0.58	39%
Cadmium	8.1	16	66%
Calcium	7200	7100	1%
Chromium	56	55	2%
Cobalt	11	9.6	14%
Copper	470	750	46%
Iron	18,000	19,000	5%
Lead	96	150	44%
Magnesium	4600	3800	19%
Manganese	150	160	6%
Mercury	0.2	0.34	52%
Nickel	200	300	40%
Potassium	2300	1700	30%
Silver	0.3	0.62	70%
Sodium	150	140	7%
Vanadium	36	28	25%
Zinc	3200	3000	6%
Molybdenum	1.1	1.1	0%
Tin	8.8	13	39%

Results of field duplicate samples CBS-CSB-T18-W1 and CBS-CSB-T18-W1D:

Analyte	Sample (mg/Kg)	Duplicate (mg/Kg)	RPD (%)
Aluminum	12,000	20,000	50%
Arsenic	10	9.8	2%
Barium	220	310	34%
Beryllium	0.81	1	21%
Cadmium	12	14	15%
Calcium	3700	4900	28%
Chromium	99	77	25%
Cobalt	5.7	7.5	27%
Copper	37	60	47%
Iron	14,000	19,000	30%
Lead	30	59	65%
Magnesium	3000	4000	29%
Manganese	83	110	28%
Nickel	65	94	36%
Potassium	1900	2500	27%
Sodium	120	140	15%
Vanadium	34	40	16%
Zinc	1800	2500	33%
Mercury	0.051	0.055	8%

LCS Results

The %Rs of all spiked analytes met the QC acceptance criteria in the LCS analyses.

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Serial Dilution Results

Serial dilution analysis was performed on sample CBS-CSB-T18-E1. The following table summarizes the percent differences (%Ds) of the nonconforming serial dilution analysis. Actions taken are indicated for the affected analytes in all sediment samples in this SDG.

Sample	Analyte	%D	Action
CBS-CSB-T18-E1	Beryllium	15	Estimate positive results (J)
	Zinc	11	

Sample Quantitation/Detection Limit Results

The percent solids for all samples in the data set were >50%.

Result calculations were spot-checked; no discrepancies were noted.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T17-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-1

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 62.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	14000			P	
7440-36-0	Antimony	2.9	~~B~~	~~N~~	P	UJ-M
7440-38-2	Arsenic	16			P	
7440-39-3	Barium	230			P	
7440-41-7	Beryllium	0.82			P	J-Y
7440-43-9	Cadmium	0.68	~~B~~		P	~~J-Z~~ J-A
7440-70-2	Calcium	6300			P	
7440-47-3	Chromium	19			P	~~J-A~~
7440-48-4	Cobalt	14			P	
7440-50-8	Copper	29			P	
7439-89-6	Iron	18000			P	
7439-92-1	Lead	27			P	
7439-95-4	Magnesium	3900			P	
7439-96-5	Manganese	120			P	
7439-98-7	Molybdenum	2.1			P	
7440-02-0	Nickel	89		~~N~~	P	J-M
7440-09-7	Potassium	2400			P	
7782-49-2	Selenium	1.0	~~B~~	~~J~~	P	UJ-C-B-~~Z~~ A
7440-22-4	Silver	1.5	U		P	
7440-23-5	Sodium	150			P	
7440-28-0	Thallium	1.5	~~B~~	U	P	~~UJ-C~~
7440-31-5	Tin	7.3	U		P	
7440-62-2	Vanadium	36			P	
7440-66-6	Zinc	1300		~~E~~	P	J-Y

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

8

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T17-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-2

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 69.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	13000			P	
7440-36-0	Antimony	5.8	~~U~~	~~N~~	P	UJ-M
7440-38-2	Arsenic	14			P	
7440-39-3	Barium	330			P	
7440-41-7	Beryllium	0.86			P	J-Y
7440-43-9	Cadmium	8.1			P	
7440-70-2	Calcium	7200			P	
7440-47-3	Chromium	56			P	
7440-48-4	Cobalt	11			P	
7440-50-8	Copper	470			P	
7439-89-6	Iron	18000			P	
7439-92-1	Lead	96			P	
7439-95-4	Magnesium	4600			P	
7439-96-5	Manganese	150			P	
7439-98-7	Molybdenum	1.1	~~B~~		P	
7440-02-0	Nickel	200		~~N~~	P	J-M
7440-09-7	Potassium	2300			P	
7782-49-2	Selenium	2.9	~~U~~		P	UJ-C-B-A
7440-22-4	Silver	0.30	~~B~~		P	
7440-23-5	Sodium	150			P	
7440-28-0	Thallium	1.4	U		P	
7440-31-5	Tin	8.8			P	
7440-62-2	Vanadium	36			P	
7440-66-6	Zinc	3200		~~E~~	P	J-Y

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

10

TOTAL METALS

-I-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T17-E1D

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-3

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	9900			P	
7440-36-0	Antimony	4.6	~~B~~	~~N~~	P	UJ-M
7440-38-2	Arsenic	14			P	
7440-39-3	Barium	360			P	
7440-41-7	Beryllium	0.58			P	J-Y
7440-43-9	Cadmium	16			P	
7440-70-2	Calcium	7100			P	
7440-47-3	Chromium	55			P	
7440-48-4	Cobalt	9.6			P	
7440-50-8	Copper	750			P	
7439-89-6	Iron	19000			P	
7439-92-1	Lead	150			P	
7439-95-4	Magnesium	3800			P	
7439-96-5	Manganese	160			P	
7439-98-7	Molybdenum	1.1	~~B~~		P	
7440-02-0	Nickel	300		~~N~~	P	J-M
7440-09-7	Potassium	1700			P	
7782-49-2	Selenium	2.3	~~B~~		P	UJ-C-D-A
7440-22-4	Silver	0.62	~~B~~		P	
7440-23-5	Sodium	140			P	
7440-28-0	Thallium	1.2	U		P	
7440-31-5	Tin	13			P	
7440-62-2	Vanadium	28			P	
7440-66-6	Zinc	3000		~~E~~	P	J-Y

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

12

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T17-~~W~~1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-4

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 71.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	8400			P	
7440-36-0	Antimony	2.6	~~U~~	~~N~~	P	UJ-M
7440-38-2	Arsenic	5.2			P	
7440-39-3	Barium	200			P	
7440-41-7	Beryllium	0.54			P	J-Y
7440-43-9	Cadmium	0.40	~~B~~		P	J-B-~~A~~ A
7440-70-2	Calcium	9900			P	
7440-47-3	Chromium	14			P	
7440-48-4	Cobalt	6.9			P	
7440-50-8	Copper	17			P	
7439-89-6	Iron	16000			P	
7439-92-1	Lead	10			P	
7439-95-4	Magnesium	6400			P	
7439-96-5	Manganese	170			P	
7439-98-7	Molybdenum	1.2	~~B~~		P	
7440-02-0	Nickel	17		~~N~~	P	J-M
7440-09-7	Potassium	1800			P	
7782-49-2	Selenium	1.3	~~U~~		P	UJ-C-B-A
7440-22-4	Silver	1.3	U		P	
7440-23-5	Sodium	160			P	
7440-28-0	Thallium	1.3	U		P	
7440-31-5	Tin	6.4	U		P	
7440-62-2	Vanadium	24			P	
7440-66-6	Zinc	120		~~B~~	P	J-Y

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-I-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T18-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-5

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	8500			P	
7440-36-0	Antimony	2.5	~~B~~	~~N~~	P	UJ-M
7440-38-2	Arsenic	4.1			P	
7440-39-3	Barium	190			P	
7440-41-7	Beryllium	0.54			P	J-Y
7440-43-9	Cadmium	0.38	~~B~~		P	J-B-~~*~~ A
7440-70-2	Calcium	14000			P	
7440-47-3	Chromium	14			P	
7440-48-4	Cobalt	8.4			P	
7440-50-8	Copper	17			P	
7439-89-6	Iron	19000			P	
7439-92-1	Lead	11			P	
7439-95-4	Magnesium	6900			P	
7439-96-5	Manganese	370			P	
7439-98-7	Molybdenum	0.85	~~B~~		P	U-B
7440-02-0	Nickel	28		~~N~~	P	J-M
7440-09-7	Potassium	1700			P	
7782-49-2	Selenium	0.65	~~B~~		P	UJ-C-B-~~*~~ A
7440-22-4	Silver	1.2	U		P	
7440-23-5	Sodium	150			P	
7440-28-0	Thallium	0.81	~~B~~		P	UJ-C-B
7440-31-5	Tin	6.1	U		P	
7440-62-2	Vanadium	25			P	
7440-66-6	Zinc	300		~~J~~	P	J-Y

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T18-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-6

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	12000			P	
7440-36-0	Antimony	2.5	~~U~~	~~N~~	P	UJ-M
7440-38-2	Arsenic	10			P	
7440-39-3	Barium	220			P	
7440-41-7	Beryllium	0.81			P	~~J~~ J-Y
7440-43-9	Cadmium	12			P	
7440-70-2	Calcium	3700			P	
7440-47-3	Chromium	99			P	
7440-48-4	Cobalt	5.7			P	
7440-50-8	Copper	37			P	
7439-89-6	Iron	14000			P	
7439-92-1	Lead	30			P	
7439-95-4	Magnesium	3000			P	
7439-96-5	Manganese	83			P	
7439-98-7	Molybdenum	0.76	~~B~~		P	U-B
7440-02-0	Nickel	65		~~N~~	P	J-M
7440-09-7	Potassium	1900			P	
7782-49-2	Selenium	0.87	~~B~~		P	UJ-C-B-~~7~~A
7440-22-4	Silver	1.2	U		P	
7440-23-5	Sodium	120			P	
7440-28-0	Thallium	1.2	U		P	
7440-31-5	Tin	6.2	U		P	
7440-62-2	Vanadium	34			P	
7440-66-6	Zinc	1800		~~E~~	P	J-Y

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-I-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T18-W1D

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-7

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	20000			P	
7440-36-0	Antimony	2.7	~~B~~	~~N~~	P	UJ-M
7440-38-2	Arsenic	9.8			P	
7440-39-3	Barium	310			P	
7440-41-7	Beryllium	1.0			P	J-Y
7440-43-9	Cadmium	14			P	
7440-70-2	Calcium	4900			P	
7440-47-3	Chromium	77			P	
7440-48-4	Cobalt	7.5			P	
7440-50-8	Copper	60			P	
7439-89-6	Iron	19000			P	
7439-92-1	Lead	59			P	
7439-95-4	Magnesium	4000			P	
7439-96-5	Manganese	110			P	
7439-98-7	Molybdenum	0.75	~~B~~		P	U-B
7440-02-0	Nickel	94		~~N~~	P	J-M
7440-09-7	Potassium	2500			P	
7782-49-2	Selenium	1.7			P	UJ-C-B-~~A~~ A
7440-22-4	Silver	1.4	U		P	
7440-23-5	Sodium	140			P	
7440-28-0	Thallium	0.99	~~B~~		P	UJ-C-B
7440-31-5	Tin	6.8	U		P	
7440-62-2	Vanadium	40			P	
7440-66-6	Zinc	2500		~~E~~	P	J-Y

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T18-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-8

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	13000			P	
7440-36-0	Antimony	2.3	~~U~~	~~N~~	P	UJ-M
7440-38-2	Arsenic	11			P	
7440-39-3	Barium	270			P	
7440-41-7	Beryllium	0.80			P	J-Y
7440-43-9	Cadmium	11			P	
7440-70-2	Calcium	2200			P	
7440-47-3	Chromium	26			P	
7440-48-4	Cobalt	6.8			P	
7440-50-8	Copper	49			P	
7439-89-6	Iron	12000			P	
7439-92-1	Lead	26			P	
7439-95-4	Magnesium	2800			P	
7439-96-5	Manganese	75			P	
7439-98-7	Molybdenum	1.3			P	
7440-02-0	Nickel	210		~~N~~	P	J, M
7440-09-7	Potassium	1800			P	
7782-49-2	Selenium	1.1	~~B~~		P	UJ-C-B-~~*~~ A
7440-22-4	Silver	1.2	U		P	
7440-23-5	Sodium	140			P	
7440-28-0	Thallium	1.2	U		P	
7440-31-5	Tin	5.8	U		P	
7440-62-2	Vanadium	33			P	
7440-66-6	Zinc	1900		~~E~~	P	J-Y

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T17-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-1

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 62.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7439-97-6	Mercury	0.072		J	CV	J.M

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T17-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-2

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 69.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.20		~~N~~ J	CV

J, M

Color Before: Clarity Before: Texture:

11

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T17-E1D

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-3

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.34		J	CV

J-M

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T17-W~~I~~1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-4

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 71.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.028		~~N~~	CV

J-M

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

15

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T18-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-5

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7439-97-6	Mercury	0.029		~~X~~	CV	J-M

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

17

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T18-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-6

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7439-97-6	Mercury	0.051		~~N~~	CV	J.M

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T18-W1D

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-7

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.055		J	CV

J.M

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T18-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL071

Matrix (soil/water): SOIL Lab Sample ID: S117355-8

Level (low/med): LOW Date Received: 12-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.029		~~V~~	CV

J,M

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Form I - IN

SW-846

Sample Number: S117355*1 Sample Description: CBS-CSB-T17-C1
Matrix: SS SDG#: SIL071
Date Received: 11-12-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.79U	mg/kg_dw	11-16-2001	1	1115S
TOC-9060	27000	mg/kg dw	11-21-2001	1	1121X

Sample Number: S117355*2
Matrix: SS
Date Received: 11-12-2001

Sample Description: CBS-CSB-T17-E1
SDG#: SIL071

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.70U	mg/kg_dw	11-16-2001	1	1115S
TOC-9060	28000	mg/kg dw	11-21-2001	1	1121X

Sample Number: S117355*3
Matrix: SS
Date Received: 11-12-2001

Sample Description: CBS-CSB-T17-E1D
SDG#: SIL071

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.69U	mg/kg_dw	11-16-2001	1	1115S
TOC-9060	18000	mg/kg dw	11-21-2001	1	1121X

Sample Number: S117355*4
Matrix: SS
Date Received: 11-12-2001

Sample Description: CBS-CSB-T17-W 1
SDG#: SIL071

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.70U	mg/kg_dw	11-16-2001	1	1115S
TOC-9060	21000	mg/kg dw	11-21-2001	1	1121X

Sample Number: S117355*5 Sample Description: CBS-CSB-T18-C1
Matrix: SS SDG#: SIL071
Date Received: 11-12-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.68U	mg/kg_dw	11-16-2001	1	1115S
TOC-9060	17000	mg/kg dw	11-21-2001	1	1121X

Sample Number: S117355*6
Matrix: SS
Date Received: 11-12-2001

Sample Description: CBS-CSB-T18-W1
SDG#: SIL071

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.68U	mg/kg_dw	11-16-2001	1	1115S
TOC-9060	13000	mg/kg dw	11-21-2001	1	1121X

Sample Number: S117355*7
Matrix: SS
Date Received: 11-12-2001

Sample Description: CBS-CSB-T18-W1D
SDG#: SIL071

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.67U	mg/kg_dw	11-16-2001	1	1115S
TOC-9060	13000	mg/kg dw	11-21-2001	1	1121X

Sample Number: S117355*8
Matrix: SS
Date Received: 11-12-2001

Sample Description: CBS-CSB-T18-E1
SDG#: SIL071

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.69U	mg/kg_dw	11-16-2001	1	1115S
TOC-9060	8500	mg/kg dw	11-21-2001	1	1121X

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 18, 2002
From:	Sheena Blair/Westford	**File:**	SO013inoSB.doc 06105-012-201
RE:	Data Validation Inorganic Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL072	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for 10 sediment samples analyzed for total metals by SW-846 methods 6010B and 7471A, and for total cyanide by SW-846 method 9012A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on December 12 and 13, 2001 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the samples under project numbers S118162 and S118127 and reported the results under sample delivery group (SDG) SIL074.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSB-T11-C1	CBS-CSB-T11-C1-D (field duplicate of CBS-CSB-T11-C1)
CBS-CSB-T11-W1	CBS-CSB-T11-E1
CBS-CSB-T12-C1	CBS-CSB-T12-W1
CBS-CSB-T12-E1	CBS-CSB-T13-C1
CBS-CSB-T13-W1	CBS-CSB-T13-E1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Laboratory blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicates
- Laboratory control sample (LCS) results
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. Samples SP-008, SP-008D and SP009 were recorded on the COC; these samples were not processed as part of this SDG. No other discrepancies were noted.

Holding Times/Sample Preservation

All samples were digested and analyzed within the method specified holding times for metals and cyanide.

The laboratory does not record cooler temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptance range of 4°C ± 2° C). Non-conformances were not observed for this sample set.

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
Method Blank	Barium	0.197 mg/kg	0.99
	Chromium	0.305 mg/kg	1.53
ICB/CCB	Beryllium	1.09	0.55
	Mercury	-0.11	-0.0275
	Thallium	9.92	4.96
	Vanadium	1.92	0.96
	Molybdenum	1.44	0.72
Corrected for percent solids for each sample. Associated samples: all samples.			

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

For negative contamination:

- Sample results ≥ MDL but ≤ the absolute value of the AL were qualified as estimated (J) at the reported concentration.
- Nondetected results (< MDL) were qualified as estimated nondetects (UJ).
- Sample results > the absolute value of the AL were not qualified.

MS/MSD Results

MS/MSD analyses for cyanide and metals were performed on sample CBS-CSB-T13-E1. The following table summarizes the percent recoveries (%Rs) and/or relative percent difference (RPD) in the MS/MSD analyses that exceeded QC acceptance criteria. The actions indicated were taken for all samples in this SDG.

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
CBS-CSB-T13-E1	Antimony	52/52	Ok	Estimate positive results (J) and nondetects (UJ).

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed for metals. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

The laboratory performed laboratory duplicate analyses for cyanide on sample CBS-CSB-T11-W1. The sample and the duplicate were nondetect for cyanide. The RPD was considered to be acceptable. No validation action was taken.

Field Duplicates

Samples CBS-CSB-T11-C1 and CBS-CSB-T11-C1-D were submitted as the field duplicate pair with this SDG. The following table summarizes the RPDs of the detected analytes in the field duplicate pair. The RPD for selenium was not calculable (NC) due to a nondetect duplicate result. The RPD was deemed acceptable. The RPD of mercury exceeded the QC criteria. Positive and nondetect results for mercury were qualified as estimated (J/UJ) for all samples in the SDG. The RPDs for all other compounds were within the QC acceptance criteria.

Compound	CBS-CSB-T11-C1 (mg/kg)	CBS-CSB-T11-C1-D (mg/kg)	RPD (%)
Aluminum	7000	6700	4
Arsenic	9.9	9.8	1
Barium	310	280	10
Cadmium	57	51	11
Calcium	7000	9200	27
Chromium	14	14	0
Cobalt	13	16	21
Copper	340	230	39
Iron	11000	11000	0
Lead	30	26	14
Magnesium	5100	6400	23
Manganese	85	110	26
Mercury	0.035	0.80	183
Nickel	450	560	22
Potassium	1500	1500	0
Selenium	5.9	6.2 U	NC
Sodium	180	180	0
Vanadium	22	22	0
Zinc	11000	9900	11
Molybdenum	1.0	1.7	52

LCS/LCSD Results

A LCS analyses was performed for metals and LCS/LCSD analyses were performed cyanide.

The %Rs and RPDs (where applicable) of all spiked analytes met the QC acceptance criteria in the LCS and/or LCSD analyses.

Sample Results

The percent solids for all samples in the data set were >50%.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the

method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T11-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-1

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 71.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7000			P
7440-36-0	Antimony	13	U	N,W-M	P
7440-38-2	Arsenic	9.9			P
7440-39-3	Barium	310			P
7440-41-7	Beryllium	0.59		U-B	P
7440-43-9	Cadmium	57			P
7440-70-2	Calcium	7000			P
7440-47-3	Chromium	14			P
7440-48-4	Cobalt	13			P
7440-50-8	Copper	340			P
7439-89-6	Iron	11000			P
7439-92-1	Lead	30			P
7439-95-4	Magnesium	5100			P
7439-96-5	Manganese	85			P
7439-98-7	Molybdenum	1.0	B		P
7440-02-0	Nickel	450			P
7440-09-7	Potassium	1500			P
7782-49-2	Selenium	5.9	B		P
7440-22-4	Silver	0.28	B		P
7440-23-5	Sodium	180			P
7440-28-0	Thallium	1.5		U-B	P
7440-31-5	Tin	6.4	U		P
7440-62-2	Vanadium	22			P
7440-66-6	Zinc	11000			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T11-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-1

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 71.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.035		B-A	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T11-C1-D

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-2

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6700			P
7440-36-0	Antimony	12	U	N,S,M	P
7440-38-2	Arsenic	9.8			P
7440-39-3	Barium	280			P
7440-41-7	Beryllium	0.56		U-B	P
7440-43-9	Cadmium	51			P
7440-70-2	Calcium	9200			P
7440-47-3	Chromium	14			P
7440-48-4	Cobalt	16			P
7440-50-8	Copper	230			P
7439-89-6	Iron	11000			P
7439-92-1	Lead	26			P
7439-95-4	Magnesium	6400			P
7439-96-5	Manganese	110			P
7439-98-7	Molybdenum	1.7			P
7440-02-0	Nickel	560			P
7440-09-7	Potassium	1500			P
7782-49-2	Selenium	6.2	U		P
7440-22-4	Silver	0.42	B		P
7440-23-5	Sodium	180			P
7440-28-0	Thallium	1.2	U		P
7440-31-5	Tin	6.2	U		P
7440-62-2	Vanadium	22			P
7440-66-6	Zinc	9900			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T11-C1-D

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-2

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.80		J-F	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T11-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-3

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 79.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7500			P
7440-36-0	Antimony	2.3	U	~~N~~J-N	P
7440-38-2	Arsenic	15			P
7440-39-3	Barium	170			P
7440-41-7	Beryllium	0.49		U-B	P
7440-43-9	Cadmium	4.0			P
7440-70-2	Calcium	2900			P
7440-47-3	Chromium	58			P
7440-48-4	Cobalt	7.2			P
7440-50-8	Copper	560			P
7439-89-6	Iron	10000			P
7439-92-1	Lead	48			P
7439-95-4	Magnesium	2200			P
7439-96-5	Manganese	81			P
7439-98-7	Molybdenum	0.49	~~B~~	U-B	P
7440-02-0	Nickel	250			P
7440-09-7	Potassium	1500			P
7782-49-2	Selenium	1.2	U		P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	130			P
7440-28-0	Thallium	1.2	U		P
7440-31-5	Tin	5.8	U		P
7440-62-2	Vanadium	20			P
7440-66-6	Zinc	1300			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T11-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-3

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 79.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.12		J-F	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T11-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-4

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 82.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	2.2	U	~~N~~ U-M	P
7440-38-2	Arsenic	8.8			P
7440-39-3	Barium	340			P
7440-41-7	Beryllium	0.47		U-B	P
7440-43-9	Cadmium	9.5			P
7440-70-2	Calcium	3600			P
7440-47-3	Chromium	89			P
7440-48-4	Cobalt	4.9			P
7440-50-8	Copper	230			P
7439-89-6	Iron	11000			P
7439-92-1	Lead	57			P
7439-95-4	Magnesium	2200			P
7439-96-5	Manganese	76			P
7439-98-7	Molybdenum	0.67	~~B~~	U-B	P
7440-02-0	Nickel	190			P
7440-09-7	Potassium	1500			P
7782-49-2	Selenium	1.1	U		P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	150			P
7440-28-0	Thallium	0.88	~~B~~	U-B	P
7440-31-5	Tin	5.5	U		P
7440-62-2	Vanadium	30			P
7440-66-6	Zinc	2100			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T11-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-4

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 82.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.12		J-6	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T12-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-5

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6700			P
7440-36-0	Antimony	14	U	~~N~~ U-M	P
7440-38-2	Arsenic	27			P
7440-39-3	Barium	470			P
7440-41-7	Beryllium	0.46	~~B~~	U-B	P
7440-43-9	Cadmium	42			P
7440-70-2	Calcium	5700			P
7440-47-3	Chromium	140			P
7440-48-4	Cobalt	11			P
7440-50-8	Copper	89			P
7439-89-6	Iron	15000			P
7439-92-1	Lead	190			P
7439-95-4	Magnesium	2700			P
7439-96-5	Manganese	140			P
7439-98-7	Molybdenum	1.5			P
7440-02-0	Nickel	630			P
7440-09-7	Potassium	1700			P
7782-49-2	Selenium	6.8	U		P
7440-22-4	Silver	0.33	~~B~~		P
7440-23-5	Sodium	170			P
7440-28-0	Thallium	1.0	~~B~~	U-B	P
7440-31-5	Tin	7.4			P
7440-62-2	Vanadium	25			P
7440-66-6	Zinc	6600			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T12-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-5

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.84		J-f	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T12-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-6

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	2.2	U	NJ-M	P
7440-38-2	Arsenic	6.8			P
7440-39-3	Barium	220			P
7440-41-7	Beryllium	0.81			P
7440-43-9	Cadmium	4.4			P
7440-70-2	Calcium	3800			P
7440-47-3	Chromium	80			P
7440-48-4	Cobalt	7.9			P
7440-50-8	Copper	620			P
7439-89-6	Iron	15000			P
7439-92-1	Lead	29			P
7439-95-4	Magnesium	3400			P
7439-96-5	Manganese	80			P
7439-98-7	Molybdenum	0.34	B	L-B	P
7440-02-0	Nickel	400			P
7440-09-7	Potassium	1900			P
7782-49-2	Selenium	0.70	B		P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	130			P
7440-28-0	Thallium	0.78	B	L-B	P
7440-31-5	Tin	5.5	U		P
7440-62-2	Vanadium	23			P
7440-66-6	Zinc	2100			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T12-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-6

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.10		J-F	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T12-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-7

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 85.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8000			P
7440-36-0	Antimony	0.90	~~B~~	~~N~~ U-M	P
7440-38-2	Arsenic	4.4			P
7440-39-3	Barium	360			P
7440-41-7	Beryllium	0.37	~~B~~	U-B	P
7440-43-9	Cadmium	3.3			P
7440-70-2	Calcium	2600			P
7440-47-3	Chromium	48			P
7440-48-4	Cobalt	4.9			P
7440-50-8	Copper	280			P
7439-89-6	Iron	9000			P
7439-92-1	Lead	80			P
7439-95-4	Magnesium	1600			P
7439-96-5	Manganese	54			P
7439-98-7	Molybdenum	0.64	~~B~~	U-B	P
7440-02-0	Nickel	330			P
7440-09-7	Potassium	1200			P
7782-49-2	Selenium	1.2	U		P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	110			P
7440-28-0	Thallium	0.73	~~B~~	U-B	P
7440-31-5	Tin	5.2	~~B~~		P
7440-62-2	Vanadium	24			P
7440-66-6	Zinc	1500			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T12-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-7

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 85.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.14		J-F	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T13-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-8

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8200			P
7440-36-0	Antimony	2.5	U	N,S-M	P
7440-38-2	Arsenic	6.4			P
7440-39-3	Barium	230			P
7440-41-7	Beryllium	0.65		U-B	P
7440-43-9	Cadmium	2.8			P
7440-70-2	Calcium	14000			P
7440-47-3	Chromium	13			P
7440-48-4	Cobalt	9.7			P
7440-50-8	Copper	30			P
7439-89-6	Iron	21000			P
7439-92-1	Lead	19			P
7439-95-4	Magnesium	6900			P
7439-96-5	Manganese	530			P
7439-98-7	Molybdenum	0.71	B	U-B	P
7440-02-0	Nickel	29			P
7440-09-7	Potassium	1800			P
7782-49-2	Selenium	1.3	U		P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	190			P
7440-28-0	Thallium	2.1		U-B	P
7440-31-5	Tin	6.3	U		P
7440-62-2	Vanadium	24			P
7440-66-6	Zinc	660			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T13-C1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-8

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.031		J-B11	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T13-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-9

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7900			P
7440-36-0	Antimony	2.7	U	~~N~~ W-M	P
7440-38-2	Arsenic	8.7			P
7440-39-3	Barium	270			P
7440-41-7	Beryllium	0.58		U-B	P
7440-43-9	Cadmium	3.9			P
7440-70-2	Calcium	3500			P
7440-47-3	Chromium	74			P
7440-48-4	Cobalt	8.1			P
7440-50-8	Copper	240			P
7439-89-6	Iron	12000			P
7439-92-1	Lead	63			P
7439-95-4	Magnesium	2900			P
7439-96-5	Manganese	94			P
7439-98-7	Molybdenum	0.64	~~B~~	U-B	P
7440-02-0	Nickel	240			P
7440-09-7	Potassium	1700			P
7782-49-2	Selenium	1.4	U		P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	140			P
7440-28-0	Thallium	0.92	~~B~~	U-B	P
7440-31-5	Tin	6.8	U		P
7440-62-2	Vanadium	24			P
7440-66-6	Zinc	1900			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T13-W1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-9

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.096		J-F	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T13-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-10

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 85.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8600			P
7440-36-0	Antimony	2.1	U	~~N,S,M~~	P
7440-38-2	Arsenic	7.4			P
7440-39-3	Barium	200			P
7440-41-7	Beryllium	0.58		B-B	P
7440-43-9	Cadmium	4.6			P
7440-70-2	Calcium	3100			P
7440-47-3	Chromium	21			P
7440-48-4	Cobalt	6.4			P
7440-50-8	Copper	170			P
7439-89-6	Iron	11000			P
7439-92-1	Lead	21			P
7439-95-4	Magnesium	2500			P
7439-96-5	Manganese	76			P
7439-98-7	Molybdenum	0.56	~~B~~	L-B	P
7440-02-0	Nickel	340			P
7440-09-7	Potassium	1300			P
7782-49-2	Selenium	1.1	U		P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	110			P
7440-28-0	Thallium	1.1	U		P
7440-31-5	Tin	5.3	U		P
7440-62-2	Vanadium	26			P
7440-66-6	Zinc	1700			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSB-T13-E1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL072

Matrix (soil/water): SOIL Lab Sample ID: S117553-10

Level (low/med): LOW Date Received: 20-NOV-2001

% Solids: 85.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.061		J-F	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Sample Number: S117553*1
Matrix: SS
Date Received: 11-20-2001

Sample Description: CBS-CSB-T11-C1
SDG#: SIL072

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.68U	mg/kg_dw	11-29-2001	1	1128S
TOC-9060	17000	mg/kg dw	11-29-2001	1	1129X

Sample Number: S117553*2
Matrix: SS
Date Received: 11-20-2001

Sample Description: CBS-CSB-T11-C1-D
SDG#: SIL072

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.68U	mg/kg_dw	11-29-2001	1	1128S
TOC-9060	18000	mg/kg dw	11-29-2001	1	1129X

Sample Number: S117553*3 Sample Description: CBS-CSB-T11-W1
Matrix: SS SDG#: SIL072
Date Received: 11-20-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.63U	mg/kg_dw	11-29-2001	1	1128S
TOC-9060	7600	mg/kg dw	11-29-2001	1	1129X

Sample Number: S117553*4
Matrix: SS
Date Received: 11-20-2001

Sample Description: CBS-CSB-T11-E1
SDG#: SIL072

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.60U	mg/kg_dw	11-29-2001	1	1128S
TOC-9060	12000	mg/kg dw	11-29-2001	1	1129X

Sample Number: S117553*5
Matrix: SS
Date Received: 11-20-2001

Sample Description: CBS-CSB-T12-C1
SDG#: SIL072

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	1.1	mg/kg_dw	11-29-2001	1	1128S
TOC-9060	17000	mg/kg dw	11-29-2001	1	1129X

Sample Number: S117553*6
Matrix: SS
Date Received: 11-20-2001

Sample Description: CBS-CSB-T12-W1
SDG#: SIL072

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.64U	mg/kg_dw	11-29-2001	1	1128S
TOC-9060	11000	mg/kg dw	11-29-2001	1	1129X

Sample Number: S117553*7
Matrix: SS
Date Received: 11-20-2001

Sample Description: CBS-CSB-T12-E1
SDG#: SIL072

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.58U	mg/kg_dw	11-29-2001	1	1128S
TOC-9060	9400	mg/kg dw	11-29-2001	1	1129X

Sample Number: S117553*8
Matrix: SS
Date Received: 11-20-2001

Sample Description: CBS-CSB-T13-C1
SDG#: SIL072

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.67U	mg/kg_dw	11-29-2001	1	1128S
TOC-9060	17000	mg/kg dw	11-29-2001	1	1129X

Sample Number: S117553*9
Matrix: SS
Date Received: 11-20-2001

Sample Description: CBS-CSB-T13-W1
SDG#: SIL072

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.67U	mg/kg_dw	11-29-2001	1	1128S
TOC-9060	8500	mg/kg dw	11-29-2001	1	1129X

Sample Number: S117553*10
Matrix: SS
Date Received: 11-20-2001

Sample Description: CBS-CSB-T13-E1
SDG#: SIL072

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.59U	mg/kg_dw	11-29-2001	1	1128S
TOC-9060	9400	mg/kg dw	11-29-2001	1	1129X

Sample Number: S117553*11
Matrix: QC-S
Date Received: 11-20-2001

Sample Description: Method Blank
SDG#: SIL072

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.50U	mg/kg_dw	11-29-2001	1	1128S
TOC-9060	500U	mg/kg dw	11-29-2001	1	1129X

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 18, 2002
From:	Sheena Blair/Westford	**File:**	SO014inoSB.doc 06105-012-201
RE:	Data Validation Inorganic Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL074	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for 16 sediment samples analyzed for total metals by SW-846 methods 6010B and 7471A, and total cyanide by SW-846 method 9012A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on December 12 and 13, 2001 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the samples under project numbers S118162 and S118127 and reported the results under sample delivery group (SDG) SIL074.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications for project no. S118162	
CBS-CSC-T1-1	CBS-CSC-T2-1
CBS-CSC-T3-1	CBS-CSC-T4-1
CBS-CSC-T4-1-FD (field duplicate for CBS-CSC-T4-1)	CBS-CSC-T5-1
CBS-CSC-T6-1	CBS-CSC-T7-1
CBS-CSC-T8-1	CBS-CSC-T9-1

Sample Identifications for project no. S118127	
CBS-CSD-T1-1	CBS-CSD-T2-1
CBS-CSD-T3-1	CBS-CSD-T4-1
CBS-CSD-T5-1	CBS-CSD-T6 -1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Laboratory blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicates
- Laboratory control sample (LCS) results

- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. No discrepancies were noted.

Holding Times/Sample Preservation

All samples were prepared and analyzed within the method specified holding times for metals and cyanide.

The laboratory does not record cooler temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptance range of 4°C ± 2° C). Non-conformances were not observed for this sample set.

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
Method Blank	Barium	0.323 mg/kg	1.62
	Molybdenum	0.302 mg/kg	1.51
ICB/CCB 12/28/01	Chromium	2.55	1.28
	Manganese	2.8	1.40
	Thallium	6.71	3.36
	Vanadium	2.93	1.47
Corrected for percent solids for each sample. *Associated samples: all samples.			

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
ICB/CCB 12/28/01	Selenium	7.57	3.79
Corrected for percent solids for each sample. Associated samples: CBS-CSD-T5-1, CBS-CSC-T1-1, CBS-CSC-T2-1, CBS-CSC-T4-1, CBS-CSC-T5-1, BS-CSC-T8-1, CBS-CSC-T9-1.			

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
ICB/CCB 01/03/01	Selenium	4.31	2.16
Corrected for percent solids for each sample. Associated samples: CBS-CSD-T1-1, CBS-CSD-T2-1, CBS-CSD-T3-1, CBS-CSD-T4-1, CBS-CSD-T6-1, CBS-CSC-T3-1, CBS-CSC-T4-1-FD, CBS-CSC-T6-1, CBS-CSC-T7-1			

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
ICB/CCB 12/21/01	Mercury	-0.0060	-0.0150
Corrected for percent solids for each sample. Associated samples: all samples except CBS-CSD-T4-1.			

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
ICB/CCB 12/27/01	Mercury	-0.0070	-0.040
Corrected for percent solids for each sample. Associated samples: sample CBS-CSD-T4-1.			

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

For negative contamination:

- Sample results ≥ MDL but ≤ the absolute value of the AL were qualified as estimated (J) at the reported concentration.
- Nondetected results (< MDL) were qualified as estimated nondetects (UJ).
- Sample results > the absolute value of the AL were not qualified.

MS/MSD Results

Sample CBS-CSD-T1-1 was selected for MS/MSD analyses for mercury for all samples in the SDG. Samples CBS-CSC-T9-1 and CBS-CSD-T1-1 were selected for the MS/MSD analyses for cyanide for project numbers S118162 and S118127 respectively. All percent recoveries (%Rs) and/or relative percent difference (RPD) were acceptable for cyanide in sample CBS-CSC-T9-1. The following table summarizes the %Rs and/or RPDs in the MS/MSD analyses that exceeded QC acceptance criteria. For cyanide the actions were applied only to the samples from locations CBS-CSD. For mercury the actions were applied to all samples in the SDG.

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
CBS-CSD-T1-1	Mercury	68/55	Ok	Estimate positive results (J) and nondetects (UJ).
	Cyanide	68/49	Ok	Estimate positive results (J) and nondetects (UJ).

The laboratory performed MS/MSD analyses for ICP metals on a sample from a different client. Although this practice is acceptable, the results could not be directly applied to the samples analyzed in this data package because of possible differences in the sample matrix and type. No validation action was taken on this basis.

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed for ICP metals or mercury. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

The laboratory performed laboratory duplicate analyses for cyanide on samples CBS-CSC-T1-1 and CBS-CSD-T6-1 for project numbers S118162 and S118127 respectively. The samples and the duplicates were nondetect for cyanide. The RPDs were considered to be acceptable. No validation action was taken.

Field Duplicates

Samples CBS-CSC-T4-1 and CBS-CSC-T4-1-FD were submitted as the field duplicate pair with this SDG. The following table summarizes the RPDs of the detected analytes in the field duplicate pair. The RPDs of cadmium, copper, nickel and zinc exceeded the QC criteria. Positive and nondetect results for these compounds were qualified as estimated (J/UJ) for all samples in the SDG. The RPDs for all other compounds were within the QC acceptance criteria.

Compound	CBS-CSC-T4-1 (mg/kg)	CBS-CSC-T4-1-FD (mg/kg)	RPD (%)
Aluminum	11000	11000	0
Arsenic	4.7	9.5	68
Barium	260	230	12
Beryllium	0.78	0.82	5
Cadmium	1.5	8.4	139
Calcium	13000	8500	42
Chromium	18	30	50
Cobalt	9.4	9.4	0
Copper	50	200	120
Iron	18000	17000	6
Lead	17	45	90
Magnesium	6600	4700	34
Manganese	320	220	37
Mercury	0.073	0.13	56
Nickel	55	200	114
Potassium	1900	1800	5
Sodium	170	140	19
Vanadium	28	28	0
Zinc	280	1500	137

LCS Results

The %Rs of all spiked analytes met the QC acceptance criteria in the LCS analyses.

Sample Results

The percent solids for all samples in the data set were >50%.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSC-T1-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-1

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10000			P
7440-36-0	Antimony	2.5	U		P
7440-38-2	Arsenic	14			P
7440-39-3	Barium	250			P
7440-41-7	Beryllium	0.80			P
7440-43-9	Cadmium	14		J-F	P
7440-70-2	Calcium	10000			P
7440-47-3	Chromium	27			P
7440-48-4	Cobalt	8.9			P
7440-50-8	Copper	81		J-F	P
7439-89-6	Iron	19000		~~J-F~~	P
7439-92-1	Lead	22			P
7439-95-4	Magnesium	5100			P
7439-96-5	Manganese	200			P
7439-98-7	Molybdenum	1.3		u-B	P
7440-02-0	Nickel	200		J-F	P
7440-09-7	Potassium	1800		E	P
7782-49-2	Selenium	0.90	~~B~~	u-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	120			P
7440-28-0	Thallium	1.2	U		P
7440-31-5	Tin	6.2	U		P
7440-62-2	Vanadium	30		~~J-F~~	P
7440-66-6	Zinc	1800		E J-F	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSC-T1-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-1

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.046		N-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSC-T2-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-2

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 70.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9200			P
7440-36-0	Antimony	2.6	U		P
7440-38-2	Arsenic	13			P
7440-39-3	Barium	220			P
7440-41-7	Beryllium	0.68			P
7440-43-9	Cadmium	11		J-F	P
7440-70-2	Calcium	5500			P
7440-47-3	Chromium	110			P
7440-48-4	Cobalt	7.4			P
7440-50-8	Copper	160		J-F	P
7439-89-6	Iron	15000		~~J-F~~	P
7439-92-1	Lead	65			P
7439-95-4	Magnesium	3200			P
7439-96-5	Manganese	160			P
7439-98-7	Molybdenum	1.0	~~B~~	u-B	P
7440-02-0	Nickel	260		J-F	P
7440-09-7	Potassium	1700		E	P
7782-49-2	Selenium	1.8		u-B	P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	110			P
7440-28-0	Thallium	1.3	U		P
7440-31-5	Tin	6.5	U		P
7440-62-2	Vanadium	27		~~J-F~~	P
7440-66-6	Zinc	1900		~~E~~ J-F	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSC-T2-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-2

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 70.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.060		Mg-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSC-T3-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-3

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 65.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13000			P
7440-36-0	Antimony	5.6	U		P
7440-38-2	Arsenic	14			P
7440-39-3	Barium	250			P
7440-41-7	Beryllium	0.74			P
7440-43-9	Cadmium	18		J-F	P
7440-70-2	Calcium	6100			P
7440-47-3	Chromium	21			P
7440-48-4	Cobalt	14			P
7440-50-8	Copper	120		J-F	P
7439-89-6	Iron	20000		~~J-F~~	P
7439-92-1	Lead	28			P
7439-95-4	Magnesium	3800			P
7439-96-5	Manganese	200			P
7439-98-7	Molybdenum	1.5		u-B	P
7440-02-0	Nickel	570		J-F	P
7440-09-7	Potassium	2100		~~E~~	P
7782-49-2	Selenium	2.8	U		P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	110			P
7440-28-0	Thallium	1.4	U		P
7440-31-5	Tin	7.0	U		P
7440-62-2	Vanadium	37		~~J-F~~	P
7440-66-6	Zinc	3200		~~E~~ J-F	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSC-T3-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-3

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 65.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.048		~~N~~ M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

30

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSC-T4-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-4

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	2.5	U		P
7440-38-2	Arsenic	4.7			P
7440-39-3	Barium	260			P
7440-41-7	Beryllium	0.78			P
7440-43-9	Cadmium	1.5		J-F	P
7440-70-2	Calcium	13000			P
7440-47-3	Chromium	18			P
7440-48-4	Cobalt	9.4			P
7440-50-8	Copper	50		J-F	P
7439-89-6	Iron	18000		~~J-F~~	P
7439-92-1	Lead	17			P
7439-95-4	Magnesium	6600			P
7439-96-5	Manganese	320			P
7439-98-7	Molybdenum	0.78	~~B~~	U-B	P
7440-02-0	Nickel	55		J-F	P
7440-09-7	Potassium	1900		~~E~~	P
7782-49-2	Selenium	0.76	~~B~~	U-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	170			P
7440-28-0	Thallium	1.1	~~B~~	U-B	P
7440-31-5	Tin	6.2	U		P
7440-62-2	Vanadium	28		~~J-F~~	P
7440-66-6	Zinc	280		~~E~~J-F	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSC-T4-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-4

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.073		~~M~~ J-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

32

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSC-T4-1-FD

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-5

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 66.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	2.8	U		P
7440-38-2	Arsenic	9.5			P
7440-39-3	Barium	230			P
7440-41-7	Beryllium	0.82			P
7440-43-9	Cadmium	8.4		J-F	P
7440-70-2	Calcium	8500			P
7440-47-3	Chromium	30			P
7440-48-4	Cobalt	9.4			P
7440-50-8	Copper	200		J-F	P
7439-89-6	Iron	17000		~~J-F~~	P
7439-92-1	Lead	45			P
7439-95-4	Magnesium	4700			P
7439-96-5	Manganese	220			P
7439-98-7	Molybdenum	1.2	~~B~~	U-B	P
7440-02-0	Nickel	200		J-F	P
7440-09-7	Potassium	1800		~~E~~	P
7782-49-2	Selenium	0.87	~~B~~	U-B	P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	140			P
7440-28-0	Thallium	1.4	U		P
7440-31-5	Tin	6.9	U		P
7440-62-2	Vanadium	28		~~J-F~~	P
7440-66-6	Zinc	1500		~~E~~ J-F	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSC-T4-1-FD

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-5

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 66.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.13		~~MS~~ N	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSC-T5-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-6

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 64.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	13000			P
7440-36-0	Antimony	0.79	~~B~~		P
7440-38-2	Arsenic	3.0			P
7440-39-3	Barium	240			P
7440-41-7	Beryllium	0.94			P
7440-43-9	Cadmium	1.6		J-F	P
7440-70-2	Calcium	14000			P
7440-47-3	Chromium	20			P
7440-48-4	Cobalt	9.6			P
7440-50-8	Copper	40		J-F	P
7439-89-6	Iron	21000		~~J-F~~	P
7439-92-1	Lead	18			P
7439-95-4	Magnesium	6700			P
7439-96-5	Manganese	390			P
7439-98-7	Molybdenum	1.1	~~B~~	U-B	P
7440-02-0	Nickel	60		J-F	P
7440-09-7	Potassium	2300		E	P
7782-49-2	Selenium	0.97	B	U-B	P
7440-22-4	Silver	1.6	U		P
7440-23-5	Sodium	200			P
7440-28-0	Thallium	1.2	~~B~~	U-B	P
7440-31-5	Tin	7.8	U		P
7440-62-2	Vanadium	34		~~J-F~~	P
7440-66-6	Zinc	340		~~E J-F~~	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSC-T5-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-6

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 64.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.074		~~NS~~-A	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

36

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSC-T6-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-7

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 63.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	5.3	U		P
7440-38-2	Arsenic	12			P
7440-39-3	Barium	330			P
7440-41-7	Beryllium	0.79			P
7440-43-9	Cadmium	14		J-F	P
7440-70-2	Calcium	7700			P
7440-47-3	Chromium	42			P
7440-48-4	Cobalt	9.1			P
7440-50-8	Copper	250		J-F	P
7439-89-6	Iron	20000		~~J-F~~	P
7439-92-1	Lead	140			P
7439-95-4	Magnesium	4000			P
7439-96-5	Manganese	140			P
7439-98-7	Molybdenum	1.4		U-B	P
7440-02-0	Nickel	170		J-F	P
7440-09-7	Potassium	1800		~~E~~	P
7782-49-2	Selenium	2.0	~~B~~	U-B	P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	120			P
7440-28-0	Thallium	0.78	~~B~~	U-B	P
7440-31-5	Tin	7.5			P
7440-62-2	Vanadium	32		~~J-F~~	P
7440-66-6	Zinc	3000		~~E~~J-F	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSC-T6-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-7

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 63.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.31		N-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSC-T7-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-8

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	5.9	U		P
7440-38-2	Arsenic	7.0			P
7440-39-3	Barium	270			P
7440-41-7	Beryllium	0.92			P
7440-43-9	Cadmium	24		J-F	P
7440-70-2	Calcium	6100			P
7440-47-3	Chromium	22			P
7440-48-4	Cobalt	12			P
7440-50-8	Copper	53		J-F	P
7439-89-6	Iron	17000		~~J-F~~	P
7439-92-1	Lead	32			P
7439-95-4	Magnesium	4400			P
7439-96-5	Manganese	140			P
7439-98-7	Molybdenum	1.6		μ-B	P
7440-02-0	Nickel	400		J-F	P
7440-09-7	Potassium	2000		~~E~~	P
7782-49-2	Selenium	2.2	~~B~~	μ-B	P
7440-22-4	Silver	1.5	U		P
7440-23-5	Sodium	100			P
7440-28-0	Thallium	1.5	U		P
7440-31-5	Tin	7.4	U		P
7440-62-2	Vanadium	36		J-F	P
7440-66-6	Zinc	3400		~~E~~ J-F	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSC-T7-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-8

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.094		~~N~~ J-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSC-T8-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-9

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	3.0	U		P
7440-38-2	Arsenic	11			P
7440-39-3	Barium	240			P
7440-41-7	Beryllium	0.82			P
7440-43-9	Cadmium	17		J-F	P
7440-70-2	Calcium	6500			P
7440-47-3	Chromium	41			P
7440-48-4	Cobalt	9.3			P
7440-50-8	Copper	100		J-F	P
7439-89-6	Iron	17000		~~J-F~~	P
7439-92-1	Lead	33			P
7439-95-4	Magnesium	4200			P
7439-96-5	Manganese	120			P
7439-98-7	Molybdenum	1.6		U-B	P
7440-02-0	Nickel	330		J-F	P
7440-09-7	Potassium	1900		~~E~~	P
7782-49-2	Selenium	1.1	~~B~~	U-B	P
7440-22-4	Silver	1.5	U		P
7440-23-5	Sodium	110			P
7440-28-0	Thallium	0.87	B	U-B	P
7440-31-5	Tin	7.5	U		P
7440-62-2	Vanadium	32		~~J-F~~	P
7440-66-6	Zinc	2700		~~E~~ J-F	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSC-T8-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-9

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.050		~~N~~	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

42

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSC-T9-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-10

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8100			P
7440-36-0	Antimony	2.7	U		P
7440-38-2	Arsenic	6.2			P
7440-39-3	Barium	200			P
7440-41-7	Beryllium	0.96			P
7440-43-9	Cadmium	15		J-F	P
7440-70-2	Calcium	3600			P
7440-47-3	Chromium	18			P
7440-48-4	Cobalt	5.0			P
7440-50-8	Copper	53		J-F	P
7439-89-6	Iron	12000		~~J-F~~	P
7439-92-1	Lead	20			P
7439-95-4	Magnesium	2800			P
7439-96-5	Manganese	79			P
7439-98-7	Molybdenum	1.5		U-B	P
7440-02-0	Nickel	250		J-F	P
7440-09-7	Potassium	1400		~~E~~	P
7782-49-2	Selenium	0.78	~~B~~	U-B	P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	90			P
7440-28-0	Thallium	1.4	U		P
7440-31-5	Tin	6.8	U		P
7440-62-2	Vanadium	23		~~J-F~~	P
7440-66-6	Zinc	2000		~~E~~ J-F	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSC-T9-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118162-10

Level (low/med): LOW Date Received: 14-DEC-2001

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.077		~~B~~ M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSD-T1-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118127-1

Level (low/med): LOW Date Received: 13-DEC-2001

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9300			P
7440-36-0	Antimony	12	U		P
7440-38-2	Arsenic	11			P
7440-39-3	Barium	240			P
7440-41-7	Beryllium	0.89			P
7440-43-9	Cadmium	14		J-F	P
7440-70-2	Calcium	5900			P
7440-47-3	Chromium	44			P
7440-48-4	Cobalt	12			P
7440-50-8	Copper	79		J-F	P
7439-89-6	Iron	16000		~~J-F~~	P
7439-92-1	Lead	39			P
7439-95-4	Magnesium	3300			P
7439-96-5	Manganese	110			P
7439-98-7	Molybdenum	1.1	B	μ-B	P
7440-02-0	Nickel	90		J-F	P
7440-09-7	Potassium	1600		E	P
7782-49-2	Selenium	2.8	B		P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	120			P
7440-28-0	Thallium	0.94	B	μ-B	P
7440-31-5	Tin	6.2	U		P
7440-62-2	Vanadium	32		~~J-F~~	P
7440-66-6	Zinc	6400		E J-F	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSD-T1-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118127-1

Level (low/med): LOW Date Received: 13-DEC-2001

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.14		N3.n	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSD-T2-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118127-2

Level (low/med): LOW Date Received: 13-DEC-2001

% Solids: 66.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8300			P
7440-36-0	Antimony	14	U		P
7440-38-2	Arsenic	18			P
7440-39-3	Barium	320			P
7440-41-7	Beryllium	0.65			P
7440-43-9	Cadmium	40		J-F	P
7440-70-2	Calcium	5500			P
7440-47-3	Chromium	55			P
7440-48-4	Cobalt	11			P
7440-50-8	Copper	130		J-F	P
7439-89-6	Iron	18000		~~J-F~~	P
7439-92-1	Lead	150			P
7439-95-4	Magnesium	3700			P
7439-96-5	Manganese	100			P
7439-98-7	Molybdenum	4.7			P
7440-02-0	Nickel	180		J-F	P
7440-09-7	Potassium	1700		~~E~~	P
7782-49-2	Selenium	6.9	U		P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	120			P
7440-28-0	Thallium	0.85	~~B~~	U-B	P
7440-31-5	Tin	6.6	~~B~~		P
7440-62-2	Vanadium	26		~~J-F~~	P
7440-66-6	Zinc	8200		~~E~~J-F	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

STL-Savannah

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSD-T2-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118127-2

Level (low/med): LOW Date Received: 13-DEC-2001

% Solids: 66.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.11		~~NG~~	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSD-T3-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118127-3

Level (low/med): LOW Date Received: 13-DEC-2001

% Solids: 70.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12000			P
7440-36-0	Antimony	2.9	U		P
7440-38-2	Arsenic	8.7			P
7440-39-3	Barium	250			P
7440-41-7	Beryllium	0.94			P
7440-43-9	Cadmium	15		J-F	P
7440-70-2	Calcium	5600			P
7440-47-3	Chromium	57			P
7440-48-4	Cobalt	11			P
7440-50-8	Copper	84		J-F	P
7439-89-6	Iron	17000		~~J-F~~	P
7439-92-1	Lead	36			P
7439-95-4	Magnesium	4100			P
7439-96-5	Manganese	190			P
7439-98-7	Molybdenum	1.0	~~B~~	U-B	P
7440-02-0	Nickel	250		J-F	P
7440-09-7	Potassium	2100		~~E~~	P
7782-49-2	Selenium	1.0	~~B~~	U-B	P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	160			P
7440-28-0	Thallium	1.1	~~B~~	U-B	P
7440-31-5	Tin	7.1	U		P
7440-62-2	Vanadium	34		~~J-F~~	P
7440-66-6	Zinc	2000		~~E~~ J-F	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSD-T3-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118127-3

Level (low/med): LOW Date Received: 13-DEC-2001

% Solids: 70.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.070		B,M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSD-T4-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118127-4

Level (low/med): LOW Date Received: 13-DEC-2001

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14000			P
7440-36-0	Antimony	6.0	U		P
7440-38-2	Arsenic	15			P
7440-39-3	Barium	290			P
7440-41-7	Beryllium	0.99			P
7440-43-9	Cadmium	28		J-F	P
7440-70-2	Calcium	5200			P
7440-47-3	Chromium	46			P
7440-48-4	Cobalt	9.2			P
7440-50-8	Copper	230		J-F	P
7439-89-6	Iron	20000		~~J-F~~	P
7439-92-1	Lead	61			P
7439-95-4	Magnesium	3600			P
7439-96-5	Manganese	150			P
7439-98-7	Molybdenum	1.5		M-3	P
7440-02-0	Nickel	410		J-F	P
7440-09-7	Potassium	2100		~~E~~	P
7782-49-2	Selenium	3.0	U		P
7440-22-4	Silver	1.5	U		P
7440-23-5	Sodium	180			P
7440-28-0	Thallium	1.5	U		P
7440-31-5	Tin	7.5	U		P
7440-62-2	Vanadium	36		~~J-F~~	P
7440-66-6	Zinc	3100		~~E~~ J-F	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSD-T4-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118127-4

Level (low/med): LOW Date Received: 13-DEC-2001

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.71		~~N~~ J-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

18

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSD-T5-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118127-5

Level (low/med): LOW Date Received: 13-DEC-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12000			P
7440-36-0	Antimony	2.7	U		P
7440-38-2	Arsenic	5.7			P
7440-39-3	Barium	200			P
7440-41-7	Beryllium	0.66			P
7440-43-9	Cadmium	8.5		J-F	P
7440-70-2	Calcium	4000			P
7440-47-3	Chromium	41			P
7440-48-4	Cobalt	6.0			P
7440-50-8	Copper	190		J-F	P
7439-89-6	Iron	14000		~~J-F~~	P
7439-92-1	Lead	23			P
7439-95-4	Magnesium	2900			P
7439-96-5	Manganese	110			P
7439-98-7	Molybdenum	0.96	~~B~~	LW-B	P
7440-02-0	Nickel	260		J-F	P
7440-09-7	Potassium	1600		~~E~~	P
7782-49-2	Selenium	1.4	~~B~~	U-B	P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	140			P
7440-28-0	Thallium	1.4	U		P
7440-31-5	Tin	6.8	U		P
7440-62-2	Vanadium	33		~~J-F~~	P
7440-66-6	Zinc	1800		~~E~~ J-F	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSD-T5-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118127-5

Level (low/med): LOW Date Received: 13-DEC-2001

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.065		~~N~~ J-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSD-T6-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118127-6

Level (low/med): LOW Date Received: 13-DEC-2001

% Solids: 69.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9800			P
7440-36-0	Antimony	5.3	U		P
7440-38-2	Arsenic	10			P
7440-39-3	Barium	570			P
7440-41-7	Beryllium	0.90			P
7440-43-9	Cadmium	13		J-F	P
7440-70-2	Calcium	25000			P
7440-47-3	Chromium	53			P
7440-48-4	Cobalt	7.6			P
7440-50-8	Copper	1600		J-F	P
7439-89-6	Iron	18000		~~J-F~~	P
7439-92-1	Lead	280			P
7439-95-4	Magnesium	5000			P
7439-96-5	Manganese	160			P
7439-98-7	Molybdenum	7.0			P
7440-02-0	Nickel	530		J-F	P
7440-09-7	Potassium	1700		~~E~~	P
7782-49-2	Selenium	1.7	~~B~~	U-B	P
7440-22-4	Silver	1.5			P
7440-23-5	Sodium	330			P
7440-28-0	Thallium	1.3	U		P
7440-31-5	Tin	11			P
7440-62-2	Vanadium	28		~~J-F~~	P
7440-66-6	Zinc	3100		~~E~~ J-F	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSD-T6-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL074

Matrix (soil/water): SOIL Lab Sample ID: S118127-6

Level (low/med): LOW Date Received: 13-DEC-2001

% Solids: 69.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.33		Mg-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Sample Number: S118162*1
Matrix: SS
Date Received: 12-14-2001

Sample Description: CBS-CSC-T1-1
SDG#: SIL074

ical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.67U	mg/kg_dw	12-20-2001	1	1218S
TOC-9060	12000	mg/kg dw	12-20-2001	1	1220X

Sample Number: S118162*2 Sample Description: CBS-CSC-T2-1
Matrix: SS SDG#: SIL074
Date Received: 12-14-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.71U	mg/kg_dw	12-20-2001	1	1218S
TOC-9060	14000	mg/kg dw	12-20-2001	1	1220X

Sample Number: S118162*3
Matrix: SS
Date Received: 12-14-2001

Sample Description: CBS-CSC-T3-1
SDG#: SIL074

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.74U	mg/kg_dw	12-20-2001	1	1218S
TOC-9060	24000	mg/kg dw	12-20-2001	1	1220X

Sample Number: S118162*4
Matrix: SS
Date Received: 12-14-2001

Sample Description: CBS-CSC-T4-1
SDG#: SIL074

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.72U	mg/kg_dw	12-20-2001	1	1218S
TOC-9060	15000	mg/kg dw	12-20-2001	1	1220X

Sample Number: S118162*5
Matrix: SS
Date Received: 12-14-2001

Sample Description: CBS-CSC-T4-1-FD
SDG#: SIL074

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.76U	mg/kg_dw	12-20-2001	1	1218S
TOC-9060	16000	mg/kg dw	12-20-2001	1	1220X

Sample Number: S118162*6 Sample Description: CBS-CSC-T5-1
Matrix: SS SDG#: SIL074
Date Received: 12-14-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.77U	mg/kg_dw	12-20-2001	1	1218S
TOC-9060	18000	mg/kg dw	12-20-2001	1	1220X

Sample Number: S118162*7
Matrix: SS
Date Received: 12-14-2001

Sample Description: CBS-CSC-T6-1
SDG#: SIL074

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.76U	mg/kg_dw	12-20-2001	1	1218S
TOC-9060	33000	mg/kg dw	12-20-2001	1	1220X

Sample Number: S118162*8 Sample Description: CBS-CSC-T7-1
Matrix: SS SDG#: SIL074
Date Received: 12-14-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.71U	mg/kg_dw	12-20-2001	1	1218S
TOC-9060	15000	mg/kg dw	12-20-2001	1	1220X

Sample Number: S118162*9
Matrix: SS
Date Received: 12-14-2001

Sample Description: CBS-CSC-T8-1
SDG#: SIL074

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.74U	mg/kg_dw	12-20-2001	1	1218S
TOC-9060	23000	mg/kg dw	12-20-2001	1	1220X

Sample Number: S118162*10 Sample Description: CBS-CSC-T9-1
Matrix: SS SDG#: SIL074
Date Received: 12-14-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.64U	mg/kg_dw	12-20-2001	1	1218S
TOC-9060	15000	mg/kg dw	12-20-2001	1	1220X

Sample Number: S118127*1
Matrix: SS
Date Received: 12-13-2001

Sample Description: CBS-CSD-T1-1
SDG#: SIL074

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.72U U3-M	mg/kg_dw	12-20-2001	1	1218T
TOC-9060	16000	mg/kg dw	12-20-2001	1	1220X

Sample Number: S118127*2 Sample Description: CBS-CSD-T2-1
Matrix: SS SDG#: SIL074
Date Received: 12-13-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.74U	mg/kg_dw	12-20-2001	1	1218T
TOC-9060	20000	mg/kg dw	12-20-2001	1	1220X

Sample Number: S118127*3
Matrix: SS
Date Received: 12-13-2001

Sample Description: CBS-CSD-T3-1
SDG#: SIL074

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.71	mg/kg_dw	12-20-2001	1	1218T
TOC-9060	13000	mg/kg dw	12-20-2001	1	1220X

Sample Number: S118127*4 Sample Description: CBS-CSD-T4-1
Matrix: SS SDG#: SIL074
Date Received: 12-13-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.72 J-M	mg/kg_dw	12-20-2001	1	1218T
TOC-9060	19000	mg/kg dw	12-20-2001	1	1220X

Sample Number: S118127*5
Matrix: SS
Date Received: 12-13-2001

Sample Description: CBS-CSD-T5-1
SDG#: SIL074

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.67 UJ-R1	mg/kg_dw	12-20-2001	1	1218T
TOC-9060	11000	mg/kg dw	12-20-2001	1	1220X

Sample Number: S118127*6
Matrix: SS
Date Received: 12-13-2001

Sample Description: CBS-CSD-T6-1
SDG#: SIL074

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.70	mg/kg_dw	12-20-2001	1	1218T
TOC-9060	29000	mg/kg dw	12-20-2001	1	1220X

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 18, 2002
From:	Phuong Vu/Westford	**File:**	SO015inoDPV.doc 06105-012-202
RE:	Data Validation Inorganics Analyses Solutia Inc. Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL081	**CC:**	D. McGrath/Westford

SUMMARY

Full validation was performed on the data for four sediment samples analyzed for total metals by SW-846 methods 6010B and 7471A, and for total cyanide by SW-846 method 9012A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on November 9, 2001 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the samples and reported the results under sample delivery group (SDG) SIL081.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSF-T6-1	CBS-CSF-T7-1
CBS-CSF-T6-1FD (field duplicate of CBS-CSF-T6-1)	CBS-CSF-T13-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Calibrations
- Laboratory blanks
- Inductively coupled plasma (ICP) interference check sample (ICS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicates
- Laboratory control sample (LCS) results
- Serial dilution results
- Sample quantitation /detection limit results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. No discrepancies were noted.

Holding Times/Sample Preservation

All samples were digested and analyzed within the method specified holding times for metals and cyanide.

Calibrations

All criteria were met for the calibration curves and the initial and continuing calibration verification (ICV/CCV) standards. Although a Contract Required Detection Limit (CRDL) standard is not applicable to SW-846 methods, the laboratory chose to analyze a similar standard (CRI for ICP and CRA for AA analyses). A percent recovery (%R) acceptance limit of 100±20% was used to evaluate these standards. All CRI and CRA standards met the acceptance criteria with the following exceptions. Actions taken are indicated.

Calibration	Analyte	Failure	Action
CRI standard	Antimony Iron Molybdenum Mercury	78% 121%, 79% 70% 55%	Estimate positive results (J) < 2x CRI concentration and nondetects (UJ).
Associated samples: All sediment samples.			

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and/or in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected in the blanks and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
ICB/CCB	Barium	1.75	0.875
	Chromium	2.06	1.03
	Molybdenum	2.95	1.475
	Mercury	-0.15	-0.0375
	Selenium	6.57	3.285
	Thallium	6.46	3.23
	Vanadium	1.55	0.775
* Corrected for percent solids for each sample. Associated samples: All sediment samples.			

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

For negative contamination:

- Sample results ≥ MDL but ≤ the absolute value of the AL were qualified as estimated (J) at the reported concentration.
- Nondetected results (< MDL) were qualified as estimated nondetects (UJ).
- Sample results > the absolute value of the AL were not qualified.

ICP ICS Results

All criteria were met for the analysis of the ICS AB solution. Various analytes that should not be present in the ICS A solutions were detected at greater than the MDL. Evaluation of the ICS was based on the highest of the MDL exceedances.

Cadmium, chromium, lead, selenium, and zinc were detected as positive interference. Arsenic and vanadium were detected as negative interference. The presence of ICS A interference indicates that false positives or false negative may exist for these analytes in the samples. Estimated interferences were calculated for these analytes in samples where one or more concentrations of an interfering element (aluminum, calcium, iron, and magnesium) were greater than 50% of that found in the ICS A solution. All sediments in this data set contained iron at more than 50% of the level found in the ICS A solution. These estimated interferences were used to qualify the affected samples as follows:

For positive interference:

- If the estimated interference is < 10% of sample result, report the result unqualified.
- If the estimated interference is > 10% of sample result, qualify the positive result as estimated (J).
- If the sample result is a nondetected value, report the nondetect unqualified.

For negative interference:

- If the estimated interference is < 10% of sample result, report the result unqualified.
- If the estimated interference is > 10% of sample result, qualify the positive result as estimated (J).
- If the sample result is a nondetected value, qualify the nondetect as estimated (UJ).

MS/MSD Results

Batch QC MS/MSD analyses were performed on a sample from a different client. Although this practice is acceptable, the results of these analyses were not used to evaluate samples from this SDG due to differences in sample matrices, type, etc. No validation action was taken on this basis.

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

Field Duplicates

Samples CBS-CSF-T6-1 and CBS-CSF-T6-1FD were submitted as the field duplicate pair with this sample set. The following table summarizes the relative percent differences (RPDs) of the detected analytes in the field duplicate pair. With the exception of cyanide, all RPDs were within the QC acceptance criteria. The RPD of cyanide were not calculable (NC) due to a nondetect value in sample CBS-CSF-T6-1. Since the result for cyanide in the duplicate sample CBS-CSF-T6-1FD was greater than 10x the PQL, it was the opinion of the validator that field duplicate criteria for cyanide should be considered as not met. Positive results and nondetects for cyanide in all sediments were therefore qualified as estimated (J and UJ, respectively).

Results of field duplicate samples CBS-CSF-T6-1 and CBS-CSF-T6-1FD:

Analyte	Sample (mg/Kg)	Duplicate (mg/Kg)	RPD (%)
Aluminum	11000	9100	19%
Arsenic	11	8.6	24%
Barium	200	200	0%
Beryllium	0.71	0.66	7%
Cadmium	27	25	8%
Calcium	8900	7700	14%
Chromium	16	14	13%
Cobalt	9.5	8.8	8%
Copper	84	80	5%
Iron	20000	16000	22%
Lead	29	27	7%
Magnesium	6000	5200	14%
Manganese	320	210	42%
Mercury	0.14	0.095	38%
Nickel	210	160	27%
Potassium	1800	1400	25%
Sodium	140	120	15%
Vanadium	30	25	18%
Zinc	2500	1600	44%
Cyanide	0.74 U	8.4	NC

LCS Results

The %Rs of all spiked analytes met the QC acceptance criteria in the LCS analyses.

Serial Dilution Results

Serial dilution analysis was performed on samples CBS-CSF-T6-1 and CBS-CSF-T13-1 (for antimony, selenium, and zinc only). The following table summarizes the percent differences (%Ds) of the nonconforming serial dilution analysis. Actions taken are indicated for the affected analytes in all sediment samples in this SDG.

Sample	Analyte	%D	Action
CBS-CSF-T6-1	Potassium	12	Estimate positive results (J)
	Mercury	23	

Sample Quantitation/Detection Limit Results

The percent solids for all samples in the data set were >50%.

Result calculations were spot-checked; no discrepancies were noted.

Sample CBS-CSF-T6-1 was reanalyzed at 2-fold dilution for zinc due to the high concentration of zinc, which exceeded the instrument linear range in the initial undiluted analysis. Due to interelement correction factor, results for antimony and selenium were also reported from the reanalysis of this sample.

The result for antimony in sample CBS-CSF-T6-1 was negative with an absolute value greater than the MDL. The result for antimony in this sample was qualified as estimated nondetect (UJ) for a negative bias.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T6-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL081

Matrix (soil/water): SOIL Lab Sample ID: S240367-1

Level (low/med): LOW Date Received: 17-JAN-2002

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	13000			P	
7440-36-0	Antimony	5.4	~~B~~		P	UJ-C-N
7440-38-2	Arsenic	7.5			P	J-A
7440-39-3	Barium	290			P	
7440-41-7	Beryllium	0.89			P	
7440-43-9	Cadmium	70			P	
7440-70-2	Calcium	8300			P	
7440-47-3	Chromium	39			P	
7440-48-4	Cobalt	16			P	
7440-50-8	Copper	280			P	
7439-89-6	Iron	21000			P	
7439-92-1	Lead	45			P	
7439-95-4	Magnesium	5900			P	
7439-96-5	Manganese	290			P	
7439-98-7	Molybdenum	0.90	~~B~~		P	UJ-C-B
7440-02-0	Nickel	250			P	
7440-09-7	Potassium	2300		~~B~~	P	J-Y
7782-49-2	Selenium	2.4	~~B~~		P	UJ~~B~~-~~Z~~ A
7440-22-4	Silver	1.4	U		P	
7440-23-5	Sodium	160			P	
7440-28-0	Thallium	1.2	~~B~~		P	U-B
7440-31-5	Tin	6.8	U		P	
7440-62-2	Vanadium	30			P	
7440-66-6	Zinc	3200			P	

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T6-1-FD

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL081

Matrix (soil/water): SOIL Lab Sample ID: S240367-2

Level (low/med): LOW Date Received: 17-JAN-2002

% Solids: 70.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	11000			P	
7440-36-0	Antimony	2.6	~~U~~		P	UJ-C
7440-38-2	Arsenic	11			P	~~J-AS~~
7440-39-3	Barium	200			P	
7440-41-7	Beryllium	0.71			P	
7440-43-9	Cadmium	27			P	
7440-70-2	Calcium	8900			P	
7440-47-3	Chromium	16			P	
7440-48-4	Cobalt	9.5			P	
7440-50-8	Copper	84			P	
7439-89-6	Iron	20000			P	
7439-92-1	Lead	29			P	
7439-95-4	Magnesium	6000			P	
7439-96-5	Manganese	320			P	
7439-98-7	Molybdenum	0.95	~~B~~		P	UJ-C-B
7440-02-0	Nickel	210			P	
7440-09-7	Potassium	1800		~~E~~	P	J-Y
7782-49-2	Selenium	1.3			P	UJ-B-~~E~~ A
7440-22-4	Silver	1.3	U		P	
7440-23-5	Sodium	140			P	
7440-28-0	Thallium	1.6			P	U-B
7440-31-5	Tin	6.5	U		P	
7440-62-2	Vanadium	30			P	
7440-66-6	Zinc	2500			P	

DRV 4/23/

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T7-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL081

Matrix (soil/water): SOIL Lab Sample ID: S240367-3

Level (low/med): LOW Date Received: 17-JAN-2002

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	9100			P	
7440-36-0	Antimony	2.8	~~B~~		P	UJ-C
7440-38-2	Arsenic	8.6			P	
7440-39-3	Barium	200			P	
7440-41-7	Beryllium	0.66			P	
7440-43-9	Cadmium	25			P	
7440-70-2	Calcium	7700			P	
7440-47-3	Chromium	14			P	
7440-48-4	Cobalt	8.8			P	
7440-50-8	Copper	80			P	
7439-89-6	Iron	16000			P	
7439-92-1	Lead	27			P	
7439-95-4	Magnesium	5200			P	
7439-96-5	Manganese	210			P	
7439-98-7	Molybdenum	1.2	~~B~~		P	UJ-C-B
7440-02-0	Nickel	160			P	
7440-09-7	Potassium	1400		~~E~~	P	J-Y
7782-49-2	Selenium	1.2	~~B~~		P	UJ-B-~~Z~~A
7440-22-4	Silver	1.4	U		P	
7440-23-5	Sodium	120			P	
7440-28-0	Thallium	1.4	U		P	
7440-31-5	Tin	6.9	U		P	
7440-62-2	Vanadium	25			P	
7440-66-6	Zinc	1600			P	

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T13-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL081

Matrix (soil/water): SOIL Lab Sample ID: S240367-4

Level (low/med): LOW Date Received: 17-JAN-2002

% Solids: 75.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	5900			P	
7440-36-0	Antimony	2.4	B		P	UJ-C
7440-38-2	Arsenic	4.1			P	
7440-39-3	Barium	170			P	
7440-41-7	Beryllium	0.38	B		P	
7440-43-9	Cadmium	6.9			P	
7440-70-2	Calcium	14000			P	
7440-47-3	Chromium	9.3			P	
7440-48-4	Cobalt	5.6			P	
7440-50-8	Copper	23			P	
7439-89-6	Iron	11000			P	
7439-92-1	Lead	7.5			P	
7439-95-4	Magnesium	6100			P	
7439-96-5	Manganese	180			P	
7439-98-7	Molybdenum	0.80	B		P	UJ - C-B
7440-02-0	Nickel	68			P	
7440-09-7	Potassium	1100		J	P	J-Y
7782-49-2	Selenium	0.76	B		P	U-B
7440-22-4	Silver	1.2	U		P	
7440-23-5	Sodium	140			P	
7440-28-0	Thallium	1.2	U		P	
7440-31-5	Tin	6.1	U		P	
7440-62-2	Vanadium	17			P	
7440-66-6	Zinc	400			P	

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T6-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL081

Matrix (soil/water): SOIL Lab Sample ID: S240367-1

Level (low/med): LOW Date Received: 17-JAN-2002

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.14			CV

J-4

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T6-1-FD

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL081

Matrix (soil/water): SOIL Lab Sample ID: S240367-2

Level (low/med): LOW Date Received: 17-JAN-2002

% Solids: 70.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.095			CV

J-Y

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T7-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL081

Matrix (soil/water): SOIL Lab Sample ID: S240367-3

Level (low/med): LOW Date Received: 17-JAN-2002

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.086			CV

J-4

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T13-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL081

Matrix (soil/water): SOIL Lab Sample ID: S240367-4

Level (low/med): LOW Date Received: 17-JAN-2002

% Solids: 75.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.018	B		CV

J-C-B-Y

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Sample Number: S240367*1
Matrix: SS
Date Received: 01-17-2002

Sample Description: CBS-CSF-T6-1
SDG#: SIL081

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.74UJ-F	mg/kg_dw	01-21-2002	1	0121S
TOC-9060	11000	mg/kg dw	01-25-2002	1	0125X

Sample Number: S240367*2
Matrix: SS
Date Received: 01-17-2002

Sample Description: CBS-CSF-T6-1-FD
SDG#: SIL081

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	8.4 J-F	mg/kg_dw	01-21-2002	1	0121S
TOC-9060	10000	mg/kg dw	01-25-2002	1	0125X

Sample Number: S240367*3
Matrix: SS
Date Received: 01-17-2002

Sample Description: CBS-CSF-T7-1
SDG#: SIL081

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.67UJ-F	mg/kg_dw	01-21-2002	1	0121S
TOC-9060	6300	mg/kg dw	01-25-2002	1	0125X

Sample Number: S240367*4 Sample Description: CBS-CSF-T13-1
Matrix: SS SDG#: SIL081
Date Received: 01-17-2002

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.66UJ-F	mg/kg_dw	01-21-2002	1	0121S
TOC-9060	7500	mg/kg dw	01-25-2002	1	0125X

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 19, 2002
From:	Sheena Blair/Westford	**File:**	SO016inoSB.doc 06105-012-201
RE:	Data Validation Inorganic Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL075	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for 10 sediment samples analyzed for total metals by SW-846 methods 6010B and 7471A, and for total cyanide by SW-846 method 9012A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on December 18, 2001 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the samples and reported the results under sample delivery group (SDG) SIL075.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSE-T1-1	CBS-CSE-T2-1
CBS-CSE-T3-1	CBS-CSE-T3-1-FD (field duplicate of CBS-CSE-T3-1)
CBS-CSE-T4-1	CBS-CSE-T5-1
CBS-CSE-T14-1	CBS-CSE-T15-1
CBS-CSE-T15-1-FD (field duplicate of CBS-CSE-T15-1)	CBS-CSE-T6-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Laboratory blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field Duplicates
- Laboratory control sample (LCS) results
- Sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. No discrepancies were noted.

Holding Times/Sample Preservation

All samples were digested and analyzed within the method specified holding times for metals and cyanide.

The laboratory does not record cooler temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptance range of 4°C ± 2° C). Non-conformances were not observed for this sample set.

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected in the blanks and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
Method Blank	Mercury	-0.00450 mg/kg	-0.0225
ICB/CCB 1/4/02	Aluminum	96.4	48.2
	Antimony	-6.38	-3.19
	Barium	2.85	1.43
	Chromium	2.65	1.33
	Manganese	3.2	1.60
	Molybdenum	2.27	1.14
	Thallium	7.48	3.74
	Selenium	8.17	4.09
	Vanadium	2.54	4.98
ICB/CCB 1/11/02	Thallium	9.96	4.98

*Corrected for percent solids for each sample.
Associated samples Method blank and ICB/CCB 1/4/02: all samples except sample CBS-CSE-T3-1 for thallium .
ICB/CCB 1/11/01: sample CBS-CSE-T3-1

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

For negative contamination:

- Sample results ≥ MDL but ≤ the absolute value of the AL were qualified as estimated (J) at the reported concentration.
- Nondetected results (< MDL) were qualified as estimated nondetects (UJ).
- Sample results > the absolute value of the AL were not qualified.

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MS/MSD Results

MS/MSD analyses were performed on sample CBS-CSE-T1-1 for ICP metals and cyanide and on sample CBS-CSF-T6-1 for mercury. The following table summarizes the percent recoveries (%Rs) and/or relative percent differences (RPDs) in the MS/MSD analyses that exceeded QC acceptance criteria and the actions for the affected analytes in all samples in this data set.

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
CBS-CSE-T1-1	Antimony	35/35	Ok	Estimate positive results (J) and nondetects (UJ).
	Cadmium	62/191	41	Estimate positive results (J) and nondetects (UJ).
	Chromium	-24/-21	Ok	Estimate positive results (J) and reject (R) nondetects.
	Potassium	141/153	Ok	Estimate positive results (J).
	Lead	Ok/63	Ok	Estimate positive results (J) and nondetects (UJ).
	Copper	NC/NC	26	Estimate positive results (J) and nondetects (UJ).
CBS-CSF-T6-1	Mercury	51/185	27	Estimate positive results (J) and nondetects (UJ).
NC = not calculable due to a sample result >x4 the spike amount.				

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed for metals. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

The laboratory performed laboratory duplicate analyses for cyanide on sample CBS-CSE-T4-1 and CBS-CSE-T5-1. The samples and the duplicates were non detect for cyanide. The RPDs were considered to be acceptable. No validation action was taken.

Field Duplicates

Samples CBS-CSE-T3-1/CBS-CSE-T3-1-FD and CBS-CSE-T15-1/CBS-CSE-T15-1-FD were submitted as the field duplicate pairs with this SDG. The following tables summarize the RPDs of the detected analytes in the field duplicate pairs. The RPDs for all compounds were within the QC acceptance criteria.

Compound	CBS-CSE-T3-1 (mg/kg)	CBS-CSB-T3-1-FD (mg/kg)	RPD (%)
Aluminum	11000	9200	18
Arsenic	14	12	15
Barium	220	190	15
Beryllium	0.73	0.67	9
Cadmium	21	18	15
Calcium	4800	4200	13
Chromium	120	100	18
Cobalt	6.8	5.9	14
Copper	92	90	2
Iron	16000	13000	21
Lead	52	57	9
Magnesium	3200	2700	17
Manganese	130	100	26
Mercury	0.076	0.11	37
Nickel	220	180	20
Potassium	1900	1700	11

Compound	CBS-CSE-T3-1 (mg/kg)	CBS-CSB-T3-1-FD (mg/kg)	RPD (%)
Sodium	250	210	17
Vanadium	32	30	6
Zinc	2300	2000	14

Compound	CBS-CSE-T15-1 (mg/kg)	CBS-CSB-T15-1-FD (mg/kg)	RPD (%)
Aluminum	7300	6800	7
Arsenic	6.5	6.9	6
Barium	160	140	13
Beryllium	0.57	0.52	9
Cadmium	2.7	3.6	29
Calcium	6800	6400	6
Chromium	14	14	0
Cobalt	7.1	5.9	18
Copper	24	25	4
Iron	14000	15000	7
Lead	24	20	18
Magnesium	3900	3600	8
Manganese	180	220	20
Mercury	0.25	0.19	27
Nickel	56	61	9
Potassium	1700	1500	13
Sodium	170	170	0
Vanadium	23	21	9
Zinc	560	690	21

LCS/LCSD Results

A LCS analyses was performed for mercury and LCS/LCSD analyses were performed for metals and cyanide.

The %Rs and RPDs (where applicable) of all spiked analytes met the QC acceptance criteria in the LCS and/or LCSD analyses.

Sample Results

The percent solids for all samples in the data set were >50%.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

Savannah

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T1-1

ract:

Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

:ix (soil/water): SOIL Lab Sample ID: S118270-1

el (low/med): LOW Date Received: 19-DEC-2001

olids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9800			P
7440-36-0	Antimony	2.7	~~U~~	~~N~~J-B	MP
7440-38-2	Arsenic	8.8			P
7440-39-3	Barium	230			P
7440-41-7	Beryllium	0.78			P
7440-43-9	Cadmium	13		~~N~~J-M	DP
7440-70-2	Calcium	6600			P
7440-47-3	Chromium	57		~~N~~J-M	P
7440-48-4	Cobalt	6.9			P
7440-50-8	Copper	380		~~N~~J-D	P
7439-89-6	Iron	17000			P
7439-92-1	Lead	58		~~N~~J-M	P
7439-95-4	Magnesium	3800			P
7439-96-5	Manganese	120			P
7439-98-7	Molybdenum	0.55	~~B~~	U-B	P
7440-02-0	Nickel	260			P
7440-09-7	Potassium	1900		~~N~~J-M	P
7782-49-2	Selenium	0.71	~~B~~	U-B	P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	310			P
7440-28-0	Thallium	1.7		U-B	P
7440-31-5	Tin	6.8	U		P
7440-62-2	Vanadium	29			P
7440-66-6	Zinc	2900			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TL-Savannah

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T1-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-1

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.11		~~N~~ [illegible]	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T2-1

ontract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

atrix (soil/water): SOIL Lab Sample ID: S118270-2

evel (low/med): LOW Date Received: 19-DEC-2001

Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7000			P
7440-36-0	Antimony	0.75	~~B~~	~~N~~J-B	M P
7440-38-2	Arsenic	8.5			P
7440-39-3	Barium	170			P
7440-41-7	Beryllium	0.39	~~B~~		P
7440-43-9	Cadmium	11		~~N~~J-M	D P
7440-70-2	Calcium	3500			P
7440-47-3	Chromium	120		~~N~~J-M	P
7440-48-4	Cobalt	3.2			P
7440-50-8	Copper	480		~~N~~J-D	P
7439-89-6	Iron	8700			P
7439-92-1	Lead	130		~~N~~J-M	P
7439-95-4	Magnesium	1500			P
7439-96-5	Manganese	61			P
7439-98-7	Molybdenum	0.35	~~B~~	U-B	P
7440-02-0	Nickel	190			P
7440-09-7	Potassium	1300		~~N~~J-M	P
7782-49-2	Selenium	0.83	~~B~~	U-B	P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	190			P
7440-28-0	Thallium	1.2	~~B~~	U-B	P
7440-31-5	Tin	6.8	U		P
7440-62-2	Vanadium	18			P
7440-66-6	Zinc	1300			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T2-1

ontract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

atrix (soil/water): SOIL Lab Sample ID: S118270-2

evel (low/med): LOW Date Received: 19-DEC-2001

Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.25		~~N~~ 5-11-01	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T3-1

:ontract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

latrix (soil/water): SOIL Lab Sample ID: S118270-3

evel (low/med): LOW Date Received: 19-DEC-2001

Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	2.7	~~U~~	~~N~~ US-B+M	P
7440-38-2	Arsenic	14			P
7440-39-3	Barium	220			P
7440-41-7	Beryllium	0.73			P
7440-43-9	Cadmium	21		~~N~~ J-M+D	P
7440-70-2	Calcium	4800			P
7440-47-3	Chromium	120		~~N~~ J-M	P
7440-48-4	Cobalt	6.8			P
7440-50-8	Copper	92		~~N~~ J-D	P
7439-89-6	Iron	16000			P
7439-92-1	Lead	52		~~N~~ J-M	P
7439-95-4	Magnesium	3200			P
7439-96-5	Manganese	130			P
7439-98-7	Molybdenum	0.58	~~B~~	U-B	P
7440-02-0	Nickel	220			P
7440-09-7	Potassium	1900		~~N~~ J-M	P
7782-49-2	Selenium	1.3	U		P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	250			P
7440-28-0	Thallium	0.91	~~B~~	U-B	P
7440-31-5	Tin	6.7	U		P
7440-62-2	Vanadium	32			P
7440-66-6	Zinc	2300			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T3-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-3

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.076		NG	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T3-1-FD

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-4

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 71.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9200			P
7440-36-0	Antimony	2.3	~~U~~	~~N~~ ~~W-B~~ M	P
7440-38-2	Arsenic	12			P
7440-39-3	Barium	190			P
7440-41-7	Beryllium	0.67			P
7440-43-9	Cadmium	18		~~N~~ J-M-D	P
7440-70-2	Calcium	4200			P
7440-47-3	Chromium	100		~~N~~ J-M	P
7440-48-4	Cobalt	5.9			P
7440-50-8	Copper	90		~~N~~ J-D	P
7439-89-6	Iron	13000			P
7439-92-1	Lead	57		~~N~~ J-M	P
7439-95-4	Magnesium	2700			P
7439-96-5	Manganese	100			P
7439-98-7	Molybdenum	0.39	~~B~~	U-B	P
7440-02-0	Nickel	180			P
7440-09-7	Potassium	1700		~~N~~ J-M	P
7782-49-2	Selenium	1.2	U		P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	210			P
7440-28-0	Thallium	1.0	~~B~~	U-B	P
7440-31-5	Tin	5.9	U		P
7440-62-2	Vanadium	30			P
7440-66-6	Zinc	2000			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSE-T3-1-FD

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-4

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 71.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.11		~~B~~	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T4-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-5

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8700			P
7440-36-0	Antimony	2.5	~~U~~	~~N~~ UJ-B M	P
7440-38-2	Arsenic	7.4			P
7440-39-3	Barium	220			P
7440-41-7	Beryllium	0.80			P
7440-43-9	Cadmium	16		~~N~~ J-M-D	P
7440-70-2	Calcium	5300			P
7440-47-3	Chromium	29		~~N~~ J-M	P
7440-48-4	Cobalt	6.6			P
7440-50-8	Copper	240		~~N~~ J-D	P
7439-89-6	Iron	14000			P
7439-92-1	Lead	39		~~N~~ J-M	P
7439-95-4	Magnesium	3300			P
7439-96-5	Manganese	110			P
7439-98-7	Molybdenum	0.39	~~B~~	U-B	P
7440-02-0	Nickel	220			P
7440-09-7	Potassium	1600		~~N~~ J-M	P
7782-49-2	Selenium	1.3	U		P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	290			P
7440-28-0	Thallium	1.6		U-B	P
7440-31-5	Tin	6.3	U		P
7440-62-2	Vanadium	27			P
7440-66-6	Zinc	2600			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSE-T4-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-5

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.083		~~NS~~	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Form I - IN

SW-846

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T5-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-6

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 77.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5500			P
7440-36-0	Antimony	2.4	U	N,J-B	P
7440-38-2	Arsenic	2.8			P
7440-39-3	Barium	200			P
7440-41-7	Beryllium	0.31	B		P
7440-43-9	Cadmium	10		N,J-M	P
7440-70-2	Calcium	3300			P
7440-47-3	Chromium	170		N,J-M	P
7440-48-4	Cobalt	4.3			P
7440-50-8	Copper	64		J	P
7439-89-6	Iron	7500			P
7439-92-1	Lead	89		N,J-M	P
7439-95-4	Magnesium	1900			P
7439-96-5	Manganese	95			P
7439-98-7	Molybdenum	1.2	U		P
7440-02-0	Nickel	120			P
7440-09-7	Potassium	1400		N,J-M	P
7782-49-2	Selenium	1.2	U		P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	190			P
7440-28-0	Thallium	1.4		U-B	P
7440-31-5	Tin	5.9	U		P
7440-62-2	Vanadium	18			P
7440-66-6	Zinc	1600			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSE-T5-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-6

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 77.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.094		~~NJ~~	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T14-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-7

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12000			P
7440-36-0	Antimony	2.7	~~U~~	~~N~~ UJ-B	MP
7440-38-2	Arsenic	6.8			P
7440-39-3	Barium	250			P
7440-41-7	Beryllium	0.92			P
7440-43-9	Cadmium	5.6		~~N~~ J-M-D	P
7440-70-2	Calcium	7300			P
7440-47-3	Chromium	19		~~N~~ J-M	P
7440-48-4	Cobalt	13			P
7440-50-8	Copper	40		~~*~~ J-D	P
7439-89-6	Iron	20000			P
7439-92-1	Lead	25		~~N~~ J-M	P
7439-95-4	Magnesium	5300			P
7439-96-5	Manganese	170			P
7439-98-7	Molybdenum	0.23	~~B~~	U-B	P
7440-02-0	Nickel	140			P
7440-09-7	Potassium	2600		~~N~~ J-M	P
7782-49-2	Selenium	1.3	U		P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	200			P
7440-28-0	Thallium	1.8		U-B	P
7440-31-5	Tin	6.7	U		P
7440-62-2	Vanadium	34			P
7440-66-6	Zinc	830			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T14-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-7

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.28		~~NJ~~	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T15-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-8

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 79.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7300			P
7440-36-0	Antimony	2.5	U	~~N~~ U-B	P
7440-38-2	Arsenic	6.5			P
7440-39-3	Barium	160			P
7440-41-7	Beryllium	0.57			P
7440-43-9	Cadmium	2.7		~~N~~ J-M-D	P
7440-70-2	Calcium	6800			P
7440-47-3	Chromium	14		~~N~~ J-M	P
7440-48-4	Cobalt	7.1			P
7440-50-8	Copper	24		~~N~~ J-D	P
7439-89-6	Iron	14000			P
7439-92-1	Lead	24		~~N~~ J-M	P
7439-95-4	Magnesium	3900			P
7439-96-5	Manganese	180			P
7439-98-7	Molybdenum	1.3	U		P
7440-02-0	Nickel	56			P
7440-09-7	Potassium	1700		~~N~~ J-M	P
7782-49-2	Selenium	1.3	U		P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	170			P
7440-28-0	Thallium	1.1	~~B~~	U-B	P
7440-31-5	Tin	6.3	U		P
7440-62-2	Vanadium	23			P
7440-66-6	Zinc	560			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T15-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-8

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 79.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.25		~~N~~ 5-MD	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T15-1-FD

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-9

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 78.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6800			P
7440-36-0	Antimony	2.3	~~U~~	~~N~~ W-B-M	P
7440-38-2	Arsenic	6.9			P
7440-39-3	Barium	140			P
7440-41-7	Beryllium	0.52			P
7440-43-9	Cadmium	3.6		~~N~~ J-M-D	P
7440-70-2	Calcium	6400			P
7440-47-3	Chromium	14		~~N~~ J-M	P
7440-48-4	Cobalt	5.9			P
7440-50-8	Copper	25		~~N~~ J-D	P
7439-89-6	Iron	15000			P
7439-92-1	Lead	20		~~N~~ J-M	P
7439-95-4	Magnesium	3600			P
7439-96-5	Manganese	220			P
7439-98-7	Molybdenum	0.22	~~B~~	U-B	P
7440-02-0	Nickel	61			P
7440-09-7	Potassium	1500		~~N~~ J-M	P
7782-49-2	Selenium	1.2	U		P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	170			P
7440-28-0	Thallium	1.3		U-B	P
7440-31-5	Tin	5.8	U		P
7440-62-2	Vanadium	21			P
7440-66-6	Zinc	690			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T15-1-FD

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-9

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 78.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.19		~~N~~ S-M	DCV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T6-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-10

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 70.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	2.6	U	~~N~~ UJ-B	MP
7440-38-2	Arsenic	7.1			P
7440-39-3	Barium	240			P
7440-41-7	Beryllium	0.84			P
7440-43-9	Cadmium	22		~~N~~ J-M	DP
7440-70-2	Calcium	6900			P
7440-47-3	Chromium	60		~~N~~ J-M	P
7440-48-4	Cobalt	8.1			P
7440-50-8	Copper	170		~~N~~ J-M	P
7439-89-6	Iron	19000			P
7439-92-1	Lead	50		~~N~~ J-M	P
7439-95-4	Magnesium	4400			P
7439-96-5	Manganese	140			P
7439-98-7	Molybdenum	1.3	U		P
7440-02-0	Nickel	170			P
7440-09-7	Potassium	2200		~~N~~ J-M	P
7782-49-2	Selenium	1.3	U		P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	240			P
7440-28-0	Thallium	1.2	~~B~~	UJ-B	P
7440-31-5	Tin	6.5	U		P
7440-62-2	Vanadium	31			P
7440-66-6	Zinc	2600			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSR-T6-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL075

Matrix (soil/water): SOIL Lab Sample ID: S118270-10

Level (low/med): LOW Date Received: 19-DEC-2001

% Solids: 70.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.25			CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Sample Number: S118270*1
Matrix: SS
Date Received: 12-19-2001

Sample Description: CBS-CSE-T1-1
SDG#: SIL075

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.72U	mg/kg_dw	12-28-2001	1	1227T
TOC-9060	12000	mg/kg dw	01-03-2002	1	0103X

Sample Number: S118270*2
Matrix: SS
Date Received: 12-19-2001

Sample Description: CBS-CSB-T2-1
SDG#: SIL075

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.64U	mg/kg_dw	12-28-2001	1	1227T
TOC-9060	9400	mg/kg dw	01-03-2002	1	0103X

Sample Number: S118270*3
Matrix: SS
Date Received: 12-19-2001

Sample Description: CBS-CSE-T3-1
SDG#: SIL075

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.73U	mg/kg_dw	12-28-2001	1	1227T
TOC-9060	18000	mg/kg dw	01-03-2002	1	0103X

Sample Number: S118270*4 Sample Description: CBS-CSE-T3-1-FD
Matrix: SS SDG#: SIL075
Date Received: 12-19-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.68U	mg/kg_dw	12-28-2001	1	1227T
TOC-9060	13000	mg/kg dw	01-03-2002	1	0103X

Sample Number: S118270*5
Matrix: SS
Date Received: 12-19-2001

Sample Description: CBS-CSE-T4-1
SDG#: SIL075

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.68U	mg/kg_dw	12-28-2001	1	1227T
TOC-9060	17000	mg/kg dw	01-03-2002	1	0103X

Sample Number: S118270*6
Matrix: SS
Date Received: 12-19-2001

Sample Description: CBS-CSE-T5-1
SDG#: SIL075

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.63U	mg/kg_dw	12-31-2001	1	1228U
TOC-9060	9600	mg/kg dw	01-03-2002	1	0103X

Sample Number: S118270*7
Matrix: SS
Date Received: 12-19-2001

Sample Description: CBS-CSE-T14-1
SDG#: SIL075

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.77U	mg/kg_dw	12-31-2001	1	1228U
TOC-9060	13000	mg/kg dw	01-03-2002	1	0103X

Sample Number: S118270*8
Matrix: SS
Date Received: 12-19-2001

Sample Description: CBS-CSB-T15-1
SDG#: SIL075

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.65U	mg/kg_dw	12-31-2001	1	1228U
TOC-9060	6900	mg/kg dw	01-03-2002	1	0103X

Sample Number: S118270*9
Matrix: SS
Date Received: 12-19-2001

Sample Description: CBS-CSE-T15-1-FD
SDG#: SIL075

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.63U	mg/kg_dw	12-31-2001	1	1228U
TOC-9060	6900	mg/kg dw	01-03-2002	1	0103X

Sample Number: S118270*10 Sample Description: CBS-CSE-T6-1
Matrix: SS SDG#: SIL075
Date Received: 12-19-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.74U	mg/kg_dw	12-31-2001	1	1228U
TOC-9060	24000	mg/kg dw	01-03-2002	1	0103X

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 23, 2002
From:	Sheena Blair/Westford	**File:**	SO017inoSB.doc 06105-012-201
RE:	Data Validation Inorganic Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL082	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for six sediment samples analyzed for total metals by SW-846 methods 6010B and 7471A, and for total cyanide by SW-846 method 9012A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on January 23 and 25, 2002 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the samples under project numbers S240504 and S240588 and reported the results under sample delivery group (SDG) SIL082.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications Project No. S240504	
CBS-CSF-T8-1	CBS-CSF-T9-1
CBS-CSF-T9-1-FD (field duplicate for CBS-CSF-T9-1)	CBS-CSF-T12-1

Sample Identifications Project No. S240588	
CBS-CSF-T10-1	CBS-CSF-T11-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Laboratory blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicates
- Laboratory control sample (LCS) results
- Sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. No discrepancies were noted.

Holding Times/Sample Preservation

All samples were digested and analyzed within the method specified holding times for metals and cyanide.

The laboratory does not record cooler temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptance range of 4°C ± 2° C). Non-conformances were not observed for this sample set.

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Project No. S240504			
Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
Method Blank	Thallium	-0.949 mg/kg	-4.75
ICB/CCB 2/7/02	Barium	1.67	0.84
	Chromium	1.81	0.91
	Molybdenum	2.95	1.48
	Selenium	7.7	3.85
	Thallium	6.46	3.23
	Vanadium	1.54	0.77
ICB/CCB 1/30/02	Mercury	-0.0700	-0.0175
*Corrected for percent solids for each sample. Associated samples: all samples in project S240504.			

Project No. S240588			
Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
ICB/CCB 2/7/02	Barium	1.67	0.84
	Chromium	1.81	0.91
	Molybdenum	2.95	1.48
	Selenium	7.7	3.85
	Thallium	6.46	3.23
	Vanadium	1.54	0.77
ICB/CCB 1/31/02	Mercury	-0.10	-0.025
*Corrected for percent solids for each sample. Associated samples: all samples in project S240588.			

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

For negative contamination:

- Sample results ≥ MDL but ≤ the absolute value of the AL were qualified as estimated (J) at the reported concentration.
- Nondetected results (< MDL) were qualified as estimated nondetects (UJ).
- Sample results > the absolute value of the AL were not qualified.

For negative and positive contamination:

- Sample results ≤ the positive AL and ≤ the absolute value of the negative AL were qualified as estimated nondetects (UJ) at the reported concentration.
- Sample results > the positive AL but ≤ the absolute value of the negative AL were qualified as estimated (J) at the reported concentration.

MS/MSD Results

Sample CBS-CSF-T11-1 was selected for MS/MSD analyses for cyanide. MS/MSD analyses were performed on sample CBS-CSF-T11-1 for ICP metals and mercury, and CBS-CSF-T12-1 for mercury. The following table summarizes the percent recoveries (%Rs) and/or relative percent differences (RPDs) in the MS/MSD analyses that exceeded QC acceptance criteria. Actions for the elements in the table below were applied to all samples in the SDG.

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
CBS-CSF-T11-1	Antimony	36/68	Ok	Estimate positive results (J) and nondetects (UJ).
	Copper	201/137	Ok	Estimate positive results (J)
	Manganese	139/Ok	Ok	Estimate positive results (J)

The laboratory performed MS/MSD analyses for ICP metals on a sample from a different client for project S240504. Although this practice is acceptable, the results could not be directly applied to the samples analyzed in this data package because of possible differences in the sample matrix and type. No validation action was taken on this basis.

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed for ICP metals or mercury. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

Field Duplicates

Samples CBS-CSF-T9-1 and CBS-CSC-T9-1-FD were submitted as the field duplicate pair with this SDG. The following table summarizes the RPDs of the detected analytes in the field duplicate pair The RPDs for all compounds were within the QC acceptance criteria.

Compound	CBS-CSF-T9-1 (mg/kg)	CBS-CSF-T9-1-FD (mg/kg)	RPD (%)
Aluminum	12000	9700	21
Arsenic	12	10	18
Barium	190	160	17
Beryllium	0.77	0.65	17
Cadmium	14	11	24
Calcium	6000	4900	20
Chromium	19	16	17

Compound	CBS-CSF-T9-1 (mg/kg)	CBS-CSF-T9-1-FD (mg/kg)	RPD (%)
Cobalt	9.0	7.1	24
Copper	120	110	9
Iron	19000	17000	11
Lead	53	50	6
Magnesium	4100	3300	22
Manganese	350	260	30
Mercury	0.32	0.29	10
Nickel	110	100	10
Potassium	1900	1500	24
Sodium	130	99	27
Vanadium	30	26	14
Zinc	1400	1200	15

LCS/LCSD Results

A LCS analysis was performed for metals and LCS/LCSD analyses were performed for cyanide.

The %Rs and RPDs (where applicable) of all spiked analytes met the QC acceptance criteria in the LCS and/or LCSD analyses.

Sample Results

The percent solids for all samples in the data set were >50%.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T8-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL082

Matrix (soil/water): SOIL Lab Sample ID: S240504-1

Level (low/med): LOW Date Received: 24-JAN-2002

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	8900			P	
7440-36-0	Antimony	2.5	~~U~~	~~N~~	P	UJ-M
7440-38-2	Arsenic	11			P	
7440-39-3	Barium	160			P	
7440-41-7	Beryllium	0.65			P	
7440-43-9	Cadmium	20			P	
7440-70-2	Calcium	5900			P	
7440-47-3	Chromium	14			P	
7440-48-4	Cobalt	8.0			P	
7440-50-8	Copper	99	J+	M ~~N~~	P	
7439-89-6	Iron	18000			P	
7439-92-1	Lead	28			P	
7439-95-4	Magnesium	4200			P	
7439-96-5	Manganese	200	J-	M ~~N~~	P	
7439-98-7	Molybdenum	1.4		U-B	P	
7440-02-0	Nickel	150			P	
7440-09-7	Potassium	1500			P	
7782-49-2	Selenium	1.2	B	U-B	P	
7440-22-4	Silver	1.2	U		P	
7440-23-5	Sodium	120			P	
7440-28-0	Thallium	1.1	~~B~~ UJ-B		P	
7440-31-5	Tin	6.2	U		P	
7440-62-2	Vanadium	26			P	
7440-66-6	Zinc	1500		~~E~~	P	

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T8-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL082

Matrix (soil/water): SOIL Lab Sample ID: S240504-1

Level (low/med): LOW Date Received: 24-JAN-2002

% Solids: 73.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.090			CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T9-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL082

Matrix (soil/water): SOIL Lab Sample ID: S240504-2

Level (low/med): LOW Date Received: 24-JAN-2002

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12000			P
7440-36-0	Antimony	3.0	UJ-M N		P
7440-38-2	Arsenic	12			P
7440-39-3	Barium	190			P
7440-41-7	Beryllium	0.77			P
7440-43-9	Cadmium	14			P
7440-70-2	Calcium	6000			P
7440-47-3	Chromium	19			P
7440-48-4	Cobalt	9.0			P
7440-50-8	Copper	120	J-M N		P
7439-89-6	Iron	19000			P
7439-92-1	Lead	53			P
7439-95-4	Magnesium	4100			P
7439-96-5	Manganese	350	J-M N		P
7439-98-7	Molybdenum	0.98	B	U-B	P
7440-02-0	Nickel	110			P
7440-09-7	Potassium	1900			P
7782-49-2	Selenium	1.4	B	U-B	P
7440-22-4	Silver	1.5	U		P
7440-23-5	Sodium	130			P
7440-28-0	Thallium	1.5		UJ-B	P
7440-31-5	Tin	7.5	U		P
7440-62-2	Vanadium	30			P
7440-66-6	Zinc	1400		E	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSF-T9-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL082

Matrix (soil/water): SOIL Lab Sample ID: S240504-2

Level (low/med): LOW Date Received: 24-JAN-2002

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.32			CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T9-1-FD

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL082

Matrix (soil/water): SOIL Lab Sample ID: S240504-3

Level (low/med): LOW Date Received: 24-JAN-2002

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	9700			P	
7440-36-0	Antimony	0.62	~~B~~	~~N~~	P	J-M
7440-38-2	Arsenic	10			P	
7440-39-3	Barium	160			P	
7440-41-7	Beryllium	0.65			P	
7440-43-9	Cadmium	11			P	
7440-70-2	Calcium	4900			P	
7440-47-3	Chromium	16			P	
7440-48-4	Cobalt	7.1			P	
7440-50-8	Copper	110	J-M	~~N~~	P	
7439-89-6	Iron	17000			P	
7439-92-1	Lead	50			P	
7439-95-4	Magnesium	3300			P	
7439-96-5	Manganese	260	J-M	~~N~~	P	
7439-98-7	Molybdenum	0.85	~~B~~	U-B	P	
7440-02-0	Nickel	100			P	
7440-09-7	Potassium	1500			P	
7782-49-2	Selenium	1.3		U-B	P	
7440-22-4	Silver	1.2	U		P	
7440-23-5	Sodium	99			P	
7440-28-0	Thallium	0.89	~~B~~	~~U~~ J-B	P	
7440-31-5	Tin	6.0	U		P	
7440-62-2	Vanadium	26			P	
7440-66-6	Zinc	1200		~~E~~	P	

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSF-T9-1-FD

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL082

Matrix (soil/water): SOIL Lab Sample ID: S240504-3

Level (low/med): LOW Date Received: 24-JAN-2002

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.29			CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T12-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL082

Matrix (soil/water): SOIL Lab Sample ID: S240504-4

Level (low/med): LOW Date Received: 24-JAN-2002

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8100			P
7440-36-0	Antimony	2.7	UJ	N	P
7440-38-2	Arsenic	12			P
7440-39-3	Barium	240			P
7440-41-7	Beryllium	0.56			P
7440-43-9	Cadmium	38			P
7440-70-2	Calcium	6400			P
7440-47-3	Chromium	13			P
7440-48-4	Cobalt	7.9			P
7440-50-8	Copper	92	J-M	N	P
7439-89-6	Iron	16000			P
7439-92-1	Lead	18			P
7439-95-4	Magnesium	4400			P
7439-96-5	Manganese	190	J-M	N	P
7439-98-7	Molybdenum	1.4		U-B	P
7440-02-0	Nickel	270			P
7440-09-7	Potassium	1300			P
7782-49-2	Selenium	1.4		U-B	P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	110			P
7440-28-0	Thallium	1.4	U	UJ-B	P
7440-31-5	Tin	6.8	U		P
7440-62-2	Vanadium	27			P
7440-66-6	Zinc	2400		E	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSF-T12-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL082

Matrix (soil/water): SOIL Lab Sample ID: S240504-4

Level (low/med): LOW Date Received: 24-JAN-2002

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.031			CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T10-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL082

Matrix (soil/water): SOIL Lab Sample ID: S240588-1

Level (low/med): LOW Date Received: 28-JAN-2002

% Solids: 77.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M	
7429-90-5	Aluminum	5100			P	
7440-36-0	Antimony	2.4	~~U~~	~~N~~ UJ-M	P	
7440-38-2	Arsenic	8.2			P	
7440-39-3	Barium	160			P	
7440-41-7	Beryllium	0.47	~~B~~		P	
7440-43-9	Cadmium	23			P	
7440-70-2	Calcium	8400			P	
7440-47-3	Chromium	9.7			P	
7440-48-4	Cobalt	6.1			P	
7440-50-8	Copper	180		~~N~~ J-M	P	
7439-89-6	Iron	13000			P	
7439-92-1	Lead	41			P	
7439-95-4	Magnesium	5300			P	
7439-96-5	Manganese	170		~~N~~ J-M	P	
7439-98-7	Molybdenum	0.87	~~B~~	L-B	P	
7440-02-0	Nickel	94			P	
7440-09-7	Potassium	1000			P	
7782-49-2	Selenium	1.0	~~B~~	L-B	P	
7440-22-4	Silver	1.2	U		P	
7440-23-5	Sodium	120			P	
7440-28-0	Thallium	0.73	~~B~~	~~UJ~~-B	P	UJ-B
7440-31-5	Tin	5.9	U		P	
7440-62-2	Vanadium	19			P	
7440-66-6	Zinc	1200		~~E~~	P	

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T10-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL082

Matrix (soil/water): SOIL Lab Sample ID: S240588-1

Level (low/med): LOW Date Received: 28-JAN-2002

% Solids: 77.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.11			CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T11-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL082

Matrix (soil/water): SOIL Lab Sample ID: S240588-2

Level (low/med): LOW Date Received: 28-JAN-2002

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10000			P
7440-36-0	Antimony	2.5	U	~~N~~ W-M	P
7440-38-2	Arsenic	9.7			P
7440-39-3	Barium	200			P
7440-41-7	Beryllium	0.72			P
7440-43-9	Cadmium	35			P
7440-70-2	Calcium	7300			P
7440-47-3	Chromium	16			P
7440-48-4	Cobalt	10			P
7440-50-8	Copper	110		~~N~~ J-M	P
7439-89-6	Iron	18000			P
7439-92-1	Lead	23			P
7439-95-4	Magnesium	5200			P
7439-96-5	Manganese	240		~~N~~ J-M	P
7439-98-7	Molybdenum	0.79	~~B~~	U-B	P
7440-02-0	Nickel	300			P
7440-09-7	Potassium	1700			P
7782-49-2	Selenium	1.8		U-B	P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	110			P
7440-28-0	Thallium	1.1	~~B~~	U-B	P
7440-31-5	Tin	6.3	U		P
7440-62-2	Vanadium	29			P
7440-66-6	Zinc	2400		~~E~~	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.
CBS-CSF-T11-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL082

Matrix (soil/water): SOIL Lab Sample ID: S240588-2

Level (low/med): LOW Date Received: 28-JAN-2002

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.093			CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Sample Number: S240504*1 Sample Description: CBS-CSF-T8-1
Matrix: SS SDG#: SIL082
Date Received: 01-24-2002

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.68U	mg/kg_dw	01-30-2002	1	0130T
TOC-9060	6600	mg/kg dw	01-31-2002	1	0131X

Sample Number: S240504*2 Sample Description: CBS-CSF-T9-1
Matrix: SS SDG#: SIL082
Date Received: 01-24-2002

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.72U	mg/kg_dw	01-30-2002	1	0130T
TOC-9060	8500	mg/kg dw	01-31-2002	1	0131X

Sample Number: S240504*3
Matrix: SS
Date Received: 01-24-2002

Sample Description: CBS-CSF-T9-1-FD
SDG#: SIL082

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.64U	mg/kg_dw	01-30-2002	1	0130T
TOC-9060	3700	mg/kg dw	01-31-2002	1	0131X

Sample Number: S240504*4 Sample Description: CBS-CSF-T12-1
Matrix: SS SDG#: SIL082
Date Received: 01-24-2002

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.66U	mg/kg_dw	01-30-2002	1	0130T
TOC-9060	2900	mg/kg dw	01-31-2002	1	0131X

Sample Number: S240588*1
Matrix: SS
Date Received: 01-28-2002

Sample Description: CBS-CSF-T10-1
SDG#: SIL082

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.63U	mg/kg_dw	01-30-2002	1	0130T
TOC-9060	3100	mg/kg dw	02-06-2002	1	0206X

Sample Number: S240588*2
Matrix: SS
Date Received: 01-28-2002

Sample Description: CBS-CSF-T11-1
SDG#: SIL082

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.67U	mg/kg_dw	01-30-2002	1	0130T
TOC-9060	5200	mg/kg dw	02-06-2002	1	0206X

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 23, 2002
From:	Sheena Blair/Westford	**File:**	SO018inoSB.doc 06105-012-201
RE:	Data Validation Inorganic Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL077	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for six sediment samples analyzed for total metals by SW-846 methods 6010B and 7471A, and total cyanide by SW-846 method 9012A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on December 19, 2001 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the samples and reported the results under sample delivery group (SDG) SIL077.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSE-T12-1	CBS-CSE-T11-1
CBS-CSE-T7-1	CBS-CSE-T8-1
CBS-CSE-T9-1	CBS-CSE-T10-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Laboratory blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field Duplicate
- Laboratory control sample (LCS) results
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated

on the COC and any subsequent correspondence. No discrepancies were noted.

Holding Times/Sample Preservation

All samples were digested and analyzed within the method specified holding times for metals and cyanide.

The laboratory does not record cooler temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptance range of 4°C ± 2° C). Non-conformances were not observed for this sample set.

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
ICB/CCB	Arsenic	5.52	2.76
	Barium	2.90	1.45
	Chromium	2.82	1.41
	Manganese	2.81	1.41
	Selenium	6.21	3.11
	Thallium	7.18	3.59
	Vanadium	2.52	1.26
	Molybdenum	+1.53/-2.53	+0.77/-1.27
* Corrected for percent solids for each sample. Associated samples: all samples.			

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

For negative contamination:

- Sample results ≥ MDL but ≤ the absolute value of the AL were qualified as estimated (J) at the reported concentration.
- Nondetected results (< MDL) were qualified as estimated nondetects (UJ).
- Sample results > the absolute value of the AL were not qualified.

For negative and positive contamination:

- Sample results ≤ the positive AL and ≤ the absolute value of the negative AL were qualified as estimated nondetects (UJ) at the reported concentration.
- Sample results > the positive AL but ≤ the absolute value of the negative AL were qualified as estimated (J) at the reported concentration.

MS/MSD Results

MS/MSD analyses for metals and cyanide were performed on sample CBS-CSE-T10-1. The percent recoveries (%Rs) for calcium were not calculable due to a sample result >4x the spike amount. The

following table summarizes %Rs and/or relative percent differences (RPDs) in the MS/MSD analyses that exceeded QC acceptance criteria and the actions for the affected analytes. The actions indicated were applied to all samples in the SDG.

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
CBS-CSE-T10-1	Antimony	46/45	Ok	Estimate positive results (J) and nondetects (UJ).
	Cadmium	53/Ok	22.4	Estimate positive results (J) and nondetects (UJ).
	Lead	41/150	32.5	Estimate positive results (J) and nondetects (UJ).
	Nickel	70/78	Ok	Estimate positive results (J)
	Potassium	Ok/128	Ok	Estimate positive results (J)
	Calcium	NC/NC	100	Estimate positive results (J) and nondetects (UJ).

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed for metals. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

The laboratory performed laboratory duplicate analyses on sample CBS-CSE-T9-1 for cyanide. The sample and the laboratory duplicate results were nondetect. The RPD was deemed to be acceptable; therefore no validation action was taken.

The laboratory performed additional laboratory duplicate analyses for cyanide on a sample from a different client. Although this practice is acceptable, the results could not be directly applied to the samples analyzed in this data packet because of possible differences in the sample matrix and type.

Field Duplicates

There were no field duplicates submitted in this sample set. No action was taken on this basis.

LCS/LCSD Results

A LCS was performed for metals and mercury and LCS/LCSD were performed for cyanide analyses.

The %Rs and RPDs (where applicable) of all spiked analytes met the QC acceptance criteria in the LCS and/or LCSD analyses.

Sample Results

The percent solids for all samples in the data set were >50%.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T12-1

ontract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL077

atrix (soil/water): SOIL Lab Sample ID: S118334A-1

evel (low/med): LOW Date Received: 20-DEC-2001

Solids: 65.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	14000			P
7440-36-0	Antimony	2.8	U	~~N~~ US-M	P
7440-38-2	Arsenic	5.5			P
7440-39-3	Barium	260			P
7440-41-7	Beryllium	1.1			P
7440-43-9	Cadmium	12		~~N~~ ~~S-M-D~~	P
7440-70-2	Calcium	8500		~~*~~ S-D	P
7440-47-3	Chromium	21			P
7440-48-4	Cobalt	11			P
7440-50-8	Copper	33			P
7439-89-6	Iron	24000			P
7439-92-1	Lead	28		~~N~~ ~~S-M-D~~	P
7439-95-4	Magnesium	5300			P
7439-96-5	Manganese	210			P
7439-98-7	Molybdenum	0.21	~~B~~	US-B	P
7440-02-0	Nickel	120		~~N~~ S-M	P
7440-09-7	Potassium	2900		~~N~~ S-M	P
7782-49-2	Selenium	1.4	U		P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	280			P
7440-28-0	Thallium	1.1	~~B~~	U-B	P
7440-31-5	Tin	7.0	U		P
7440-62-2	Vanadium	37			P
7440-66-6	Zinc	1300		~~E~~	P

J-M-D

DR 5/7/02

8

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Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T12-1

ontract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL076

atrix (soil/water): SOIL Lab Sample ID: S118334A-1

evel (low/med): LOW Date Received: 20-DEC-2001

Solids: 65.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.69			CV

9

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Comments:

TL-Savannah

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T11-1

ontract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL077

atrix (soil/water): SOIL Lab Sample ID: S118334A-2

evel (low/med): LOW Date Received: 20-DEC-2001

Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	2.9	U	N,J-N	P
7440-38-2	Arsenic	6.9			P
7440-39-3	Barium	250			P
7440-41-7	Beryllium	0.81			P
7440-43-9	Cadmium	4.6		N*,J-N,D	P
7440-70-2	Calcium	12000		*,J-D	P
7440-47-3	Chromium	19			P
7440-48-4	Cobalt	9.0			P
7440-50-8	Copper	88			P
7439-89-6	Iron	21000			P
7439-92-1	Lead	33		N*,J-N,D	P
7439-95-4	Magnesium	6100			P
7439-96-5	Manganese	240			P
7439-98-7	Molybdenum	0.46	B	J-B	P
7440-02-0	Nickel	67		N,J-N	P
7440-09-7	Potassium	2400		N,J-N	P
7782-49-2	Selenium	1.5	U		P
7440-22-4	Silver	1.5	U		P
7440-23-5	Sodium	240			P
7440-28-0	Thallium	1.5	U		P
7440-31-5	Tin	7.4	U		P
7440-62-2	Vanadium	31			P
7440-66-6	Zinc	690		E	P

10

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Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T11-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL076

Matrix (soil/water): SOIL Lab Sample ID: S118334A-2

Level (low/med): LOW Date Received: 20-DEC-2001

% Solids: 68.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.46			CV

11

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Comments:

TL-Savannah

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T7-1

ntract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL077

atrix (soil/water): SOIL Lab Sample ID: S118334A-3

evel (low/med): LOW Date Received: 20-DEC-2001

Solids: 69.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12000			P
7440-36-0	Antimony	2.9	U	N,J-M	P
7440-38-2	Arsenic	7.1			P
7440-39-3	Barium	220			P
7440-41-7	Beryllium	0.89			P
7440-43-9	Cadmium	33		N,J-M,D	P
7440-70-2	Calcium	7100		J-D	P
7440-47-3	Chromium	19			P
7440-48-4	Cobalt	8.7			P
7440-50-8	Copper	510			P
7439-89-6	Iron	19000			P
7439-92-1	Lead	29		N,J-M,D	P
7439-95-4	Magnesium	3900			P
7439-96-5	Manganese	150			P
7439-98-7	Molybdenum	0.54	B	UJ-B	P
7440-02-0	Nickel	310		N,J-M	P
7440-09-7	Potassium	2400		N,J-M	P
7782-49-2	Selenium	1.4	U		P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	250			P
7440-28-0	Thallium	1.2	B	U-B	P
7440-31-5	Tin	7.2	U		P
7440-62-2	Vanadium	35			P
7440-66-6	Zinc	2900		E	P

12

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Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T7-1

ontract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL076

atrix (soil/water): SOIL Lab Sample ID: S118334A-3

evel (low/med): LOW Date Received: 20-DEC-2001

Solids: 69.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.12			CV

13

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T8-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL077

Matrix (soil/water): SOIL Lab Sample ID: S118334A-4

Level (low/med): LOW Date Received: 20-DEC-2001

% Solids: 63.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	2.6	~~U~~	~~N~~ J-M	P
7440-38-2	Arsenic	3.4		U-B	P
7440-39-3	Barium	240			P
7440-41-7	Beryllium	0.77			P
7440-43-9	Cadmium	3.7		~~N~~ J-M-D	P
7440-70-2	Calcium	13000		~~N~~ J-D	P
7440-47-3	Chromium	18			P
7440-48-4	Cobalt	8.3			P
7440-50-8	Copper	25			P
7439-89-6	Iron	18000			P
7439-92-1	Lead	17		~~N~~ J-M-D	P
7439-95-4	Magnesium	6900			P
7439-96-5	Manganese	260			P
7439-98-7	Molybdenum	0.29	~~B~~	UJ-B	P
7440-02-0	Nickel	44		~~N~~ J-M	P
7440-09-7	Potassium	2300		~~N~~ J-M	P
7782-49-2	Selenium	1.3	U		P
7440-22-4	Silver	1.3	U		P
7440-23-5	Sodium	190			P
7440-28-0	Thallium	1.3	U		P
7440-31-5	Tin	6.6	U		P
7440-62-2	Vanadium	30			P
7440-66-6	Zinc	490		~~N~~	P

14

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Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T8-1

:ontract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL076

latrix (soil/water): SOIL Lab Sample ID: S118334A-4

evel (low/med): LOW Date Received: 20-DEC-2001

Solids: 63.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.34			CV

15

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Color After: Clarity After: Artifacts:

Comments:

TL-Savannah

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T9-1

ontract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL077

atrix (soil/water): SOIL Lab Sample ID: S118334A-5

evel (low/med): LOW Date Received: 20-DEC-2001

Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	11000			P
7440-36-0	Antimony	2.7	U	N,J-N	P
7440-38-2	Arsenic	7.1			P
7440-39-3	Barium	240			P
7440-41-7	Beryllium	0.81			P
7440-43-9	Cadmium	16		N*,J-N,D	P
7440-70-2	Calcium	5900		*,J-D	P
7440-47-3	Chromium	18			P
7440-48-4	Cobalt	8.9			P
7440-50-8	Copper	39			P
7439-89-6	Iron	22000			P
7439-92-1	Lead	26		N*,J-N,D	P
7439-95-4	Magnesium	4200			P
7439-96-5	Manganese	150			P
7439-98-7	Molybdenum	0.70	B	J-B	P
7440-02-0	Nickel	160		N,J-N	P
7440-09-7	Potassium	2500		N,J-N	P
7782-49-2	Selenium	1.4	U		P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	220			P
7440-28-0	Thallium	1.4	U		P
7440-31-5	Tin	6.8	U		P
7440-62-2	Vanadium	32			P
7440-66-6	Zinc	1900		*	P

16

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Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T9-1

ontract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL076

atrix (soil/water): SOIL Lab Sample ID: S118334A-5

evel (low/med): LOW Date Received: 20-DEC-2001

Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.60			CV

17

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T10-1

ontract:

ab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL077

atrix (soil/water): SOIL Lab Sample ID: S118334A-6

evel (low/med): LOW Date Received: 20-DEC-2001

Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7300			P
7440-36-0	Antimony	0.98	B	N,J-M	P
7440-38-2	Arsenic	9.4			P
7440-39-3	Barium	280			P
7440-41-7	Beryllium	0.55	B		P
7440-43-9	Cadmium	15		N*,J-M,9	P
7440-70-2	Calcium	12000		N,J-9	P
7440-47-3	Chromium	19			P
7440-48-4	Cobalt	7.8			P
7440-50-8	Copper	300			P
7439-89-6	Iron	16000			P
7439-92-1	Lead	170		N*,J-M,9	P
7439-95-4	Magnesium	5600			P
7439-96-5	Manganese	200			P
7439-98-7	Molybdenum	0.37	B	J-B	P
7440-02-0	Nickel	170		N,J-M	P
7440-09-7	Potassium	1700		N,J-M	P
7782-49-2	Selenium	1.4	U		P
7440-22-4	Silver	0.61	B		P
7440-23-5	Sodium	280			P
7440-28-0	Thallium	1.4	U		P
7440-31-5	Tin	6.7	B		P
7440-62-2	Vanadium	25			P
7440-66-6	Zinc	2500		E	P

18

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Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T10-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL076

Matrix (soil/water): SOIL Lab Sample ID: S118334A-6

Level (low/med): LOW Date Received: 20-DEC-2001

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.60			CV

19

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Color After: Clarity After: Artifacts:

Comments:

Sample Number: S118334A*1 Sample Description: CBS-CSE-T12-1
Matrix: SS SDG#: SIL077
Date Received: 12-20-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.80U	mg/kg_dw	01-02-2002	1	1228U
TOC-9060	12000	mg/kg dw	01-02-2002	1	0102X

Sample Number: S118334A*2
Matrix: SS
Date Received: 12-20-2001

Sample Description: CBS-CSE-T11-1
SDG#: SIL077

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.72U	mg/kg_dw	01-02-2002	1	1228U
TOC-9060	15000	mg/kg dw	01-02-2002	1	0102X

Sample Number: S118334A*3
Matrix: SS
Date Received: 12-20-2001

Sample Description: CBS-CSE-T7-1
SDG#: SIL077

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	2.6	mg/l	01-02-2002	1	1228U
TOC-9060	17000	mg/kg dw	01-02-2002	1	0102X

Sample Number: S118334A*4
Matrix: SS
Date Received: 12-20-2001

Sample Description: CBS-CSE-T8-1
SDG#: SIL077

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.79U	mg/kg_dw	01-02-2002	1	1228U
TOC-9060	15000	mg/kg dw	01-02-2002	1	0102X

Sample Number: S118334A*5 Sample Description: CBS-CSE-T9-1
Matrix: SS SDG#: SIL077
Date Received: 12-20-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.75U	mg/kg_dw	12-31-2001	1	1228T
TOC-9060	15000	mg/kg dw	01-02-2002	1	0102X

Sample Number: S118334A*6 Sample Description: CBS-CSE-T10-1
Matrix: SS SDG#: SIL077
Date Received: 12-20-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.69U	mg/kg_dw	12-31-2001	1	1228T
TOC-9060	16000	mg/kg dw	01-02-2002	1	0102X

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 22, 2002
From:	Sheena Blair/Westford	**File:**	SO019inoSB.doc 06105-012-201
RE:	Data Validation Inorganic Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL083	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for one sediment sample analyzed for total metals by SW-846 methods 6010B and 7471A, and for total cyanide by SW-846 method 9012A. The sample was collected at the Sauget Area 1 site in Sauget and Cahokia, IL on February 6, 2002 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the sample and reported the results under sample delivery group (SDG) SIL083.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The sample included in this review is listed below:

Sample Identification
CBS-CSF-T16-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Laboratory blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field Duplicates
- Laboratory control sample (LCS) results
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. No discrepancies were noted.

Holding Times/Sample Preservation

Sample CBS-CSF-T16-1 was digested and analyzed within the method specified holding times for metals and cyanide.

The laboratory does not record cooler temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptance range of 4°C ± 2° C). Non-conformances were not observed for this sample set.

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
Method Blank	Antimony	0.792 mg/kg	3.96
	Molybdenum	-0.189 mg/kg	-0.945
	Silver	-0.200 mg/kg	-1.0
ICB/CCB	Arsenic	8.65	4.325
	Beryllium	2.12	1.06
	Selenium	-5.64	-2.02
	Vanadium	1.13	0.565
* Corrected for percent solids for each sample. Associated sample: CBS-CSF-T16-1.			

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

For negative contamination:

- Sample results ≥ MDL but ≤ the absolute value of the AL were qualified as estimated (J) at the reported concentration.
- Nondetected results (< MDL) were qualified as estimated nondetects (UJ).
- Sample results > the absolute value of the AL were not qualified.

MS/MSD Results

MS/MSD analyses were performed on sample CBS-CSF-T16-1 for mercury. The following table summarizes the percent recoveries (%Rs) and/or relative percent differences (RPD) in the MS/MSD analyses that exceeded QC acceptance criteria and the action for the affected analyte in sample CBS-CSF-T16-1.

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
CBS-CSF-T16-1	Mercury	Ok/122	Ok	Estimate positive results (J)

The laboratory performed MS/MSD analyses for ICP metals and cyanide on a sample from a different client. Although this practice is acceptable, the results could not be directly applied to the samples analyzed in this data package because of possible differences in the sample matrix and type. No validation action was taken on this basis.

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

Field Duplicates

There were no field duplicates submitted in this sample set. No action was taken on this basis.

LCS/LCSD Results

A LCS analyses was performed for metals and LCS/LCSD analyses were performed for cyanide.

The %Rs and RPDs (where applicable) of all spiked analytes met the QC acceptance criteria in the LCS and/or LCSD analyses.

Sample Results

The percent solids for all samples in the data set were >50%.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T16-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL083

Matrix (soil/water): SOIL Lab Sample ID: S240850-1

Level (low/med): LOW Date Received: 07-FEB-2002

% Solids: 70.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6000			P
7440-36-0	Antimony	1.2	B	U-B	P
7440-38-2	Arsenic	5.8		U-B	P
7440-39-3	Barium	160			P
7440-41-7	Beryllium	0.57		U-B	P
7440-43-9	Cadmium	0.71	U		P
7440-70-2	Calcium	9400			P
7440-47-3	Chromium	11			P
7440-48-4	Cobalt	6.3			P
7440-50-8	Copper	20			P
7439-89-6	Iron	13000			P
7439-92-1	Lead	15			P
7439-95-4	Magnesium	4200			P
7439-96-5	Manganese	290			P
7439-98-7	Molybdenum	0.50	B	J-B	P
7440-02-0	Nickel	15			P
7440-09-7	Potassium	940			P
7782-49-2	Selenium	1.4	B	U5-B	P
7440-22-4	Silver	1.4	B	U5-B	P
7440-23-5	Sodium	140			P
7440-28-0	Thallium	1.4	U		P
7440-31-5	Tin	7.1	U		P
7440-62-2	Vanadium	19			P
7440-66-6	Zinc	59			P

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Comments:

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Total Metals
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T16-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL083

Matrix (soil/water): SOIL Lab Sample ID: S240850-1

Level (low/med): LOW Date Received: 2/7/02

% Solids: 70

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.040		~~N~~ J-M	CV

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Comments:

Form I - IN

SW-846

Sample Number: S240850*1 Sample Description: CBS-CSF-T16-1
Matrix: SS SDG#: SIL083
Date Received: 02-07-2002

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.68U	mg/kg_dw	02-13-2002	1	0212S
TOC-9060	7800	mg/kg dw	02-11-2002	1	0211X

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 25, 2002
From:	Sheena Blair/Westford	**File:**	SO020inoSB.doc 06105-012-201
RE:	Data Validation Inorganic Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL079	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for 6 sediment samples analyzed for total metals by SW-846 methods 6010B and 7471A, and total cyanide by SW-846 method 9012A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on December 20 and 21, 2001 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the samples under project numbers S118395 and S118419 and reported the results under sample delivery group (SDG) SIL079.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications Project No. S118395	
CBS-CSB-T15-1	CBS-CSB-T16-1
CBS-CSB-T14-1	-

Sample Identifications for Project No. S118419	
CBS-CSE-T17-1	CBS-CSF-T1-1
CBS-CSE-T16-1	-

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Laboratory blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field duplicates
- Laboratory control sample (LCS) results
- Sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. No discrepancies were noted.

Holding Times/Sample Preservation

All samples were prepared and analyzed within the method specified holding times for metals and cyanide.

The laboratory does not record cooler temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptance range of 4°C ± 2° C). Non-conformances were not observed for this sample set.

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
ICB/CCB	Thallium	8.85	4.43
	Arsenic	5.41	2.71
	Barium	2.3	1.15
	Chromium	2.45	1.23
	Manganese	2.24	1.12
	Molybdenum	-2.02	-1.01
	Selenium	4.75	2.38
	Vanadium	2.5	1.25
*Corrected for percent solids for each sample. Associated samples: all samples.			

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

For negative contamination:

- Sample results ≥ MDL but ≤ the absolute value of the AL were qualified as estimated (J) at the reported concentration.
- Nondetected results (< MDL) were qualified as estimated nondetects (UJ).
- Sample results > the absolute value of the AL were not qualified.

MS/MSD Results

Sample CBS-CSE-T17-1 was selected for MS/MSD analyses for mercury for all samples in the SDG. The

following table summarizes the %Rs and/or RPD in the MS/MSD analyses that exceeded QC acceptance criteria. The actions were applied to all samples in the SDG.

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
CBS-CSE-T17-1	Mercury	65/Ok	Ok	Estimate positive results (J) and nondetects (UJ).

The laboratory performed MS/MSD analyses for ICP metals and cyanide on a sample from a different client. Although this practice is acceptable, the results could not be directly applied to the samples analyzed in this data package because of possible differences in the sample matrix and type. No validation action was taken on this basis.

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed for ICP metals or mercury. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

The laboratory performed laboratory duplicate analyses for cyanide on a sample from a different client. Although this practice is acceptable, the results could not be directly applied to the samples analyzed in this data package because of possible differences in the sample matrix and type. No validation action was taken on this basis.

Field Duplicates

There were no field duplicates submitted in this sample set. No action was taken on this basis.

LCS/LCSD Results

A LCS analysis was performed for mercury and LCS/LCSD analyses were performed for metals and cyanide.

The %Rs and RPDs (where applicable) of all spiked analytes met the QC acceptance criteria in the LCS and/or LCSD analyses.

Sample Results

The percent solids for all samples in the SDG with the exception of sample CBS-CSE-T16-1 (49%) were >50%. All positive and nondetect results for sample CBS-CSE-T16-1 were qualified as estimated (J/UJ).

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T15-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL079

Matrix (soil/water): SOIL Lab Sample ID: S118395-1

Level (low/med): LOW Date Received: 21-DEC-2001

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6300			P
7440-36-0	Antimony	2.2	U		P
7440-38-2	Arsenic	7.4			P
7440-39-3	Barium	260			P
7440-41-7	Beryllium	0.51			P
7440-43-9	Cadmium	5.2			P
7440-70-2	Calcium	5600			P
7440-47-3	Chromium	43			P
7440-48-4	Cobalt	5.6			P
7440-50-8	Copper	370			P
7439-89-6	Iron	11000			P
7439-92-1	Lead	71			P
7439-95-4	Magnesium	3200			P
7439-96-5	Manganese	110			P
7439-98-7	Molybdenum	0.50	B	J-B	P
7440-02-0	Nickel	180			P
7440-09-7	Potassium	1300			P
7782-49-2	Selenium	1.1	U		P
7440-22-4	Silver	1.1	U		P
7440-23-5	Sodium	180			P
7440-28-0	Thallium	1.9		U-B	P
7440-31-5	Tin	5.5	U		P
7440-62-2	Vanadium	19			P
7440-66-6	Zinc	1200		E	P

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TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T15-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL079

Matrix (soil/water): SOIL Lab Sample ID: S118395-1

Level (low/med): LOW Date Received: 21-DEC-2001

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.064		NJ-M	CV

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Comments:

10

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T16-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL079

Matrix (soil/water): SOIL Lab Sample ID: S118395-2

Level (low/med): LOW Date Received: 21-DEC-2001

% Solids: 69.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	7400			P
7440-36-0	Antimony	0.71	B		P
7440-38-2	Arsenic	11			P
7440-39-3	Barium	350			P
7440-41-7	Beryllium	0.52			P
7440-43-9	Cadmium	2.8			P
7440-70-2	Calcium	6600			P
7440-47-3	Chromium	27			P
7440-48-4	Cobalt	9.3			P
7440-50-8	Copper	1500			P
7439-89-6	Iron	13000			P
7439-92-1	Lead	100			P
7439-95-4	Magnesium	3600			P
7439-96-5	Manganese	99			P
7439-98-7	Molybdenum	0.97	B	J-B	P
7440-02-0	Nickel	170			P
7440-09-7	Potassium	1500			P
7782-49-2	Selenium	1.2	U		P
7440-22-4	Silver	1.3			P
7440-23-5	Sodium	300			P
7440-28-0	Thallium	1.4		U-B	P
7440-31-5	Tin	7.3			P
7440-62-2	Vanadium	22			P
7440-66-6	Zinc	3800		B	P

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Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T16-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL079

Matrix (soil/water): SOIL Lab Sample ID: S118395-2

Level (low/med): LOW Date Received: 21-DEC-2001

% Solids: 69.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.12		NJ-M	CV

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SW-846

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T14-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL079

Matrix (soil/water): SOIL Lab Sample ID: S118395-3

Level (low/med): LOW Date Received: 21-DEC-2001

% Solids: 65.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10000			P
7440-36-0	Antimony	2.8	U		P
7440-38-2	Arsenic	5.3			P
7440-39-3	Barium	230			P
7440-41-7	Beryllium	0.77			P
7440-43-9	Cadmium	2.8			P
7440-70-2	Calcium	8200			P
7440-47-3	Chromium	17			P
7440-48-4	Cobalt	11			P
7440-50-8	Copper	33			P
7439-89-6	Iron	16000			P
7439-92-1	Lead	15			P
7439-95-4	Magnesium	6000			P
7439-96-5	Manganese	130			P
7439-98-7	Molybdenum	1.4	U	UJ-J	P
7440-02-0	Nickel	130			P
7440-09-7	Potassium	2100			P
7782-49-2	Selenium	1.4	U		P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	270			P
7440-28-0	Thallium	1.4		UJ-J	P
7440-31-5	Tin	7.0	U		P
7440-62-2	Vanadium	29			P
7440-66-6	Zinc	2700		E	P

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TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSB-T14-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL079

Matrix (soil/water): SOIL Lab Sample ID: S118395-3

Level (low/med): LOW Date Received: 21-DEC-2001

% Solids: 65.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.032		NJ-H	CV

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Comments:

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SW-846

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T17-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL079

Matrix (soil/water): SOIL Lab Sample ID: S118419-1

Level (low/med): LOW Date Received: 22-DEC-2001

% Solids: 57.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10000			P
7440-36-0	Antimony	3.2	U		P
7440-38-2	Arsenic	13			P
7440-39-3	Barium	270			P
7440-41-7	Beryllium	0.74			P
7440-43-9	Cadmium	16			P
7440-70-2	Calcium	13000			P
7440-47-3	Chromium	37			P
7440-48-4	Cobalt	11			P
7440-50-8	Copper	350			P
7439-89-6	Iron	20000			P
7439-92-1	Lead	120			P
7439-95-4	Magnesium	6600			P
7439-96-5	Manganese	300			P
7439-98-7	Molybdenum	0.46	~~B~~	J-B	P
7440-02-0	Nickel	200			P
7440-09-7	Potassium	2100			P
7782-49-2	Selenium	1.6	U		P
7440-22-4	Silver	0.64	~~B~~		P
7440-23-5	Sodium	270			P
7440-28-0	Thallium	0.93	~~B~~	L-B	P
7440-31-5	Tin	11			P
7440-62-2	Vanadium	31			P
7440-66-6	Zinc	2100		~~E~~	P

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TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T17-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL079

Matrix (soil/water): SOIL Lab Sample ID: S118419-1

Level (low/med): LOW Date Received: 22-DEC-2001

% Solids: 57.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.27		NJ-M	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T1-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL079

Matrix (soil/water): SOIL Lab Sample ID: S118419-2

Level (low/med): LOW Date Received: 22-DEC-2001

% Solids: 60.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9500			P
7440-36-0	Antimony	3.0	U		P
7440-38-2	Arsenic	8.6			P
7440-39-3	Barium	270			P
7440-41-7	Beryllium	0.65			P
7440-43-9	Cadmium	0.77			P
7440-70-2	Calcium	17000			P
7440-47-3	Chromium	16			P
7440-48-4	Cobalt	9.4			P
7440-50-8	Copper	73			P
7439-89-6	Iron	19000			P
7439-92-1	Lead	21			P
7439-95-4	Magnesium	8200			P
7439-96-5	Manganese	410			P
7439-98-7	Molybdenum	0.37	~~B~~	J-B	P
7440-02-0	Nickel	93			P
7440-09-7	Potassium	2300			P
7782-49-2	Selenium	1.5	U		P
7440-22-4	Silver	1.5	U		P
7440-23-5	Sodium	290			P
7440-28-0	Thallium	1.5	U		P
7440-31-5	Tin	7.6	U		P
7440-62-2	Vanadium	25			P
7440-66-6	Zinc	530		~~E~~	P

21

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Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T1-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL079

Matrix (soil/water): SOIL Lab Sample ID: S118419-2

Level (low/med): LOW Date Received: 22-DEC-2001

% Solids: 60.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.12		NJ-M	CV

22

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T16-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL079

Matrix (soil/water): SOIL Lab Sample ID: S118419-3

Level (low/med): LOW Date Received: 22-DEC-2001

% Solids: 49.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	12000		J-X	P
7440-36-0	Antimony	4.7		J-X	P
7440-38-2	Arsenic	20		J-X	P
7440-39-3	Barium	640		J-X	P
7440-41-7	Beryllium	0.91		J-X	P
7440-43-9	Cadmium	38		J-X	P
7440-70-2	Calcium	8800		J-X	P
7440-47-3	Chromium	56		J-X	P
7440-48-4	Cobalt	9.5		J-X	P
7440-50-8	Copper	4300		J-X	P
7439-89-6	Iron	27000		J-X	P
7439-92-1	Lead	400		J-X	P
7439-95-4	Magnesium	4600		J-X	P
7439-96-5	Manganese	210		J-X	P
7439-98-7	Molybdenum	1.5	B	J-B-X	P
7440-02-0	Nickel	600		J-X	P
7440-09-7	Potassium	2300		J-X	P
7782-49-2	Selenium	2.0	U	UJ-X	P
7440-22-4	Silver	9.8		J-X	P
7440-23-5	Sodium	390		J-X	P
7440-28-0	Thallium	1.3	B	U-B-X	P
7440-31-5	Tin	31		J-X	P
7440-62-2	Vanadium	39		J-X	P
7440-66-6	Zinc	5900		J-X	P

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Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T16-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL079

Matrix (soil/water): SOIL Lab Sample ID: S118419-3

Level (low/med): LOW Date Received: 22-DEC-2001

% Solids: 49.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	1.6		~~NJ~~	CV

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Comments:

Sample Number: S118395*1
Matrix: SS
Date Received: 12-21-2001

Sample Description: CBS-CSB-T15-1
SDG#: SIL079

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.66U	mg/kg_dw	12-31-2001	1	1228T
TOC-9060	8800	mg/kg dw	01-03-2002	1	0103X

Sample Number: S118395*2
Matrix: SS
Date Received: 12-21-2001

Sample Description: CBS-CSB-T16-1
SDG#: SIL079

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.72U	mg/kg_dw	12-31-2001	1	1228T
TOC-9060	14000	mg/kg dw	01-03-2002	1	0103X

Sample Number: S118395*3
Matrix: SS
Date Received: 12-21-2001

Sample Description: CBS-CSB-T14-1
SDG#: SIL079

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.76U	mg/kg_dw	12-31-2001	1	1228T
TOC-9060	11000	mg/kg dw	01-03-2002	1	0103X

Sample Number: S118419*1
Matrix: SS
Date Received: 12-22-2001

Sample Description: CBS-CSE-T17-1
SDG#: SIL079

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.88U	mg/kg_dw	12-31-2001	1	1228T
TOC-9060	23000	mg/kg dw	01-03-2002	1	0103X

Sample Number: S118419*2 Sample Description: CBS-CSF-T1-1
Matrix: SS SDG#: SIL079
Date Received: 12-22-2001

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	1.2	mg/kg_dw	12-31-2001	1	1228T
TOC-9060	7900	mg/kg dw	01-03-2002	1	0103X

Sample Number: S118419*3
Matrix: SS
Date Received: 12-22-2001

Sample Description: CBS-CSE-T16-1
SDG#: SIL079

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	1.0UJ-Y	mg/kg_dw	12-31-2001	1	1228T
TOC-9060	50000	mg/kg dw	01-03-2002	1	0103X

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 25, 2002
From:	Sheena Blair/Westford	**File:**	SO021inoSB.doc 06105-012-201
RE:	Data Validation Inorganic Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL080	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for four sediment samples analyzed for total metals by SW-846 methods 6010B and 7471A, and total cyanide by SW-846 method 9012A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on January 8, 2002 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the samples and reported the results under sample delivery group (SDG) SIL080.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSF-T5-1	CBS-CSF-T14-1
CBS-CSF-T15-1	CBS-CSF-T15-1-FD (field duplicate of CBS-CSF-T15-1)

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Laboratory blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field Duplicates
- Laboratory control sample (LCS) results
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. Sample SP-011 was recorded on the COC; this

sample was not processed as part of this SDG. No other discrepancies were noted.

Holding Times/Sample Preservation

All samples were digested and analyzed within the method specified holding times for metals and cyanide.

The laboratory does not record cooler temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptance range of 4°C ± 2° C). Non-conformances were not observed for this sample set.

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected in the blanks and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
Method Blank	Chromium	0.406 mg/kg	2.03
ICB/CCB	Barium	2.14	1.07
	Beryllium	1.30	0.65
	Manganese	2.23	1.12
	Molybdenum	2.64	1.32
	Selenium	6.10	3.05
	Thallium	6.47	3.24
	Vanadium	1.98	0.99
* Corrected for percent solids and dilutions for each sample. Associated samples All samples in the SDG			

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

MS/MSD Results

Sample CBS-CSF-T15-1 was selected for MS/MSD analyses for metals and cyanide. The following table summarizes the percent recoveries (%Rs) and/or relative percent differences (RPDs) in the MS/MSD analyses that exceeded QC acceptance criteria. The actions taken were applied to all the samples in this SDG.

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
CBS-CSF-T15-1	Antimony	50/51	Ok	Estimate positive results (J) and nondetects (UJ).
	Cadmium	30/31	Ok	Estimate positive results (J) and nondetects (UJ).
	Nickel	-1/-2	Ok	Estimate positive results (J) and reject (R) nondetects
	Potassium	52/54	Ok	Estimate positive results (J) and nondetects (UJ).
	Lead	Ok/47	42	Estimate positive results (J) and nondetects (UJ).

Sample	Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
CBS-CSF-T15-1	Copper	NC/NC	34	Estimate positive results (J) and nondetects (UJ).
	Mercury	126/247	28	Estimate positive results (J)
NC = not calculable due to a sample result >4x the spike amount.				

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

The laboratory performed laboratory duplicate analyses for cyanide on a sample from a different client. Although this practice is acceptable, the results could not be directly applied to the samples analyzed in this data package because of possible differences in the sample matrix and type. No validation action was taken on this basis.

Field Duplicates

Samples CBS-CSF-T15-1 and CBS-CSC-T15-1-FD were submitted as the field duplicate pair with this SDG. The RPDs for lead and manganese exceeded the QC acceptance criteria. Positive and nondetect results for these compounds were qualified as estimated (J/UJ) for all samples in this SDG. The RPDs for all other compounds were within the QC acceptance criteria. The following table summarizes the RPDs of the detected analytes in the field duplicate pair

Compound	CBS-CSF-T15-1 (mg/kg)	CBS-CSF-T15-1-FD (mg/kg)	RPD (%)
Aluminum	9900	5000	66
Arsenic	9.7	4.6	71
Barium	180	160	12
Beryllium	0.85	1.2	34
Cadmium	27	12	77
Calcium	5700	5500	4
Chromium	17	8.9	63
Cobalt	8.5	4.9	54
Copper	260	750	97
Iron	18000	9900	58
Lead	61	13	130
Magnesium	4100	3900	5
Manganese	330	85	118
Mercury	0.16	0.17	6
Nickel	210	130	47
Potassium	1500	890	51
Sodium	100	92	8
Vanadium	25	14	56
Zinc	2000	950	71

LCS/LCSD Results

A LCS analysis was performed for metals and LCS/LCSD analyses were performed for cyanide.

The %Rs and RPDs (where applicable) of all spiked analytes met the QC acceptance criteria in the LCS and/or LCSD analyses.

Sample Results

Sample CBS-CSF-T5-1 was analyzed at a 10-fold dilution for zinc, antimony, and selenium due to the the concentration of zinc that exceeded the instruments linear range in the undiluted sample. The detection limits (DLs) were elevated accordingly by a factor equivalent to the dilution factor.

The percent solids for all samples in the data set were >50%.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T5-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL080

Matrix (soil/water): SOIL Lab Sample ID: S240124-1

Level (low/med): LOW Date Received: 09-JAN-2002

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	6400			P
7440-36-0	Antimony	25	B	N UJ-M	P
7440-38-2	Arsenic	19			P
7440-39-3	Barium	270			P
7440-41-7	Beryllium	0.49	B	U-B	P
7440-43-9	Cadmium	57		N J-M	P
7440-70-2	Calcium	10000			P
7440-47-3	Chromium	29			P
7440-48-4	Cobalt	13			P
7440-50-8	Copper	190		* J-D	P
7439-89-6	Iron	41000			P
7439-92-1	Lead	450		N* J-M	P
7439-95-4	Magnesium	4500			P
7439-96-5	Manganese	890		J-F	P
7439-98-7	Molybdenum	2.2			P
7440-02-0	Nickel	630		N J-M	P
7440-09-7	Potassium	1300		EN J-M	P
7782-49-2	Selenium	9.3	B	U-MB	P
7440-22-4	Silver	0.79	B		P
7440-23-5	Sodium	130			P
7440-28-0	Thallium	3.2		U-B	P
7440-31-5	Tin	17			P
7440-62-2	Vanadium	26			P
7440-66-6	Zinc	15000		E	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T14-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL080

Matrix (soil/water): SOIL Lab Sample ID: S240124-2

Level (low/med): LOW Date Received: 09-JAN-2002

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	8500			P
7440-36-0	Antimony	0.66	B	NJ-M	P
7440-38-2	Arsenic	14			P
7440-39-3	Barium	200			P
7440-41-7	Beryllium	0.65		U-B	P
7440-43-9	Cadmium	28		NJ-M	P
7440-70-2	Calcium	6100			P
7440-47-3	Chromium	16			P
7440-48-4	Cobalt	9.0			P
7440-50-8	Copper	150		J-D	P
7439-89-6	Iron	21000			P
7439-92-1	Lead	100		NJ-M	P
7439-95-4	Magnesium	4200			P
7439-96-5	Manganese	350		J-E	P
7439-98-7	Molybdenum	0.95	B	U-B	P
7440-02-0	Nickel	230		NJ-M	P
7440-09-7	Potassium	1400		EN-M	P
7782-49-2	Selenium	0.99	B	U-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	110			P
7440-28-0	Thallium	0.99	B	U-B	P
7440-31-5	Tin	6.1	U		P
7440-62-2	Vanadium	25			P
7440-66-6	Zinc	1700		E	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T15-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL080

Matrix (soil/water): SOIL Lab Sample ID: S240124-3

Level (low/med): LOW Date Received: 09-JAN-2002

% Solids: 70.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	9900			P
7440-36-0	Antimony	2.9	U	N,J-M	P
7440-38-2	Arsenic	9.7			P
7440-39-3	Barium	180			P
7440-41-7	Beryllium	0.85		U-B	P
7440-43-9	Cadmium	27		N,J-M	P
7440-70-2	Calcium	5700			P
7440-47-3	Chromium	17			P
7440-48-4	Cobalt	8.5			P
7440-50-8	Copper	260		*,J-D	P
7439-89-6	Iron	18000			P
7439-92-1	Lead	61		N*,J-M	DPF
7439-95-4	Magnesium	4100			P
7439-96-5	Manganese	330		J-F	P
7439-98-7	Molybdenum	0.62	B	U-B	P
7440-02-0	Nickel	210		N,J-M	P
7440-09-7	Potassium	1500		EN,J-M	P
7782-49-2	Selenium	1.4	U		P
7440-22-4	Silver	1.4	U		P
7440-23-5	Sodium	100			P
7440-28-0	Thallium	1.5		U-B	P
7440-31-5	Tin	7.1	U		P
7440-62-2	Vanadium	25			P
7440-66-6	Zinc	2000		E	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T15-1-FD

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL080

Matrix (soil/water): SOIL Lab Sample ID: S240124-4

Level (low/med): LOW Date Received: 09-JAN-2002

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	5000			P
7440-36-0	Antimony	2.4	U	N,J-M	P
7440-38-2	Arsenic	4.6			P
7440-39-3	Barium	160			P
7440-41-7	Beryllium	1.2			P
7440-43-9	Cadmium	12		N,J-M	P
7440-70-2	Calcium	5500			P
7440-47-3	Chromium	8.9			P
7440-48-4	Cobalt	4.9			P
7440-50-8	Copper	750		N,J-M	P
7439-89-6	Iron	9900			P
7439-92-1	Lead	13		N,J-M-D	PF
7439-95-4	Magnesium	3900			P
7439-96-5	Manganese	85		J-F	P
7439-98-7	Molybdenum	0.38	B	U-B.	P
7440-02-0	Nickel	130		N,J-M	P
7440-09-7	Potassium	890		EN,J-M	P
7782-49-2	Selenium	0.61	B	U-B	P
7440-22-4	Silver	1.2	U		P
7440-23-5	Sodium	92			P
7440-28-0	Thallium	1.2	U		P
7440-31-5	Tin	6.0	U		P
7440-62-2	Vanadium	14			P
7440-66-6	Zinc	950		E	P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T14-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL080

Matrix (soil/water): SOIL Lab Sample ID: S240124-2

Level (low/med): LOW Date Received: 09-JAN-2002

% Solids: 74.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.32		~~N~~ J-M-D	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T15-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL080

Matrix (soil/water): SOIL Lab Sample ID: S240124-3

Level (low/med): LOW Date Received: 09-JAN-2002

% Solids: 70.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.16		~~NJ~~	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T15-1-FD

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL080

Matrix (soil/water): SOIL Lab Sample ID: S240124-4

Level (low/med): LOW Date Received: 09-JAN-2002

% Solids: 76.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.17		N*J,N-D	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

TOTAL METALS
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSF-T5-1

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL080

Matrix (soil/water): SOIL Lab Sample ID: S240124-1

Level (low/med): LOW Date Received: 09-JAN-2002

% Solids: 72.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.82		~~N~~ J-U-D	CV

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

Sample Number: S240124*1
Matrix: SS
Date Received: 01-09-2002

Sample Description: CBS-CSF-T5-1
SDG#: SIL080

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.67U	mg/kg_dw	01-17-2002	1	0116S
TOC-9060	11000	mg/kg dw	01-17-2002	1	0117X

Sample Number: S240124*2 Sample Description: CBS-CSF-T14-1
Matrix: SS SDG#: SIL080
Date Received: 01-09-2002

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.65U	mg/kg_dw	01-17-2002	1	0116S
TOC-9060	12000	mg/kg dw	01-17-2002	1	0117X

Sample Number: S240124*3
Matrix: SS
Date Received: 01-09-2002

Sample Description: CBS-CSF-T15-1
SDG#: SIL080

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.71U	mg/kg_dw	01-17-2002	1	0116S
TOC-9060	5300	mg/kg dw	01-17-2002	1	0117X

Sample Number: S240124*4
Matrix: SS
Date Received: 01-09-2002

Sample Description: CBS-CSF-T15-1-FD
SDG#: SIL080

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.63U	mg/kg_dw	01-17-2002	1	0116S
TOC-9060	1700	mg/kg dw	01-17-2002	1	0117X

ENSR INTERNATIONAL

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 22, 2002
From:	Sheena Blair/Westford	**File:**	SO022inoSB.doc 06105-012-201
RE:	Data Validation Inorganic Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia , Illinois STL SDG SIL084	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for one sediment sample analyzed for total metals by SW-846 methods 6010B and 7471A, and total cyanide by SW-846 method 9012A. The sample was collected at the Sauget Area 1 site in Sauget and Cahokia, IL on February 14, 2002 and submitted to Severn Trent Laboratories (STL) in Savannah, GA. STL logged in the sample and reported the results under sample delivery group (SDG) SIL084.

The analytical data were evaluated with reference to the *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review* (2/93), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The sample included in this review is listed below:

Sample Identification
CBS-CSE-T13-2

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times/sample preservation
- Laboratory blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory duplicate results
- Field Duplicates
- Laboratory control sample (LCS) results
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC and any subsequent correspondence. No discrepancies were noted.

Holding Times/Sample Preservation

Sample CBS-CSE-T13-2 was digested and analyzed within the method specified holding times for metals and cyanide.

The laboratory does not record cooler temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptance range of 4°C ± 2° C). Non-conformances were not observed for this sample set.

Laboratory Blanks

Various analytes were detected in the laboratory preparation blanks and in the initial and continuing calibration blanks (ICBs and CCBs) associated with these samples. The presence of blank contamination indicates that false positive results or false negative results (for negative blanks) may exist for these analytes in the associated samples. An Action Level (AL) was established for each analyte at 5x the highest concentration detected and was used to qualify sample data. The following tables summarize these ALs and the associated samples.

Blank Type	Analyte	Conc. Detected (µg/L)	Action Level* (mg/Kg)
Method Blank	Antimony	0.536 mg/kg	2.68
	Silver	-0.316 mg/kg	-1.58
ICB/CCB 3/4/02	Beryllium	0.649	0.324
	Molybdenum	2.91	1.46
	Selenium	7.19	3.60
ICB/CCB 2/21/01	Mercury	0.000118	0.0295
* Corrected for percent solids for each sample. Associated sample: CBS-CSE-T13-2.			

Sample results were qualified as follows:

For positive contamination:

- Sample results ≥ method detection limit (MDL) but ≤ AL were qualified as nondetected (U) at the reported concentration.
- Sample results > AL or nondetected results (< MDL) were not qualified.

For negative contamination:

- Sample results ≥ MDL but ≤ the absolute value of the AL were qualified as estimated (J) at the reported concentration.
- Nondetected results (< MDL) were qualified as estimated nondetects (UJ).
- Sample results > the absolute value of the AL were not qualified.

MS/MSD Results

The laboratory performed MS/MSD analyses for metals and cyanide on a sample from a different client. Although this practice is acceptable, the results could not be directly applied to the samples analyzed in this data package because of possible differences in the sample matrix and type. No validation action was taken on this basis.

Laboratory Duplicate Results

Laboratory duplicate analyses were not performed. Precision in the laboratory was demonstrated by the analyses of MS/MSDs (as discussed above).

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Field Duplicates

There were no field duplicates submitted in this sample set. No action was taken on this basis.

LCS Results

The %Rs of all spiked analytes met the QC acceptance criteria in the LCS analyses.

Sample Results

The percent solids for sample CBS-CSE-T13-2 was >50%.

For metals analyses the laboratory reported nondetect sample, method blank, and instrument blank results as nondetect (U) at the sample quantitation limit (SQL). Positive results between the SQL and the method detection limit (MDL) were reported with a qualifier (B) to indicate estimated values. The B qualifier was removed during validation.

TOTAL METALS

-1-

INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T13-2

Contract:

Lab Code: STLSAV Case No.: SAS No.: SDG NO.: SIL084

Matrix (soil/water): SOIL Lab Sample ID: S241071-1

Level (low/med): LOW Date Received: 15-FEB-2002

% Solids: 67.0

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	10000			P
7440-36-0	Antimony	1.0	B	U-B	P
7440-38-2	Arsenic	5.6			P
7440-39-3	Barium	220			P
7440-41-7	Beryllium	0.79			P
7440-43-9	Cadmium	3.1			P
7440-70-2	Calcium	12000			P
7440-47-3	Chromium	18			P
7440-48-4	Cobalt	8.2			P
7440-50-8	Copper	94			P
7439-89-6	Iron	20000			P
7439-92-1	Lead	44			P
7439-95-4	Magnesium	6500			P
7439-96-5	Manganese	210			P
7439-98-7	Molybdenum	1.3	B	U-B	P
7440-02-0	Nickel	52			P
7440-09-7	Potassium	2200			P
7782-49-2	Selenium	1.4	U		P
7440-22-4	Silver	1.4	B	UJ-B	P
7440-23-5	Sodium	160			P
7440-28-0	Thallium	0.88	B		P
7440-31-5	Tin	6.8	U		P
7440-62-2	Vanadium	31			P
7440-66-6	Zinc	320			P

Color Before: Clarity Before: Texture:

Color After: Clarity After: Artifacts:

Comments:

STL SAVANNAH

Total Metals
-1-
INORGANIC ANALYSIS DATA SHEET

SAMPLE NO.

CBS-CSE-T13-2

Contract: _____

Lab Code: STLSAV Case No.: _____ SAS No.: _____ SDG NO.: SIL084

Matrix (soil/water): SOIL Lab Sample ID: S241071-1

Level (low/med): LOW Date Received: 2/15/02

% Solids: 67

Concentration Units (ug/L or mg/kg dry weight): MG/KG

CAS No.	Analyte	Concentration	C	Q	M
7439-97-6	Mercury	0.84			CV

Color Before: _____ Clarity Before: _____ Texture: _____

Color After: _____ Clarity After: _____ Artifacts: _____

Comments: _____

Sample Number: S241071*1
Matrix: SS
Date Received: 02-15-2002

Sample Description: CBS-CSB-T13-2
SDG#: SIL084

Chemical Name	Results	Units	Date Analyzed	Dilution Factor	Batch
CN-T-9012	0.75U	mg/kg_dw	02-22-2002	1	0222S
TOC-9060	23000	mg/kg dw	02-18-2002	1	0218X

APPENDIX A-4

PCBS, PESTICIDES AND HERBICIDES

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 22, 2002
From:	Linda Sulkowski/Westford	**File:**	SO001 06105-012-201
RE:	Data Validation PCB and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL070	**CC:**	A. Mischel/Westford

SUMMARY

Limited validation was performed on the data for 16 soil samples analyzed for polychlorinated biphenyls (PCBs) by USEPA Method 680 and herbicides by SW-846 method 8151A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on November 8, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL070.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (*1997*),* the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSB-T6-C1	CBS-CSB-T6-C1-D (field duplicate of CBS-CSB-T6-C1)
CBS-CSB-T6-E1	CBS-CSB-T6-W1
CBS-CSB-T7-E1	CBS-CSB-T7-W1
CBS-CSB-T8-E1	CBS-CSB-T7-C1
CBS-CSB-T8-W1	CBS-CSB-T8-C1
CBS-CSB-T9-C1	CBS-CSB-T9-E1
CBS-CSB-T9-W1	CBS-CSB-T10-E1
CBS-CSB-T10-W1	CBS-CSB-T10-C1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identifications (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformances were not noted by the laboratory. No validation action was taken on this basis.

PCB Analysis

The samples were initially extracted and analyzed within the method specified holding times. All samples except samples CBS-CSB-T6-C1, CBS-CSB-T7-W1, CBS-CSB-T9-W1, CBS-CSB-T10-W1, and CBS-CSB-T10-C1 were re-extracted 5 days outside of the method specified holding time of 14 days. These re-extracted samples confirmed the initial low surrogate recoveries. The initial extractions, within hold time, were reported by the validator.

Herbicide Analysis

The samples were extracted and analyzed within the method specified holding times.

Method Blanks

Target analytes were not detected in the laboratory method blanks associated with all samples for both parameters.

ENSR

Surrogate Spike Recoveries

PCB Analysis

The following table summarizes the percent recoveries (%Rs) of the surrogates which fell below the QC acceptance criteria. Positive and non-detected sample results were qualified as estimated (J/UJ).

Sample	%R 13C12-Decachlorobiphenyl
CBS-CSB-T6-C1-D	26
CBS-CSB-T6-E1	20
CBS-CSB-T6-W1	15
CBS-CSB-T7-E1	21
CBS-CSB-T7-W1	26
CBS-CSB-T8-E1	25
CBS-CSB-T7-C1	14
CBS-CSB-T8-W1	21
CBS-CSB-T8-C1	21
CBS-CSB-T9-C1	24
CBS-CSB-T9-E1	27
CBS-CSB-T10-E1	24

The low recovery of the surrogate in sample CBS-CSB-T7-W1 was confirmed by the MS/MSD analyses performed on this sample. All other samples listed in the table above were re-extracted outside of hold time to confirm the low surrogate recoveries. The re-extracted samples exhibited similar low recoveries of the surrogate. The initial extractions, within hold time, were therefore reported by the validator.

Herbicide Analysis

The surrogate recoveries were within the QC acceptance limits in all sample analyses.

LCS Results

PCB Analysis

The %Rs of the spiked target analytes were within the QC acceptance criteria in the LCSs associated with the sample analyses.

Herbicide Analysis

With the following exception, the %Rs of the spiked target analytes were within the QC acceptance criteria in the LCS associated with the sample analyses. The %R of MCPP (134%) exceeded the QC acceptance criteria. The positive results for MCPP in samples CBS-CSB-T6-E1, CBS-CSB-T7-W1, and CBS-CSB-T9-W1 were therefore qualified as estimated (J).

MS/MSD Results

MS/MSD analyses were performed on sample CBS-CSB-T7-W1.

ENSR

PCB Analysis

The %R of pentachlorobiphenyls (0%/5%) fell below 10% in the MS/MSD analysis. The positive result for pentachlorobiphenyl was qualified as estimated (J) in the unpiked sample CSB-CSB-T7-W1. The %Rs for eight of the other nine spiked compounds fell below the QC acceptance limits in the MS/MSD analyses performed on this sample. The remaining positive and non-detected results for the unspiked sample CBS-CSB-T7-W1 were qualified as estimated (J/UJ) since more than half the spiked compounds failed recovery criteria.

Herbicide Analysis

The %Rs and the relative percent differences (RPDs) of the spiked target analytes were within the QC acceptance limits in the MS/MSD analyses performed on this sample for this parameter.

Field Duplicate Results

Samples CBS-CSF-T6-C1 and CBS-CSF-T6-C1-D were submitted as the field duplicate pair with this sample set. Qualification of the data on the basis of field duplicate results is not required under regional guidelines. *RPD results are provided for informational purposes only.*

PCB Analysis

The following table summarizes the RPDs of the detected analytes in field duplicate pair CBS-CSB-T6-C1/CBS-CSB-T6-C1-D. The RPDs for hexachlorobiphenyls and decachlorobiphenyls were not calculable (NC) due to non-detected results in either the sample or field duplicate sample.

Compound	CBS-CSB-T6-C1 (µg/kg)	CBS-CSB-T6-C1-D (µg/kg)	RPD (%)
Trichlorobiphenyls	5.3	2.8 J	62
Tetrachlorobiphenyls	13	9.6	30
Pentachlorobiphenyls	6.4 J	7.1 J	10
Hexachlorobiphenyls	9.3 U	1.4 J	NC
Decachlorobiphenyls	4.3 J	23 U	NC

Herbicide Analysis

The following table summarizes the RPD of the detected analyte in field duplicate pair CBS-CSB-T6-C1/CBS-CSB-T6-C1-D.

Compound	CBS-CSB-T6-C1 (µg/kg)	CBS-CSB-T6-C1-D (µg/kg)	RPD (%)
Pentachlorphenol	4.4 J	5.0 J	13

Quantitation Limits and Sample Results

The percent solids criterion of >50% was met for all samples.

PCB Analysis

Dilutions were not performed; Sample quantitation limits (SQLs) were therefore not affected.

Herbicide Analysis

The RPDs between the two analytical columns for several compounds exceeded the QC acceptance criteria of 40% for selected results. In these instances, the laboratory reported the lower of the two values with a "P" qualifier. During validation, the "P" qualifier was removed. The positive results above the SQL for MCPP in samples CBS-CSB-T6-E1 and CBS-CSB-T7-W1 were qualified as estimated (J) due to the high RPD.

Sample CBS-CSB-T6-E1 was initially analyzed undiluted. The sample was re-analyzed at a 2-fold dilution due to the concentration of MCPP, which exceeded the calibration range in the undiluted sample. Both runs were combined by the validator to report all compounds within the calibration range and the lowest possible SQLs.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4294

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 28 decanted: (Y/N) N Date Extracted:11/15/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.6	U
	Dichlorobiphenyl	4.6	U
	Trichlorobiphenyl	5.3	
	Tetrachlorobiphenyl	13	
	Pentachlorobiphenyl	6.4	J
	Hexachlorobiphenyl	9.3	U
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	23	U
	Decachlorobiphenyl	4.3	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-C1-D

Sample wt/vol: 30 (g/mL) G Lab File ID: K4241

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 28 decanted: (Y/N) N Date Extracted: 11/15/01

Concentrated Extract Volume: 1 (mL) Date Analyzed: 11/21/01

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.6	UJ-S
	Dichlorobiphenyl	4.6	UJ-S
	Trichlorobiphenyl	2.8	J-S
	Tetrachlorobiphenyl	9.6	J-S
	Pentachlorobiphenyl	7.1	J-S
	Hexachlorobiphenyl	1.4	J-S
	Heptachlorobiphenyl	14	UJ-S
	Octachlorobiphenyl	14	UJ-S
	Nonachlorobibiphenyl	23	UJ-S
	Decachlorobiphenyl	23	UJ-S

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4242

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 14 decanted: (Y/N) N Date Extracted:11/15/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/21/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	3.8	UJ-S
	Dichlorobiphenyl	2.8	J-S
	Trichlorobiphenyl	74	J-S
	Tetrachlorobiphenyl	370	
	Pentachlorobiphenyl	240	
	Hexachlorobiphenyl	38	
	Heptachlorobiphenyl	14	
	Octachlorobiphenyl	4.5	J-S
	Nonachlorobibiphenyl	19	UJ-S
	Decachlorobiphenyl	18	J-S

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4243

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 24 decanted: (Y/N) N Date Extracted: 11/15/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/21/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.3	UJ-S
	Dichlorobiphenyl	4.3	UJ-S
	Trichlorobiphenyl	1.8	J-S
	Tetrachlorobiphenyl	8.8	UJ-S
	Pentachlorobiphenyl	8.8	U
	Hexachlorobiphenyl	8.8	U
	Heptachlorobiphenyl	13	U
	Octachlorobiphenyl	13	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T7-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4244

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 25 decanted: (Y/N) N Date Extracted: 11/15/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/21/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	UJ-S
	Dichlorobiphenyl	4.4	U
	Trichlorobiphenyl	4.4	U
	Tetrachlorobiphenyl	8.9	U
	Pentachlorobiphenyl	5.1	J-S
	Hexachlorobiphenyl	1.5	J-S
	Heptachlorobiphenyl	13	UJ-S
	Octachlorobiphenyl	13	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T7-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4245

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 22 decanted: (Y/N) N Date Extracted: 11/15/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/21/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.2	UJ-M-S
	Dichlorobiphenyl	4.2	UJ-M-S
	Trichlorobiphenyl	8.1	J-M-S
	Tetrachlorobiphenyl	61	J-M-S
	Pentachlorobiphenyl	74	J-M-S
	Hexachlorobiphenyl	9.2	J-M-S
	Heptachlorobiphenyl	2.9	J-M-S
	Octachlorobiphenyl	13	UJ-M-S
	Nonachlorobibiphenyl	21	UJ-M-S
	Decachlorobiphenyl	21	UJ-M-S

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-7

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T8-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4248

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 30 decanted: (Y/N) N Date Extracted: 11/15/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/21/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.7	UJ-S
	Dichlorobiphenyl	4.7	U
	Trichlorobiphenyl	4.7	U
	Tetrachlorobiphenyl	9.6	U
	Pentachlorobiphenyl	9.6	U
	Hexachlorobiphenyl	9.6	U
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	24	U
	Decachlorobiphenyl	24	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-8

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T7-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4249

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 26 decanted: (Y/N) N Date Extracted: 11/15/01

Concentrated Extract Volume: 1 (mL) Date Analyzed: 11/21/01

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	UJ-S
	Dichlorobiphenyl	4.4	UJ-S
	Trichlorobiphenyl	5.4	J-S
	Tetrachlorobiphenyl	28	↓
	Pentachlorobiphenyl	20	↓
	Hexachlorobiphenyl	2.1	J-S
	Heptachlorobiphenyl	14	UJ-S
	Octachlorobiphenyl	14	U ↓
	Nonachlorobibiphenyl	22	U ↓
	Decachlorobiphenyl	22	U ↓

FORM I
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-9

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T8-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4250

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 26 decanted: (Y/N) N Date Extracted: 11/15/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/21/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	UJ-S
	Dichlorobiphenyl	4.4	UJ-S
	Trichlorobiphenyl	4.5	J-S
	Tetrachlorobiphenyl	29	↓
	Pentachlorobiphenyl	17	↓
	Hexachlorobiphenyl	2.3	J-S
	Heptachlorobiphenyl	14	UJ-S
	Octachlorobiphenyl	14	U ↓
	Nonachlorobibiphenyl	22	U ↓
	Decachlorobiphenyl	22	U ↓

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-10

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T8-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4251

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 28 decanted: (Y/N) N Date Extracted:11/15/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/21/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.6	UJ-S
	Dichlorobiphenyl	3.6	J-S
	Trichlorobiphenyl	22	J-S
	Tetrachlorobiphenyl	150	
	Pentachlorobiphenyl	110	
	Hexachlorobiphenyl	19	
	Heptachlorobiphenyl	4.8	J-S
	Octachlorobiphenyl	14	UJ-S
	Nonachlorobibiphenyl	23	UJ-S
	Decachlorobiphenyl	9.0	J-S

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-11

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T9-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4252

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 26 decanted: (Y/N) N Date Extracted: 11/15/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/21/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	UJ-S
	Dichlorobiphenyl	4.4	U
	Trichlorobiphenyl	4.4	U
	Tetrachlorobiphenyl	9.0	U
	Pentachlorobiphenyl	9.0	U
	Hexachlorobiphenyl	9.0	U
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-12

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T9-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4253

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 24 decanted: (Y/N) N Date Extracted: 11/15/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.3	UJ-S
	Dichlorobiphenyl	4.3	U
	Trichlorobiphenyl	4.3	U
	Tetrachlorobiphenyl	8.8	U
	Pentachlorobiphenyl	8.8	J-S
	Hexachlorobiphenyl	2.1	J-S
	Heptachlorobiphenyl	13	UJ-S
	Octachlorobiphenyl	13	UJ-S
	Nonachlorobibiphenyl	22	UJ-S
	Decachlorobiphenyl	2.8	J-S

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-13

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T9-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4254

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 23 decanted: (Y/N) N Date Extracted: 11/15/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.3	U
	Dichlorobiphenyl	4.3	U
	Trichlorobiphenyl	6.9	
	Tetrachlorobiphenyl	64	
	Pentachlorobiphenyl	43	
	Hexachlorobiphenyl	8.4	J
	Heptachlorobiphenyl	2.2	J
	Octachlorobiphenyl	13	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	2.7	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-14

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T10-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4255

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 26 decanted: (Y/N) N Date Extracted: 11/15/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	UJ-S
	Dichlorobiphenyl	4.4	UJ-S
	Trichlorobiphenyl	1.4	J-S
	Tetrachlorobiphenyl	18	J-S
	Pentachlorobiphenyl	41	J-S
	Hexachlorobiphenyl	8.5	J-S
	Heptachlorobiphenyl	14	UJ-S
	Octachlorobiphenyl	14	UJ-S
	Nonachlorobibiphenyl	22	UJ-S
	Decachlorobiphenyl	4.1	J-S

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-15

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T10-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4256

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 26 decanted: (Y/N) N Date Extracted: 11/15/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	U
	Dichlorobiphenyl	4.4	U
	Trichlorobiphenyl	3.5	J
	Tetrachlorobiphenyl	26	
	Pentachlorobiphenyl	25	
	Hexachlorobiphenyl	6.3	J
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-16

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T10-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4257

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 30 decanted: (Y/N) N Date Extracted: 11/15/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.7	U
	Dichlorobiphenyl	4.7	U
	Trichlorobiphenyl	4.7	U
	Tetrachlorobiphenyl	9.6	U
	Pentachlorobiphenyl	14	
	Hexachlorobiphenyl	2.4	J
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	24	U
	Decachlorobiphenyl	24	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18007

% Moisture: 28 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/18/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	4.4	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-C1-D

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18008

% Moisture: 28 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/18/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	5.0	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM I
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18009

% Moisture: 14 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/18/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0/2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	76	U
1918-00-9	Dicamba	23	U
7085-19-0	MCPP	6100	~~P~~ J-P-L
94-74-6	MCPA	2300	U
120-36-5	Dichlorprop	120	U
94-75-7	2,4-D	9.6	U
87-86-5	Pentachlorophenol	280 ~~270~~	~~E~~
93-72-1	2,4,5-TP	9.6	U
93-76-5	2,4,5-T	3.4 ~~6.8~~ ~~3.4~~	J~~P~~-P
94-82-6	2,4-DB	9.6	U
88-85-7	Dinoseb	120	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-3DL

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV21063

% Moisture: 14 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	150	U
1918-00-9	Dicamba	46	U
7085-19-0	MCPP	4800	DP
94-74-6	MCPA	4600	U
120-36-5	Dichlorprop	230	U
94-75-7	2,4-D	19	U
87-86-5	Pentachlorophenol	280	D
93-72-1	2,4,5-TP	19	U
93-76-5	2,4,5-T	3.0	DJP
88-85-7	Dinoseb	230	U
94-82-6	2,4-DB	19	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18010

% Moisture: 24 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/18/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	86	U
1918-00-9	Dicamba	26	U
7085-19-0	MCPP	2600	U
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	3.3	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	130	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T7-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18011

% Moisture: 25 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/18/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	87	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	2.5	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	130	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T7-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18012

% Moisture: 22 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/18/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	83	U
1918-00-9	Dicamba	4.7	J
7085-19-0	MCPP	4600-8100 ~~4600~~	~~P~~ J-P+L
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	17	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	130	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-7

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T8-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18013

% Moisture: 30 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/18/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	93	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	2.1	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-8

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T7-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18014

% Moisture: 26 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/18/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	88	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	23	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	3.2 ~~4.9~~ ~~3.2~~	J~~P~~-P
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-9

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T8-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18015

% Moisture: 26 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/18/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	88	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	4.9	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-10

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T8-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18016

% Moisture: 28 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/18/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	39	
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-11

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T9-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18017

% Moisture: 26 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/18/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	88	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	23	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	3.2	J
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-12

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T9-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18018

% Moisture: 24 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/18/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	86	U
1918-00-9	Dicamba	1.7 ~~28~~ ~~1.7~~	J~~Y~~ -P
7085-19-0	MCPP	2600	U
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	1.9	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	130	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-13

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T9-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18019

% Moisture: 23 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/19/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	84	U
1918-00-9	Dicamba	5.3	J
7085-19-0	MCPP	2400	J~~P~~-L-P
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	13	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	130	U

FORM I SG

FORM I
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-14

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T10-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18020

% Moisture: 26 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/19/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	88	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	5.5	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-15

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T10-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18021

% Moisture: 26 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/19/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	88	U
1918-00-9	Dicamba	2.1 ~~2.1~~	J~~P~~-P
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	7.3	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-16

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T10-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18022

% Moisture: 30 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/14/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/19/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	93	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	3.9	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-2RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-C1-D

Sample wt/vol: 30 (g/mL) G Lab File ID: K4270

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 28 decanted: (Y/N) N Date Extracted:11/27/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/28/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.6	U
	Dichlorobiphenyl	4.6	U
	Trichlorobiphenyl	3.1	J
	Tetrachlorobiphenyl	21	
	Pentachlorobiphenyl	51	
	Hexachlorobiphenyl	4.4	J
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	23	U
	Decachlorobiphenyl	23	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-3RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4271

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 14 decanted: (Y/N) N Date Extracted: 11/27/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/28/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	3.8	U
	Dichlorobiphenyl	4.3	
	Trichlorobiphenyl	62	
	Tetrachlorobiphenyl	320	
	Pentachlorobiphenyl	280	
	Hexachlorobiphenyl	21	
	Heptachlorobiphenyl	20	
	Octachlorobiphenyl	6.5	J
	Nonachlorobibiphenyl	19	U
	Decachlorobiphenyl	25	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-4RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4272

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 24 decanted: (Y/N) N Date Extracted: 11/27/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/28/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.3	U
	Dichlorobiphenyl	4.3	U
	Trichlorobiphenyl	4.8	
	Tetrachlorobiphenyl	12	
	Pentachlorobiphenyl	28	
	Hexachlorobiphenyl	1.2	J
	Heptachlorobiphenyl	13	U
	Octachlorobiphenyl	13	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	22	U

FORM I

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-5RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T7-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4273

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 25 decanted: (Y/N) N Date Extracted:11/27/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/28/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS; (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	U
	Dichlorobiphenyl	4.4	U
	Trichlorobiphenyl	4.4	U
	Tetrachlorobiphenyl	12	
	Pentachlorobiphenyl	42	
	Hexachlorobiphenyl	2.3	J
	Heptachlorobiphenyl	13	U
	Octachlorobiphenyl	13	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-7RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T8-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4277

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 30 decanted: (Y/N) N Date Extracted:11/27/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/28/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.7	U
	Dichlorobiphenyl	4.7	U
	Trichlorobiphenyl	1.5	J
	Tetrachlorobiphenyl	9.6	U
	Pentachlorobiphenyl	9.6	U
	Hexachlorobiphenyl	9.6	U
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	24	U
	Decachlorobiphenyl	24	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-8RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T7-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4278

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 26 decanted: (Y/N) N Date Extracted:11/27/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/28/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	U
	Dichlorobiphenyl	4.4	U
	Trichlorobiphenyl	4.4	U
	Tetrachlorobiphenyl	9.0	U
	Pentachlorobiphenyl	9.0	U
	Hexachlorobiphenyl	9.0	U
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-9RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T8-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4279

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 26 decanted: (Y/N) N Date Extracted: 11/27/01

Concentrated Extract Volume: 1 (mL) Date Analyzed: 11/28/01

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	U
	Dichlorobiphenyl	4.4	U
	Trichlorobiphenyl	4.1	J
	Tetrachlorobiphenyl	36	
	Pentachlorobiphenyl	18	
	Hexachlorobiphenyl	9.0	U
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-10RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T8-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4280

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 28 decanted: (Y/N) N Date Extracted: 11/27/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/28/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	1.6	J
	Dichlorobiphenyl	4.5	J
	Trichlorobiphenyl	7.6	
	Tetrachlorobiphenyl	130	
	Pentachlorobiphenyl	98	
	Hexachlorobiphenyl	5.9	J
	Heptachlorobiphenyl	4.2	J
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	23	U
	Decachlorobiphenyl	12	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-11RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T9-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4283

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 26 decanted: (Y/N) N Date Extracted: 11/27/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	----------Monochlorobiphenyl_____	4.4	U
	----------Dichlorobiphenyl_____	4.4	U
	----------Trichlorobiphenyl_____	4.4	U
	----------Tetrachlorobiphenyl_____	9.0	U
	----------Pentachlorobiphenyl_____	9.0	U
	----------Hexachlorobiphenyl_____	9.0	U
	----------Heptachlorobiphenyl_____	14	U
	----------Octachlorobiphenyl_____	14	U
	----------Nonachlorobibiphenyl_____	22	U
	----------Decachlorobiphenyl_____	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-12RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T9-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4284

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 24 decanted: (Y/N) N Date Extracted: 11/27/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.3	U
	Dichlorobiphenyl	4.3	U
	Trichlorobiphenyl	1.1	J
	Tetrachlorobiphenyl	3.6	J
	Pentachlorobiphenyl	14	
	Hexachlorobiphenyl	3.3	J
	Heptachlorobiphenyl	13	U
	Octachlorobiphenyl	13	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-14RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T10-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4285

Level: (low/med) LOW Date Received: 11/09/01

% Moisture: 26 decanted: (Y/N) N Date Extracted: 11/27/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	U
	Dichlorobiphenyl	4.4	U
	Trichlorobiphenyl	4.4	U
	Tetrachlorobiphenyl	47	
	Pentachlorobiphenyl	120	
	Hexachlorobiphenyl	24	
	Heptachlorobiphenyl	11	J
	Octachlorobiphenyl	4.2	J
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	16	J

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 25, 2002
From:	Marcia Motta/Westford	**File:**	SO001 06105-A17
RE:	Data Validation Pesticide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL070	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for fifteen sediment samples and one field duplicate sample analyzed for organochlorine (OC) pesticides by SW-846 method 8081A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on November 8, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL070.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The regional and national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformance of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	Sample Identifications
CBS-CSB-T6-C1	CBS-CSB-T8-W1
CBS-CSB-T6-C1-D (field duplicate of CBS-CSB-T6-C1)	CBS-CSB-T8-C1
CBS-CSB-T6-E1	CBS-CSB-T9-C1
CBS-CSB-T6-W1	CBS-CSB-T9-E1
CBS-CSB-T7-E1	CBS-CSB-T9-W1
CBS-CSB-T7-W1	CBS-CSB-T10-E1
CBS-CSB-T8-E1	CBS-CSB-T10-W1
CBS-CSB-T7-C1	CBS-CSB-T10-C1

ENSR

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Sample Results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample result pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times for this parameter.

The laboratory does not record cooler receipt temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptable range of 4°C ± 2°C). Non-conformances were not observed for this sample set.

Method Blanks

No contaminants were detected in the associated method preparation blank.

Surrogate Spike Recoveries

The following table summarizes the percent recoveries (%Rs) of the surrogate decachlorobiphenyl (DCB) and tetrachloro-m-xylene (TCMX) that exceeded the QC acceptance criteria. Sample CBS-CSB-T16-1 was re-extracted outside of hold time confirming matrix affect on the surrogate recoveries. Only the original analysis performed within hold time was reported by the validator.

Sample	%R (TCMX) Column I/Column II	%R (DCB) Column I/Column II
CBS-CSB-T6-E1	ok	381/320
CBS-CSB-T8-E1	ok	ok/1
CBS-CSB-T10-E1	ok	264/264
CBS-CSE-T8-C1	ok	383/367

Sample results were qualified as follows:

- If one or both surrogates were above the QC limits on both columns, positive results were qualified as estimated (J).
- If one surrogate was below QC limits on one column and met QC criteria on the other column, no qualification of the results was required.

LCS Results

The %Rs of the spiked target analytes in the laboratory control sample (LCS) were within the QC acceptance criteria with the exception of ∝Chlordane (39%) that fell below the QC criteria. Results for ∝Chlordane were detected in the samples. Positive results and nondetects were qualified as estimated (J, UJ).

MS/MSD Results

Matrix spike/matrix spike duplicate (MS/MSD) analyses were performed on the designated sample, CBS-CSB-T7-W1. The following table summarizes %R and relative percent difference (RPD) nonconformances.

Compound	%R (MS)	%R (MSD)	RPD (%)
alpha-BHC	9	7	ok
beta-BHC	0	0	ok
alpha-Chlordane	20	37	60
gamma-Chlordane	ok	ok	124
4,4'-DDE	32	21	40
Endrin	24	32	ok
4,4'-DDT	ok	0	ok
Endosulfan sulfate	ok	24	ok
Endosulfan I	9	ok	ok

Sample results were qualified as follows:

- If the RPD exceeded the laboratory QC limit positive results and nondetects were estimated (J/UJ).
- If the %R exceeded the laboratory QC limit positive results were estimated (J).
- If the %R was below the laboratory QC limit but ≥10% positive results and nondetects were estimated (J/UJ).
- If the %R was <10% positive results and nondetects were estimated (J/UJ).

Field Duplicate Results

Samples CBS-CSB-T6-C1 and CBS-CSB-T6-C1-D were submitted as field duplicate pairs with this sample set for both parameters.

Analyte	CBS-CSB-T6-C1 (µg/kg)	CBS-CSB-T6-C1-D (µg/kg)	RPD (%)
Methoxychlor	0.41 J	24 U	NC
4,4'-DDT	0.73 J	0.41 J	56

The RPD for 4,4'-DDT and methoxychlor was not calculable due to a nondetect result in the duplicate. Precision was deemed acceptable since the detected result was <5x the sample quantitation limits (SQLs). Under Regional guidelines, sample results are not qualified on the basis of field duplicates.

Sample Results

The relative percent difference (RPD) of the result between the two analytical columns for some compounds exceeded the QC acceptance criteria of 40%. The laboratory indicated these results with a "P" qualifier and reported the lower of the two values. The "P" qualifier was removed and results greater than the SQL were qualified as estimated (J).

Percent solids for all samples were greater than 50%.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-1

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV16009

% Moisture: 28 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/16/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.69	U
58-89-9	gamma-BHC (Lindane)	2.4	U
319-85-7	beta-BHC	0.69	U
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.69	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
5103-74-2	gamma-Chlordane	2.4	U ~~J-L~~
5103-71-9	alpha-Chlordane	2.4	U J-L
959-98-8	Endosulfan I	2.4	U
72-55-9	4,4'-DDE	4.6	U
60-57-1	Dieldrin	4.6	U
72-20-8	Endrin	4.6	U
72-54-8	4,4'-DDD	4.6	U
33213-65-9	Endosulfan II	4.6	U
50-29-3	4,4'-DDT	4.6	U
7421-93-4	Endrin aldehyde	4.6	U
1031-07-8	Endosulfan sulfate	4.6	U
72-43-5	Methoxychlor	0.41	J~~P~~-P
53494-70-5	Endrin ketone	4.6	U
8001-35-2	Toxaphene	240	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-2

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-C1-D

Sample wt/vol: 30 (g/mL) G Lab File ID: INV16010

% Moisture: 28 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/16/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.69	U
58-89-9	gamma-BHC (Lindane)	2.4	U
319-85-7	beta-BHC	0.69	U
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.69	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	UJ-L
959-98-8	Endosulfan I	2.4	U
72-55-9	4,4'-DDE	4.6	U
60-57-1	Dieldrin	4.6	U
72-20-8	Endrin	4.6	U
72-54-8	4,4'-DDD	4.6	U
33213-65-9	Endosulfan II	4.6	U
50-29-3	4,4'-DDT	2.3	JP-P
7421-93-4	Endrin aldehyde	4.6	U
1031-07-8	Endosulfan sulfate	4.6	U
72-43-5	Methoxychlor	24	U
53494-70-5	Endrin ketone	4.6	U
8001-35-2	Toxaphene	240	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-3

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV16011

% Moisture: 14 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5 (mL) Date Analyzed: 11/16/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.55	JP-P-S
58-89-9	gamma-BHC (Lindane)	2.0	U
319-85-7	beta-BHC	1.9	PJ-P-S
76-44-8	Heptachlor	2.0	U
319-86-8	delta-BHC	0.58	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
5103-71-9	alpha-Chlordane	2.0	UJ-L
959-98-8	Endosulfan I	2.0	U
72-55-9	4,4'-DDE	3.8	U
60-57-1	Dieldrin	3.8	U
72-20-8	Endrin	3.8	U
72-54-8	4,4'-DDD	3.8	U
33213-65-9	Endosulfan II	3.8	U
50-29-3	4,4'-DDT	3.8	U
7421-93-4	Endrin aldehyde	3.8	U
1031-07-8	Endosulfan sulfate	3.8	U
72-43-5	Methoxychlor	1.1	JP-P-S
53494-70-5	Endrin ketone	3.8	U
8001-35-2	Toxaphene	200	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-4

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T6-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV27042

% Moisture: 24 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/28/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.66	U
58-89-9	gamma-BHC (Lindane)	2.2	U
319-85-7	beta-BHC	0.66	U
76-44-8	Heptachlor	0.32	J~~L~~-P
319-86-8	delta-BHC	0.66	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
5103-71-9	alpha-Chlordane	2.2	UJ-L
959-98-8	Endosulfan I	2.2	U
72-55-9	4,4'-DDE	4.3	U
60-57-1	Dieldrin	4.3	U
72-20-8	Endrin	4.3	U
72-54-8	4,4'-DDD	4.3	U
33213-65-9	Endosulfan II	4.3	U
50-29-3	4,4'-DDT	4.3	U
7421-93-4	Endrin aldehyde	4.3	U
1031-07-8	Endosulfan sulfate	4.3	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.3	U
8001-35-2	Toxaphene	220	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-5

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T7-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV16013

% Moisture: 25 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5 (mL) Date Analyzed: 11/16/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.67	U
58-89-9	gamma-BHC (Lindane)	2.3	U
319-85-7	beta-BHC	0.67	U
76-44-8	Heptachlor	2.3	U
319-86-8	delta-BHC	0.71	~~P~~ J-P
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	UJ-L
959-98-8	Endosulfan I	2.3	U
72-55-9	4,4'-DDE	4.4	U
60-57-1	Dieldrin	4.4	U
72-20-8	Endrin	4.4	U
72-54-8	4,4'-DDD	4.4	U
33213-65-9	Endosulfan II	4.4	U
50-29-3	4,4'-DDT	9.2	~~P~~ J-P
7421-93-4	Endrin aldehyde	4.4	U
1031-07-8	Endosulfan sulfate	4.4	U
72-43-5	Methoxychlor	23	U
53494-70-5	Endrin ketone	4.4	U
8001-35-2	Toxaphene	230	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-6

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T7-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV16014

% Moisture: 22 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/16/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.9	~~P~~J-P-M
58-89-9	gamma-BHC (Lindane)	2.2	U
319-85-7	beta-BHC	7.7	J-M
76-44-8	Heptachlor	2.2	U
319-86-8	delta-BHC	0.64	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
5103-74-2	gamma-Chlordane	2.2	UJ-M-D
5103-71-9	alpha-Chlordane	2.2	UJ-M-L-D
959-98-8	Endosulfan I	delete ~~2.2~~	~~U~~R-M
72-55-9	4,4'-DDE	4.2	UJ-m-D
60-57-1	Dieldrin	4.2	U
72-20-8	Endrin	4.2	UJ-m
72-54-8	4,4'-DDD	4.2	U
33213-65-9	Endosulfan II	4.2	U
50-29-3	4,4'-DDT	15	~~P~~J-P-M
7421-93-4	Endrin aldehyde	4.2	U
1031-07-8	Endosulfan sulfate	4.2	UJ-M
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.2	U
8001-35-2	Toxaphene	220	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-7

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T8-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV16015

% Moisture: 30 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/16/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.71	U
58-89-9	gamma-BHC (Lindane)	2.4	U
319-85-7	beta-BHC	0.71	U
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.71	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	UJ-L
959-98-8	Endosulfan I	2.4	U
72-55-9	4,4'-DDE	4.7	U
60-57-1	Dieldrin	4.7	U
72-20-8	Endrin	4.7	U
72-54-8	4,4'-DDD	4.7	U
33213-65-9	Endosulfan II	4.7	U
50-29-3	4,4'-DDT	0.96	J
7421-93-4	Endrin aldehyde	4.7	U
1031-07-8	Endosulfan sulfate	4.7	U
72-43-5	Methoxychlor	24	U
53494-70-5	Endrin ketone	4.7	U
8001-35-2	Toxaphene	240	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-8

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T7-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV27043

% Moisture: 26 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5 (mL) Date Analyzed: 11/28/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.68	U
58-89-9	gamma-BHC (Lindane)	2.3	U
319-85-7	beta-BHC	0.68	U
76-44-8	Heptachlor	2.3	U
319-86-8	delta-BHC	0.68	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	UJ-L
959-98-8	Endosulfan I	2.3	U
72-55-9	4,4'-DDE	4.4	U
60-57-1	Dieldrin	4.4	U
72-20-8	Endrin	4.4	U
72-54-8	4,4'-DDD	4.4	U
33213-65-9	Endosulfan II	4.4	U
50-29-3	4,4'-DDT	4.4	U
7421-93-4	Endrin aldehyde	4.4	U
1031-07-8	Endosulfan sulfate	4.4	U
72-43-5	Methoxychlor	23	U
53494-70-5	Endrin ketone	4.4	U
8001-35-2	Toxaphene	230	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-9

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T8-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV16017

% Moisture: 26 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5 (mL) Date Analyzed: 11/16/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.7	~~P~~ J-P
58-89-9	gamma-BHC (Lindane)	2.3	U
319-85-7	beta-BHC	5.4	
76-44-8	Heptachlor	2.3	U
319-86-8	delta-BHC	0.68	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	UJ-L
959-98-8	Endosulfan I	2.3	U
72-55-9	4,4'-DDE	4.4	U
60-57-1	Dieldrin	4.4	U
72-20-8	Endrin	4.4	U
72-54-8	4,4'-DDD	4.4	U
33213-65-9	Endosulfan II	4.4	U
50-29-3	4,4'-DDT	9.9	
7421-93-4	Endrin aldehyde	4.4	U
1031-07-8	Endosulfan sulfate	4.4	U
72-43-5	Methoxychlor	0.45	J~~P~~-P
53494-70-5	Endrin ketone	4.4	U
8001-35-2	Toxaphene	230	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-10

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T8-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV27044

% Moisture: 28 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/28/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.69	U
58-89-9	gamma-BHC (Lindane)	2.3	J-S
319-85-7	beta-BHC	0.57	~~J~~-P-S
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.69	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	U~~J~~-L
959-98-8	Endosulfan I	2.4	U
72-55-9	4,4'-DDE	4.6	U
60-57-1	Dieldrin	9.4	~~P~~J-P-S
72-20-8	Endrin	4.6	U
72-54-8	4,4'-DDD	4.6	U
33213-65-9	Endosulfan II	10	~~P~~J-P-S
50-29-3	4,4'-DDT	46	J-S
7421-93-4	Endrin aldehyde	4.6	U
1031-07-8	Endosulfan sulfate	4.6	U
72-43-5	Methoxychlor	24	U
53494-70-5	Endrin ketone	4.6	U
8001-35-2	Toxaphene	240	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-11

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T9-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV27045

% Moisture: 26 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/28/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.68	U
58-89-9	gamma-BHC (Lindane)	2.3	U
319-85-7	beta-BHC	0.68	U
76-44-8	Heptachlor	2.3	U
319-86-8	delta-BHC	0.68	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	UJ-L
959-98-8	Endosulfan I	2.3	U
72-55-9	4,4'-DDE	4.4	U
60-57-1	Dieldrin	0.62	JP-P
72-20-8	Endrin	4.4	U
72-54-8	4,4'-DDD	4.4	U
33213-65-9	Endosulfan II	4.4	U
50-29-3	4,4'-DDT	4.4	U
7421-93-4	Endrin aldehyde	4.4	U
1031-07-8	Endosulfan sulfate	4.4	U
72-43-5	Methoxychlor	23	U
53494-70-5	Endrin ketone	4.4	U
8001-35-2	Toxaphene	230	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-12

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T9-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV16020

% Moisture: 24 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/16/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.66	U
58-89-9	gamma-BHC (Lindane)	2.2	U
319-85-7	beta-BHC	0.66	U
76-44-8	Heptachlor	2.2	U
319-86-8	delta-BHC	0.66	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
5103-71-9	alpha-Chlordane	2.2	U J-L
959-98-8	Endosulfan I	2.2	U
72-55-9	4,4'-DDE	4.3	U
60-57-1	Dieldrin	4.3	U
72-20-8	Endrin	4.3	U
72-54-8	4,4'-DDD	4.3	U
33213-65-9	Endosulfan II	4.3	U
50-29-3	4,4'-DDT	5.3	~~U~~ J-P
7421-93-4	Endrin aldehyde	4.3	U
1031-07-8	Endosulfan sulfate	4.3	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.3	U
8001-35-2	Toxaphene	220	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-13

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T9-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV16021

% Moisture: 23 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/16/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.6	~~P~~ J-P
58-89-9	gamma-BHC (Lindane)	2.2	U
319-85-7	beta-BHC	4.3	~~P~~ J-P
76-44-8	Heptachlor	2.2	U
319-86-8	delta-BHC	4.1	~~P~~ J-P
309-00-2	Aldrin	0.36	J~~P~~-P
1024-57-3	Heptachlor epoxide	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
5103-71-9	alpha-Chlordane	2.2	U J-L
959-98-8	Endosulfan I	2.2	U
72-55-9	4,4'-DDE	4.3	U
60-57-1	Dieldrin	4.3	U
72-20-8	Endrin	4.3	U
72-54-8	4,4'-DDD	4.3	U
33213-65-9	Endosulfan II	4.3	U
50-29-3	4,4'-DDT	13	
7421-93-4	Endrin aldehyde	4.3	U
1031-07-8	Endosulfan sulfate	4.3	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.3	U
8001-35-2	Toxaphene	220	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-14

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T10-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV16022

% Moisture: 26 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/16/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.68	U
58-89-9	gamma-BHC (Lindane)	2.3	U
319-85-7	beta-BHC	0.68	U
76-44-8	Heptachlor	0.75	JP-P-S
319-86-8	delta-BHC	0.68	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	UJ-L
959-98-8	Endosulfan I	2.3	U
72-55-9	4,4'-DDE	4.4	U
60-57-1	Dieldrin	4.4	U
72-20-8	Endrin	4.4	U
72-54-8	4,4'-DDD	4.4	U
33213-65-9	Endosulfan II	4.4	U
50-29-3	4,4'-DDT	31	PJ-P-S
7421-93-4	Endrin aldehyde	4.4	U
1031-07-8	Endosulfan sulfate	4.4	U
72-43-5	Methoxychlor	23	U
53494-70-5	Endrin ketone	4.4	U
8001-35-2	Toxaphene	230	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-15

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T10-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV16023

% Moisture: 26 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5 (mL) Date Analyzed: 11/16/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.68	U
58-89-9	gamma-BHC (Lindane)	2.3	U
319-85-7	beta-BHC	2.6	
76-44-8	Heptachlor	1.2	JP-P
319-86-8	delta-BHC	0.68	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	UJ-L
959-98-8	Endosulfan I	2.3	U
72-55-9	4,4'-DDE	4.4	U
60-57-1	Dieldrin	4.4	U
72-20-8	Endrin	4.4	U
72-54-8	4,4'-DDD	4.4	U
33213-65-9	Endosulfan II	4.4	U
50-29-3	4,4'-DDT	13	
7421-93-4	Endrin aldehyde	4.4	U
1031-07-8	Endosulfan sulfate	4.4	U
72-43-5	Methoxychlor	23	U
53494-70-5	Endrin ketone	4.4	U
8001-35-2	Toxaphene	230	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17315-16

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL070

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T10-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV27046

% Moisture: 30 decanted: (Y/N) N Date Received: 11/09/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/28/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.71	U
58-89-9	gamma-BHC (Lindane)	2.4	U
319-85-7	beta-BHC	0.71	U
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.71	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	UJ-P
959-98-8	Endosulfan I	2.4	U
72-55-9	4,4'-DDE	4.7	U
60-57-1	Dieldrin	4.7	U
72-20-8	Endrin	4.7	U
72-54-8	4,4'-DDD	3.0	J
33213-65-9	Endosulfan II	4.7	U
50-29-3	4,4'-DDT	4.7	U
7421-93-4	Endrin aldehyde	4.7	U
1031-07-8	Endosulfan sulfate	4.7	U
72-43-5	Methoxychlor	24	U
53494-70-5	Endrin ketone	4.7	U
8001-35-2	Toxaphene	240	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 23, 2002
From:	Linda Sulkowski/Westford	**File:**	SO007 06105-012-201
RE:	Data Validation PCB and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL062	**CC:**	A. Mischel/Westford

SUMMARY

Limited validation was performed on the data for four sediment samples analyzed for polychlorinated biphenyls (PCBs) by USEPA Method 680 and herbicides by SW-846 method 8151A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on June 22, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL062.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (*1997*)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were rejected (R) or were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
SED-M-S2-0-6"
SED-M-S5-0-6"
SED-M-S8-0-6"
SED-M-S10-0-6"

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks

- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformances were not noted by the laboratory. No validation action was taken on this basis.

The samples were extracted and analyzed within the method specified holding times for both parameters.

Method Blanks

Target analytes were not detected in the laboratory method blanks associated with all samples for both parameters.

Surrogate Spike Recoveries

The surrogates for both herbicide and PCB analyses were diluted out of the calibration range in sample SED-M-S10-0-6". Qualification of the data on this basis was not required. Surrogate recovery criteria were met for all other samples.

LCS Results

PCB Analysis

The %Rs of the spiked target analytes were within the QC acceptance criteria in the LCS associated with the sample analyses.

Herbicide Analysis

With the following exception, the percent recoveries (%Rs) of the spiked target analytes were within the QC acceptance criteria in the LCS associated with the sample analyses. The %R of dinoseb (14%) fell below the QC acceptance criteria. Dinoseb was not detected in the associated samples. Non-detected results for dinoseb were qualified as estimated (UJ) in all samples.

MS/MSD Results

PCB Analysis

MS/MSD analyses were performed on sample SED-M-S2-0-6". The %Rs and the relative percent differences (RPDs) of the spiked target analytes were all within the QC acceptance limits.

Herbicide Analysis

MS/MSD analyses were performed on sample SED-M-S10-0-6". The following table summarizes the %Rs and/or the RPDs of the spiked target analytes, which fell outside the QC acceptance limits in the MS/MSD analyses performed on this sample. The MS/MSD for PCP were outside the QC acceptance limits. No validation action was taken due to the sample concentration being >2x the spike. The non-detected results for dalapon and dinoseb were rejected (R) in the unspiked sample SED-M-S10-0-6" since these analytes did not recover in the MS and MSD. The non-detected result for dichloroprop was estimated (UJ) and the positive result for MCPP was qualified as estimated (J) in the unspiked sample SED-M-S10-0-6".

Analyte	MS/MSD %R	RPD	QC Limits
Dalapon	0/0	NC	10-170
MCPP	0/0	NC	30-170
PCP	0/0	NC	10-150
Dichloroprop	Ok/Ok-	42	(40)
Dinoseb	0/0	NC	30-170

Field Duplicate Results

Field duplicate samples were not submitted with this sample set. No validation action was taken on this basis.

Quantitation Limits and Sample Results

The percent solids criteria were met for all samples.

PCB Analysis

Sample SED-M-S10-0-6" was analyzed at a 10-fold dilution due to the concentration of target analytes, which would have exceeded the calibration range if analyzed undiluted. Sample quantitation limits (SQLs) for this sample were elevated accordingly by the laboratory.

Herbicide Analysis

The RPDs between the two analytical columns for several compounds exceeded the QC acceptance criteria of 40% for selected results. In these instances, the laboratory reported the lower of the two values with a "P" qualifier. During validation, the "P" qualifier was removed.

Dilutions were not performed; SQLs were therefore not affected.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S2 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL11007

% Moisture: 27 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/11/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	89	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	14	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-1RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S2 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL08052

% Moisture: 27 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/09/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	140	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-2

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S5 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL11008

% Moisture: 20 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/11/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	81	U
1918-00-9	Dicamba	25	U
7085-19-0	MCPP	2500	U
94-74-6	MCPA	2500	U
120-36-5	Dichlorprop	120	U
94-75-7	2,4-D	10	U
87-86-5	Pentachlorophenol	9.9	J
93-72-1	2,4,5-TP	10	U
93-76-5	2,4,5-T	10	U
94-82-6	2,4-DB	10	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-2RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S5 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL08053

% Moisture: 20 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/09/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	120	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-3

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S8 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL11009

% Moisture: 33 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/11/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	97	U
1918-00-9	Dicamba	3.3	JP
7085-19-0	MCPP	3000	U
94-74-6	MCPA	3000	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	70	
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-3RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S8 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL08054

% Moisture: 33 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/09/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	150	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-4

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S10 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL11011

% Moisture: 34 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/11/01

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	490	U
1918-00-9	Dicamba	150	U
7085-19-0	MCPP	7800	JP
94-74-6	MCPA	15000	U
120-36-5	Dichlorprop	760	U
94-75-7	2,4-D	63	U
87-86-5	Pentachlorophenol	290	
93-72-1	2,4,5-TP	63	U
93-76-5	2,4,5-T	63	U
94-82-6	2,4-DB	63	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-4RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S10 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL08055

% Moisture: 34 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/09/01

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	760	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S2 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: K3026

Level: (low/med) LOW Date Received: 06/25/01

% Moisture: 27 decanted: (Y/N) N Date Extracted:07/03/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 07/06/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.5	U
	Dichlorobiphenyl	4.5	U
	Trichlorobiphenyl	40	
	Tetrachlorobiphenyl	170	
	Pentachlorobiphenyl	220	
	Hexachlorobiphenyl	65	
	Heptachlorobiphenyl	13	J
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	23	U
	Decachlorobiphenyl	24	

FORM I
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-2

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S5 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: K3014

Level: (low/med) LOW Date Received: 06/25/01

% Moisture: 20 decanted: (Y/N) N Date Extracted: 07/03/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 07/06/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.1	U
	Dichlorobiphenyl	4.1	U
	Trichlorobiphenyl	83	
	Tetrachlorobiphenyl	400	
	Pentachlorobiphenyl	300	
	Hexachlorobiphenyl	110	
	Heptachlorobiphenyl	54	
	Octachlorobiphenyl	15	
	Nonachlorobibiphenyl	11	J
	Decachlorobiphenyl	30	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-3

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S8 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: K3015

Level: (low/med) LOW Date Received: 06/25/01

% Moisture: 33 decanted: (Y/N) N Date Extracted:07/03/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 07/06/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	29	
	Dichlorobiphenyl	41	
	Trichlorobiphenyl	130	
	Tetrachlorobiphenyl	280	
	Pentachlorobiphenyl	670	
	Hexachlorobiphenyl	110	
	Heptachlorobiphenyl	110	
	Octachlorobiphenyl	27	
	Nonachlorobibiphenyl	57	
	Decachlorobiphenyl	100	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-4

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S10 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: K3028

Level: (low/med) LOW Date Received: 06/25/01

% Moisture: 34 decanted: (Y/N) N Date Extracted:07/03/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 07/09/01

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	68	
	Dichlorobiphenyl	120	
	Trichlorobiphenyl	940	
	Tetrachlorobiphenyl	8600	
	Pentachlorobiphenyl	15000	
	Hexachlorobiphenyl	520	
	Heptachlorobiphenyl	1100	
	Octachlorobiphenyl	140	J
	Nonachlorobibiphenyl	130	J
	Decachlorobiphenyl	520	

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S2 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL11007

% Moisture: 27 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/11/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	89	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	14	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-1RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S2 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL08052

% Moisture: 27 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/09/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	140	UJ-L

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-2

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S5 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL11008

% Moisture: 20 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/11/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	81	U
1918-00-9	Dicamba	25	U
7085-19-0	MCPP	2500	U
94-74-6	MCPA	2500	U
120-36-5	Dichlorprop	120	U
94-75-7	2,4-D	10	U
87-86-5	Pentachlorophenol	9.9	J
93-72-1	2,4,5-TP	10	U
93-76-5	2,4,5-T	10	U
94-82-6	2,4-DB	10	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-2RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S5 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL08053

% Moisture: 20 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/09/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	120	UJ-L

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-3

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S8 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL11009

% Moisture: 33 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/11/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	97	U
1918-00-9	Dicamba	3.3	JP-P
7085-19-0	MCPP	3000	U
94-74-6	MCPA	3000	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	70	
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-3RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S8 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL08054

% Moisture: 33 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/09/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	150	UJ-L

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-4

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S10 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL11011

% Moisture: 34 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/11/01

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	~~490~~	U R-M
1918-00-9	Dicamba	150	U
7085-19-0	MCPP	7800	J~~P~~-M-P
94-74-6	MCPA	15000	U
120-36-5	Dichlorprop	760	UJ-M
94-75-7	2,4-D	63	U
87-86-5	Pentachlorophenol	290	
93-72-1	2,4,5-TP	63	U
93-76-5	2,4,5-T	63	U
94-82-6	2,4-DB	63	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-4RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S10 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL08055

% Moisture: 34 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/09/01

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	~~760~~	~~U~~ R-M-L

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 25, 2002
From:	Marcia Motta/Westford	**File:**	SO007pestMKM.doc 06105-012-201
RE:	Data Validation Pesticide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL062	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for four sediment samples analyzed for organochlorine pesticides by SW-846 method 8081A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on June 22, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah, GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL062.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identification
SED-M-S2 0-6"
SED-M-S5 0-6"
SED-M-S8 0-6"
SED-M-S10 0-6"

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Blank analysis results
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancy was noted.

It should be mentioned that the laboratory reported the full field sample identification (ID) in the "Lab Sample ID" field on the sample result pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The laboratory does not record cooler receipt temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptable range of 4°C ± 2°C). Non-conformances were not observed for this sample set.

Blank Analysis Results

Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The percent recoveries (%R) of the surrogate tetrachloro-m-xylene were within the QC acceptance criteria on both columns in all sample analyses.

The following table summarizes the %Rs of the surrogate decachlorobiphenyl (DCB) that exceeded the QC acceptance criteria in samples analyzed at less than a 5-fold dilution. Positive results were qualified as estimated (J) for the affected samples.

Sample	DCB (%R) Column I/Column II
SED-M-S5 0-6"	224/212
SED-M-S8 0-6"	340/333

LCS Results

The recoveries of all spiked target analytes in the LCS were within the QC acceptance criteria.

MS/MSD Results

MS/MSD analyses were performed on sample SED-M-S2 0-6". The following table summarizes %Rs and/or relative percent difference (RPD) nonconformances.

Compound	MS (%R)	MSD (%R)	RPD (%)
gamma-Chlordane	146	ok	53
Endosulfan II	187	242	ok
4,4'-DDT	0	0	140
Endrin aldehyde	8	ok	ok
Heptachlor epoxide	ok	174	ok
Endosulfan I	ok	ok	50
4,4'-DDE	ok	ok	27

Results for the affected compounds in the unspiked sample SED-M-S2 0-6" were qualified as follows:

- If the RPD exceeded the laboratory QC limit, positive results and nondetects were estimated (J and UJ, respectively).
- If the %R exceeded the laboratory QC limit, positive results were estimated (J).
- If the %R was below the laboratory QC limit but ≥10%, positive results and nondetects were estimated (J and UJ, respectively).
- If the %R was <10%, positive results were estimated (J) and nondetects were rejected (R).

Field Duplicate Results

A field duplicate pair was not submitted with this sample set.

Sample Results

The RPD of the results between the two analytical columns exceeded the QC acceptance limit of 40% for various compounds. The laboratory qualified these results with a "P" and reported the lower of the two values. The "P" qualifiers were removed during validation. Positive results, which were greater than the sample quantitation limit (SQLs) for these compounds, were qualified as estimated (J).

All sample percent solids were > 50%.

The following samples were diluted due to the sample matrix. The laboratory adjusted the SQLs accordingly.

Sample	Dilution
SED-M-S2 0-6"	2x
SED-M-S10 0-6"	10x

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S2 0-6"

Sample wt/vol: 30 (g/mL) G Lab File ID: JJL05017

% Moisture: 27 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/03/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/05/01

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.4	U
58-89-9	gamma-BHC (Lindane)	0.99	J~~P~~-P
319-85-7	beta-BHC	1.4	U
76-44-8	Heptachlor	4.6	U
319-86-8	delta-BHC	1.4	U
309-00-2	Aldrin	4.6	U
1024-57-3	Heptachlor epoxide	4.6	U
5103-74-2	gamma-Chlordane	4.6	UJ-M-~~P~~D
5103-71-9	alpha-Chlordane	4.6	U
959-98-8	Endosulfan I	4.6	UJ-M-~~P~~D
72-55-9	4,4'-DDE	9.0	UJ-M-~~P~~D
60-57-1	Dieldrin	9.0	U
72-20-8	Endrin	9.0	U
72-54-8	4,4'-DDD	9.0	U
33213-65-9	Endosulfan II	9.0	U
50-29-3	4,4'-DDT	71	J-S-M
7421-93-4	Endrin aldehyde	9.3	~~P~~J-P-S-M
1031-07-8	Endosulfan sulfate	9.0	U
72-43-5	Methoxychlor	46	U
53494-70-5	Endrin ketone	9.0	U
8001-35-2	Toxaphene	460	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S5 0-6"

Sample wt/vol: 15 (g/mL) G Lab File ID: JJL05019

% Moisture: 20 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/03/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/05/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.2	U
58-89-9	gamma-BHC (Lindane)	3.1	~~J~~P-P
319-85-7	beta-BHC	1.2	U
76-44-8	Heptachlor	10	~~P~~J-S-P
319-86-8	delta-BHC	1.2	U
309-00-2	Aldrin	4.2	U
1024-57-3	Heptachlor epoxide	12	~~P~~J-S-P
5103-74-2	gamma-Chlordane	4.2	U
5103-71-9	alpha-Chlordane	4.2	U
959-98-8	Endosulfan I	4.2	U
72-55-9	4,4'-DDE	8.2	U
60-57-1	Dieldrin	8.2	U
72-20-8	Endrin	8.2	U
72-54-8	4,4'-DDD	8.2	U
33213-65-9	Endosulfan II	8.2	U
50-29-3	4,4'-DDT	98	J-S
7421-93-4	Endrin aldehyde	24	J-S
1031-07-8	Endosulfan sulfate	8.2	U
72-43-5	Methoxychlor	42	U
53494-70-5	Endrin ketone	8.2	U
8001-35-2	Toxaphene	420	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S8 0-6"

Sample wt/vol: 5.0 (g/mL) G Lab File ID: JJL05021

% Moisture: 33 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/03/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/05/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	4.5	U
58-89-9	gamma-BHC (Lindane)	2.9	~~JP~~-P
319-85-7	beta-BHC	4.5	U
76-44-8	Heptachlor	15	U
319-86-8	delta-BHC	4.5	U
309-00-2	Aldrin	15	U
1024-57-3	Heptachlor epoxide	38	~~P~~J-P-S
5103-74-2	gamma-Chlordane	15	U
5103-71-9	alpha-Chlordane	15	U
959-98-8	Endosulfan I	15	U
72-55-9	4,4'-DDE	35	~~P~~J-P-S
60-57-1	Dieldrin	30	U
72-20-8	Endrin	30	U
72-54-8	4,4'-DDD	30	U
33213-65-9	Endosulfan II	30	U
50-29-3	4,4'-DDT	340	J-S
7421-93-4	Endrin aldehyde	66	J-S
1031-07-8	Endosulfan sulfate	30	U
72-43-5	Methoxychlor	150	U
53494-70-5	Endrin ketone	30	U
8001-35-2	Toxaphene	1500	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14015-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL062

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S10 0-6"

Sample wt/vol: 5.0 (g/mL) G Lab File ID: JJL05022

% Moisture: 34 decanted: (Y/N) N Date Received: 06/25/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/03/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/05/01

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	45	U
58-89-9	gamma-BHC (Lindane)	150	U
319-85-7	beta-BHC	45	U
76-44-8	Heptachlor	160	~~P~~ J-P-S
319-86-8	delta-BHC	45	U
309-00-2	Aldrin	150	U
1024-57-3	Heptachlor epoxide	860	~~P~~ J-P-S
5103-74-2	gamma-Chlordane	150	U
5103-71-9	alpha-Chlordane	150	U
959-98-8	Endosulfan I	150	U
72-55-9	4,4'-DDE	300	U
60-57-1	Dieldrin	300	U
72-20-8	Endrin	300	U
72-54-8	4,4'-DDD	300	U
33213-65-9	Endosulfan II	300	U
50-29-3	4,4'-DDT	1300	~~P~~ J-P-S
7421-93-4	Endrin aldehyde	830	J-S
1031-07-8	Endosulfan sulfate	300	U
72-43-5	Methoxychlor	1500	U
53494-70-5	Endrin ketone	300	U
8001-35-2	Toxaphene	15000	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 22, 2002
From:	Linda Sulkowski/Westford	**File:**	SO008 06105-012-201
RE:	Data Validation PCB, and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL063	**CC:**	A. Mischel/Westford

SUMMARY

Limited validation was performed on the data for three sediment samples analyzed for polychlorinated biphenyls (PCBs) by USEPA Method 680 and herbicides by SW-846 method 8151A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on July 10, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah, GA for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL063.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (*1997*),* the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
SED-M-S3-(0-6")
SED-M-S6-(0-6")
SED-M-S9-(0-6")

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries

- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformances were not noted by the laboratory. No validation action was taken on this basis.

The samples were extracted and analyzed within the method specified holding times for both parameters.

Method Blanks

Target analytes were not detected in the laboratory method blanks associated with all samples for both parameters.

Surrogate Spike Recoveries

PCB Analysis

The surrogate recoveries were within the QC acceptance limits in all sample analyses.

Herbicide Analysis

The percent recovery (%R) of the surrogate 2,4-dichlorophenylacetic acid (390%) exceeded the QC acceptance criteria on Column I in the analysis of sample SED-M-S6-(0-6") for dinoseb only. Dinoseb was not detected in the sample. Qualification of the data on this basis was not required.

LCS Results

PCB Analysis

The %Rs of the spiked target analytes were within the QC acceptance criteria in the LCS associated with the sample analyses.

Herbicide Analysis

With the following exception, the %Rs of the spiked target analytes were within the QC acceptance criteria in the LCS associated with the sample analyses. The %R of dinoseb (10%) fell below the QC acceptance criteria. Dinoseb was not detected in the associated samples. Non-detected results for dinoseb were qualified as estimated (UJ) in all samples.

MS/MSD Results

MS/MSD analyses were performed on sample SED-M-S6-(0-6").

PCB Analysis

No validation action was taken due to the sample concentration being >2x the spike. The following table summarizes the %Rs and/or the relative percent differences (RPDs) of the spiked target analytes which fell outside the QC acceptance limits in the MS/MSD analyses performed on sample SED-M-S6-(0-6"). The MS/MSD for tetrachlorobiphenyls and pentachlorobiphenyls were outside the QC acceptance limits. The positive results for these analytes were qualified as estimated (J) in the unspiked sample SED-M-S6-(0-6").

Analyte	MS/MSD %R	QC Limits
Trichlorobiphenyls	430/370	30-130
Tetrachlorobiphenyls	Ok/0	40-140
Pentachlorobiphenyls	6/0	40-140
Hexachlorobiphenyl	18/0	40-140
Heptachlorobiphenyl	31/27	40-140

Herbicide Analysis

The following table summarizes the %Rs and/or the RPDs of the spiked target analytes which fell outside the QC acceptance limits in the MS/MSD analyses performed on sample SED-M-S6-(0-6"). The non-detected results for these analytes were qualified as estimated (UJ) in the unspiked sample SED-M-S6-(0-6").

Analyte	MS/MSD (%R)	RPD (%R)
2,4-DB	165/ok	45
MCPP	Ok/Ok	122
Dinoseb	23/22	Ok

Field Duplicate Results

Field duplicate samples were not submitted with this sample set. No validation action was taken on this basis.

Quantitation Limits and Sample Results

The percent solids criterion of >50% was met for all samples.

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PCB Analysis

Dilutions were not performed; Sample quantitation limits (SQLs) were therefore not affected.

Herbicide Analysis

The dual column RPD was within the QC acceptance criteria of <40%.

Dilutions were not performed; SQLs were therefore not affected.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14342-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL063

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S3-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: K3053

Level: (low/med) LOW Date Received: 07/11/01

% Moisture: 22 decanted: (Y/N) N Date Extracted: 07/13/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 07/17/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	66	
	Dichlorobiphenyl	160	
	Trichlorobiphenyl	160	
	Tetrachlorobiphenyl	130	
	Pentachlorobiphenyl	96	
	Hexachlorobiphenyl	88	
	Heptachlorobiphenyl	78	
	Octachlorobiphenyl	65	
	Nonachlorobibiphenyl	170	
	Decachlorobiphenyl	280	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14342-2

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL063

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S6-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: K3054

Level: (low/med) LOW Date Received: 07/11/01

% Moisture: 22 decanted: (Y/N) N Date Extracted: 07/13/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 07/17/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.2	U
	Dichlorobiphenyl	4.9	
	Trichlorobiphenyl	55	J-M
	Tetrachlorobiphenyl	860	
	Pentachlorobiphenyl	470	
	Hexachlorobiphenyl	140	JM
	Heptachlorobiphenyl	100	J-M
	Octachlorobiphenyl	37	
	Nonachlorobibiphenyl	22	
	Decachlorobiphenyl	35	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14342-3

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL063

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S9-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: K3057

Level: (low/med) LOW Date Received: 07/11/01

% Moisture: 19 decanted: (Y/N) N Date Extracted: 07/13/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 07/17/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.1	U
	Dichlorobiphenyl	3.3	J
	Trichlorobiphenyl	60	
	Tetrachlorobiphenyl	570	
	Pentachlorobiphenyl	950	
	Hexachlorobiphenyl	290	
	Heptachlorobiphenyl	230	
	Octachlorobiphenyl	61	
	Nonachlorobibiphenyl	52	
	Decachlorobiphenyl	140	

FORM I
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14342-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL063

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S3-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL20013

% Moisture: 22 decanted: (Y/N) N Date Received: 07/11/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:07/13/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/20/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dalapon	83	U
1918-00-9	Dicamba	26	U
7085-19-0	MCPP	2600	U
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	32	
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14342-1RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL063

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S3-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL23018

% Moisture: 22 decanted: (Y/N) N Date Received: 07/11/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/13/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/23/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	130	UJ-L

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14342-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL063

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S6-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL20014

% Moisture: 22 decanted: (Y/N) N Date Received: 07/11/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/13/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/20/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dalapon	83	U
1918-00-9	Dicamba	26	U
7085-19-0	MCPP	2600	UJ-m
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	17	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	UJ-m

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14342-2RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL063

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S6-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL23019

% Moisture: 22 decanted: (Y/N) N Date Received: 07/11/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:07/13/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/23/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	130	UJ-L-M

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14342-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL063

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S9-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL20015

% Moisture: 19 decanted: (Y/N) N Date Received: 07/11/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/13/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/20/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dalapon	80	U
1918-00-9	Dicamba	25	U
7085-19-0	MCPP	2500	U
94-74-6	MCPA	2500	U
120-36-5	Dichlorprop	120	U
94-75-7	2,4-D	10	U
87-86-5	Pentachlorophenol	50	
93-72-1	2,4,5-TP	10	U
93-76-5	2,4,5-T	10	U
94-82-6	2,4-DB	10	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14342-3RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL063

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S9-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: SJL23020

% Moisture: 19 decanted: (Y/N) N Date Received: 07/11/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:07/13/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/23/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	120	UJ-L

FORM I SG

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 19, 2001
From:	Marcia Motta/Westford	**File:**	SO008 06105-012-201
RE:	Data Validation Pesticide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL063	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for three sediment samples analyzed for organochlorine (OC) pesticides by SW-846 method 8081A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on July 10, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL063.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The regional and national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
SED-M-S3-(0-6")
SED-M-S6-(0-6")
SED-M-S9-(0-6")

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks

- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times for this parameter.

Method Blanks

No contaminants were detected in the associated method preparation blank.

Surrogate Spike Recoveries

The surrogates were diluted out of the calibration range in samples SED-M-S3-(0-6") and SED-M-S6-(0-6"). Qualification of the data on this basis was not required.

The following table summarizes the percent recoveries (%Rs) of the surrogate decachlorobiphenyl (DCB) that exceeded the QC acceptance criteria. Since these recoveries were determined on a sample diluted 5x for analysis no action was required.

Sample	%R (DCB) Column I/Column II
SED-M-S9-(0-6")	800/700

LCS Results

The %Rs of the spiked target analytes in the LCS sample were within the QC acceptance criteria.

MS/MSD Results

MS/MSD analyses were performed on sample SED-M-S6-(0-6"). Due to matrix interference the sample was analyzed as a 10X dilution and the spiked compound concentrations fell below the calibration range. %R and relative percent differences (RPDs) were not calculable. Qualification of the data on this basis was not required.

ENSR

Field Duplicate Results

No field duplicate samples were submitted with this SDG.

Sample Results

The relative percent difference (RPD) between the two analytical columns for several compounds exceeded the QC acceptance criteria of 40% for selected results. In these instances the laboratory reported the lower of the two values with a "P" qualifier. During validation the "P" qualifier was changed to "J".

Samples SED-M-S3-(0-6") and SED-M-S6-(0-6") were analyzed as 10X dilutions due to sample matrix. Sample SED-M-S9-(0-6") was analyzed as a 5X dilution due to sample matrix. Sample quantitation limits (SQLs) for these samples were elevated accordingly by the laboratory.

All sample percent solid results were >50%.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14342-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL063

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S3-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: JJL17055

% Moisture: 22 decanted: (Y/N) N Date Received: 07/11/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/13/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/18/01

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.3	J
58-89-9	gamma-BHC (Lindane)	22	U
319-85-7	beta-BHC	6.4	U
76-44-8	Heptachlor	22	U
319-86-8	delta-BHC	6.4	U
309-00-2	Aldrin	22	U
1024-57-3	Heptachlor epoxide	22	U
5103-74-2	gamma-Chlordane	22	U
5103-71-9	alpha-Chlordane	22	U
959-98-8	Endosulfan I	22	U
72-55-9	4,4'-DDE	42	U
60-57-1	Dieldrin	42	U
72-20-8	Endrin	42	U
72-54-8	4,4'-DDD	42	U
33213-65-9	Endosulfan II	42	U
50-29-3	4,4'-DDT	42	U
7421-93-4	Endrin aldehyde	26	~~J~~ P
1031-07-8	Endosulfan sulfate	42	U
72-43-5	Methoxychlor	220	U
53494-70-5	Endrin ketone	42	U
8001-35-2	Toxaphene	2200	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14342-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL063

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S6-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: JJL17056

% Moisture: 22 decanted: (Y/N) N Date Received: 07/11/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/13/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/18/01

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	6.4	U
58-89-9	gamma-BHC (Lindane)	4.4	~~JP~~-P
319-85-7	beta-BHC	6.4	U
76-44-8	Heptachlor	22	U
319-86-8	delta-BHC	6.4	U
309-00-2	Aldrin	22	U
1024-57-3	Heptachlor epoxide	22	U
5103-74-2	gamma-Chlordane	22	U
5103-71-9	alpha-Chlordane	22	U
959-98-8	Endosulfan I	22	U
72-55-9	4,4'-DDE	42	U
60-57-1	Dieldrin	42	U
72-20-8	Endrin	42	U
72-54-8	4,4'-DDD	42	U
33213-65-9	Endosulfan II	42	U
50-29-3	4,4'-DDT	42	U
7421-93-4	Endrin aldehyde	11	~~JP~~-P
1031-07-8	Endosulfan sulfate	42	U
72-43-5	Methoxychlor	220	U
53494-70-5	Endrin ketone	42	U
8001-35-2	Toxaphene	2200	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14342-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL063

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S9-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: JJL17057

% Moisture: 19 decanted: (Y/N) N Date Received: 07/11/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 07/13/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 07/18/01

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.1	U
58-89-9	gamma-BHC (Lindane)	10	U
319-85-7	beta-BHC	3.1	U
76-44-8	Heptachlor	10	U
319-86-8	delta-BHC	3.1	U
309-00-2	Aldrin	10	U
1024-57-3	Heptachlor epoxide	10	U
5103-74-2	gamma-Chlordane	10	U
5103-71-9	alpha-Chlordane	10	U
959-98-8	Endosulfan I	10	U
72-55-9	4,4'-DDE	20	U
60-57-1	Dieldrin	20	U
72-20-8	Endrin	20	U
72-54-8	4,4'-DDD	20	U
33213-65-9	Endosulfan II	20	U
50-29-3	4,4'-DDT	39	~~P~~ J-P
7421-93-4	Endrin aldehyde	20	U
1031-07-8	Endosulfan sulfate	20	U
72-43-5	Methoxychlor	100	U
53494-70-5	Endrin ketone	20	U
8001-35-2	Toxaphene	1000	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 22, 2002
From:	Linda Sulkowski/Westford	**File:**	SO009 06105-012-201
RE:	Data Validation PCB and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL065	**CC:**	A. Mischel/Westford

SUMMARY

Limited validation was performed on the data for three sediment samples analyzed for polychlorinated biphenyls (PCBs) by USEPA Method 680 and herbicides by SW-846 method 8151A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on August 1, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah, GA for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL065.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (*1997*),* the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
SED-M-S4-(0-6")
SED-M-S7-(0-6")
SED-M-S7-FD(0-6") [field duplicate of SED-M-S7-(0-6")]

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries

- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformances were not noted by the laboratory. No validation action was taken on this basis.

The samples were extracted and analyzed within the method specified holding times for both parameters.

Method Blanks

Target analytes were not detected in the laboratory method blanks associated with all samples for both parameters.

Surrogate Spike Recoveries

PCB Analysis

The surrogates were diluted out of the calibration range in samples SED-M-S7-(0-6") and SED-M-S7-FD(0-6"). Qualification of the data on this basis was not required.

Herbicide Analysis

The percent recovery (%R) of the surrogate 2,4-dichlorophenylacetic acid (459%) exceeded the QC acceptance criteria on Column I in the analysis of sample SED-M-S7-(0-6"). Positive sample results were qualified as estimated (J) in this sample.

LCS Results

PCB Analysis

The %Rs of the spiked target analytes were within the QC acceptance criteria in the LCS associated with the sample analyses.

Herbicide Analysis

With the following exception, the %Rs of the spiked target analytes were within the QC acceptance criteria in the LCS associated with the sample analyses. The %R of dinoseb (11%) fell below the QC acceptance criteria. Dinoseb was not detected in the associated samples. Non-detected results for dinoseb were qualified as estimated (UJ) in all samples.

MS/MSD Results

PCB Analysis

The following table summarizes the %Rs and/or the relative percent differences (RPDs) of the spiked target analytes which fell outside the QC acceptance limits in the MS/MSD analyses performed on sample SED-M-S4-(0-6"). MS/MSD analyses were performed on sample SED-M-S4-(0-6"). The MS/MSD for trichlorobiphenyls, and tetrachlorobiphenyls were above the QC acceptance limits. No validation action was taken due to the sample concentration being >2x the spike. The positive results for these analytes were qualified as estimated (J) in the unspiked sample SED-M-S4-(0-6").

Analyte	MS/MSD %R	QC Limits
Trichlorobiphenyls	270/530	30-130
Tetrachlorobiphenyls	220/500	40-140
Hexachlorobiphenyl	210/170	40-140
Heptachlorobiphenyl	19/ok	40-140
Octachlorobiphenyl	8/23	40-140
Decachlorobiphenyl	0/7	30-130

Herbicide Analysis

MS/MSD analyses were performed on sample SED-M-S7-FD(0-6"). The following table summarizes the %Rs and/or the RPDs of the spiked target analytes which fell outside the QC acceptance limits in the MS/MSD analyses performed on sample SED-M-S7-FD(0-6"). The non-detected results for MCPA and dalapon were qualified as estimated (UJ) in the unspiked sample SED-M-S7-FD(0-6"). The positive result for 2,4-DB was qualified as estimated (J) in the unspiked sample SED-M-S7-FD(0-6"). The non-detected result for MCPP was accepted unqualified.

Analyte	MS/MSD %R	RPD %R
MCPP	302/326	Ok
MCPA	22/8	(88)
2,4-DB	2/ok	(41)
Dalapon	-	(117)

Field Duplicate Results

Samples SED-M-S7-(0-6") and SED-M-S7-FD(0-6") were submitted as the field duplicate pair with this sample set. Qualification of the data on the basis of field duplicate results was not required.

ENSR

PCB Analysis

The following table summarizes the RPDs of the detected analytes in field duplicate pair SED-M-S7-(0-6") and SED-M-S7-FD(0-6").

Compound	SED-M-S7-(0-6") (µg/kg)	SED-M-S7-FD(0-6") (µg/kg)	RPD (%)
Trichlorobiphenyls	1700	1100	43
Tetrachlorobiphenyls	3800	2700	34
Pentachlorobiphenyls	3100	2400	25
Hexachlorobiphenyls	480	360	29
Heptachlorobiphenyls	460	260	56
Octachlorobiphenyls	160 J	120 J	29
Nonachlorobiphenyls	67 J	23 J	98
Decachlorobiphenyls	200 J	150 J	29

Herbicide Analysis

The following table summarizes the RPDs of the detected analytes in field duplicate pair SED-M-S7-(0-6") and SED-M-S7-FD(0-6").

Compound	SED-M-S7-(0-6") (µg/kg)	SED-M-S7-FD(0-6") (µg/kg)	RPD (%)
Dicamba	2.6 J	2.6 J	0
Dichloroprop	37 J	11 J	108
Pentachlorphenol	74	47	45
2,4-DB	66	38	54

Quantitation Limits and Sample Results

The percent solids criterion of >50% was met for all samples.

PCB Analysis

Sample SED-M-S4-(0-6") was initially analyzed undiluted. The sample was re-analyzed at a 5-fold dilution due to the concentration of target analytes, that exceeded the calibration range in the undiluted sample. Both runs were combined by the validator to report all compounds within the calibration range and the lowest possible SQLs.

Herbicide Analysis

The RPDs between the two analytical columns for several compounds exceeded the QC acceptance criteria of 40% RPD for selected results. In these instances, the laboratory reported the lower of the two values with a "P" qualifier. During validation, the "P" qualifier was removed. The positive results above the SQL for 2,4-DB in samples SED-M-S4-(0-6") and SED-M-S7-FD(0-6") were qualified as estimated (J) due to the high RPD.

Results for dinoseb were taken from samples analyzed as 10x dilutions due to matrix interference. The SQLs for dinoseb in these samples were elevated accordingly. The samples were analyzed undiluted for

the remaining herbicide compounds. SQLs for these compounds were not affected.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14895-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL065

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S4-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: SAG13007

% Moisture: 24 decanted: (Y/N) N Date Received: 08/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 08/13/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	86	U
1918-00-9	Dicamba	26	U
7085-19-0	MCPP	2600	U
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	30	
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	1.8	J
94-82-6	2,4-DB	39	~~P~~ J- P

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14895-1RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL065

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S4-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: SAG14008

% Moisture: 24 decanted: (Y/N) N Date Received: 08/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:08/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 08/14/01

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	1300	UJ-L

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14895-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL065

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S7-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: SAG13008

% Moisture: 22 decanted: (Y/N) N Date Received: 08/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 08/13/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	83	U
1918-00-9	Dicamba	2.6	J~~P~~-S-P
7085-19-0	MCPP	2600	U
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	37	J-S
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	74	J-S
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	66	J-S

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14895-2RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL065

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S7-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: SAG14009

% Moisture: 22 decanted: (Y/N) N Date Received: 08/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:08/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 08/14/01

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	1300	UJ-L

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14895-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL065

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S7-FD(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: SAG13009

% Moisture: 23 decanted: (Y/N) N Date Received: 08/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 08/13/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	84	UJ-M
1918-00-9	Dicamba	2.6	J
7085-19-0	MCPP	2600	U
94-74-6	MCPA	2600	UJ-M
120-36-5	Dichlorprop	11	J~~P~~
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	47	
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	38	~~P~~J-M-P

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14895-3RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL065

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S7-FD(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: SAG14010

% Moisture: 23 decanted: (Y/N) N Date Received: 08/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 08/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 08/14/01

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	1300	UJ-L

FORM I SG

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14895-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL065

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S4-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: K3269

Level: (low/med) LOW Date Received: 08/02/01

% Moisture: 24 decanted: (Y/N) N Date Extracted: 08/07/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 08/15/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.3	U
	Dichlorobiphenyl	38	
	Trichlorobiphenyl	810 ~~510~~	~~E~~
	Tetrachlorobiphenyl	2000 ~~1700~~	~~E~~
	Pentachlorobiphenyl	930 ~~1100~~	~~E~~
	Hexachlorobiphenyl	45	J-M
	Heptachlorobiphenyl	230	↓
	Octachlorobiphenyl	79	
	Nonachlorobibiphenyl	41	
	Decachlorobiphenyl	150	J-M

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14895-1DL

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL065

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S4-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: K3270

Level: (low/med) LOW Date Received: 08/02/01

% Moisture: 24 decanted: (Y/N) N Date Extracted: 08/07/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 08/15/01

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	22	U
	Dichlorobiphenyl	75	D
	Trichlorobiphenyl	810	D
	Tetrachlorobiphenyl	2000	D
	Pentachlorobiphenyl	930	D
	Hexachlorobiphenyl	420	D
	Heptachlorobiphenyl	220	D
	Octachlorobiphenyl	82	D
	Nonachlorobibiphenyl	88	JD
	Decachlorobiphenyl	180	D

FORM I SV

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14895-2

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL065

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S7-(0-6")

Sample wt/vol: 15 (g/mL) G Lab File ID: K3271

Level: (low/med) LOW Date Received: 08/02/01

% Moisture: 22 decanted: (Y/N) N Date Extracted: 08/07/01

Concentrated Extract Volume: 0.5(mL) Date Analyzed: 08/15/01

Injection Volume: 1.0(uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	85	U
	Dichlorobiphenyl	85	U
	Trichlorobiphenyl	1700	
	Tetrachlorobiphenyl	3800	
	Pentachlorobiphenyl	3100	
	Hexachlorobiphenyl	480	
	Heptachlorobiphenyl	460	
	Octachlorobiphenyl	160	J
	Nonachlorobibiphenyl	67	J
	Decachlorobiphenyl	200	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14895-3

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL065

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S7-FD(0-6")

Sample wt/vol: 15 (g/mL) G Lab File ID: K3272

Level: (low/med) LOW Date Received: 08/02/01

% Moisture: 23 decanted: (Y/N) N Date Extracted: 08/07/01

Concentrated Extract Volume: 0.5(mL) Date Analyzed: 08/15/01

Injection Volume: 1.0(uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	86	U
	Dichlorobiphenyl	86	U
	Trichlorobiphenyl	1100	
	Tetrachlorobiphenyl	2700	
	Pentachlorobiphenyl	2400	
	Hexachlorobiphenyl	360	
	Heptachlorobiphenyl	260	
	Octachlorobiphenyl	120	J
	Nonachlorobibiphenyl	23	J
	Decachlorobiphenyl	150	J

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 18, 2001
From:	Marcia Motta/Westford	**File:**	SO009 06105-012-201
RE:	Data Validation Pesticide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL065	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for two sediment samples and one field duplicate sample analyzed for organochlorine (OC) pesticides by SW-846 method 8081A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on August 1, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL065.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The regional and national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Qualification of the data was not required.

SAMPLES

The samples included in this review are listed below:

Sample Identifications
SED-M-S4-(0-6")
SED-M-S7-(0-6")
SED-M-S7-FD(0-6") (field duplicate of SED-M-S7-(0-6"))

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries

- Field duplicate results
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times for this parameter.

Method Blanks

No contaminants were detected in the associated method preparation blank.

Surrogate Spike Recoveries

The surrogates were diluted out of the calibration range in all samples. The associated laboratory control sample and method blank had acceptable surrogate recoveries for both surrogates. Qualification of the data on this basis was not required.

LCS Results

The %Rs of the spiked target analytes in the LCS sample was within the QC acceptance criteria.

MS/MSD Results

MS/MSD analyses were performed on sample SED-M-S4-(0-6"), but were not reported because the sample required a 10x dilution for analysis and spike concentrations fell below the calculated range of the instrument.

Field Duplicate Results

Samples SED-M-S7-(0-6") and SED-M-S7-FD(0-6") were submitted as the field duplicate pair with this sample set. No target analytes were detected in either of the samples. . Under Regional guidelines, sample results are not qualified on the basis of field duplicates. The results are informational purposes only.

Sample Results

No target compounds were detected in any of the samples, however, all samples were analyzed at a 10X dilution due to sample matrix. Sample SED-M-S7-(0-6") and the field duplicate were extracted at less than the recommended 30 grams due to the sample matrix. Sample quantitation limits (SQLs) for these samples were elevated accordingly by the laboratory.

ENSR

All sample percent solids results were >50%.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14895-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL065

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S4-(0-6")

Sample wt/vol: 30 (g/mL) G Lab File ID: MAG09046

% Moisture: 24 decanted: (Y/N) N Date Received: 08/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:08/07/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 08/10/01

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	6.6	U
58-89-9	gamma-BHC (Lindane)	22	U
319-85-7	beta-BHC	6.6	U
76-44-8	Heptachlor	22	U
319-86-8	delta-BHC	6.6	U
309-00-2	Aldrin	22	U
1024-57-3	Heptachlor epoxide	22	U
5103-74-2	gamma-Chlordane	22	U
5103-71-9	alpha-Chlordane	22	U
959-98-8	Endosulfan I	22	U
72-55-9	4,4'-DDE	43	U
60-57-1	Dieldrin	43	U
72-20-8	Endrin	43	U
72-54-8	4,4'-DDD	43	U
33213-65-9	Endosulfan II	43	U
50-29-3	4,4'-DDT	43	U
7421-93-4	Endrin aldehyde	43	U
1031-07-8	Endosulfan sulfate	43	U
72-43-5	Methoxychlor	220	U
53494-70-5	Endrin ketone	43	U
8001-35-2	Toxaphene	2200	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14895-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL065

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S7-(0-6")

Sample wt/vol: 15 (g/mL) G Lab File ID: MAG09047

% Moisture: 22 decanted: (Y/N) N Date Received: 08/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:08/07/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 08/10/01

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	13	U
58-89-9	gamma-BHC (Lindane)	44	U
319-85-7	beta-BHC	13	U
76-44-8	Heptachlor	44	U
319-86-8	delta-BHC	13	U
309-00-2	Aldrin	44	U
1024-57-3	Heptachlor epoxide	44	U
5103-74-2	gamma-Chlordane	44	U
5103-71-9	alpha-Chlordane	44	U
959-98-8	Endosulfan I	44	U
72-55-9	4,4'-DDE	85	U
60-57-1	Dieldrin	85	U
72-20-8	Endrin	85	U
72-54-8	4,4'-DDD	85	U
33213-65-9	Endosulfan II	85	U
50-29-3	4,4'-DDT	85	U
7421-93-4	Endrin aldehyde	85	U
1031-07-8	Endosulfan sulfate	85	U
72-43-5	Methoxychlor	440	U
53494-70-5	Endrin ketone	85	U
8001-35-2	Toxaphene	4400	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

14895-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL065

Matrix: (soil/water) SOIL Lab Sample ID: SED-M-S7-FD(0-6")

Sample wt/vol: 15 (g/mL) G Lab File ID: MAG09048

% Moisture: 23 decanted: (Y/N) N Date Received: 08/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:08/07/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 08/10/01

Injection Volume: 2.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	13	U
58-89-9	gamma-BHC (Lindane)	44	U
319-85-7	beta-BHC	13	U
76-44-8	Heptachlor	44	U
319-86-8	delta-BHC	13	U
309-00-2	Aldrin	44	U
1024-57-3	Heptachlor epoxide	44	U
5103-74-2	gamma-Chlordane	44	U
5103-71-9	alpha-Chlordane	44	U
959-98-8	Endosulfan I	44	U
72-55-9	4,4'-DDE	86	U
60-57-1	Dieldrin	86	U
72-20-8	Endrin	86	U
72-54-8	4,4'-DDD	86	U
33213-65-9	Endosulfan II	86	U
50-29-3	4,4'-DDT	86	U
7421-93-4	Endrin aldehyde	86	U
1031-07-8	Endosulfan sulfate	86	U
72-43-5	Methoxychlor	440	U
53494-70-5	Endrin ketone	86	U
8001-35-2	Toxaphene	4400	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 23, 2002
From:	Linda Sulkowski/Westford	**File:**	SO010 06105-012-201
RE:	Data Validation PCB and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL069	**CC:**	A. Mischel/Westford

SUMMARY

Limited validation was performed on the data for 16 soil samples analyzed for polychlorinated biphenyls (PCBs) by USEPA Method 680 and herbicides by SW-846 method 8151A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on October 31 and November 1, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL069.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (*1997*)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were rejected (R) or were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSB-T1-C1	CBS-CSB-T1-E1
CBS-CSB-T1-W1	CBS-CSB-T2-C1
CBS-CSB-T2-E1	CBS-CSB-T2-W1
CBS-CSB-T3-C1	CBS-CSB-T3-E1
CBS-CSB-T3-W1	CBS-CSB-T0-E1
CBS-CSB-T4-C1	CBS-CSB-T4-E1
CBS-CSB-T4-W1	CBS-CSB-T5-C1
CBS-CSB-T5-E1	CBS-CSB-T5-W1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformances were not noted by the laboratory. No validation action was taken on this basis.

PCB Analysis

The samples were initially extracted and analyzed within the method specified holding times. Samples CBS-CSB-T2-C1, CBS-CSB-T2-E1, CBS-CSB-T2-W1, CBS-CSB-T3-W1, CBS-CSB-T4-C1, CBS-CSB-T4-E1, and CBS-CSB-T4-W1 were re-extracted 4-5 days beyond the QAPP specified holding time of 14 days. All samples were analyzed within the method specified holding times. The re-extracted results were reported by the validator since the re-extracted samples had either better surrogate recoveries, were analyzed at a lower dilution, and/or contained positive results that were not detected in the initial extraction. Positive and non-detected results for these samples were qualified as estimated (J/UJ).

Herbicide Analysis

The samples were initially extracted and analyzed within the method specified holding times. Sample CBS-CSB-T3-W1 was re-extracted six days beyond the method specified holding time of 14 days. The surrogate recoveries in the re-extracted sample were all within the QC acceptance criteria. The re-extracted sample was reported by the validator since this run contained positive results for dichloroprop and 2,4,5,-T which were not detected in the initial analysis. The positive and non-detected results for sample CBS-CSB-T3-W1 were qualified as estimated (J/UJ).

Method Blanks

PCB Analysis

Target analytes were not detected in the laboratory method blank associated with all samples.

Herbicide Analysis

Target analytes were not detected in the laboratory method blank associated with the re-extracted samples. Pentachlorophenol (1.3 ug/kg) was detected in the laboratory method blank associated with the initial extractions of the samples. The presence of blank contamination indicates that false positives may exist for this compound in the associated samples. An Action Level (AL) of 6.5 ug/kg was established for pentachlorophenol based on 5x the concentration detected. Sample results were qualified as follows:

- If the sample result was ≤ AL and < the sample quantitation limit (SQL), the result was qualified as non-detect (U) at the SQL.
- If the sample result was ≤ AL and > SQL, the result was qualified as non-detect (U) at the reported concentration.
- If the sample result was > AL, the result was not qualified.

Surrogate Spike Recoveries

PCB Analysis

The following table summarizes the percent recoveries (%Rs) of the surrogates which fell below the QC acceptance criteria. Sample results were qualified as indicated in the table.

Sample	%R 13C12-Decachlorobiphenyl	Action Positive/Non-detects
CBS-CSB-T5-E1	17	J/UJ
CBS-CSB-T2-C1 RE	19	J/UJ
CBS-CSB-T2-W1 RE	27	J/UJ
CBS-CSB-T3-W1 RE	24	J/UJ
CBS-CSB-T4-C1 RE	8	J/R
CBS-CSB-T4-E1 RE	24	J/UJ
CBS-CSB-T4-W1 RE	18	J/UJ

It should be noted that the surrogates were diluted out of the calibration range in samples CBS-CSB-T3-C1 and CBS-CSB-T3-E1. Qualification of the data on this basis was not required.

Herbicide Analysis

The %R of 2,4-dichlorophenylacetic acid (13%) fell below the QC acceptance criteria on Column 2 in the analysis of sample CBS-CSB-T3-W1. The sample was re-extracted outside of hold time. The surrogate recovery in the re-extracted sample were within the QC acceptance criteria. As noted previously, the re-extracted sample was reported. Qualification of the data on the basis of surrogate recovery nonconformance was not required.

LCS Results

The %Rs of the spiked target analytes were within the QC acceptance criteria in the LCSs associated with the sample analyses for both parameters.

MS/MSD Results

PCB Analysis

MS/MSD analyses were performed on sample CBS-CSB-T1-E1. The following table summarizes the %Rs and/or relative percent differences (RPDs) of the spiked target analytes, which fell outside the QC acceptance limits in the MS/MSD analyses performed on this sample. The positive results for trichlorobiphenyls and tetrachlorobiphenyls were qualified as estimated (J) in the unspiked sample.

Analyte	MS/MSD %R	(RPD) %R
Trichlorobiphenyls	ok/24	66
Tetrachlorobiphenyls	35/0	200

Herbicide Analysis

MS/MSD analyses were performed on sample CBS-CSF-T5-W1. The %Rs and the RPDs of the spiked target analytes were within the QC acceptance limits in the MS/MSD analyses performed on this sample.

Field Duplicate Results

Field duplicate samples were not submitted with this sample set. No validation action was taken on this basis.

Quantitation Limits and Sample Results

The percent solids criterion of >50% was met for all samples.

PCB Analysis

Samples CBS-CSB-T3-C1 (50x), CBS-CSB-T3-E1 (50x), and CBS-CSB-T5-E1 (2x) were each analyzed at dilutions due to the concentration of target analytes, which would have exceeded the calibration range if analyzed undiluted.

Sample CBS-CSB-T0-E1 was initially analyzed at a 5-fold dilution. The sample was re-analyzed at a 10-fold dilutions due to the concentration of target analytes, which exceeded the calibration range in the initial analysis of the sample. Both runs were combined by the validator to report all compounds within the calibration range and the lowest possible SQLs.

Herbicide Analysis

The RPDs between the two analytical columns for several compounds exceeded the QC acceptance criteria of 40% for selected results. In these instances, the laboratory reported the lower of the two values with a "P" qualifier. During validation, the "P" qualifier was removed. The positive result for 2,4-D in sample CBS-CSB-T4-W1 was qualified as estimated (J) due to the high RPD.

Samples CBS-CSB-T0-E1, CBS-CSB-T4-E1, and CBS-CSB-T5-E1 were initially analyzed undiluted. The samples were re-analyzed at further dilutions due to the concentration of target analytes, which exceeded the calibration range in the undiluted sample. Both runs were combined by the validator to report all compounds within the calibration range and the lowest possible SQLs.

Sample CBS-CSB-T4-W1 was initially analyzed at a 2-fold dilution. The sample was re-analyzed at a 10-fold dilution due to the concentration of target analytes, which exceeded the calibration range in the initial analysis of the sample. Both runs were combined by the validator to report all compounds within the calibration range and the lowest possible SQLs.

Samples CBS-CSB-T3-C1 (20x), CBS-CSB-T3-E1 (400x), and CBS-CSB-T4-W1 (2x) were each analyzed at a dilution due to the concentration of target analytes, which would have exceeded the calibration range if analyzed undiluted.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T1-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15007

% Moisture: 34 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/15/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
75-99-0	Dalapon	98	~~UJ-H~~	U
1918-00-9	Dicamba	1.9	J	
7085-19-0	MCPP	3000	~~UJ-H~~	U
94-74-6	MCPA	3000	~~UJ-H~~	
120-36-5	Dichlorprop	150	~~UJ-H~~	
94-75-7	2,4-D	12	~~UJ-H~~	
87-86-5	Pentachlorophenol	26	~~UJ-H~~	
93-72-1	2,4,5-TP	12	~~UJ-H~~	
93-76-5	2,4,5-T	12	~~UJ-H~~	
94-82-6	2,4-DB	12	~~UJ-H~~	
88-85-7	Dinoseb	150	~~UJ-H~~	

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T1-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15008

% Moisture: 32 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/15/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	96	U
1918-00-9	Dicamba	29	U
7085-19-0	MCPP	2900	U
94-74-6	MCPA	2900	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	15	JB
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	150	U

FORM I
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T1-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15009

% Moisture: 28 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/15/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	48	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T2-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15010

% Moisture: 37 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/15/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	100	U
1918-00-9	Dicamba	32	U
7085-19-0	MCPP	3200	U
94-74-6	MCPA	3200	U
120-36-5	Dichlorprop	160	U
94-75-7	2,4-D	13	U
87-86-5	Pentachlorophenol	26 ~~5.1 JB~~ U-B	
93-72-1	2,4,5-TP	13	U
93-76-5	2,4,5-T	13	U
94-82-6	2,4-DB	13	U
88-85-7	Dinoseb	160	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T2-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15011

% Moisture: 28 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	13	J~~B~~
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T2-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15012

% Moisture: 25 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	87	U
1918-00-9	Dicamba	1.7	J~~P~~-P
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	23	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	130	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-7

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T3-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15025

% Moisture: 42 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	2200	U
1918-00-9	Dicamba	690	U
7085-19-0	MCPP	69000	U
94-74-6	MCPA	69000	U
120-36-5	Dichlorprop	3400	U
94-75-7	2,4-D	290	U
87-86-5	Pentachlorophenol	1900	~~U~~
93-72-1	2,4,5-TP	290	U
93-76-5	2,4,5-T	290	U
94-82-6	2,4-DB	290	U
88-85-7	Dinoseb	3400	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-8

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T3-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18033

% Moisture: 21 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/19/01

Injection Volume: 1.0(uL) Dilution Factor: 400.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	33000	U
1918-00-9	Dicamba	10000	U
7085-19-0	MCPP	1000000	U
94-74-6	MCPA	1000000	U
120-36-5	Dichlorprop	51000	U
94-75-7	2,4-D	4200	U
87-86-5	Pentachlorophenol	44000	~~B~~
93-72-1	2,4,5-TP	4200	U
93-76-5	2,4,5-T	4200	U
88-85-7	Dinoseb	51000	U
94-82-6	2,4-DB	4200	U

FORM I
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-9RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T3-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV21081

% Moisture: 27 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/20/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/23/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	89	UJ-H
1918-00-9	Dicamba	27	UJ-H
7085-19-0	MCPP	2700	UJ-H
94-74-6	MCPA	2700	UJ-H
120-36-5	Dichlorprop	6.6	J-H
94-75-7	2,4-D	11	UJ-H
87-86-5	Pentachlorophenol	61	J-H
93-72-1	2,4,5-TP	11	UJ-H
93-76-5	2,4,5-T	27	J-H
94-82-6	2,4-DB	11	UJ-H
88-85-7	Dinoseb	140	UJ-H

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T0-~~B1~~ C1 8/5/2/01

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15035

% Moisture: 32 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	96	U
1918-00-9	Dicamba	29	U
7085-19-0	MCPP	2900	U
94-74-6	MCPA	2900	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	270	~~EB~~
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
88-85-7	Dinoseb	150	U
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T4-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15013

% Moisture: 39 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	110	U
1918-00-9	Dicamba	2.2	JP
7085-19-0	MCPP	3300	U
94-74-6	MCPA	3300	U
120-36-5	Dichlorprop	160	U
94-75-7	2,4-D	14	U
87-86-5	Pentachlorophenol	92	B
93-72-1	2,4,5-TP	14	U
93-76-5	2,4,5-T	27	
94-82-6	2,4-DB	14	U
88-85-7	Dinoseb	160	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T4-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15014

% Moisture: 28 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	230 ~~250~~	~~EB~~
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T4-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15034

% Moisture: 33 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	190	U
1918-00-9	Dicamba	60	U
7085-19-0	MCPP	6000	U
94-74-6	MCPA	6000	U
120-36-5	Dichlorprop	300	U
94-75-7	2,4-D	140	~~P~~ J-P
87-86-5	Pentachlorophenol	33	~~E~~ J
93-72-1	2,4,5-TP	25	U
93-76-5	2,4,5-T	610 ~~600~~	~~E~~
88-85-7	Dinoseb	300	U
94-82-6	2,4-DB	25	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T5-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15015

% Moisture: 32 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	96	U
1918-00-9	Dicamba	3.0	J~~Y~~-P
7085-19-0	MCPP	2900	U
94-74-6	MCPA	2900	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	25 ~~5.2~~ ~~JB~~	U-B
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	150	U

FORM I SG

FORM I

PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T5-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15036

% Moisture: 24 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	86	U
1918-00-9	Dicamba	26	U
7085-19-0	MCPP	2600	U
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	17	J ~~P~~-P
87-86-5	Pentachlorophenol	1000	~~P~~
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	4.9	J
88-85-7	Dinoseb	130	U
94-82-6	2,4-DB	11	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-7

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T5-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15016

% Moisture: 27 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	89	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	23	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	140	U

FORM I

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T1-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4176

Level: (low/med) LOW Date Received: 11/01/01

% Moisture: 34 decanted: (Y/N) N Date Extracted: 11/09/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	5.0	U
	Dichlorobiphenyl	3.5	J
	Trichlorobiphenyl	1.8	J
	Tetrachlorobiphenyl	8.8	J
	Pentachlorobiphenyl	23	
	Hexachlorobiphenyl	7.1	J
	Heptachlorobiphenyl	15	U
	Octachlorobiphenyl	15	U
	Nonachlorobibiphenyl	25	U
	Decachlorobiphenyl	25	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-2

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T1-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4177

Level: (low/med) LOW Date Received: 11/01/01

% Moisture: 32 decanted: (Y/N) N Date Extracted:11/09/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.8	U
	Dichlorobiphenyl	3.2	J
	Trichlorobiphenyl	73	J-M
	Tetrachlorobiphenyl	500	J-M
	Pentachlorobiphenyl	600	
	Hexachlorobiphenyl	260	
	Heptachlorobiphenyl	160	
	Octachlorobiphenyl	42	
	Nonachlorobibiphenyl	25	U
	Decachlorobiphenyl	15	J

FORM I
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-3

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T1-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4178

Level: (low/med) LOW Date Received: 11/01/01

% Moisture: 28 decanted: (Y/N) N Date Extracted: 11/09/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.6	U
	Dichlorobiphenyl	8.8	
	Trichlorobiphenyl	82	
	Tetrachlorobiphenyl	420	
	Pentachlorobiphenyl	340	
	Hexachlorobiphenyl	180	
	Heptachlorobiphenyl	120	
	Octachlorobiphenyl	36	
	Nonachlorobibiphenyl	24	U
	Decachlorobiphenyl	23	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-4RE

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T2-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4221

Level: (low/med) LOW Date Received: 11/01/01

% Moisture: 37 decanted: (Y/N) N Date Extracted: 11/19/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/20/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	5.2	UJ-H-S
	Dichlorobiphenyl	5.2	UJ-H-S
	Trichlorobiphenyl	2.1	J-H-S
	Tetrachlorobiphenyl	11	UJ-H-S
	Pentachlorobiphenyl	11	U
	Hexachlorobiphenyl	11	U
	Heptachlorobiphenyl	16	U
	Octachlorobiphenyl	16	U
	Nonachlorobiphenyl	27	U
	Decachlorobiphenyl	27	U

Report this Run

FORM I

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-5RE

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T2-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4222

Level: (low/med) LOW Date Received: 11/01/01

% Moisture: 28 decanted: (Y/N) N Date Extracted: 11/19/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/20/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.6	UJ-H
	Dichlorobiphenyl	4.6	U
	Trichlorobiphenyl	4.6	U
	Tetrachlorobiphenyl	18	J-H
	Pentachlorobiphenyl	150	
	Hexachlorobiphenyl	40	
	Heptachlorobiphenyl	19	
	Octachlorobiphenyl	4.7	J-H
	Nonachlorobibiphenyl	24	UJ-H
	Decachlorobiphenyl	17	J-H

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-6RE

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T2-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4223

Level: (low/med) LOW Date Received: 11/01/01

% Moisture: 25 decanted: (Y/N) N Date Extracted: 11/19/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/20/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	----------Monochlorobiphenyl_____	4.4	UJ-H-S
	----------Dichlorobiphenyl_____	4.4	U
	----------Trichlorobiphenyl_____	4.4	U
	----------Tetrachlorobiphenyl_____	8.9	U
	----------Pentachlorobiphenyl_____	8.9	U
	----------Hexachlorobiphenyl_____	8.9	U
	----------Heptachlorobiphenyl_____	13	U
	----------Octachlorobiphenyl_____	13	U
	----------Nonachlorobibiphenyl_____	23	U
	----------Decachlorobiphenyl_____	23	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-7

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T3-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4232

Level: (low/med) LOW Date Received: 11/01/01

% Moisture: 42 decanted: (Y/N) N Date Extracted: 11/09/01

Concentrated Extract Volume: 1 (mL) Date Analyzed: 11/21/01

Injection Volume: 1.0 (uL) Dilution Factor: 50.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	280	U
	Dichlorobiphenyl	270	
	Trichlorobiphenyl	2000	
	Tetrachlorobiphenyl	3200	
	Pentachlorobiphenyl	770	
	Hexachlorobiphenyl	140	
	Heptachlorobiphenyl	860	U
	Octachlorobiphenyl	860	U
	Nonachlorobibiphenyl	1400	U
	Decachlorobiphenyl	1400	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-8

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T3-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4233

Level: (low/med) LOW Date Received: 11/01/01

% Moisture: 21 decanted: (Y/N) N Date Extracted: 11/09/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/21/01

Injection Volume: 1.0(uL) Dilution Factor: 50.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	200	U
	Dichlorobiphenyl	200	U
	Trichlorobiphenyl	15000	
	Tetrachlorobiphenyl	51000	
	Pentachlorobiphenyl	18000	
	Hexachlorobiphenyl	830	
	Heptachlorobiphenyl	630	U
	Octachlorobiphenyl	630	U
	Nonachlorobibiphenyl	1000	U
	Decachlorobiphenyl	1000	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-9RE

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T3-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4225

Level: (low/med) LOW Date Received: 11/01/01

% Moisture: 27 decanted: (Y/N) N Date Extracted: 11/19/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/20/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.5	UJ-H-S
	Dichlorobiphenyl	25	J-H-S
	Trichlorobiphenyl	120	↓
	Tetrachlorobiphenyl	53	↓
	Pentachlorobiphenyl	31	↓
	Hexachlorobiphenyl	3.4	J-H-S
	Heptachlorobiphenyl	14	UJ-H-S
	Octachlorobiphenyl	14	U ↓
	Nonachlorobibiphenyl	23	U ↓
	Decachlorobiphenyl	23	U ↓

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T0-~~E1~~ C1 5/2/0

Sample wt/vol: 30 (g/mL) G Lab File ID: K4187

Level: (low/med) LOW Date Received: 11/02/01

% Moisture: 32 decanted: (Y/N) N Date Extracted: 11/09/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/17/01

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	24	U
	Dichlorobiphenyl	300	
	Trichlorobiphenyl	730	
	Tetrachlorobiphenyl	5500	
	Pentachlorobiphenyl	12000	
	Hexachlorobiphenyl	4800	
	Heptachlorobiphenyl	4000	
	Octachlorobiphenyl	1100	
	Nonachlorobibiphenyl	74	U
	Decachlorobiphenyl	1300	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-2RE

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T4-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4226

Level: (low/med) LOW Date Received: 11/02/01

% Moisture: 39 decanted: (Y/N) N Date Extracted: 11/19/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/20/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	~~5.4~~	~~U J-H~~ R-S
	Dichlorobiphenyl	2.2	J-H-S
	Trichlorobiphenyl	4.5	J-H-S
	Tetrachlorobiphenyl	25	J-H-S
	Pentachlorobiphenyl	15	J-H-S
	Hexachlorobiphenyl	~~11~~	~~U J-H~~ R-S
	Heptachlorobiphenyl	~~16~~	~~U~~
	Octachlorobiphenyl	~~16~~	~~U~~
	Nonachlorobibiphenyl	~~28~~	~~U~~
	Decachlorobiphenyl	~~28~~	~~U~~

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-3RE

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T4-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4227

Level: (low/med) LOW Date Received: 11/02/01

% Moisture: 28 decanted: (Y/N) N Date Extracted: 11/19/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/20/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.6	UJ-H-S
	Dichlorobiphenyl	4.6	UJ-H-S
	Trichlorobiphenyl	2.0	J-H-S
	Tetrachlorobiphenyl	56	J-H-S
	Pentachlorobiphenyl	150	
	Hexachlorobiphenyl	54	
	Heptachlorobiphenyl	16	
	Octachlorobiphenyl	31	
	Nonachlorobibiphenyl	23	UJ-H-S
	Decachlorobiphenyl	10	J-H-S

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-4RE

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T4-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4228

Level: (low/med) LOW Date Received: 11/02/01

% Moisture: 33 decanted: (Y/N) N Date Extracted: 11/19/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/20/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.9	U J-H-S
	Dichlorobiphenyl	4.9	U J-H-S
	Trichlorobiphenyl	3.2	J-H-S
	Tetrachlorobiphenyl	1.6	J
	Pentachlorobiphenyl	1.3	J
	Hexachlorobiphenyl	10	U J-H-S
	Heptachlorobiphenyl	15	U
	Octachlorobiphenyl	15	U
	Nonachlorobibiphenyl	25	U
	Decachlorobiphenyl	25	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-5

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T5-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4217

Level: (low/med) LOW Date Received: 11/02/01

% Moisture: 32 decanted: (Y/N) N Date Extracted: 11/09/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/20/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.8	U
	Dichlorobiphenyl	4.8	U
	Trichlorobiphenyl	25	
	Tetrachlorobiphenyl	27	
	Pentachlorobiphenyl	42	
	Hexachlorobiphenyl	11	
	Heptachlorobiphenyl	15	U
	Octachlorobiphenyl	15	U
	Nonachlorobibiphenyl	25	U
	Decachlorobiphenyl	5.3	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-6

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T5-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4218

Level: (low/med) LOW Date Received: 11/02/01

% Moisture: 24 decanted: (Y/N) N Date Extracted: 11/09/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/20/01

Injection Volume: 1.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	8.7	U J-S
	Dichlorobiphenyl	29	J-S
	Trichlorobiphenyl	470	
	Tetrachlorobiphenyl	1000	
	Pentachlorobiphenyl	840	
	Hexachlorobiphenyl	150	
	Heptachlorobiphenyl	40	
	Octachlorobiphenyl	13	J-S
	Nonachlorobibiphenyl	45	U J-S
	Decachlorobiphenyl	25	J-S

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-7

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T5-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4193

Level: (low/med) LOW Date Received: 11/02/01

% Moisture: 27 decanted: (Y/N) N Date Extracted: 11/09/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/17/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	----------Monochlorobiphenyl_____	4.5	U
	----------Dichlorobiphenyl_____	4.5	U
	----------Trichlorobiphenyl_____	4.5	U
	----------Tetrachlorobiphenyl_____	9.2	U
	----------Pentachlorobiphenyl_____	9.2	U
	----------Hexachlorobiphenyl_____	9.2	U
	----------Heptachlorobiphenyl_____	14	U
	----------Octachlorobiphenyl_____	14	U
	----------Nonachlorobibiphenyl_____	23	U
	----------Decachlorobiphenyl_____	23	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-9

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T3-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV18036

% Moisture: 27 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/19/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	89	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	29	~~U~~
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
88-85-7	Dinoseb	140	U
94-82-6	2,4-DB	11	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-1DL

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T0-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15029

% Moisture: 32 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	480	U
1918-00-9	Dicamba	150	U
7085-19-0	MCPP	15000	U
94-74-6	MCPA	15000	U
120-36-5	Dichlorprop	740	U
94-75-7	2,4-D	61	U
87-86-5	Pentachlorophenol	270	DB
93-72-1	2,4,5-TP	61	U
93-76-5	2,4,5-T	61	U
94-82-6	2,4-DB	61	U
88-85-7	Dinoseb	740	U

FORM I
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-3DL

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T4-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15033

% Moisture: 28 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	DJ
1918-00-9	Dicamba	56	U
7085-19-0	MCPP	5600	U
94-74-6	MCPA	5600	U
120-36-5	Dichlorprop	280	U
94-75-7	2,4-D	23	U
87-86-5	Pentachlorophenol	230	DB
93-72-1	2,4,5-TP	23	U
93-76-5	2,4,5-T	23	U
88-85-7	Dinoseb	280	U
94-82-6	2,4-DB	23	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-4DL

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T4-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15027

% Moisture: 33 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	970	U
1918-00-9	Dicamba	300	U
7085-19-0	MCPP	30000	U
94-74-6	MCPA	30000	U
120-36-5	Dichlorprop	1500	U
94-75-7	2,4-D	120	U
87-86-5	Pentachlorophenol	38	DBJ
93-72-1	2,4,5-TP	120	U
93-76-5	2,4,5-T	610	D
88-85-7	Dinoseb	1500	U
94-82-6	2,4-DB	120	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-6DL

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T5-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV15028

% Moisture: 24 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/09/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	860	U
1918-00-9	Dicamba	260	U
7085-19-0	MCPP	26000	U
94-74-6	MCPA	26000	U
120-36-5	Dichlorprop	1300	U
94-75-7	2,4-D	110	U
87-86-5	Pentachlorophenol	1000	DB
93-72-1	2,4,5-TP	110	U
93-76-5	2,4,5-T	110	U
88-85-7	Dinoseb	1300	U
94-82-6	2,4-DB	110	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-4

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T4-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4190

Level: (low/med) LOW Date Received: 11/02/01

% Moisture: 33 decanted: (Y/N) N Date Extracted: 11/09/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/17/01

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	25	U
	Dichlorobiphenyl	25	U
	Trichlorobiphenyl	25	U
	Tetrachlorobiphenyl	50	U
	Pentachlorobiphenyl	50	U
	Hexachlorobiphenyl	50	U
	Heptachlorobiphenyl	74	U
	Octachlorobiphenyl	74	U
	Nonachlorobibiphenyl	120	U
	Decachlorobiphenyl	120	U

Report and Review

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-3

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T4-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4236

Level: (low/med) LOW Date Received: 11/02/01

% Moisture: 28 decanted: (Y/N) N Date Extracted: 11/09/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/21/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.6	U
	Dichlorobiphenyl	4.6	U
	Trichlorobiphenyl	23	
	Tetrachlorobiphenyl	110	
	Pentachlorobiphenyl	100	
	Hexachlorobiphenyl	25	
	Heptachlorobiphenyl	3.0	J
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	23	U
	Decachlorobiphenyl	3.5	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-2

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T4-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4235

Level: (low/med) LOW Date Received: 11/02/01

% Moisture: 39 decanted: (Y/N) N Date Extracted: 11/09/01

Concentrated Extract Volume: 1 (mL) Date Analyzed: 11/21/01

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	5.4	U
	Dichlorobiphenyl	5.4	U
	Trichlorobiphenyl	14	
	Tetrachlorobiphenyl	12	
	Pentachlorobiphenyl	22	U
	Hexachlorobiphenyl	22	U
	Heptachlorobiphenyl	32	U
	Octachlorobiphenyl	32	U
	Nonachlorobibiphenyl	27	U
	Decachlorobiphenyl	27	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-1DL

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T0-E1 4

Sample wt/vol: 30 (g/mL) G Lab File ID: K4216

Level: (low/med) LOW Date Received: 11/02/01

% Moisture: 32 decanted: (Y/N) N Date Extracted: 11/09/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/20/01

Injection Volume: 1.0(uL) Dilution Factor: 10.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	50	U
	Dichlorobiphenyl	350	D
	Trichlorobiphenyl	22	DJ
	Tetrachlorobiphenyl	3400	D
	Pentachlorobiphenyl	12000	D
	Hexachlorobiphenyl	5600	D
	Heptachlorobiphenyl	3300	D
	Octachlorobiphenyl	880	D
	Nonachlorobibiphenyl	240	U
	Decachlorobiphenyl	960	D

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-9

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T3-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4202

Level: (low/med) LOW Date Received: 11/01/01

% Moisture: 27 decanted: (Y/N) N Date Extracted:11/09/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/17/01

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	12	U
	Dichlorobiphenyl	12	U
	Trichlorobiphenyl	12	U
	Tetrachlorobiphenyl	24	U
	Pentachlorobiphenyl	24	U
	Hexachlorobiphenyl	24	U
	Heptachlorobiphenyl	68	U
	Octachlorobiphenyl	68	U
	Nonachlorobiphenyl	110	U
	Decachlorobiphenyl	110	U

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FORM I SV

FORM 1

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-6

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T2-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4231

Level: (low/med) LOW Date Received: 11/01/01

% Moisture: 25 decanted: (Y/N) N Date Extracted: 11/09/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/21/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	U
	Dichlorobiphenyl	4.4	U
	Trichlorobiphenyl	4.4	U
	Tetrachlorobiphenyl	8.9	U
	Pentachlorobiphenyl	8.9	U
	Hexachlorobiphenyl	8.9	U
	Heptachlorobiphenyl	13	U
	Octachlorobiphenyl	13	U
	Nonachlorobibiphenyl	23	U
	Decachlorobiphenyl	23	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-5

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T2-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4230

Level: (low/med) LOW Date Received: 11/01/01

% Moisture: 28 decanted: (Y/N) N Date Extracted: 11/09/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/21/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.6	U
	Dichlorobiphenyl	4.6	U
	Trichlorobiphenyl	4.6	U
	Tetrachlorobiphenyl	18	
	Pentachlorobiphenyl	43	
	Hexachlorobiphenyl	11	
	Heptachlorobiphenyl	24	
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	24	U
	Decachlorobiphenyl	3.7	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-4

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T2-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4179

Level: (low/med) LOW Date Received: 11/01/01

% Moisture: 37 decanted: (Y/N) N Date Extracted: 11/09/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/16/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	5.2	U
	Dichlorobiphenyl	5.2	U
	Trichlorobiphenyl	5.2	U
	Tetrachlorobiphenyl	11	U
	Pentachlorobiphenyl	11	U
	Hexachlorobiphenyl	11	U
	Heptachlorobiphenyl	16	U
	Octachlorobiphenyl	16	U
	Nonachlorobibiphenyl	27	U
	Decachlorobiphenyl	27	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 18, 2002
From:	Marcia Motta/Westford	**File:**	SO010 06105-012-201
RE:	Data Validation Pesticide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL069	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for eighteen sediment samples analyzed for organochlorine (OC) pesticides by SW-846 method 8081A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on October 31, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah, GA for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL069.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The regional and national functional guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSB-T1-C1	CBS-CSB-T0-E1
CBS-CSB-T1-E1	CBS-CSB-T4-C1
CBS-CSB-T1-W1	CBS-CSB-T4-E1
CBS-CSB-T2-C1	CBS-CSB-T4-W1
CBS-CSB-T2-E1	CBS-CSB-T2-W1
CBS-CSB-T3-C1	CBS-CSB-T5-C1
CBS-CSB-T3-E1	CBS-CSB-T5-E1
CBS-CSB-T3-W1	CBS-CSB-T5-W1

ENSR

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

Pesticides analysis were not explicitly requested on the COC for these samples. The laboratory correctly logged in and analyzed these samples for pesticides.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times for this parameter.

Method Blanks

No target analytes were detected in the associated method preparation blanks.

Surrogate Spike Recoveries

The surrogates were diluted out of the calibration range in samples CBS-CSB-T0-E1, CBS-CSB-T2-C1, CBS-CSB-T2-W1, CBS-CSB-T3-C1, and CBS-CSB-T3-E1. Qualification of the data on this basis was not required.

The following table summarizes the percent recoveries (%Rs) of the surrogate decachlorobiphenyl (DCB) that exceeded the QC acceptance criteria. Positive results for these samples were qualified as estimated (J).

Sample	DCB %R Column I/Column II
CBS-CSB-T2-E1	435/435
CBS-CSB-T4-E1	156/187

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Sample	DCB %R Column I/Column II
CBS-CSB-T5-E1	186/282
CBS-CSB-T1-W1	478/478

LCS Results

The laboratory control sample (LCS) extracted with samples on 11/2/01 (1102P-JMB) was inadvertently spiked with a subset of 6 pesticides. The LCS extracted with samples on 11/5/01 was spiked with the full target compound list. The %Rs of the spiked target analytes in both LCS samples were within the QC acceptance criteria. Qualification of data was not required on this basis.

MS/MSD Results

MS/MSD analyses were performed on sample CBS-CSB-T4-W1. The %Rs and relative percent differences (RPDs) of the spiked target analytes were within the QC acceptance limits for these MS/MSD analyses.

Field Duplicate Results

No field duplicate samples were submitted with this sample delivery group (SDG).

Sample Results

The RPD for the results from the two analytical columns for several compounds exceeded the QC acceptance criteria of 40% in multiple samples. The laboratory reported the lower of the two values with a "P" qualifier for these analytes. During validation the "P" qualifier was changed to "J".

Samples CBS-CSB-T2-E1 (2x), CBS-CSB-T0-E1 (25x), CBS-CSB-T2-C1 (20x), CBS-CSB-T2-W1 (20x), CBS-CSB-T3-C1 (20x) and CBS-CSB-T3-E1 (20x) were analyzed at the dilution indicated due to matrix and/or non target analyte interference. Sample quantation limits were elevated accordingly.

All samples had results for percent solids >50%.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T1-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV05011

% Moisture: 34 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/05/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.76	U
58-89-9	gamma-BHC (Lindane)	0.15	J-P
319-85-7	beta-BHC	0.76	U
76-44-8	Heptachlor	2.6	U
319-86-8	delta-BHC	0.76	U
309-00-2	Aldrin	2.6	U
1024-57-3	Heptachlor epoxide	0.43	J-P
5103-74-2	gamma-Chlordane	2.6	U
5103-71-9	alpha-Chlordane	2.6	U
959-98-8	Endosulfan I	2.6	U
72-55-9	4,4'-DDE	5.0	U
60-57-1	Dieldrin	5.0	U
72-20-8	Endrin	5.0	U
72-54-8	4,4'-DDD	5.0	U
33213-65-9	Endosulfan II	5.0	U
50-29-3	4,4'-DDT	5.0	U
7421-93-4	Endrin aldehyde	5.0	U
1031-07-8	Endosulfan sulfate	5.0	U
72-43-5	Methoxychlor	26	U
53494-70-5	Endrin ketone	5.0	U
8001-35-2	Toxaphene	260	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T1-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV05012

% Moisture: 32 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/05/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.74	U
58-89-9	gamma-BHC (Lindane)	2.5	U
319-85-7	beta-BHC	0.74	U
76-44-8	Heptachlor	2.5	U
319-86-8	delta-BHC	0.74	U
309-00-2	Aldrin	2.5	U
1024-57-3	Heptachlor epoxide	4.6	~~P~~ J-P
5103-74-2	gamma-Chlordane	2.5	U
5103-71-9	alpha-Chlordane	2.5	U
959-98-8	Endosulfan I	2.5	U
72-55-9	4,4'-DDE	4.8	U
60-57-1	Dieldrin	7.4	~~P~~ J-P
72-20-8	Endrin	4.8	U
72-54-8	4,4'-DDD	4.8	U
33213-65-9	Endosulfan II	4.8	U
50-29-3	4,4'-DDT	17	~~P~~ J-P
7421-93-4	Endrin aldehyde	4.8	U
1031-07-8	Endosulfan sulfate	4.8	U
72-43-5	Methoxychlor	25	U
53494-70-5	Endrin ketone	4.8	U
8001-35-2	Toxaphene	250	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T1-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV08061

% Moisture: 28 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/09/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.69	U
58-89-9	gamma-BHC (Lindane)	2.4	U
319-85-7	beta-BHC	0.69	U
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.69	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	21	~~P~~J-P-S
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	U
959-98-8	Endosulfan I	2.4	U
72-55-9	4,4'-DDE	35	~~P~~J-P-S
60-57-1	Dieldrin	30	~~P~~J-P-S
72-20-8	Endrin	4.6	U
72-54-8	4,4'-DDD	4.6	U
33213-65-9	Endosulfan II	4.6	U
50-29-3	4,4'-DDT	51	~~P~~J-P-S
7421-93-4	Endrin aldehyde	4.6	U
1031-07-8	Endosulfan sulfate	4.6	U
72-43-5	Methoxychlor	24	U
53494-70-5	Endrin ketone	4.6	U
8001-35-2	Toxaphene	240	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T2-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV06022

% Moisture: 37 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/06/01

Injection Volume: 2.0(uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	16	U
58-89-9	gamma-BHC (Lindane)	54	U
319-85-7	beta-BHC	16	U
76-44-8	Heptachlor	54	U
319-86-8	delta-BHC	16	U
309-00-2	Aldrin	54	U
1024-57-3	Heptachlor epoxide	54	U
5103-74-2	gamma-Chlordane	54	U
5103-71-9	alpha-Chlordane	54	U
959-98-8	Endosulfan I	54	U
72-55-9	4,4'-DDE	100	U
60-57-1	Dieldrin	100	U
72-20-8	Endrin	100	U
72-54-8	4,4'-DDD	100	U
33213-65-9	Endosulfan II	100	U
50-29-3	4,4'-DDT	100	U
7421-93-4	Endrin aldehyde	100	U
1031-07-8	Endosulfan sulfate	100	U
72-43-5	Methoxychlor	540	U
53494-70-5	Endrin ketone	100	U
8001-35-2	Toxaphene	5400	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T2-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV05015

% Moisture: 28 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/05/01

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.4	U
58-89-9	gamma-BHC (Lindane)	4.7	U
319-85-7	beta-BHC	3.1	~~PJ~~-P-S
76-44-8	Heptachlor	4.7	U
319-86-8	delta-BHC	1.4	U
309-00-2	Aldrin	4.7	U
1024-57-3	Heptachlor epoxide	7.3	~~PJ~~-P-S
5103-74-2	gamma-Chlordane	4.7	U
5103-71-9	alpha-Chlordane	4.7	U
959-98-8	Endosulfan I	4.7	U
72-55-9	4,4'-DDE	9.2	U
60-57-1	Dieldrin	9.2	U
72-20-8	Endrin	9.2	U
72-54-8	4,4'-DDD	9.2	U
33213-65-9	Endosulfan II	9.2	U
50-29-3	4,4'-DDT	9.2	U
7421-93-4	Endrin aldehyde	9.2	U
1031-07-8	Endosulfan sulfate	9.2	U
72-43-5	Methoxychlor	47	U
53494-70-5	Endrin ketone	9.2	U
8001-35-2	Toxaphene	470	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T2-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV06023

% Moisture: 25 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/06/01

Injection Volume: 2.0(uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	13	U
58-89-9	gamma-BHC (Lindane)	45	U
319-85-7	beta-BHC	13	U
76-44-8	Heptachlor	45	U
319-86-8	delta-BHC	13	U
309-00-2	Aldrin	45	U
1024-57-3	Heptachlor epoxide	45	U
5103-74-2	gamma-Chlordane	45	U
5103-71-9	alpha-Chlordane	45	U
959-98-8	Endosulfan I	45	U
72-55-9	4,4'-DDE	88	U
60-57-1	Dieldrin	88	U
72-20-8	Endrin	88	U
72-54-8	4,4'-DDD	88	U
33213-65-9	Endosulfan II	88	U
50-29-3	4,4'-DDT	88	U
7421-93-4	Endrin aldehyde	88	U
1031-07-8	Endosulfan sulfate	88	U
72-43-5	Methoxychlor	450	U
53494-70-5	Endrin ketone	88	U
8001-35-2	Toxaphene	4500	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-7

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T3-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV08058

% Moisture: 42 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/09/01

Injection Volume: 2.0(uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	17	U
58-89-9	gamma-BHC (Lindane)	59	U
319-85-7	beta-BHC	17	U
76-44-8	Heptachlor	59	U
319-86-8	delta-BHC	17	U
309-00-2	Aldrin	59	U
1024-57-3	Heptachlor epoxide	59	U
5103-74-2	gamma-Chlordane	59	U
5103-71-9	alpha-Chlordane	59	U
959-98-8	Endosulfan I	59	U
72-55-9	4,4'-DDE	110	U
60-57-1	Dieldrin	110	U
72-20-8	Endrin	110	U
72-54-8	4,4'-DDD	110	U
33213-65-9	Endosulfan II	110	U
50-29-3	4,4'-DDT	110	U
7421-93-4	Endrin aldehyde	110	U
1031-07-8	Endosulfan sulfate	110	U
72-43-5	Methoxychlor	590	U
53494-70-5	Endrin ketone	110	U
8001-35-2	Toxaphene	5900	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-8

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T3-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV08059

% Moisture: 21 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/09/01

Injection Volume: 2.0(uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	13	U
58-89-9	gamma-BHC (Lindane)	43	U
319-85-7	beta-BHC	13	U
76-44-8	Heptachlor	43	U
319-86-8	delta-BHC	13	U
309-00-2	Aldrin	43	U
1024-57-3	Heptachlor epoxide	43	U
5103-74-2	gamma-Chlordane	43	U
5103-71-9	alpha-Chlordane	43	U
959-98-8	Endosulfan I	43	U
72-55-9	4,4'-DDE	84	U
60-57-1	Dieldrin	84	U
72-20-8	Endrin	84	U
72-54-8	4,4'-DDD	84	U
33213-65-9	Endosulfan II	84	U
50-29-3	4,4'-DDT	84	U
7421-93-4	Endrin aldehyde	84	U
1031-07-8	Endosulfan sulfate	84	U
72-43-5	Methoxychlor	430	U
53494-70-5	Endrin ketone	84	U
8001-35-2	Toxaphene	4300	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17083-9

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T3-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV05019

% Moisture: 27 decanted: (Y/N) N Date Received: 11/01/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/02/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/06/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.82	~~P~~ J-P
58-89-9	gamma-BHC (Lindane)	2.3	U
319-85-7	beta-BHC	0.68	U
76-44-8	Heptachlor	2.3	U
319-86-8	delta-BHC	0.68	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	U
959-98-8	Endosulfan I	2.3	U
72-55-9	4,4'-DDE	4.5	U
60-57-1	Dieldrin	0.42	~~J~~-P
72-20-8	Endrin	4.5	U
72-54-8	4,4'-DDD	4.5	U
33213-65-9	Endosulfan II	4.5	U
50-29-3	4,4'-DDT	4.5	U
7421-93-4	Endrin aldehyde	4.5	U
1031-07-8	Endosulfan sulfate	4.5	U
72-43-5	Methoxychlor	23	U
53494-70-5	Endrin ketone	4.5	U
8001-35-2	Toxaphene	230	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T0-B1 C ACM 5/2/05

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV06011

% Moisture: 32 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/05/01

Concentrated Extract Volume: 10 (mL) Date Analyzed: 11/06/01

Injection Volume: 2.0 (uL) Dilution Factor: 25.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	18	U
58-89-9	gamma-BHC (Lindane)	62	U
319-85-7	beta-BHC	18	U
76-44-8	Heptachlor	62	U
319-86-8	delta-BHC	18	U
309-00-2	Aldrin	62	U
1024-57-3	Heptachlor epoxide	410	~~J~~-P
5103-74-2	gamma-Chlordane	62	U
5103-71-9	alpha-Chlordane	62	U
959-98-8	Endosulfan I	62	U
72-55-9	4,4'-DDE	120	U
60-57-1	Dieldrin	120	U
72-20-8	Endrin	120	U
72-54-8	4,4'-DDD	470	~~J~~-P
33213-65-9	Endosulfan II	120	U
50-29-3	4,4'-DDT	120	U
7421-93-4	Endrin aldehyde	120	U
1031-07-8	Endosulfan sulfate	120	U
72-43-5	Methoxychlor	620	U
53494-70-5	Endrin ketone	120	U
8001-35-2	Toxaphene	6200	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T4-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV08015

% Moisture: 39 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/05/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/08/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.82	U
58-89-9	gamma-BHC (Lindane)	1.4	~~J~~-P
319-85-7	beta-BHC	0.82	U
76-44-8	Heptachlor	2.8	U
319-86-8	delta-BHC	0.82	U
309-00-2	Aldrin	2.8	U
1024-57-3	Heptachlor epoxide	2.8	U
5103-74-2	gamma-Chlordane	2.8	U
5103-71-9	alpha-Chlordane	2.8	U
959-98-8	Endosulfan I	2.8	U
72-55-9	4,4'-DDE	5.4	U
60-57-1	Dieldrin	5.4	U
72-20-8	Endrin	5.4	U
72-54-8	4,4'-DDD	5.4	U
33213-65-9	Endosulfan II	5.4	U
50-29-3	4,4'-DDT	5.4	U
7421-93-4	Endrin aldehyde	5.4	U
1031-07-8	Endosulfan sulfate	5.4	U
72-43-5	Methoxychlor	28	U
53494-70-5	Endrin ketone	5.4	U
8001-35-2	Toxaphene	280	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T4-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV06013

% Moisture: 28 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/05/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/06/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.69	U
58-89-9	gamma-BHC (Lindane)	2.4	U
319-85-7	beta-BHC	0.69	U
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.69	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	3.2	~~J~~-P-S
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	U
959-98-8	Endosulfan I	2.4	U
72-55-9	4,4'-DDE	4.6	U
60-57-1	Dieldrin	4.6	U
72-20-8	Endrin	4.6	U
72-54-8	4,4'-DDD	4.6	U
33213-65-9	Endosulfan II	4.6	U
50-29-3	4,4'-DDT	4.6	U
7421-93-4	Endrin aldehyde	4.6	U
1031-07-8	Endosulfan sulfate	4.6	U
72-43-5	Methoxychlor	24	U
53494-70-5	Endrin ketone	4.6	U
8001-35-2	Toxaphene	240	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T4-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV08016

% Moisture: 33 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/05/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/08/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.75	U
58-89-9	gamma-BHC (Lindane)	2.5	U
319-85-7	beta-BHC	0.75	U
76-44-8	Heptachlor	2.5	U
319-86-8	delta-BHC	0.75	U
309-00-2	Aldrin	2.5	U
1024-57-3	Heptachlor epoxide	2.5	U
5103-74-2	gamma-Chlordane	2.5	U
5103-71-9	alpha-Chlordane	2.5	U
959-98-8	Endosulfan I	2.5	U
72-55-9	4,4'-DDE	4.9	U
60-57-1	Dieldrin	4.9	U
72-20-8	Endrin	4.9	U
72-54-8	4,4'-DDD	4.9	U
33213-65-9	Endosulfan II	4.9	U
50-29-3	4,4'-DDT	4.9	U
7421-93-4	Endrin aldehyde	4.9	U
1031-07-8	Endosulfan sulfate	4.9	U
72-43-5	Methoxychlor	25	U
53494-70-5	Endrin ketone	4.9	U
8001-35-2	Toxaphene	250	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T5-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV07017

% Moisture: 32 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/05/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/07/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.74	U
58-89-9	gamma-BHC (Lindane)	2.5	U
319-85-7	beta-BHC	0.74	U
76-44-8	Heptachlor	2.5	U
319-86-8	delta-BHC	0.74	U
309-00-2	Aldrin	2.5	U
1024-57-3	Heptachlor epoxide	0.34	~~J~~ -P
5103-74-2	gamma-Chlordane	2.5	U
5103-71-9	alpha-Chlordane	2.5	U
959-98-8	Endosulfan I	2.5	U
72-55-9	4,4'-DDE	4.8	U
60-57-1	Dieldrin	4.8	U
72-20-8	Endrin	4.8	U
72-54-8	4,4'-DDD	4.8	U
33213-65-9	Endosulfan II	4.8	U
50-29-3	4,4'-DDT	4.8	U
7421-93-4	Endrin aldehyde	4.8	U
1031-07-8	Endosulfan sulfate	4.8	U
72-43-5	Methoxychlor	25	U
53494-70-5	Endrin ketone	4.8	U
8001-35-2	Toxaphene	250	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T5-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV06016

% Moisture: 24 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/05/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/06/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.66	U
58-89-9	gamma-BHC (Lindane)	2.2	U
319-85-7	beta-BHC	0.66	U
76-44-8	Heptachlor	2.2	U
319-86-8	delta-BHC	0.66	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	95	~~P~~ J-P-5
5103-74-2	gamma-Chlordane	2.2	U
5103-71-9	alpha-Chlordane	2.2	U
959-98-8	Endosulfan I	2.2	U
72-55-9	4,4'-DDE	4.3	U
60-57-1	Dieldrin	4.3	U
72-20-8	Endrin	4.3	U
72-54-8	4,4'-DDD	4.3	U
33213-65-9	Endosulfan II	4.3	U
50-29-3	4,4'-DDT	51	J-5
7421-93-4	Endrin aldehyde	4.3	U
1031-07-8	Endosulfan sulfate	4.3	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.3	U
8001-35-2	Toxaphene	220	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17116-7

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL069

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T5-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: JNV08017

% Moisture: 27 decanted: (Y/N) N Date Received: 11/02/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/05/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/08/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.68	U
58-89-9	gamma-BHC (Lindane)	2.3	U
319-85-7	beta-BHC	0.68	U
76-44-8	Heptachlor	2.3	U
319-86-8	delta-BHC	0.68	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	0.20	J-P
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	U
959-98-8	Endosulfan I	2.3	U
72-55-9	4,4'-DDE	4.5	U
60-57-1	Dieldrin	4.5	U
72-20-8	Endrin	4.5	U
72-54-8	4,4'-DDD	0.83	J-P
33213-65-9	Endosulfan II	4.5	U
50-29-3	4,4'-DDT	4.5	U
7421-93-4	Endrin aldehyde	4.5	U
1031-07-8	Endosulfan sulfate	4.5	U
72-43-5	Methoxychlor	23	U
53494-70-5	Endrin ketone	4.5	U
8001-35-2	Toxaphene	230	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 22, 2002
From:	Linda Sulkowski/Westford	**File:**	SO011 06105-012-201
RE:	Data Validation PCB and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL073	**CC:**	A. Mischel/Westford

SUMMARY

Limited validation was performed on the data for three soil samples analyzed for polychlorinated biphenyls (PCBs) by USEPA Method 680 and herbicides by SW-846 method 8151A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on December 11, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL073.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (*1997*)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Qualification of the data was not required.

SAMPLES

The samples included in this review are listed below:

Sample Identifications
CBS-CSF-T2-1
CBS-CSF-T3-1
CBS-CSF-T4-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results

- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identifications (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

It should be noted that sample SP-010, which was listed on the COC, was not included in the scope of this validation.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformances were not noted by the laboratory. No validation action was taken on this basis.

The samples were extracted and analyzed within the method specified holding times for both parameters

Method Blanks

Target analytes were not detected in the laboratory method blanks associated with all samples for both parameters.

Surrogate Spike Recoveries

The surrogate recoveries were within the QC acceptance limits in all sample analyses for both parameters.

LCS Results

The percent recoveries (%Rs) of the spiked target analytes were within the QC acceptance criteria in the LCSs associated with the sample analyses for both parameters.

MS/MSD Results

<u>PCB Analysis</u>

MS/MSD analyses were not performed on a sample from this SDG. Accuracy in the laboratory was demonstrated by the analysis of an LCS.

Herbicide Analysis

MS/MSD analyses were performed on sample CBS-CSF-T4-1. The %Rs and the relative percent differences (RPDs) of the spiked target analytes were within the QC acceptance limits in the MS/MSD analyses performed on this sample.

Field Duplicate Results

Field duplicate samples were not submitted with this sample set. No validation action was taken on this basis.

Compound Quantitation

Herbicide Analysis

The dual column RPD was within the QC acceptance criteria of <40%.

Quantitation Limits and Sample Results

The percent solids criterion of >50% was met for all samples.

Dilutions were not performed. Sample quantitation limits (SQLs) were affected for either parameter.

Herbicide Analysis

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18048-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL073

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T2-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC26008

% Moisture: 32 decanted: (Y/N) N Date Received: 12/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/26/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	96	U
1918-00-9	Dicamba	29	U
7085-19-0	MCPP	2900	U
94-74-6	MCPA	2900	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	25	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	150	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18048-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL073

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T3-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC26009

% Moisture: 35 decanted: (Y/N) N Date Received: 12/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/26/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	100	U
1918-00-9	Dicamba	31	U
7085-19-0	MCPP	3100	U
94-74-6	MCPA	3100	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	13	U
87-86-5	Pentachlorophenol	24	J
93-72-1	2,4,5-TP	13	U
93-76-5	2,4,5-T	13	U
94-82-6	2,4-DB	13	U
88-85-7	Dinoseb	150	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18048-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL073

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T4-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC26010

% Moisture: 27 decanted: (Y/N) N Date Received: 12/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/18/01

Concentrated Extract Volume: 10 (mL) Date Analyzed: 12/26/01

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	89	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	23	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	140	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18048-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL073

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T2-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4542

Level: (low/med) LOW Date Received: 12/12/01

% Moisture: 32 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/26/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.8	U
	Dichlorobiphenyl	4.8	U
	Trichlorobiphenyl	4.8	U
	Tetrachlorobiphenyl	9.8	U
	Pentachlorobiphenyl	9.8	U
	Hexachlorobiphenyl	9.8	U
	Heptachlorobiphenyl	15	U
	Octachlorobiphenyl	15	U
	Nonachlorobibiphenyl	24	U
	Decachlorobiphenyl	24	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18048-2

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL073

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T3-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4543

Level: (low/med) LOW Date Received: 12/12/01

% Moisture: 35 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/26/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	5.6	
	Dichlorobiphenyl	5.1	U
	Trichlorobiphenyl	7.1	
	Tetrachlorobiphenyl	77	
	Pentachlorobiphenyl	130	
	Hexachlorobiphenyl	70	
	Heptachlorobiphenyl	16	
	Octachlorobiphenyl	6.2	J
	Nonachlorobibiphenyl	13	J
	Decachlorobiphenyl	32	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18048-3

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL073

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T4-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4561

Level: (low/med) LOW Date Received: 12/12/01

% Moisture: 27 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/28/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.5	U
	Dichlorobiphenyl	4.5	U
	Trichlorobiphenyl	4.5	U
	Tetrachlorobiphenyl	9.2	U
	Pentachlorobiphenyl	9.2	U
	Hexachlorobiphenyl	9.2	U
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	23	U
	Decachlorobiphenyl	23	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 25, 2001
From:	Marcia Motta/Westford	**File:**	SO011pestMKM.doc 06105-012-201
RE:	Data Validation Pesticide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL073	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for three sediment samples analyzed for organochlorine pesticides by SW-846 method 8081A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on December 11, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah, GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL073.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
CBS-CSF-T2-1
CBS-CSF-T3-1
CBS-CSF-T4-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Blank analysis results
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Sample results

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DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports corresponded to the analytical requests designated on the COC, with the exception of sample SP-010, which was not included in the scope of this data validation effort.

It should be mentioned that the laboratory reported the full field sample identification (ID) in the "Lab Sample ID" field on the sample result pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The laboratory does not record cooler receipt temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptable range of 4°C ± 2°C). Non-conformances were not observed for this sample set.

Blank Analysis Results

Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The following table summarizes the percent recoveries (%Rs) of the surrogates decachlorobiphenyl (DCB) and tetrachloro-m-xylene (TCMX) that exceeded the QC acceptance criteria. This sample was re-extracted outside of hold time yielding similar surrogate recovery nonconformamces. Results of the initial analysis, performed within holding time, were reported by the validator. Positive results were qualified as estimated (J) for this sample.

Sample	DCB (%R) Column I/Column II	TCMX (%R) Column I/Column II
CBS-CSF-T3-1	500/715	ok/185

LCS Results

With the exception of methoxychlor, the %Rs of all spiked target analytes in the LCS were within the QC acceptance criteria. The %R of methoxychlor (173) exceeded the QC limits. Positive results for methoxychlor were qualified as estimated (J) in the associated samples.

MS/MSD Results

MS/MSD analyses were performed on sample CBS-CSF-T4-1. The following table summarizes %R and/or relative percent difference (RPD) nonconformances.

Compound	MS (%R)	MSD (%R)	RPD (%)
alpha-Chlordane	40	ok	ok
gamma-Chlordane	ok	ok	38
beta-BHC	ok	ok	37
Methoxychor	ok	ok	63

Sample results were qualified as follows:

- If the RPD exceeded the laboratory QC limit, positive results and nondetects were estimated (J/UJ).
- If the %R was below the laboratory QC limit but ≥10% positive results and nondetects were estimated (J/UJ).

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Field Duplicate Results

Field duplicates were not submitted with this sample set.

Sample Results

The RPD of the results between the two analytical columns exceeded the QC acceptance limit of 40% for various compounds. The laboratory qualified these results with a "P" and reported the lower of the two values. The "P" qualifiers were removed during validation. Positive results, which were greater than the sample quantitation limit (SQLs) for these compounds, were qualified as estimated (J).

All sample percent solids were > 50%.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18048-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL073

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T2-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IDC28009

% Moisture: 32 decanted: (Y/N) N Date Received: 12/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 12/28/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.74	U
58-89-9	gamma-BHC (Lindane)	2.5	U
319-85-7	beta-BHC	0.74	U
76-44-8	Heptachlor	2.5	U
319-86-8	delta-BHC	0.74	U
309-00-2	Aldrin	2.5	U
1024-57-3	Heptachlor epoxide	2.5	U
5103-74-2	gamma-Chlordane	2.5	U
5103-71-9	alpha-Chlordane	2.5	U
959-98-8	Endosulfan I	2.5	U
72-55-9	4,4'-DDE	4.8	U
60-57-1	Dieldrin	4.8	U
72-20-8	Endrin	4.8	U
72-54-8	4,4'-DDD	4.8	U
33213-65-9	Endosulfan II	4.8	U
50-29-3	4,4'-DDT	0.29	JP-P
7421-93-4	Endrin aldehyde	4.8	U
1031-07-8	Endosulfan sulfate	4.8	U
72-43-5	Methoxychlor	25	U
53494-70-5	Endrin ketone	4.8	U
8001-35-2	Toxaphene	250	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18048-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL073

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T3-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IDC28011

% Moisture: 35 decanted: (Y/N) N Date Received: 12/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/19/01

Concentrated Extract Volume: 5 (mL) Date Analyzed: 12/28/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.77	U
58-89-9	gamma-BHC (Lindane)	2.6	U
319-85-7	beta-BHC	3.9	J-S
76-44-8	Heptachlor	2.6	U
319-86-8	delta-BHC	0.77	U
309-00-2	Aldrin	0.23	J~~P~~-P-S
1024-57-3	Heptachlor epoxide	2.6	U
5103-74-2	gamma-Chlordane	3.8	~~P~~ J-P-S
5103-71-9	alpha-Chlordane	4.1	J-S
959-98-8	Endosulfan I	2.6	U
72-55-9	4,4'-DDE	5.1	U
60-57-1	Dieldrin	8.2	~~P~~ J-P-S
72-20-8	Endrin	5.1	U
72-54-8	4,4'-DDD	5.1	U
33213-65-9	Endosulfan II	5.1	U
50-29-3	4,4'-DDT	7.5	~~P~~ J-P-S
7421-93-4	Endrin aldehyde	5.1	U
1031-07-8	Endosulfan sulfate	4.3	J~~P~~-P-S
72-43-5	Methoxychlor	26	U
53494-70-5	Endrin ketone	5.1	U
8001-35-2	Toxaphene	260	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18048-2RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL073

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T3-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA08012

% Moisture: 35 decanted: (Y/N) N Date Received: 12/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/04/02

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/08/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.77	UJ-H
58-89-9	gamma-BHC (Lindane)	2.6	UJ-H
319-85-7	beta-BHC	0.77	UJ-H
76-44-8	Heptachlor	2.6	UJ-H
319-86-8	delta-BHC	0.77	UJ-H
309-00-2	Aldrin	2.6	UJ-H
1024-57-3	Heptachlor epoxide	2.6	UJ-H
5103-74-2	gamma-Chlordane	5.7	~~P~~ J-H J-P
5103-71-9	alpha-Chlordane	4.4	~~P~~ J-H J-P
959-98-8	Endosulfan I	2.6	UJ-H
72-55-9	4,4'-DDE	5.1	UJ-H
60-57-1	Dieldrin	9.0	~~P~~ J-H, J-P
72-20-8	Endrin	5.1	UJ-H
72-54-8	4,4'-DDD	17	J-H
33213-65-9	Endosulfan II	5.1	UJ-H
50-29-3	4,4'-DDT	24	~~P~~ J-H, J-P
7421-93-4	Endrin aldehyde	5.1	UJ-H
1031-07-8	Endosulfan sulfate	2.9	~~JP~~ J-P, J-H
72-43-5	Methoxychlor	26	UJ-H
53494-70-5	Endrin ketone	5.1	UJ-H
8001-35-2	Toxaphene	260	UJ-H

delta not reported in 4/3/02

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18048-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL073

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T4-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IDC28012

% Moisture: 27 decanted: (Y/N) N Date Received: 12/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 12/28/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.68	U
58-89-9	gamma-BHC (Lindane)	2.3	UJ-M,D
319-85-7	beta-BHC	0.68	UJ-M
76-44-8	Heptachlor	2.3	U
319-86-8	delta-BHC	0.68	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	UJ-M,D
959-98-8	Endosulfan I	2.3	U
72-55-9	4,4'-DDE	4.5	U
60-57-1	Dieldrin	4.5	U
72-20-8	Endrin	4.5	U
72-54-8	4,4'-DDD	4.5	U
33213-65-9	Endosulfan II	4.5	U
50-29-3	4,4'-DDT	4.5	U
7421-93-4	Endrin aldehyde	4.5	U
1031-07-8	Endosulfan sulfate	4.5	U
72-43-5	Methoxychlor	23	UJ-M,D
53494-70-5	Endrin ketone	4.5	U
8001-35-2	Toxaphene	230	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 18, 2002
From:	Linda Sulkowski/Westford	**File:**	SO012pphLS.doc 06105012-202
RE:	Data Validation Pesticide, PCB, and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL071	**CC:**	A. Mischel/Westford

SUMMARY

Full validation was performed on the data for eight soil samples analyzed for organochlorine (OC) pesticides by SW-846 method 8081A, polychlorinated biphenyls (PCBs) by USEPA method 680, and herbicides by SW-846 method 8151A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on November 9, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL071.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (*1997*)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were rejected (R) or were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSB-T17-C1	CBS-CSB-T17-E1
CBS-CSB-T17-E1D (Field duplicate of CBS-CSB-T17-E1)	CBS-CSB-T17-W1
CBS-CSB-T18-C1	CBS-CSB-T18-W1
CBS-CSB-T18-W1D (Field duplicate of CBS-CSB-T18-W1)	CBS-CSB-T18-E1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Gas chromatography/mass spectrometry (GC/MS) tunes
- Initial and continuing calibrations
- Pesticide instrument performance
- Method blanks
- Surrogate spike recoveries
- Internal standard performance

- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification code (ID) in the "Lab Sample ID" field on the results pages (Form 1s) in order to avoid truncating the field IDs.

It should be noted that the sample ID for sample CBS-CSB-T17-W1 on the Form 1s for all parameters was listed as CBS-CSB-T17-WI. The sample ID was manually changed by the validator to the correct ID of CBS-CSB-T17-W1.

Holding Times and Sample Preservation

OC Pesticides Analysis

The samples were extracted and analyzed within the method specified holding times.

PCB Analysis

The samples were initially extracted and analyzed within the method specified holding times. Samples CBS-CSB-T17-E1, CBS-CSB-T18-C1, and CBS-CSB-T18-W1D were re-extracted 4 days beyond the method-specified holding time of 14 days due to low surrogate recoveries. The low surrogate recoveries were confirmed by the re-extractions. Results from the initial extractions of the samples, within holding time, were reported by the validator.

Herbicide Analysis

The samples were initially extracted and analyzed within the method specified holding times. All samples were re-extracted 7 days beyond the method specified holding time of 14 days due to a low recovery of dinoseb in the LCS. The recovery of dinoseb was also below the QC acceptance criteria in the LCS associated with the re-extractions. Results from the initial extractions of the samples, within holding time, were reported by the validator.

GC/MS Tunes

PCB Analysis

The frequency and abundance of the decafluorotriphenylphosphine (DFTPP) tunes were within the QC acceptance criteria. All samples were analyzed within 12 hours from the DFTPP tune.

Initial and Continuing Calibrations

OC Pesticides Analysis

The percent relative standard deviations (%RSDs) of all target analytes were within the QC acceptance criteria in the initial calibrations associated with the sample analyses.

The continuing calibration standards were analyzed at the method required frequency of every 20 samples. The following table summarizes percent difference (%D) nonconformances in the continuing calibration standards:

Date	Compound	Column I	Column II
11/20/01	Heptachlor	-23.5	ok
	4,4'-DDD	23.9	27.6
	4,4'-DDT	-53.0	-49.5
	Endrin aldehyde	-19.4	ok
	Methoxychlor	-47.4	-39.0
Samples Affected: Post calibration for all samples except CBS-CSB-T17-E1 and CBS-CSB-T17-E1D.			

The above listed %D nonconformances were due to a high recovery of 4,4'-DDD and low recoveries of the remaining analytes in the calibration standards. 4,4'-DDD was not detected in the associated samples. Qualification of the results for 4,4'-DDD was therefore not required. Sample results for the remaining analytes listed in the table above were qualified as follows:

- If the sample result was positive and reported from the non-compliant column, the sample result was qualified as estimated (J).
- If the sample result was positive and reported from the compliant column, the sample result was accepted unqualified.
- If the sample result was non-detect, the result was estimated (UJ).

Date	Compound	Column I	Column II
11/21/01	Delta-BHC	ok	17.9
11/21/01	Endrin aldehyde	-19.3	Ok
Samples Affected: Continuing and post calibration for samples CBS-CSB-T17-E1 and CBS-CSB-T17-E1D.			

The above listed %D nonconformances were due to a high recovery of delta-BHC and a low recovery of endrin aldehyde in the calibration standards. These analytes were not detected in the associated samples. Qualification of the data was therefore not required.

PCB and Herbicide Analyses

The %RSDs and/or the correlation coefficients (r) of all target analytes were within the QC acceptance criteria in the initial calibrations associated with the sample analyses.

The continuing calibration standards were analyzed at the method required frequency of every 20 samples. The %Ds of all target analytes were within the QC acceptance criteria in the continuing calibrations associated with all sample analyses.

Instrument Performance

OC Pesticide Analysis

The DDT/endrin breakdown check standards were analyzed at the method required frequency of every 12 hours. The percent breakdown of endrin and DDT was within the QC acceptance criteria in the breakdown check standards associated with all sample analyses.

Method Blanks

Target analytes were not detected in the laboratory method blanks associated with all samples for all parameters.

Surrogate Spike Recoveries

OC Pesticide Analysis

Due to dilutions performed, surrogate recoveries were not calculable in samples CBS-CSB-T17-E1 and CBS-CSB-T17-E1D. Qualification of the data on this basis was not required.

The following table summarizes the percent recoveries (%Rs) of the surrogates which fell below the QC acceptance criteria. Target analytes were not detected in these samples. These non-detects were qualified as estimated (UJ).

Sample	%R Tetrachloro-m-xylene Column I/Column II	%R Decachlorobiphenyl Column I/Column II
CBS-CSB-T17-C1	17/19	25/ok
CBS-CSB-T17-W1	24/27	27/ok
CBS-CSB-T18-C1	21/20	ok/ok
CBS-CSB-T18-W1	23/23	ok/ok
CBS-CSB-T18-W1D	24/24	ok/ok
CBS-CSB-T18-E1	26/24	ok/ok

PCB Analysis

The following table summarizes the %Rs of the surrogates which fell below the QC acceptance criteria in the initial extraction of the samples. These samples were re-extracted beyond the holding time. The re-extracted results exhibited similar low recoveries for the surrogate. The initial extractions of the samples were reported by the validator. Positive and non-detected results in these samples were qualified as estimated (J and UJ, respectively).

Sample	%R 13C12-Decachlorobiphenyl
CBS-CSB-T18-C1	27
CBS-CSB-T18-W1D	24
CBS-CSB-T17-E1	14

Herbicide Analysis

The surrogate recoveries were within the QC acceptance limits in all sample analyses.

Internal Standard Performance

OC Pesticides

Internal standard performance met the QC acceptance criteria in all sample analyses.

PCB Analysis

The following table summarizes the internal standard recoveries which exceeded the QC acceptance criteria. It should be noted that the recoveries of the internal standards for these samples were not within the QC acceptance criteria of ± 30% of the continuing calibration standard analyzed prior to the samples. The %Rs of the internal standards in these samples were within the acceptance criteria of ± 50% of the mid-point calibration standard analyzed during the initial calibration. The laboratory did not re-analyzed these samples as required by the QAPP. Samples CBS-CSB-T17-E1, CBS-CSB-T18-C1, and CBS-CSB-T18-W1D were re-extracted due to low surrogate recoveries. The re-extracted analyses of samples CBS-CSB-T17-E1 and CBS-CSB-T18-C1 exhibited similar high recoveries of the internal standards. The initial extractions were reported by the validator.

Target analytes were not detected in samples CBS-CSB-T18-C1, CBS-CSB-T18-W1, and CBS-CSB-T17-C1. Qualification of the data on this basis was therefore not required. The positive results associated with

the non-compliant internal standards for samples CBS-CSB-T17-E1 and CBS-CSB-T17-E1D were qualified as estimated (J). The non-detected results were accepted unqualified.

Sample	%R Phenanthrene-d10	%R Chrysene-d12
CBS-CSB-T17-E1	191	178
CBS-CSB-T18-W1	149	174
CBS-CSB-T17-C1	288	291
CBS-CSB-T17-E1D	143	136
CBS-CSB-T18-C1	ok	169

LCS Results

OC Pesticides Analysis

With the following exception, the %Rs of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses. The %R of alpha-chlordane (39%) fell below the QC acceptance criteria. Alpha-chlordane was not detected in the samples. All non-detected results for alpha-chlordane were qualified as estimated (UJ).

PCB Analysis

The %Rs of the spiked target analytes were within the QC acceptance criteria in the LCSs associated with all sample analyses.

Herbicide Analysis

With the following exception, the %Rs of the spiked target analytes were within the QC acceptance criteria in the LCS associated with the initial extraction of all sample analyses. The %R of dinoseb (3%) fell below the QC acceptance criteria. Dinoseb was not detected in these samples. The samples were re-extracted beyond the holding time with a new LCS. The %R of dinoseb (14%) was below the QC acceptance criteria in the LCS associated with the re-extracted samples. Dinoseb was not detected in the re-extracted samples. It was the opinion of the validator that the non-detected results for dinoseb be qualified as estimated (UJ) and not be rejected (R) due to the very low (<10%) recovery in the initial LCS.

MS/MSD Results

MS/MSD analyses were performed on samples CBS-CSB-T18-E1 for all parameters.

OC Pesticide Analysis

The following table summarizes the %Rs and/or the relative percent differences (RPDs) of the spiked target analytes which fell outside the QC acceptance limits in the MS/MSD analyses performed on sample CBS-CSB-T18-E1. These analytes were not detected in the unspiked sample CBS-CSB-T18-E1. The non-detected results for these analytes were qualified as indicated in the table.

Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
Alpha-Chlordane	26/33	ok	UJ
4,4'-DDE	28/ok	30	UJ
Endrin	27/ok	ok	UJ
4,4'-DDT	8/15	56	R
Methoxychlor	14/23	47	UJ
Alpha-BHC	ok/ok	41	UJ
Endrin ketone	ok/26	ok	UJ
Gamma-BHC	ok/ok	74	UJ
Dieldrin	ok/ok	38	UJ

ENSR

PCB Analysis

The following table summarizes the %Rs and/or the RPDs of the spiked target analytes which fell below the QC acceptance limits in the MS/MSD analyses performed on sample CBS-CSB-T18-E1. These analytes were not detected in the unspiked sample CBS-CSB-T18-E1. The non-detected results for these analytes were qualified as indicated in the table.

Analyte	MS/MSD %R	Action
Hexachlorobiphenyl	35/32	UJ
Heptachlorobiphenyl	ok/39	UJ
Octachlorobiphenyl	ok/39	UJ

Herbicide Analysis

The following table summarizes the %Rs and/or the RPD of the spiked target analyte which fell outside the QC acceptance limits in the MS/MSD analyses performed on sample CBS-CSB-T18-E1. This analyte was not detected in the unspiked sample CBS-CSB-T18-E1. The non-detected result for this analyte was qualified as indicated in the table.

Analyte	MS/MSD %R	MS/MSD RPD (%)	Action
Dinoseb	29/14	70	UJ

Field Duplicate Results

Samples CBS-CSB-T17-E1/CBS-CSB-T17-E1D and CBS-CSB-T18-W1/CBS-CSB-T18-W1D were submitted as the field duplicate pairs with this sample set. Qualification of the data on the basis of field duplicate results is not required per Regional Guidelines. Field duplicate RPDs are informational only.

OC Pesticide Analysis

Target analytes were not detected in field duplicate pair CBS-CSB-T18-W1 and CBS-CSB-T18-W1D. The following table summarizes the RPD of the detected analytes in field duplicate pair CBS-CSB-T17-E1 and CBS-CSB-T17-E1D.

Compound	CBS-CSB-T17-E1 (µg/kg)	CBS-CSB-T17-E1D (µg/kg)	RPD (%)
Dieldrin	48	50	4.1
4,4'-DDT	160	160	0

PCB Analysis

Target analytes were not detected in field duplicate pair CBS-CSB-T18-W1 and CBS-CSB-T18-W1D. The following table summarizes the RPD of the detected analytes in field duplicate pair CBS-CSB-T17-E1 and CBS-CSB-T17-E1D. The RPDs for monochlorobiphenyls and dichlorobiphenyls were not calculable (NC) due to non-detected results in the sample.

Compound	CBS-CSB-T17-E1 (µg/kg)	CBS-CSB-T17-E1D (µg/kg)	RPD (%)
Monochlorobiphenyls	4.8 U	2.2 J	NC
Dichlorobiphenyls	4.8 U	14	NC
Trichlorobiphenyls	18	49	93
Tetrachlorobiphenyls	85	210	85
Pentachlorobiphenyls	170	680	120
Hexachlorobiphenyls	45	110	84
Heptachlorobiphenyls	19	81	124
Octachlorobiphenyls	5.1 J	23	127
Decachlorobiphenyls	16 J	51	104

Herbicide Analysis

Target analytes were not detected in field duplicate pair CBS-CSB-T18-W1 and CBS-CSB-T18-W1D. The following table summarizes the RPD of the detected analytes in field duplicate pair CBS-CSB-T17-E1 and CBS-CSB-T17-E1D. The RPDs for 2,4,5-T and 2,4,5-TP were NC due to a non-detected result in either the sample or the field duplicate.

Compound	CBS-CSB-T17-E1 (µg/kg)	CBS-CSB-T17-E1D (µg/kg)	RPD (%)
Pentachlorphenol	96	28	110
2,4,5-T	1.9 J	12 U	NC
2,4,5-TP	12 U	7.6 J	NC

Compound Quantitation

OC Pesticide Analysis

The following table summarizes the RPDs of the results between the two analytical columns which exceeded the QC acceptance criteria of <40%. The laboratory qualified these results with a "P" due to the high RPD. The "P" qualifier was removed during validation. These results were qualified as estimated (J). It should be noted that the laboratory reported the lower of the two values from the two analytical columns since there was apparent interference from co-eluting non-target peaks on the chromatograms of these samples.

Samples	Compound	RPD (%)
CBS-CSB-T17-E1	Dieldrin	92
	4,4'-DDT	48
CBS-CSB-T17-E1D	Dieldrin	95
	4,4'-DDT	55

Herbicide Analysis

The following table summarizes the RPD of the results between the two analytical columns which exceeded the QC acceptance criteria of <40%. The result for 2,4,5-T was qualified as estimated (J) by the laboratory due to quantitation below the sample quantitation limit (SQL). This result was also qualified with a "P" due to the high RPD. The "P" qualifier was removed during validation; further qualification of the result was not required. It should be noted that the laboratory reported the higher of the two values from the two analytical columns in all samples except when the %D was >40%, then the laboratory reported the lower of the two results. Since there was no apparent interference, this result was changed by the validator to the higher of the two results.

Samples	Compound	RPD (%)
CBS-CSB-T17-E1D	2,4,5-T	58

Quantitation Limits and Sample Results

Sample results were spot-checked. No discrepancies were noted.

OC Pesticide Analysis

Samples CBS-CSB-T17-E1 and CBS-CSB-T17-E1D were both analyzed at 5-fold dilution due to the concentration of target analytes which would have exceeded the calibration range if analyzed undiluted. SQLs for these samples were elevated accordingly by the laboratory.

PCB Analysis

Dilutions were not required; SQLs were therefore not affected.

ENSR

Herbicide Analysis

Dilutions were not required; SQLs were therefore not affected.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4319

Level: (low/med) LOW Date Received: 11/12/01

% Moisture: 38 decanted: (Y/N) N Date Extracted:11/16/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/04/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	5.3	U
	Dichlorobiphenyl	5.3	U
	Trichlorobiphenyl	5.3	U
	Tetrachlorobiphenyl	11	U
	Pentachlorobiphenyl	11	U
	Hexachlorobiphenyl	11	U
	Heptachlorobiphenyl	16	U
	Octachlorobiphenyl	16	U
	Nonachlorobibiphenyl	27	U
	Decachlorobiphenyl	27	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4314

Level: (low/med) LOW Date Received: 11/12/01

% Moisture: 31 decanted: (Y/N) N Date Extracted: 11/16/01

Concentrated Extract Volume: 1 (mL) Date Analyzed: 12/04/01

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.8	UJ-S
	Dichlorobiphenyl	4.8	UJ-S
	Trichlorobiphenyl	18	J-S-I
	Tetrachlorobiphenyl	85	
	Pentachlorobiphenyl	170	
	Hexachlorobiphenyl	45	
	Heptachlorobiphenyl	19	
	Octachlorobiphenyl	5.1	J-S-I
	Nonachlorobibiphenyl	24	UJ-S
	Decachlorobiphenyl	16	UJ-S

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-2RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4288

Level: (low/med) LOW Date Received: 11/12/01

% Moisture: 31 decanted: (Y/N) N Date Extracted: 11/27/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.8	U
	Dichlorobiphenyl	4.8	U
	Trichlorobiphenyl	72	
	Tetrachlorobiphenyl	300	
	Pentachlorobiphenyl	680	
	Hexachlorobiphenyl	70	
	Heptachlorobiphenyl	98	
	Octachlorobiphenyl	27	
	Nonachlorobibiphenyl	24	U
	Decachlorobiphenyl	61	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-E1D

Sample wt/vol: 30 (g/mL) G Lab File ID: K4260

Level: (low/med) LOW Date Received: 11/12/01

% Moisture: 28 decanted: (Y/N) N Date Extracted: 11/16/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	2.2	J-I
	Dichlorobiphenyl	14	J-I
	Trichlorobiphenyl	49	
	Tetrachlorobiphenyl	210	
	Pentachlorobiphenyl	680	
	Hexachlorobiphenyl	110	
	Heptachlorobiphenyl	81	
	Octachlorobiphenyl	23	
	Nonachlorobibiphenyl	23	U
	Decachlorobiphenyl	51	J-I

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-W

Sample wt/vol: 30 (g/mL) G Lab File ID: K4315

Level: (low/med) LOW Date Received: 11/12/01

% Moisture: 29 decanted: (Y/N) N Date Extracted: 11/16/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/04/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.6	U
	Dichlorobiphenyl	4.6	U
	Trichlorobiphenyl	4.6	U
	Tetrachlorobiphenyl	9.4	U
	Pentachlorobiphenyl	9.4	U
	Hexachlorobiphenyl	9.4	U
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	24	U
	Decachlorobiphenyl	24	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4262

Level: (low/med) LOW Date Received: 11/12/01

% Moisture: 26 decanted: (Y/N) N Date Extracted:11/16/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	UJ-S
	Dichlorobiphenyl	4.4	U
	Trichlorobiphenyl	4.4	U
	Tetrachlorobiphenyl	9.0	U
	Pentachlorobiphenyl	9.0	U
	Hexachlorobiphenyl	9.0	U
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-5RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4290

Level: (low/med) LOW Date Received: 11/12/01

% Moisture: 26 decanted: (Y/N) N Date Extracted: 11/27/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	U
	Dichlorobiphenyl	4.4	U
	Trichlorobiphenyl	4.4	U
	Tetrachlorobiphenyl	9.0	U
	Pentachlorobiphenyl	9.0	U
	Hexachlorobiphenyl	9.0	U
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4316

Level: (low/med) LOW Date Received: 11/12/01

% Moisture: 27 decanted: (Y/N) N Date Extracted:11/16/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/04/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.5	U
	Dichlorobiphenyl	4.5	U
	Trichlorobiphenyl	4.5	U
	Tetrachlorobiphenyl	9.2	U
	Pentachlorobiphenyl	9.2	U
	Hexachlorobiphenyl	9.2	U
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	23	U
	Decachlorobiphenyl	23	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-7

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-W1D

Sample wt/vol: 30 (g/mL) G Lab File ID: K4264

Level: (low/med) LOW Date Received: 11/12/01

% Moisture: 26 decanted: (Y/N) N Date Extracted:11/16/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	U J-S
	Dichlorobiphenyl	4.4	U
	Trichlorobiphenyl	4.4	U
	Tetrachlorobiphenyl	9.0	U
	Pentachlorobiphenyl	9.0	U
	Hexachlorobiphenyl	9.0	U
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-7RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-W1D

Sample wt/vol: 30 (g/mL) G Lab File ID: K4292

Level: (low/med) LOW Date Received: 11/12/01

% Moisture: 26 decanted: (Y/N) N Date Extracted: 11/27/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 11/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	U
	Dichlorobiphenyl	4.4	U
	Trichlorobiphenyl	4.4	U
	Tetrachlorobiphenyl	9.0	U
	Pentachlorobiphenyl	2.5	J
	Hexachlorobiphenyl	9.0	U
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-8

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4317

Level: (low/med) LOW Date Received: 11/12/01

% Moisture: 28 decanted: (Y/N) N Date Extracted:11/16/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/04/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.6	U
	Dichlorobiphenyl	4.6	U
	Trichlorobiphenyl	4.6	U
	Tetrachlorobiphenyl	9.3	U
	Pentachlorobiphenyl	9.3	U
	Hexachlorobiphenyl	9.3	UJ-M
	Heptachlorobiphenyl	14	UJ-M
	Octachlorobiphenyl	14	UJ-M
	Nonachlorobibiphenyl	23	U
	Decachlorobiphenyl	23	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV19016

% Moisture: 38 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/16/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/20/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.81	UJ-S
58-89-9	gamma-BHC (Lindane)	2.7	U
319-85-7	beta-BHC	0.81	U
76-44-8	Heptachlor	2.7	U
319-86-8	delta-BHC	0.81	U
309-00-2	Aldrin	2.7	U
1024-57-3	Heptachlor epoxide	2.7	U
5103-74-2	gamma-Chlordane	2.7	U
5103-71-9	alpha-Chlordane	2.7	UJ-S-L
959-98-8	Endosulfan I	2.7	UJ-S
72-55-9	4,4'-DDE	5.3	UJ-S
60-57-1	Dieldrin	5.3	UJ-S
72-20-8	Endrin	5.3	UJ-S
72-54-8	4,4'-DDD	5.3	UJ-S
33213-65-9	Endosulfan II	5.3	UJ-S
50-29-3	4,4'-DDT	5.3	~~U~~UJ-C-S
7421-93-4	Endrin aldehyde	5.3	UJ-S
1031-07-8	Endosulfan sulfate	5.3	UJ-S
72-43-5	Methoxychlor	27	~~U~~UJ-C-S
53494-70-5	Endrin ketone	5.3	UJ-S
8001-35-2	Toxaphene	270	UJ-S

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-4

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-W

Sample wt/vol: 30 (g/mL) G Lab File ID: INV19019

% Moisture: 29 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/16/01

Concentrated Extract Volume: 5 (mL) Date Analyzed: 11/20/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.70	UJ-S
58-89-9	gamma-BHC (Lindane)	2.4	U
319-85-7	beta-BHC	0.70	U
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.70	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	UJ-S-L
959-98-8	Endosulfan I	2.4	UJ-S
72-55-9	4,4'-DDE	4.6	U
60-57-1	Dieldrin	4.6	U
72-20-8	Endrin	4.6	U
72-54-8	4,4'-DDD	4.6	U
33213-65-9	Endosulfan II	4.6	U
50-29-3	4,4'-DDT	4.6	UJ-C-S
7421-93-4	Endrin aldehyde	4.6	UJ-S
1031-07-8	Endosulfan sulfate	4.6	UJ-S
72-43-5	Methoxychlor	24	UJ-C-S
53494-70-5	Endrin ketone	4.6	UJ-S
8001-35-2	Toxaphene	240	UJ-S

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-5

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV19020

% Moisture: 26 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/16/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/20/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.68	UJ-S
58-89-9	gamma-BHC (Lindane)	2.3	U
319-85-7	beta-BHC	0.68	U
76-44-8	Heptachlor	2.3	U
319-86-8	delta-BHC	0.68	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	UJ-S
959-98-8	Endosulfan I	2.3	UJ-S
72-55-9	4,4'-DDE	4.4	U
60-57-1	Dieldrin	4.4	U
72-20-8	Endrin	4.4	U
72-54-8	4,4'-DDD	4.4	U
33213-65-9	Endosulfan II	4.4	U
50-29-3	4,4'-DDT	4.4	UJ-C-S
7421-93-4	Endrin aldehyde	4.4	UJ-S
1031-07-8	Endosulfan sulfate	4.4	UJ-S
72-43-5	Methoxychlor	23	UJ-C-S
53494-70-5	Endrin ketone	4.4	UJ-S
8001-35-2	Toxaphene	230	UJ-S

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-6

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV19021

% Moisture: 27 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/16/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/20/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.68	UJ-S
58-89-9	gamma-BHC (Lindane)	2.3	U
319-85-7	beta-BHC	0.68	U
76-44-8	Heptachlor	2.3	U
319-86-8	delta-BHC	0.68	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	UJ-S-L
959-98-8	Endosulfan I	2.3	UJ-S
72-55-9	4,4'-DDE	4.5	U
60-57-1	Dieldrin	4.5	U
72-20-8	Endrin	4.5	U
72-54-8	4,4'-DDD	4.5	U
33213-65-9	Endosulfan II	4.5	U
50-29-3	4,4'-DDT	4.5	UJ-C+S
7421-93-4	Endrin aldehyde	4.5	UJ-S
1031-07-8	Endosulfan sulfate	4.5	UJ-S
72-43-5	Methoxychlor	23	UJ-C+S
53494-70-5	Endrin ketone	4.5	UJ-S
8001-35-2	Toxaphene	230	UJ-S

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-7

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-W1D

Sample wt/vol: 30 (g/mL) G Lab File ID: INV19022

% Moisture: 26 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/16/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/20/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.68	UJ-S
58-89-9	gamma-BHC (Lindane)	2.3	U
319-85-7	beta-BHC	0.68	U
76-44-8	Heptachlor	2.3	U
319-86-8	delta-BHC	0.68	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	UJ-S-L
959-98-8	Endosulfan I	2.3	UJ-S
72-55-9	4,4'-DDE	4.4	U
60-57-1	Dieldrin	4.4	U
72-20-8	Endrin	4.4	U
72-54-8	4,4'-DDD	4.4	U
33213-65-9	Endosulfan II	4.4	U
50-29-3	4,4'-DDT	4.4	UJ-C-S
7421-93-4	Endrin aldehyde	4.4	UJ-S
1031-07-8	Endosulfan sulfate	4.4	UJ-S
72-43-5	Methoxychlor	23	UJ-C-S
53494-70-5	Endrin ketone	4.4	UJ-S
8001-35-2	Toxaphene	230	UJ-S

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-8

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV19023

% Moisture: 28 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/16/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/20/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.69	UJ-S-M
58-89-9	gamma-BHC (Lindane)	2.4	UJ-S-M
319-85-7	beta-BHC	0.69	UJ-S
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.69	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	UJ-L-S-M
959-98-8	Endosulfan I	2.4	UJ-S
72-55-9	4,4'-DDE	4.6	UJ-S-M
60-57-1	Dieldrin	4.6	UJ-S-M
72-20-8	Endrin	4.6	UJ-S-M
72-54-8	4,4'-DDD	4.6	UJ-S
33213-65-9	Endosulfan II	4.6	UJ-S
50-29-3	4,4'-DDT	~~4.6~~	~~UJ-C-S~~ R-M
7421-93-4	Endrin aldehyde	4.6	UJ-S
1031-07-8	Endosulfan sulfate	4.6	UJ-S
72-43-5	Methoxychlor	24	UJ-C-S-M
53494-70-5	Endrin ketone	4.6	UJ-S-M
8001-35-2	Toxaphene	240	UJ-S

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-2

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: INV21012

% Moisture: 31 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/16/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/21/01

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.6	U
58-89-9	gamma-BHC (Lindane)	12	U
319-85-7	beta-BHC	3.6	U
76-44-8	Heptachlor	12	U
319-86-8	delta-BHC	3.6	U
309-00-2	Aldrin	12	U
1024-57-3	Heptachlor epoxide	12	U
5103-74-2	gamma-Chlordane	12	U
5103-71-9	alpha-Chlordane	12	UJ-L
959-98-8	Endosulfan I	12	U
72-55-9	4,4'-DDE	24	U
60-57-1	Dieldrin	48	~~P~~J-R P
72-20-8	Endrin	24	U
72-54-8	4,4'-DDD	24	U
33213-65-9	Endosulfan II	24	U
50-29-3	4,4'-DDT	160	~~P~~J-R P
7421-93-4	Endrin aldehyde	24	U
1031-07-8	Endosulfan sulfate	24	U
72-43-5	Methoxychlor	120	U
53494-70-5	Endrin ketone	24	U
8001-35-2	Toxaphene	1200	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-3

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-E1D

Sample wt/vol: 30 (g/mL) G Lab File ID: INV21013

% Moisture: 28 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/16/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/21/01

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.5	U
58-89-9	gamma-BHC (Lindane)	12	U
319-85-7	beta-BHC	3.5	U
76-44-8	Heptachlor	12	U
319-86-8	delta-BHC	3.5	U
309-00-2	Aldrin	12	U
1024-57-3	Heptachlor epoxide	12	U
5103-74-2	gamma-Chlordane	12	U
5103-71-9	alpha-Chlordane	12	U J-L
959-98-8	Endosulfan I	12	U
72-55-9	4,4'-DDE	23	U
60-57-1	Dieldrin	50	~~P~~ J-~~Q~~ P
72-20-8	Endrin	23	U
72-54-8	4,4'-DDD	23	U
33213-65-9	Endosulfan II	23	U
50-29-3	4,4'-DDT	160	~~P~~ J-~~Q~~ P
7421-93-4	Endrin aldehyde	23	U
1031-07-8	Endosulfan sulfate	23	U
72-43-5	Methoxychlor	120	U
53494-70-5	Endrin ketone	23	U
8001-35-2	Toxaphene	1200	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV21064

% Moisture: 38 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/15/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	100	U
1918-00-9	Dicamba	32	U
7085-19-0	MCPP	3200	U
94-74-6	MCPA	3200	U
120-36-5	Dichlorprop	160	U
94-75-7	2,4-D	13	U
87-86-5	Pentachlorophenol	27	U
93-72-1	2,4,5-TP	13	U
93-76-5	2,4,5-T	13	U
88-85-7	Dinoseb	160	UJ-L
94-82-6	2,4-DB	13	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV21065

% Moisture: 31 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	94	U
1918-00-9	Dicamba	29	U
7085-19-0	MCPP	2900	U
94-74-6	MCPA	2900	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	96	
93-72-1	2,4,5-TP	1.9	J
93-76-5	2,4,5-T	12	U
88-85-7	Dinoseb	140	UJ-L
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-E1D

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV21066

% Moisture: 28 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	28	
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	7.6 ~~4.2~~	~~JP~~ J-P
88-85-7	Dinoseb	140	U J-L
94-82-6	2,4-DB	12	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-W~~I~~1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV21067

% Moisture: 29 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/15/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	92	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	24	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	2.0	J
88-85-7	Dinoseb	140	UJ-L
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV21068

% Moisture: 26 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/15/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	88	U
1918-00-9	Dicamba	4.0	J
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	23	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
88-85-7	Dinoseb	140	UJ-L
94-82-6	2,4-DB	11	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV21069

% Moisture: 27 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/15/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	89	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	23	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
88-85-7	Dinoseb	140	UJ-L
94-82-6	2,4-DB	11	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-7

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-W1D

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV21070

% Moisture: 26 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/15/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/22/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	88	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	23	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
88-85-7	Dinoseb	140	UJ-L
94-82-6	2,4-DB	11	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-8

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SNV21071

% Moisture: 28 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/15/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 11/23/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	3.7	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
88-85-7	Dinoseb	140	UJ-L+M
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-1RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC06024

% Moisture: 38 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/30/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/07/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	100	U
1918-00-9	Dicamba	32	U
7085-19-0	MCPP	3200	U
94-74-6	MCPA	3200	U
120-36-5	Dichlorprop	160	U
94-75-7	2,4-D	13	U
87-86-5	Pentachlorophenol	27	U
93-72-1	2,4,5-TP	13	U
93-76-5	2,4,5-T	13	U
88-85-7	Dinoseb	160	U
94-82-6	2,4-DB	13	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-2RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC06025

% Moisture: 31 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/30/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/07/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	94	U
1918-00-9	Dicamba	29	U
7085-19-0	MCPP	2900	U
94-74-6	MCPA	2900	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	70	
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
88-85-7	Dinoseb	140	U
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-3RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-E1D

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC06026

% Moisture: 28 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/30/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/07/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	32	
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
88-85-7	Dinoseb	140	U
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-4RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T17-WI

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC06027

% Moisture: 29 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/30/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/07/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	92	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	24	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
88-85-7	Dinoseb	140	U
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-5RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC06028

% Moisture: 26 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/30/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/07/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	88	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	23	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
88-85-7	Dinoseb	140	U
94-82-6	2,4-DB	10	JP

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-6RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC06029

% Moisture: 27 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/30/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/07/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	89	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	23	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
88-85-7	Dinoseb	140	U
94-82-6	2,4-DB	11	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-7RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-W1D

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC06030

% Moisture: 26 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/30/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/07/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	88	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	23	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
88-85-7	Dinoseb	140	U
94-82-6	2,4-DB	11	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17355-8RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL071

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T18-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC06031

% Moisture: 28 decanted: (Y/N) N Date Received: 11/12/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/30/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/07/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	3.1	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
88-85-7	Dinoseb	140	U
94-82-6	2,4-DB	12	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 22, 2002
From:	Linda Sulkowski/Westford	**File:**	SO013 06105-012-201
RE:	Data Validation Pesticide, PCB, and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL072	**CC:**	A. Mischel/Westford

SUMMARY

Limited validation was performed on the data for ten soil samples analyzed for organochlorine (OC) pesticides by SW-846 method 8081A, polychlorinated biphenyls (PCBs) by USEPA Method 680, and herbicides by SW-846 method 8151A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on November 19, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL072.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (*1997*)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSB-T11-C1	CBS-CSB-T11-C1-D (field duplicate of CBS-CSB-T11-C1)
CBS-CSB-T11-W1	CBS-CSB-T11-E1
CBS-CSB-T12-C1	CBS-CSB-T12-W1
CBS-CSB-T12-E1	CBS-CSB-T13-C1
CBS-CSB-T13-W1	CBS-CSB-T13-E1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests

- Holding times and sample preservation
- Method blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identifications (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

It should be noted that sample SP008 and SP009, which were listed on the COC, were not included in the scope of this validation.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformances were not noted by the laboratory. No validation action was taken on this basis.

OC Pesticides and Herbicide Analyses

The samples were extracted and analyzed within the method specified holding times for these parameters.

PCB Analysis

All samples were extracted one day beyond the QAPP specified holding time of 14 days. Positive and non-detected results for all samples were qualified as estimated (J/UJ). All samples were analyzed within the method specified holding times.

Method Blanks

Target analytes were not detected in the laboratory method blanks associated with all samples for all parameters.

Surrogate Spike Recoveries

OC Pesticide Analysis

The following table summarizes the percent recoveries (%Rs) of the surrogates which fell outside the QC acceptance criteria. Sample results were qualified as indicated in the table.

Sample	%R Tetrachloro-m-xylene Column I/Column II	%R Decachlorobiphenyl Column I/Column II	Action Positive/Non-detects
CBS-CSB-T11-C1	23/24	ok/ok	J/UJ
CBS-CSB-T11-C1-D	ok/ok	236/218	J/Accept
CBS-CSB-T11-W1	ok/ok	240/290	J/Accept
CBS-CSB-T11-E1	ok/ok	220/180	J/Accept
CBS-CSB-T12-W1	ok/ok	ok/164	Accept
CBS-CSB-T12-E1	ok/ok	204/184	J/Accept

PCB Analysis

The surrogate recoveries were within the QC acceptance limits in all sample analyses.

Herbicide Analysis

The percent recovery of 2,4-dichlorophenylacetic acid (260%/170%) exceeded the QC acceptance criteria on both columns in the analysis of sample CBS-CSB-T12-C1. Positive results for this sample were qualified as estimated (J).

LCS Results

The %Rs of the spiked target analytes were within the QC acceptance criteria in the LCSs associated with the sample analyses for all parameters.

MS/MSD Results

OC Pesticide Analysis

MS/MSD analyses were performed on sample CBS-CSB-T13-E1. The following table summarizes the %Rs and/or the relative percent differences (RPDs) of the spiked target analytes which fell outside the QC acceptance limits in the MS/MSD analyses performed on this sample. These analytes were not detected in the unspiked sample CBS-CSB-T13-E1. The non-detected results for alpha-chlordane, dieldrin and heptachlor were qualified as estimated (UJ) in the unspiked sample. The non-detected results for delta-BHC and 4,4'-DDT were accepted unqualified in the unspiked sample.

Analyte	MS/MSD %R	(RPD) %R	QC Limits MS/MSD	QC Limits RPD
Delta-BHC	165/145	Ok	10-142	-
Alpha-Chlordane	38/43	Ok	45-140	-
4,4'-DDT	241/233	Ok	29-134	-
Heptachlor	Ok/Ok	53	-	38
Dieldrin	ok/146	Ok	28-137	-

PCB and Herbicide Analyses

MS/MSD analyses were performed on sample CBS-CSF-T13-E1. The %Rs and the RPDs of the spiked target analytes were within the QC acceptance limits in the MS/MSD analyses performed on this sample.

ENSR

Field Duplicate Results

Samples CBS-CSF-T11-C1 and CBS-CSF-T11-C1-D were submitted as the field duplicate pair with this sample set. Qualification of the data on the basis of field duplicate results is not required per regional guidelines. The RPDs provided are for informational purposes only.

OC Pesticide Analysis

The following table summarizes the RPDs of the detected analytes in field duplicate pair CBS-CSB-T11-C1/CBS-CSB-T11-C1-D. The RPDs for all analytes except gamma-BHC were not calculable (NC) due to non-detected results in either the sample or field duplicate sample.

Compound	CBS-CSB-T11-C1 (µg/kg)	CBS-CSB-T11-C1-D (µg/kg)	RPD (%)
Alpha-BHC	0.70 U	1.6	NC
Gamma-BHC	0.33	0.74	77
Beta-BHC	1.0	0.68 U	NC
Heptachlor epoxide	2.4 U	2.6	NC
Methoxychlor	24 U	1.2 J	NC
Endrin ketone	4.6 U	1.5 J	NC

PCB Analysis

The following table summarizes the RPDs of the detected analytes in field duplicate pair CBS-CSB-T11-C1/CBS-CSB-T11-C1-D.

Compound	CBS-CSB-T11-C1 (µg/kg)	CBS-CSB-T11-C1-D (µg/kg)	RPD (%)
Dichlorobiphenyls	3.8 J	5.5	37
Trichlorobiphenyls	32	140	126
Tetrachlorobiphenyls	170	490	97
Pentachlorobiphenyls	190	230	19
Hexachlorobiphenyls	41	51	22
Heptachlorobiphenyls	20	46	79
Octachlorobiphenyls	6.8 J	15	75
Nonachlorobiphenyls	15 J	20 J	29
Decachlorobiphenyls	41	55	29

Herbicide Analysis

The following table summarizes the RPDs of the detected analytes in field duplicate pair CBS-CSB-T11-C1/CBS-CSB-T11-C1-D. The RPD for dicamba was NC due to non-detected results in the field duplicate sample.

Compound	CBS-CSB-T11-C1 (µg/kg)	CBS-CSB-T11-C1-D (µg/kg)	RPD (%)
Dicamba	3.1 J	27 U	NC
Pentachlorphenol	15 J	26	54
2,4,5-T	3.0 J	10 J	108
2,4-DB	64	50	25

Quantitation Limits and Sample Results

The percent solids criterion of >50% was met for all samples.

OC Pesticide Analysis

The RPDs between the two analytical columns for several compounds exceeded the QC acceptance criteria of 40% for selected results. In these instances, the laboratory reported the lower of the two values with a "P" qualifier. During validation, the "P" qualifier was removed. The positive results above the sample quantation limit (SQL) for beta-BHC in sample CBS-CSB-T11-C1, alpha-BHC and heptachlor epoxide in sample CBS-CSB-T11-C1-D, and alpha-BHC, beta-BHC, and heptachlor epoxide in sample CBS-CSB-T11-W1 were qualified as estimated (J) due to the high RPD.

Dilutions were not performed; SQLs were therefore not affected.

PCB Analysis

Dilutions were not performed; SQLs were therefore not affected.

Herbicide Analysis

The RPDs between the two analytical columns for several compounds exceeded the QC acceptance criteria of 40% for selected results. In these instances, the laboratory reported the lower of the two values with a "P" qualifier. During validation, the "P" qualifier was removed. The positive results above the SQL for 2,4-DB in samples CBS-CSB-T11-C1-D and CBS-CSB-T12-C1 were qualified as estimated (J) due to the high RPD.

Samples CBS-CSB-T11-C1, CBS-CSB-T11-C1-D, CBS-CSB-T12-C1, and CBS-CSB-T13-C1 were analyzed at a 5-fold dilution due to the sample matrix for the compound dinoseb. Dinoseb was not detected in these samples. The SQLs for dinoseb in these samples were elevated accordingly. The samples were analyzed undiluted for the remaining herbicide compounds. SQLs for these compounds were not affected.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC04032

% Moisture: 29 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/05/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	92	U
1918-00-9	Dicamba	3.1	J~~Y~~-P
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	15	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	3.0	J~~Y~~-P
94-82-6	2,4-DB	64	

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-1RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC10007

% Moisture: 29 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/10/01

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	700	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-C1-D

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC04033

% Moisture: 27 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 10 (mL) Date Analyzed: 12/05/01

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	89	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	26	
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	10	J~~P~~-P
94-82-6	2,4-DB	50	~~P~~ J-P

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-2RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-C1-D

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC10008

% Moisture: 27 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/10/01

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	680	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC04034

% Moisture: 21 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/05/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	82	U
1918-00-9	Dicamba	2.8	J~~P~~-P
7085-19-0	MCPP	2500	U
94-74-6	MCPA	2500	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	10	U
87-86-5	Pentachlorophenol	31	
93-72-1	2,4,5-TP	10	U
93-76-5	2,4,5-T	10	U
94-82-6	2,4-DB	10	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-3RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC06046

% Moisture: 21 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/07/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	130	U

FORM I SG

FORM I
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC04035

% Moisture: 18 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/05/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	79	U
1918-00-9	Dicamba	1.6	J~~P~~-P
7085-19-0	MCPP	2400	U
94-74-6	MCPA	2400	U
120-36-5	Dichlorprop	120	U
94-75-7	2,4-D	10	U
87-86-5	Pentachlorophenol	9.0	J
93-72-1	2,4,5-TP	2.0	J
93-76-5	2,4,5-T	10	U
94-82-6	2,4-DB	10	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-4RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC06047

% Moisture: 18 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/07/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	120	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T12-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC04044

% Moisture: 33 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/05/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	97	U
1918-00-9	Dicamba	30	U
7085-19-0	MCPP	3000	U
94-74-6	MCPA	3000	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	3.6	J-S
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	JP-S-P
94-82-6	2,4-DB	36	P J-S-P

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-5RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T12-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC10009

% Moisture: 33 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/10/01

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	750	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T12-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC11005

% Moisture: 24 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/11/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	86	U
1918-00-9	Dicamba	26	U
7085-19-0	MCPP	2600	U
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	21	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-6RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T12-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC06049

% Moisture: 24 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/07/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	130	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-7

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T12-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC04038

% Moisture: 15 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/05/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	76	U
1918-00-9	Dicamba	24	U
7085-19-0	MCPP	2400	U
94-74-6	MCPA	2400	U
120-36-5	Dichlorprop	120	U
94-75-7	2,4-D	9.8	U
87-86-5	Pentachlorophenol	7.0	J
93-72-1	2,4,5-TP	1.4	J
93-76-5	2,4,5-T	9.8	U
94-82-6	2,4-DB	9.8	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-7RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T12-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC06050

% Moisture: 15 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/07/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	120	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-8

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T13-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC04039

% Moisture: 28 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/05/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	24	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	3.9	J~~P~~-P
94-82-6	2,4-DB	12	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-8RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T13-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC10010

% Moisture: 28 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/10/01

Injection Volume: 1.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	690	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-9

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T13-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC04040

% Moisture: 26 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/05/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	88	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	3.7	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-9RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T13-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC06052

% Moisture: 26 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/07/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	140	U

FORM I SG

FORM I
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-10

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T13-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC04041

% Moisture: 15 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/05/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	41	J
1918-00-9	Dicamba	24	U
7085-19-0	MCPP	2400	U
94-74-6	MCPA	2400	U
120-36-5	Dichlorprop	120	U
94-75-7	2,4-D	9.8	U
87-86-5	Pentachlorophenol	10	J
93-72-1	2,4,5-TP	9.8	U
93-76-5	2,4,5-T	9.8	U
94-82-6	2,4-DB	9.8	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-10RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T13-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC06053

% Moisture: 15 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:11/26/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 12/07/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	120	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-1

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: MNV30028

% Moisture: 29 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/30/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.70	UJ-S
58-89-9	gamma-BHC (Lindane)	0.33	JP-S-P
319-85-7	beta-BHC	1.0	PJ-S-P
76-44-8	Heptachlor	2.4	UJ-S
319-86-8	delta-BHC	0.70	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	U
959-98-8	Endosulfan I	2.4	U
72-55-9	4,4'-DDE	4.6	U
60-57-1	Dieldrin	4.6	U
72-20-8	Endrin	4.6	U
72-54-8	4,4'-DDD	4.6	U
33213-65-9	Endosulfan II	4.6	U
50-29-3	4,4'-DDT	4.6	U
7421-93-4	Endrin aldehyde	4.6	U
1031-07-8	Endosulfan sulfate	4.6	U
72-43-5	Methoxychlor	24	U
53494-70-5	Endrin ketone	4.6	U
8001-35-2	Toxaphene	240	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-2

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-C1-D

Sample wt/vol: 30 (g/mL) G Lab File ID: MNV30029

% Moisture: 27 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/30/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.6	~~P~~ J-S-P
58-89-9	gamma-BHC (Lindane)	0.74	~~JP~~ J-S-P
319-85-7	beta-BHC	0.68	U
76-44-8	Heptachlor	2.3	U
319-86-8	delta-BHC	0.68	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.6	~~P~~ J-S-P
5103-74-2	gamma-Chlordane	2.3	~~UJ~~ U
5103-71-9	alpha-Chlordane	2.3	U
959-98-8	Endosulfan I	2.3	U
72-55-9	4,4'-DDE	4.5	U
60-57-1	Dieldrin	4.5	U
72-20-8	Endrin	4.5	U
72-54-8	4,4'-DDD	4.5	U
33213-65-9	Endosulfan II	4.5	U
50-29-3	4,4'-DDT	4.5	U
7421-93-4	Endrin aldehyde	4.5	U
1031-07-8	Endosulfan sulfate	4.5	U
72-43-5	Methoxychlor	1.2	~~JP~~ J-S-P
53494-70-5	Endrin ketone	1.5	J-S
8001-35-2	Toxaphene	230	~~UJ~~ S-U

FORM I
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-3

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: MNV30030

% Moisture: 21 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 11/30/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.68	~~P~~ J-S-P
58-89-9	gamma-BHC (Lindane)	0.82	~~JP~~ J-S-P
319-85-7	beta-BHC	2.0	~~P~~ J-S-P
76-44-8	Heptachlor	2.2	U
319-86-8	delta-BHC	0.63	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.7	~~P~~ J-S-P
5103-74-2	gamma-Chlordane	0.44	~~JP~~ J-S-P
5103-71-9	alpha-Chlordane	2.2	U
959-98-8	Endosulfan I	2.2	U
72-55-9	4,4'-DDE	4.2	U
60-57-1	Dieldrin	4.2	U
72-20-8	Endrin	4.2	U
72-54-8	4,4'-DDD	4.2	U
33213-65-9	Endosulfan II	4.2	U
50-29-3	4,4'-DDT	4.2	U
7421-93-4	Endrin aldehyde	4.2	U
1031-07-8	Endosulfan sulfate	4.2	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.2	U
8001-35-2	Toxaphene	220	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-4

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: MNV30031

% Moisture: 18 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 12/01/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.61	U
58-89-9	gamma-BHC (Lindane)	0.30	~~JP~~ J-S-P
319-85-7	beta-BHC	0.61	U
76-44-8	Heptachlor	2.1	U
319-86-8	delta-BHC	0.61	U
309-00-2	Aldrin	2.1	U
1024-57-3	Heptachlor epoxide	1.3	~~JP~~ J-S-P
5103-74-2	gamma-Chlordane	2.1	U
5103-71-9	alpha-Chlordane	2.1	U
959-98-8	Endosulfan I	2.1	U
72-55-9	4,4'-DDE	4.0	U
60-57-1	Dieldrin	4.0	U
72-20-8	Endrin	4.0	U
72-54-8	4,4'-DDD	4.0	U
33213-65-9	Endosulfan II	4.0	U
50-29-3	4,4'-DDT	4.0	U
7421-93-4	Endrin aldehyde	4.0	U
1031-07-8	Endosulfan sulfate	4.0	U
72-43-5	Methoxychlor	21	U
53494-70-5	Endrin ketone	4.0	U
8001-35-2	Toxaphene	210	U

FORM I
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-5

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T12-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: MNV30032

% Moisture: 33 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 12/01/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.75	U
58-89-9	gamma-BHC (Lindane)	0.41	J~~P~~-P
319-85-7	beta-BHC	0.75	U
76-44-8	Heptachlor	2.5	U
319-86-8	delta-BHC	0.75	U
309-00-2	Aldrin	2.5	U
1024-57-3	Heptachlor epoxide	2.5	U
5103-74-2	gamma-Chlordane	2.5	U
5103-71-9	alpha-Chlordane	2.5	U
959-98-8	Endosulfan I	2.5	U
72-55-9	4,4'-DDE	4.9	U
60-57-1	Dieldrin	4.9	U
72-20-8	Endrin	4.9	U
72-54-8	4,4'-DDD	4.9	U
33213-65-9	Endosulfan II	4.9	U
50-29-3	4,4'-DDT	4.9	U
7421-93-4	Endrin aldehyde	4.9	U
1031-07-8	Endosulfan sulfate	4.9	U
72-43-5	Methoxychlor	25	U
53494-70-5	Endrin ketone	4.9	U
8001-35-2	Toxaphene	250	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-6

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T12-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: MNV30033

% Moisture: 24 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 12/01/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.30	~~JP~~ J-SP
58-89-9	gamma-BHC (Lindane)	0.84	~~JP~~ J-SP
319-85-7	beta-BHC	0.66	U
76-44-8	Heptachlor	2.2	U
319-86-8	delta-BHC	0.66	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	1.7	~~JP~~ J-SP
5103-74-2	gamma-Chlordane	2.2	U
5103-71-9	alpha-Chlordane	2.2	U
959-98-8	Endosulfan I	2.2	U
72-55-9	4,4'-DDE	4.3	U
60-57-1	Dieldrin	4.3	U
72-20-8	Endrin	4.3	U
72-54-8	4,4'-DDD	4.3	U
33213-65-9	Endosulfan II	4.3	U
50-29-3	4,4'-DDT	4.3	U
7421-93-4	Endrin aldehyde	4.3	U
1031-07-8	Endosulfan sulfate	4.3	U
72-43-5	Methoxychlor	6.6	~~JP~~ J-SP
53494-70-5	Endrin ketone	0.64	~~JP~~ J-SP
8001-35-2	Toxaphene	220	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-7

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T12-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: MNV30034

% Moisture: 15 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 12/01/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.087	~~JP~~ J-S-P
58-89-9	gamma-BHC (Lindane)	0.47	~~JP~~ J-S-P
319-85-7	beta-BHC	0.59	U
76-44-8	Heptachlor	2.0	U
319-86-8	delta-BHC	0.59	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	1.6	~~JP~~ J-S-P
5103-74-2	gamma-Chlordane	0.34	~~JP~~ J-S-P
5103-71-9	alpha-Chlordane	2.0	U
959-98-8	Endosulfan I	2.0	U
72-55-9	4,4'-DDE	3.9	U
60-57-1	Dieldrin	3.9	U
72-20-8	Endrin	3.9	U
72-54-8	4,4'-DDD	3.9	U
33213-65-9	Endosulfan II	3.9	U
50-29-3	4,4'-DDT	3.9	U
7421-93-4	Endrin aldehyde	3.9	U
1031-07-8	Endosulfan sulfate	3.9	U
72-43-5	Methoxychlor	20	U
53494-70-5	Endrin ketone	3.9	U
8001-35-2	Toxaphene	200	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-8

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T13-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: MNV30035

% Moisture: 28 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 12/01/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.69	U
58-89-9	gamma-BHC (Lindane)	2.4	U
319-85-7	beta-BHC	0.69	U
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.69	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	U
959-98-8	Endosulfan I	2.4	U
72-55-9	4,4'-DDE	4.6	U
60-57-1	Dieldrin	4.6	U
72-20-8	Endrin	4.6	U
72-54-8	4,4'-DDD	4.6	U
33213-65-9	Endosulfan II	4.6	U
50-29-3	4,4'-DDT	4.6	U
7421-93-4	Endrin aldehyde	4.6	U
1031-07-8	Endosulfan sulfate	4.6	U
72-43-5	Methoxychlor	24	U
53494-70-5	Endrin ketone	0.73	J~~Y~~-P
8001-35-2	Toxaphene	240	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-9

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T13-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: MNV30036

% Moisture: 26 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 12/01/01

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.68	U
58-89-9	gamma-BHC (Lindane)	0.40	JP-P
319-85-7	beta-BHC	0.92	
76-44-8	Heptachlor	2.3	U
319-86-8	delta-BHC	0.68	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	U
959-98-8	Endosulfan I	2.3	U
72-55-9	4,4'-DDE	4.4	U
60-57-1	Dieldrin	4.4	U
72-20-8	Endrin	4.4	U
72-54-8	4,4'-DDD	4.4	U
33213-65-9	Endosulfan II	4.4	U
50-29-3	4,4'-DDT	4.4	U
7421-93-4	Endrin aldehyde	4.4	U
1031-07-8	Endosulfan sulfate	4.4	U
72-43-5	Methoxychlor	23	U
53494-70-5	Endrin ketone	4.4	U
8001-35-2	Toxaphene	230	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-10

Lab Name: Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T13-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: MNV30037

% Moisture: 15 decanted: (Y/N) N Date Received: 11/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 11/26/01

Concentrated Extract Volume: 5 (mL) Date Analyzed: 12/01/01

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.59	U
58-89-9	gamma-BHC (Lindane)	2.0	U
319-85-7	beta-BHC	0.59	U
76-44-8	Heptachlor	2.0	UJ-M
319-86-8	delta-BHC	0.59	U
309-00-2	Aldrin	2.0	U
1024-57-3	Heptachlor epoxide	2.0	U
5103-74-2	gamma-Chlordane	2.0	U
5103-71-9	alpha-Chlordane	2.0	UJ-M
959-98-8	Endosulfan I	2.0	U
72-55-9	4,4'-DDE	3.9	U
60-57-1	Dieldrin	3.9	U
72-20-8	Endrin	3.9	U
72-54-8	4,4'-DDD	3.9	U
33213-65-9	Endosulfan II	3.9	U
50-29-3	4,4'-DDT	3.9	U
7421-93-4	Endrin aldehyde	3.9	U
1031-07-8	Endosulfan sulfate	3.9	U
72-43-5	Methoxychlor	0.55	J-P
53494-70-5	Endrin ketone	3.9	U
8001-35-2	Toxaphene	200	U

FORM I
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4322

Level: (low/med) LOW Date Received: 11/20/01

% Moisture: 29 decanted: (Y/N) N Date Extracted: 12/04/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/05/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.6	UJ-H
	Dichlorobiphenyl	3.8	J-H
	Trichlorobiphenyl	32	J-H
	Tetrachlorobiphenyl	170	
	Pentachlorobiphenyl	190	
	Hexachlorobiphenyl	41	
	Heptachlorobiphenyl	20	
	Octachlorobiphenyl	6.8	J-H
	Nonachlorobibiphenyl	15	J-H
	Decachlorobiphenyl	41	J-H

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-C1-D

Sample wt/vol: 30 (g/mL) G Lab File ID: K4323

Level: (low/med) LOW Date Received: 11/20/01

% Moisture: 27 decanted: (Y/N) N Date Extracted:12/04/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/05/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.5	UJ-H
	Dichlorobiphenyl	5.5	J-H
	Trichlorobiphenyl	140	
	Tetrachlorobiphenyl	490	
	Pentachlorobiphenyl	230	
	Hexachlorobiphenyl	51	
	Heptachlorobiphenyl	46	
	Octachlorobiphenyl	15	
	Nonachlorobibiphenyl	20	J-H
	Decachlorobiphenyl	55	J-H

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4324

Level: (low/med) LOW Date Received: 11/20/01

% Moisture: 21 decanted: (Y/N) N Date Extracted: 12/04/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/05/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.2	UJ-H
	Dichlorobiphenyl	4.2	UJ-H
	Trichlorobiphenyl	20	J-H
	Tetrachlorobiphenyl	130	
	Pentachlorobiphenyl	110	
	Hexachlorobiphenyl	12	
	Heptachlorobiphenyl	15	
	Octachlorobiphenyl	3.4	J-H
	Nonachlorobibiphenyl	21	UJ-H
	Decachlorobiphenyl	8.8	J-H

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T11-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4325

Level: (low/med) LOW Date Received: 11/20/01

% Moisture: 18 decanted: (Y/N) N Date Extracted: 12/04/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/05/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.0	UJ-H
	Dichlorobiphenyl	4.0	UJ-H
	Trichlorobiphenyl	4.3	J-H
	Tetrachlorobiphenyl	20	
	Pentachlorobiphenyl	34	
	Hexachlorobiphenyl	9.7	
	Heptachlorobiphenyl	12	UJ-H
	Octachlorobiphenyl	12	UJ-H
	Nonachlorobibiphenyl	5.1	J-H
	Decachlorobiphenyl	8.0	J-H

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T12-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4340

Level: (low/med) LOW Date Received: 11/20/01

% Moisture: 33 decanted: (Y/N) N Date Extracted: 12/04/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/06/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.9	UJ-H
	Dichlorobiphenyl	7.5	J-H
	Trichlorobiphenyl	23	J-H
	Tetrachlorobiphenyl	10	UJ-H
	Pentachlorobiphenyl	1.4	J-H
	Hexachlorobiphenyl	10	UJ-H
	Heptachlorobiphenyl	15	U
	Octachlorobiphenyl	15	U
	Nonachlorobibiphenyl	25	U
	Decachlorobiphenyl	25	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T12-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4336

Level: (low/med) LOW Date Received: 11/20/01

% Moisture: 24 decanted: (Y/N) N Date Extracted: 12/04/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/06/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.3	UJ-H
	Dichlorobiphenyl	4.3	UJ-H
	Trichlorobiphenyl	17	J-H
	Tetrachlorobiphenyl	87	
	Pentachlorobiphenyl	35	
	Hexachlorobiphenyl	15	
	Heptachlorobiphenyl	13	UJ-H
	Octachlorobiphenyl	13	UJ-H
	Nonachlorobibiphenyl	22	UJ-H
	Decachlorobiphenyl	5.6	J-H

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-7

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T12-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4328

Level: (low/med) LOW Date Received: 11/20/01

% Moisture: 15 decanted: (Y/N) N Date Extracted: 12/04/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/05/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	3.9	UJ-H
	Dichlorobiphenyl	3.9	UJ-H
	Trichlorobiphenyl	7.0	J-H
	Tetrachlorobiphenyl	46	
	Pentachlorobiphenyl	44	
	Hexachlorobiphenyl	15	
	Heptachlorobiphenyl	12	UJ-H
	Octachlorobiphenyl	1.1	J-H
	Nonachlorobibiphenyl	6.3	J-H
	Decachlorobiphenyl	10	J-H

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-8

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T13-C1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4337

Level: (low/med) LOW Date Received: 11/20/01

% Moisture: 28 decanted: (Y/N) N Date Extracted: 12/04/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/06/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	----------Monochlorobiphenyl_____	4.6	UJ-H
	----------Dichlorobiphenyl_____	4.6	U
	----------Trichlorobiphenyl_____	4.6	U
	----------Tetrachlorobiphenyl_____	9.3	U
	----------Pentachlorobiphenyl_____	9.3	U
	----------Hexachlorobiphenyl_____	9.3	U
	----------Heptachlorobiphenyl_____	14	U
	----------Octachlorobiphenyl_____	14	U
	----------Nonachlorobibiphenyl_____	23	U
	----------Decachlorobiphenyl_____	23	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-9

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T13-W1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4342

Level: (low/med) LOW Date Received: 11/20/01

% Moisture: 26 decanted: (Y/N) N Date Extracted: 12/04/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/06/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	UJ-H
	Dichlorobiphenyl	4.4	UJ-H
	Trichlorobiphenyl	2.8	J-H
	Tetrachlorobiphenyl	19	J-H
	Pentachlorobiphenyl	13	J-H
	Hexachlorobiphenyl	4.0	J-H
	Heptachlorobiphenyl	14	UJ-H
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

17553-10

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL072

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T13-E1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4331

Level: (low/med) LOW Date Received: 11/20/01

% Moisture: 15 decanted: (Y/N) N Date Extracted: 12/04/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/05/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	3.9	UJ-H
	Dichlorobiphenyl	3.9	UJ-H
	Trichlorobiphenyl	1.6	J-H
	Tetrachlorobiphenyl	9.3	J-H
	Pentachlorobiphenyl	14	J-H
	Hexachlorobiphenyl	4.6	J-H
	Heptachlorobiphenyl	12	UJ-H
	Octachlorobiphenyl	12	U
	Nonachlorobibiphenyl	20	U
	Decachlorobiphenyl	20	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 25, 2002
From:	Linda Sulkowski/Westford	**File:**	SO014 06105-012-201
RE:	Data Validation PCB and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL074	**CC:**	A. Mischel/Westford

SUMMARY

Limited validation was performed on the data for 16 soil samples analyzed for polychlorinated biphenyls (PCBs) by USEPA Method 680 and herbicides by SW-846 method 8151A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on December 12-13, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah GA for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL074.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (*1997*)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSD-T1-1	CBS-CSD-T2-1
CBS-CSD-T3-1	CBS-CSD-T4-1
CBS-CSD-T5-1	CBS-CSD-T6-1
CBS-CSC-T1-1	CBS-CSC-T2-1
CBS-CSC-T3-1	CBS-CSC-T4-1
CBS-CSC-T4-1-FD (field duplicate of CBS-CSC-T4-1)	CBS-CSC-T5-1
CBS-CSC-T6-1	CBS-CSC-T7-1
CBS-CSC-T8-1	CBS-CSC-T9-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks

- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformances were not noted by the laboratory. No validation action was taken on this basis.

The samples were extracted and analyzed within the method specified holding times for both parameters.

Method Blanks/Equipment Blank

There was no equipment blank submitted with this sample set. There was no validation action taken on this basis.

Target analytes were not detected in the laboratory method blanks associated with all samples for both parameters.

Surrogate Spike Recoveries

PCB Analysis

The surrogate recoveries were within the QC acceptance limits in all sample analyses .

Herbicide Analysis

The percent recovery (%R) of the surrogate 2,4-dichlorophenylacetic acid (240%) exceeded the QC acceptance criteria on Column I in the analysis of sample CBS-CSD-T2-1. Positive results were qualified as estimated (J) in this sample.

The %R of the surrogate 2,4-dichlorophenylacetic acid (28%) fell below the QC acceptance criteria on Column II in the analysis of sample CBS-CSD-T6-1. Positive and non-detected results were qualified as estimated (J/UJ) in this sample.

LCS Results

The percent recoveries (%Rs) of the spiked target analytes were within the QC acceptance criteria in the LCSs associated with all sample analyses for both parameters.

MS/MSD Results

PCB Analysis

MS/MSD analyses were performed on sample CBS-CSD-T5-1. The %Rs and the relative percent differences (RPDs) of the detected analytes were all within the QC acceptance criteria.

Herbicide Analysis

MS/MSD analyses were performed on a sample from another SDG. Accuracy in the laboratory was demonstrated by the analysis of an LCS.

Field Duplicate Results

Samples CBS-CSC-T4-1 and CBS-CSC-T4-1-FD were submitted as the field duplicate pair with this sample set. Qualification of the data on the basis of field duplicate results was not required per Regional Guidelines.

PCB Analysis

The following table summarizes the RPDs of the detected analytes in field duplicate pair CBS-CSC-T4-1 and CBS-CSC-T4-1-FD. The RPDs of tetrachlorobiphenyls and decachlorobiphenyls were not calculable (NC) due to non-detect results in the sample.

Compound	CBS-CSC-T4-1 (µg/kg)	CBS-CSC-T4-1-FD (µg/kg)	RPD (%)
Tetrachlorobiphenyls	10 U	6.8 J	NC
Pentachlorobiphenyls	5.9 J	32	138
Hexachlorobiphenyls	3.4 J	15	126
Decachlorobiphenyl	25 U	8.9 J	NC

Herbicide Analysis

The following table summarizes the RPD of the detected analyte in field duplicate pair CBS-CSC-T4-1/CBS-CSC-T4-1-FD.

Compound	CBS-CSC-T4-1 (µg/kg)	CBS-CSC-T4-1-FD (µg/kg)	RPD (%)
Pentachlorphenol	3.8 J	4.0 J	5.1

Quantitation Limits and Sample Results

The percent solid criterion was met for all samples.

PCB Analysis

Dilutions were not performed. Sample quantitation limits (SQLs) were therefore not affected.

Herbicide Analysis

The RPDs between the two analytical columns for several compounds exceeded the QC acceptance criteria of 40% for selected results. In these instances, the laboratory reported the lower of the two values with a "P" qualifier. During validation, the "P" qualifier was removed.

Dilutions were not performed. SQLs were therefore not affected.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18127-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSD-T1-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31026

% Moisture: 33 decanted: (Y/N) N Date Received: 12/13/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	97	U
1918-00-9	Dicamba	30	U
7085-19-0	MCPP	3000	U
94-74-6	MCPA	3000	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	3.2	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	5.4	J
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	150	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18127-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSD-T2-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31027

% Moisture: 34 decanted: (Y/N) N Date Received: 12/13/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	50	~~JP~~ J-S-P
1918-00-9	Dicamba	30	U
7085-19-0	MCPP	3000	U
94-74-6	MCPA	3000	U
120-36-5	Dichlorprop	21	J-S
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	13	J-S
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	150	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18127-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSD-T3-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31028

% Moisture: 30 decanted: (Y/N) N Date Received: 12/13/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	93	U
1918-00-9	Dicamba	1.8	J~~P~~-P
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	2.4	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18127-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSD-T4-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31029

% Moisture: 33 decanted: (Y/N) N Date Received: 12/13/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	97	U
1918-00-9	Dicamba	30	U
7085-19-0	MCPP	3000	U
94-74-6	MCPA	3000	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	3.3	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	150	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18127-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSD-T5-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31030

% Moisture: 27 decanted: (Y/N) N Date Received: 12/13/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	89	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	23	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18127-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSD-T6-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31031

% Moisture: 31 decanted: (Y/N) N Date Received: 12/13/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	94	UJ-S
1918-00-9	Dicamba	29	U
7085-19-0	MCPP	2900	U
94-74-6	MCPA	2900	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	8.0	J-S
93-72-1	2,4,5-TP	12	UJ-S
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T1-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31016

% Moisture: 27 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	89	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	6.2	J
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	23	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T2-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31017

% Moisture: 30 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	93	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	3.8	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T3-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31018

% Moisture: 35 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	100	U
1918-00-9	Dicamba	31	U
7085-19-0	MCPP	3100	U
94-74-6	MCPA	3100	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	13	U
87-86-5	Pentachlorophenol	3.0	J
93-72-1	2,4,5-TP	13	U
93-76-5	2,4,5-T	13	U
94-82-6	2,4-DB	13	U
88-85-7	Dinoseb	150	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T4-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31019

% Moisture: 33 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	97	U
1918-00-9	Dicamba	30	U
7085-19-0	MCPP	3000	U
94-74-6	MCPA	3000	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	3.8	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	150	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T4-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31020

% Moisture: 34 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	98	U
1918-00-9	Dicamba	30	U
7085-19-0	MCPP	3000	U
94-74-6	MCPA	3000	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	4.0	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	150	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T5-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31021

% Moisture: 36 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	100	U
1918-00-9	Dicamba	31	U
7085-19-0	MCPP	3100	U
94-74-6	MCPA	3100	U
120-36-5	Dichlorprop	160	U
94-75-7	2,4-D	13	U
87-86-5	Pentachlorophenol	26	U
93-72-1	2,4,5-TP	13	U
93-76-5	2,4,5-T	13	U
94-82-6	2,4-DB	13	U
88-85-7	Dinoseb	160	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-7

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T6-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31022

% Moisture: 37 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	100	U
1918-00-9	Dicamba	32	U
7085-19-0	MCPP	3200	U
94-74-6	MCPA	3200	U
120-36-5	Dichlorprop	160	U
94-75-7	2,4-D	13	U
87-86-5	Pentachlorophenol	14	J
93-72-1	2,4,5-TP	13	U
93-76-5	2,4,5-T	13	U
94-82-6	2,4-DB	13	U
88-85-7	Dinoseb	160	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-8

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T7-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31023

% Moisture: 32 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	96	U
1918-00-9	Dicamba	29	U
7085-19-0	MCPP	2900	U
94-74-6	MCPA	2900	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	1.7	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	150	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-9

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T8-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31024

% Moisture: 33 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	97	U
1918-00-9	Dicamba	6.6	J
7085-19-0	MCPP	3000	U
94-74-6	MCPA	3000	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	2.0	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	150	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-10

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: 8082 SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T9-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31025

% Moisture: 26 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/18/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/01/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	88	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	1.6	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	140	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T1-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4573

Level: (low/med) LOW Date Received: 12/14/01

% Moisture: 27 decanted: (Y/N) N Date Extracted:12/26/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/28/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	----------Monochlorobiphenyl_____	4.5	U
	----------Dichlorobiphenyl_____	4.5	U
	----------Trichlorobiphenyl_____	4.5	U
	----------Tetrachlorobiphenyl_____	9.2	U
	----------Pentachlorobiphenyl_____	1.1	J
	----------Hexachlorobiphenyl_____	9.2	U
	----------Heptachlorobiphenyl_____	14	U
	----------Octachlorobiphenyl_____	14	U
	----------Nonachlorobibiphenyl_____	23	U
	----------Decachlorobiphenyl_____	23	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-2

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T2-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4581

Level: (low/med) LOW Date Received: 12/14/01

% Moisture: 30 decanted: (Y/N) N Date Extracted:12/26/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	1.4	J
	Dichlorobiphenyl	7.9	
	Trichlorobiphenyl	4.9	
	Tetrachlorobiphenyl	30	
	Pentachlorobiphenyl	27	
	Hexachlorobiphenyl	38	
	Heptachlorobiphenyl	18	
	Octachlorobiphenyl	11	J
	Nonachlorobibiphenyl	11	J
	Decachlorobiphenyl	29	

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-3

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T3-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4582

Level: (low/med) LOW Date Received: 12/14/01

% Moisture: 35 decanted: (Y/N) N Date Extracted:12/26/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	5.1	U
	Dichlorobiphenyl	5.1	U
	Trichlorobiphenyl	5.1	U
	Tetrachlorobiphenyl	10	U
	Pentachlorobiphenyl	2.9	J
	Hexachlorobiphenyl	10	U
	Heptachlorobiphenyl	15	U
	Octachlorobiphenyl	15	U
	Nonachlorobibiphenyl	26	U
	Decachlorobiphenyl	26	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-4

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T4-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4583

Level: (low/med) LOW Date Received: 12/14/01

% Moisture: 33 decanted: (Y/N) N Date Extracted:12/26/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.9	U
	Dichlorobiphenyl	4.9	U
	Trichlorobiphenyl	4.9	U
	Tetrachlorobiphenyl	10	U
	Pentachlorobiphenyl	5.9	J
	Hexachlorobiphenyl	3.4	J
	Heptachlorobiphenyl	15	U
	Octachlorobiphenyl	15	U
	Nonachlorobibiphenyl	25	U
	Decachlorobiphenyl	25	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-5

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T4-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: K4584

Level: (low/med) LOW Date Received: 12/14/01

% Moisture: 34 decanted: (Y/N) N Date Extracted:12/26/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	5.0	U
	Dichlorobiphenyl	5.0	U
	Trichlorobiphenyl	5.0	U
	Tetrachlorobiphenyl	6.8	J
	Pentachlorobiphenyl	32	
	Hexachlorobiphenyl	15	
	Heptachlorobiphenyl	15	U
	Octachlorobiphenyl	15	U
	Nonachlorobibiphenyl	25	U
	Decachlorobiphenyl	8.9	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-6

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T5-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4585

Level: (low/med) LOW Date Received: 12/14/01

% Moisture: 36 decanted: (Y/N) N Date Extracted: 12/26/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	5.2	U
	Dichlorobiphenyl	5.2	U
	Trichlorobiphenyl	5.2	U
	Tetrachlorobiphenyl	10	U
	Pentachlorobiphenyl	10	U
	Hexachlorobiphenyl	10	U
	Heptachlorobiphenyl	16	U
	Octachlorobiphenyl	16	U
	Nonachlorobibiphenyl	26	U
	Decachlorobiphenyl	26	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-7

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T6-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4586

Level: (low/med) LOW Date Received: 12/14/01

% Moisture: 37 decanted: (Y/N) N Date Extracted:12/26/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	5.2	U
	Dichlorobiphenyl	5.2	U
	Trichlorobiphenyl	5.2	U
	Tetrachlorobiphenyl	6.8	J
	Pentachlorobiphenyl	24	
	Hexachlorobiphenyl	10	J
	Heptachlorobiphenyl	3.6	J
	Octachlorobiphenyl	16	U
	Nonachlorobibiphenyl	5.2	J
	Decachlorobiphenyl	21	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-8

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T7-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4587

Level: (low/med) LOW Date Received: 12/14/01

% Moisture: 32 decanted: (Y/N) N Date Extracted:12/26/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.8	U
	Dichlorobiphenyl	4.8	U
	Trichlorobiphenyl	4.8	U
	Tetrachlorobiphenyl	9.8	U
	Pentachlorobiphenyl	9.8	U
	Hexachlorobiphenyl	9.8	U
	Heptachlorobiphenyl	15	U
	Octachlorobiphenyl	15	U
	Nonachlorobibiphenyl	24	U
	Decachlorobiphenyl	24	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-9

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T8-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4588

Level: (low/med) LOW Date Received: 12/14/01

% Moisture: 33 decanted: (Y/N) N Date Extracted:12/26/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.9	U
	Dichlorobiphenyl	4.9	U
	Trichlorobiphenyl	4.9	U
	Tetrachlorobiphenyl	2.3	J
	Pentachlorobiphenyl	17	
	Hexachlorobiphenyl	7.3	J
	Heptachlorobiphenyl	15	U
	Octachlorobiphenyl	15	U
	Nonachlorobibiphenyl	25	U
	Decachlorobiphenyl	25	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-10

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T9-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4589

Level: (low/med) LOW Date Received: 12/14/01

% Moisture: 26 decanted: (Y/N) N Date Extracted:12/26/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	Monochlorobiphenyl	4.4	U
	Dichlorobiphenyl	4.4	U
	Trichlorobiphenyl	4.4	U
	Tetrachlorobiphenyl	9.0	U
	Pentachlorobiphenyl	9.0	U
	Hexachlorobiphenyl	9.0	U
	Heptachlorobiphenyl	14	U
	Octachlorobiphenyl	14	U
	Nonachlorobibiphenyl	22	U
	Decachlorobiphenyl	22	U

ENSR

MEMORANDUM

To: Lisa Bradley/Westford

Date: April 26, 2001

From: Marcia Motta/Westford

File: SO014pestMKM.doc
06105-012-201

RE: Data Validation
Pesticide Analyses
Solutia Inc., Creek Bottom Sediment Removal Action
Sauget & Cahokia, Illinois
STL SDG SIL074

CC: D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for fifteen sediment samples and one field duplicate sample analyzed for organochlorine (OC) pesticides by SW-846 method 8081A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on December 12 and 13, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL074.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSC-T1-1	CBS-CSC-T8-1
CBS-CSC-T2-1	CBS-CSC-T9-1
CBS-CSC-T3-1	CBS-CSD-T1-1
CBS-CSC-T4-1	CBS-CSD-T2-1
CBS-CSC-T4-1-FD (field duplicate of sample CBS-CSC-T4-1)	CBS-CSD-T3-1
CBS-CSC-T5-1	CBS-CSD-T4-1
CBS-CSC-T6-1	CBS-CSD-T5-1
CBS-CSC-T7-1	CBS-CSD-T6-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Blank analysis results
- Surrogate spike recoveries

- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. The following discrepancy was noted.

The COC did not indicate pesticide analysis for sample CBS-CSB-T1-1; however, pesticide results for this sample were submitted and were validated.

It should be mentioned that the laboratory reported the full field sample identification (ID) in the "Lab Sample ID" field on the sample result pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The laboratory does not record cooler receipt temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptable range of 4°C ± 2°C). Non-conformances were not observed for this sample set.

Blank Analysis Results

Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The percent recoveries (%R) of the surrogate tetrachloro-m-xylene were within the QC acceptance criteria on both columns in all sample analyses..

The following table summarizes the %Rs of the surrogate decachlorobiphenyl (DCB) that exceeded the QC acceptance criteria for samples analyzed with less than a 5-fold dilution. Positive results were qualified as estimated (J) for the affected sample.

Sample	DCB (%R) Column I/Column II
CBS-CSC-T2-1	342/267

Due to dilutions performed, surrogate recoveries were outside the QC acceptance limits in serveral samples; qualification of the data on this basis was therefore not required.

LCS Results

With the exception of methoxychlor, the %Rs of all spiked target analytes in the LCS were within the QC acceptance criteria. The %R of methoxychlor (173) exceeded the QC limits. Positive results for methoxychlor were qualified as estimated (J) in the associated samples.

MS/MSD Results

Batch MS/MSD analyses were reported with this sample set. No validation action was taken on this basis.

ENSR

Field Duplicate Results

Samples CBS-CSC-T4-1 and CBS-CSC-T4-1-FD were submitted as the field duplicate pair with this sample set. The following table summarizes the relative percent differences (RPDs) of the detected analytes in the field duplicate pair. Under Regional guidelines, sample results are not qualified on the basis of field duplicates. The results and RPDs tabulated below are informational only.

Analyte	CBS-CSC-T4-1 (µg/kg)	CBS-CSC-T4-1-FD (µg/kg)	RPD (%)
Delta-BHC	0.17	0.59	110
Dieldrin	1.4	4.9	111
Methoxychlor	3.0	2.7	10
Alpha-Chlordane	5.1 U	0.92	NC
NC = not calculable due to a nondetect in the sample.			

Sample Results

The RPD of the results between the two analytical columns exceeded the QC acceptance limit of 40% for various compounds. The laboratory qualified these results with a "P" and reported the lower of the two values. The "P" qualifiers were removed during validation. Positive results, which were greater than the sample quantitation limit (SQLs) for these compounds, were qualified as estimated (J).

All sample percent solids were > 50%.

The following samples were diluted due to the sample matrix. The laboratory adjusted the SQLs accordingly.

Sample	Dilution
CBS-CSC-T1-1	2x
CBS-CSC-T2-1	2x
CBS-CSC-T3-1	2x
CBS-CSC-T4-1	2x
CBS-CSC-T4-1-FD	2x
CBS-CSC-T5-1	2x
CBS-CSC-T6-1	5x
CBS-CSC-T7-1	5x
CBS-CSC-T8-1	2x
CBS-CSC-T9-1	5x
CBS-CSD-T1-1	5x
CBS-CSD-T2-1	5x
CBS-CSD-T3-1	2x
CBS-CSD-T4-1	5x
CBS-CSD-T5-1	25x
CBS-CSD-T6-1	5x, reanalyzed at 20x

Sample CBS-CSD-T6-1 was reanalyzed at 20-fold dilution due to the concentration of dieldrin, which exceeded the calibration range in the initial analysis. Results from the 5x and 20x analysis of this sample were combined during validation in order to report the lowest possible SQLs and all results within the calibration range.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T1-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07021

% Moisture: 27 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/07/02

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.4	U
58-89-9	gamma-BHC (Lindane)	4.6	U
319-85-7	beta-BHC	1.4	U
76-44-8	Heptachlor	4.6	U
319-86-8	delta-BHC	1.4	U
309-00-2	Aldrin	4.6	U
1024-57-3	Heptachlor epoxide	4.6	U
5103-74-2	gamma-Chlordane	1.1	J~~P~~
5103-71-9	alpha-Chlordane	4.6	U
959-98-8	Endosulfan I	4.6	U
72-55-9	4,4'-DDE	9.0	U
60-57-1	Dieldrin	1.4	J~~P~~
72-20-8	Endrin	9.0	U
72-54-8	4,4'-DDD	9.0	U
33213-65-9	Endosulfan II	9.0	U
50-29-3	4,4'-DDT	9.0	U
7421-93-4	Endrin aldehyde	9.0	U
1031-07-8	Endosulfan sulfate	9.0	U
72-43-5	Methoxychlor	46	U
53494-70-5	Endrin ketone	9.0	U
8001-35-2	Toxaphene	460	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T2-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07022

% Moisture: 30 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/19/01

Concentrated Extract Volume: 5 (mL) Date Analyzed: 01/07/02

Injection Volume: 2.0 (uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.4	U
58-89-9	gamma-BHC (Lindane)	4.8	U
319-85-7	beta-BHC	1.4	U
76-44-8	Heptachlor	4.8	U
319-86-8	delta-BHC	0.99	JP-S-P
309-00-2	Aldrin	4.8	U
1024-57-3	Heptachlor epoxide	4.8	U
5103-74-2	gamma-Chlordane	4.8	U
5103-71-9	alpha-Chlordane	4.8	U
959-98-8	Endosulfan I	4.8	U
72-55-9	4,4'-DDE	9.4	U
60-57-1	Dieldrin	11	J-S
72-20-8	Endrin	9.4	U
72-54-8	4,4'-DDD	9.4	U
33213-65-9	Endosulfan II	9.4	U
50-29-3	4,4'-DDT	9.4	U
7421-93-4	Endrin aldehyde	9.4	U
1031-07-8	Endosulfan sulfate	7.0	JP-S-P
72-43-5	Methoxychlor	7.1	JP-S-P-L
53494-70-5	Endrin ketone	10	PJ-S-P
8001-35-2	Toxaphene	480	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T3-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07023

% Moisture: 35 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/07/02

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.5	U
58-89-9	gamma-BHC (Lindane)	5.2	U
319-85-7	beta-BHC	1.5	U
76-44-8	Heptachlor	5.2	U
319-86-8	delta-BHC	1.5	U
309-00-2	Aldrin	5.2	U
1024-57-3	Heptachlor epoxide	5.2	U
5103-74-2	gamma-Chlordane	5.2	U
5103-71-9	alpha-Chlordane	5.2	U
959-98-8	Endosulfan I	5.2	U
72-55-9	4,4'-DDE	10	U
60-57-1	Dieldrin	1.2	J
72-20-8	Endrin	10	U
72-54-8	4,4'-DDD	10	U
33213-65-9	Endosulfan II	10	U
50-29-3	4,4'-DDT	10	U
7421-93-4	Endrin aldehyde	10	U
1031-07-8	Endosulfan sulfate	10	U
72-43-5	Methoxychlor	52	U
53494-70-5	Endrin ketone	10	U
8001-35-2	Toxaphene	520	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T4-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07024

% Moisture: 33 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/07/02

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.5	U
58-89-9	gamma-BHC (Lindane)	5.1	U
319-85-7	beta-BHC	1.5	U
76-44-8	Heptachlor	5.1	U
319-86-8	delta-BHC	0.17	JP-P
309-00-2	Aldrin	5.1	U
1024-57-3	Heptachlor epoxide	5.1	U
5103-74-2	gamma-Chlordane	5.1	U
5103-71-9	alpha-Chlordane	5.1	U
959-98-8	Endosulfan I	5.1	U
72-55-9	4,4'-DDE	9.8	U
60-57-1	Dieldrin	1.4	JP-P
72-20-8	Endrin	9.8	U
72-54-8	4,4'-DDD	9.8	U
33213-65-9	Endosulfan II	9.8	U
50-29-3	4,4'-DDT	9.8	U
7421-93-4	Endrin aldehyde	9.8	U
1031-07-8	Endosulfan sulfate	9.8	U
72-43-5	Methoxychlor	3.0	JP-P-L
53494-70-5	Endrin ketone	9.8	U
8001-35-2	Toxaphene	510	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T4-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07025

% Moisture: 34 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/07/02

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.5	U
58-89-9	gamma-BHC (Lindane)	5.2	U
319-85-7	beta-BHC	1.5	U
76-44-8	Heptachlor	5.2	U
319-86-8	delta-BHC	0.59	JP-P
309-00-2	Aldrin	5.2	U
1024-57-3	Heptachlor epoxide	5.2	U
5103-74-2	gamma-Chlordane	5.2	U
5103-71-9	alpha-Chlordane	0.92	J
959-98-8	Endosulfan I	5.2	U
72-55-9	4,4'-DDE	10	U
60-57-1	Dieldrin	4.9	JP-P
72-20-8	Endrin	10	U
72-54-8	4,4'-DDD	10	U
33213-65-9	Endosulfan II	10	U
50-29-3	4,4'-DDT	10	U
7421-93-4	Endrin aldehyde	10	U
1031-07-8	Endosulfan sulfate	10	U
72-43-5	Methoxychlor	2.7	JP-P-L
53494-70-5	Endrin ketone	10	U
8001-35-2	Toxaphene	520	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T5-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07026

% Moisture: 36 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/19/01

Concentrated Extract Volume: 5 (mL) Date Analyzed: 01/07/02

Injection Volume: 2.0 (uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.6	U
58-89-9	gamma-BHC (Lindane)	5.3	U
319-85-7	beta-BHC	1.6	U
76-44-8	Heptachlor	5.3	U
319-86-8	delta-BHC	1.6	U
309-00-2	Aldrin	5.3	U
1024-57-3	Heptachlor epoxide	5.3	U
5103-74-2	gamma-Chlordane	5.3	U
5103-71-9	alpha-Chlordane	5.3	U
959-98-8	Endosulfan I	5.3	U
72-55-9	4,4'-DDE	10	U
60-57-1	Dieldrin	0.46	J~~P~~-P
72-20-8	Endrin	10	U
72-54-8	4,4'-DDD	10	U
33213-65-9	Endosulfan II	10	U
50-29-3	4,4'-DDT	10	U
7421-93-4	Endrin aldehyde	10	U
1031-07-8	Endosulfan sulfate	10	U
72-43-5	Methoxychlor	53	U
53494-70-5	Endrin ketone	10	U
8001-35-2	Toxaphene	530	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-7

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T6-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07027

% Moisture: 37 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/07/02

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	4.0	U
58-89-9	gamma-BHC (Lindane)	13	U
319-85-7	beta-BHC	4.0	U
76-44-8	Heptachlor	13	U
319-86-8	delta-BHC	4.0	U
309-00-2	Aldrin	13	U
1024-57-3	Heptachlor epoxide	13	U
5103-74-2	gamma-Chlordane	13	U
5103-71-9	alpha-Chlordane	13	U
959-98-8	Endosulfan I	13	U
72-55-9	4,4'-DDE	26	U
60-57-1	Dieldrin	7.8	J~~8~~
72-20-8	Endrin	26	U
72-54-8	4,4'-DDD	26	U
33213-65-9	Endosulfan II	26	U
50-29-3	4,4'-DDT	26	U
7421-93-4	Endrin aldehyde	26	U
1031-07-8	Endosulfan sulfate	2.0	JP~~8~~-P
72-43-5	Methoxychlor	130	U
53494-70-5	Endrin ketone	26	U
8001-35-2	Toxaphene	1300	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-8

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T7-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07028

% Moisture: 32 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/07/02

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.7	U
58-89-9	gamma-BHC (Lindane)	12	U
319-85-7	beta-BHC	3.7	U
76-44-8	Heptachlor	12	U
319-86-8	delta-BHC	3.7	U
309-00-2	Aldrin	12	U
1024-57-3	Heptachlor epoxide	12	U
5103-74-2	gamma-Chlordane	12	U
5103-71-9	alpha-Chlordane	12	U
959-98-8	Endosulfan I	12	U
72-55-9	4,4'-DDE	24	U
60-57-1	Dieldrin	1.3	J
72-20-8	Endrin	24	U
72-54-8	4,4'-DDD	24	U
33213-65-9	Endosulfan II	24	U
50-29-3	4,4'-DDT	24	U
7421-93-4	Endrin aldehyde	24	U
1031-07-8	Endosulfan sulfate	24	U
72-43-5	Methoxychlor	120	U
53494-70-5	Endrin ketone	24	U
8001-35-2	Toxaphene	1200	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-9

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T8-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07029

% Moisture: 33 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/07/02

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.5	U
58-89-9	gamma-BHC (Lindane)	5.1	U
319-85-7	beta-BHC	1.5	U
76-44-8	Heptachlor	5.1	U
319-86-8	delta-BHC	0.37	JP-P
309-00-2	Aldrin	5.1	U
1024-57-3	Heptachlor epoxide	5.1	U
5103-74-2	gamma-Chlordane	5.1	U
5103-71-9	alpha-Chlordane	5.1	U
959-98-8	Endosulfan I	5.1	U
72-55-9	4,4'-DDE	9.8	U
60-57-1	Dieldrin	5.5	JP-P
72-20-8	Endrin	9.8	U
72-54-8	4,4'-DDD	9.8	U
33213-65-9	Endosulfan II	9.8	U
50-29-3	4,4'-DDT	9.8	U
7421-93-4	Endrin aldehyde	9.8	U
1031-07-8	Endosulfan sulfate	0.72	JP-P
72-43-5	Methoxychlor	2.5	JPP-L
53494-70-5	Endrin ketone	9.8	U
8001-35-2	Toxaphene	510	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18162-10

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSC-T9-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07030

% Moisture: 26 decanted: (Y/N) N Date Received: 12/14/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/07/02

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.4	U
58-89-9	gamma-BHC (Lindane)	11	U
319-85-7	beta-BHC	3.4	U
76-44-8	Heptachlor	11	U
319-86-8	delta-BHC	3.4	U
309-00-2	Aldrin	11	U
1024-57-3	Heptachlor epoxide	11	U
5103-74-2	gamma-Chlordane	11	U
5103-71-9	alpha-Chlordane	11	U
959-98-8	Endosulfan I	11	U
72-55-9	4,4'-DDE	22	U
60-57-1	Dieldrin	22	U
72-20-8	Endrin	22	U
72-54-8	4,4'-DDD	22	U
33213-65-9	Endosulfan II	22	U
50-29-3	4,4'-DDT	22	U
7421-93-4	Endrin aldehyde	22	U
1031-07-8	Endosulfan sulfate	22	U
72-43-5	Methoxychlor	110	U
53494-70-5	Endrin ketone	22	U
8001-35-2	Toxaphene	1100	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18127-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSD-T1-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07014

% Moisture: 33 decanted: (Y/N) N Date Received: 12/13/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/07/02

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.7	U
58-89-9	gamma-BHC (Lindane)	13	U
319-85-7	beta-BHC	3.7	U
76-44-8	Heptachlor	13	U
319-86-8	delta-BHC	0.43	JP-P
309-00-2	Aldrin	0.75	JP-P
1024-57-3	Heptachlor epoxide	13	U
5103-74-2	gamma-Chlordane	13	U
5103-71-9	alpha-Chlordane	13	U
959-98-8	Endosulfan I	13	U
72-55-9	4,4'-DDE	25	U
60-57-1	Dieldrin	1.3	J
72-20-8	Endrin	25	U
72-54-8	4,4'-DDD	1.4	JP-P
33213-65-9	Endosulfan II	25	U
50-29-3	4,4'-DDT	25	U
7421-93-4	Endrin aldehyde	25	U
1031-07-8	Endosulfan sulfate	25	U
72-43-5	Methoxychlor	130	U
53494-70-5	Endrin ketone	25	U
8001-35-2	Toxaphene	1300	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18127-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSD-T2-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07015

% Moisture: 34 decanted: (Y/N) N Date Received: 12/13/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/07/02

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.8	U
58-89-9	gamma-BHC (Lindane)	13	U
319-85-7	beta-BHC	3.8	U
76-44-8	Heptachlor	13	U
319-86-8	delta-BHC	0.53	JP-P
309-00-2	Aldrin	13	U
1024-57-3	Heptachlor epoxide	13	U
5103-74-2	gamma-Chlordane	13	U
5103-71-9	alpha-Chlordane	13	U
959-98-8	Endosulfan I	13	U
72-55-9	4,4'-DDE	25	U
60-57-1	Dieldrin	14	J
72-20-8	Endrin	25	U
72-54-8	4,4'-DDD	25	U
33213-65-9	Endosulfan II	25	U
50-29-3	4,4'-DDT	25	U
7421-93-4	Endrin aldehyde	25	U
1031-07-8	Endosulfan sulfate	25	U
72-43-5	Methoxychlor	130	U
53494-70-5	Endrin ketone	25	U
8001-35-2	Toxaphene	1300	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18127-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSD-T3-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07016

% Moisture: 30 decanted: (Y/N) N Date Received: 12/13/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/07/02

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.4	U
58-89-9	gamma-BHC (Lindane)	4.8	U
319-85-7	beta-BHC	1.4	U
76-44-8	Heptachlor	4.8	U
319-86-8	delta-BHC	1.4	U
309-00-2	Aldrin	4.8	U
1024-57-3	Heptachlor epoxide	4.8	U
5103-74-2	gamma-Chlordane	4.8	U
5103-71-9	alpha-Chlordane	4.8	U
959-98-8	Endosulfan I	4.8	U
72-55-9	4,4'-DDE	9.4	U
60-57-1	Dieldrin	2.1	J~~P~~-P
72-20-8	Endrin	9.4	U
72-54-8	4,4'-DDD	9.4	U
33213-65-9	Endosulfan II	9.4	U
50-29-3	4,4'-DDT	9.4	U
7421-93-4	Endrin aldehyde	9.4	U
1031-07-8	Endosulfan sulfate	9.4	U
72-43-5	Methoxychlor	48	U
53494-70-5	Endrin ketone	9.4	U
8001-35-2	Toxaphene	480	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18127-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSD-T4-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07017

% Moisture: 33 decanted: (Y/N) N Date Received: 12/13/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/07/02

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.7	U
58-89-9	gamma-BHC (Lindane)	13	U
319-85-7	beta-BHC	3.7	U
76-44-8	Heptachlor	13	U
319-86-8	delta-BHC	0.56	JP-P
309-00-2	Aldrin	13	U
1024-57-3	Heptachlor epoxide	13	U
5103-74-2	gamma-Chlordane	13	U
5103-71-9	alpha-Chlordane	13	U
959-98-8	Endosulfan I	13	U
72-55-9	4,4'-DDE	25	U
60-57-1	Dieldrin	2.2	JP-P
72-20-8	Endrin	25	U
72-54-8	4,4'-DDD	25	U
33213-65-9	Endosulfan II	25	U
50-29-3	4,4'-DDT	25	U
7421-93-4	Endrin aldehyde	25	U
1031-07-8	Endosulfan sulfate	25	U
72-43-5	Methoxychlor	4.0	JP-P
53494-70-5	Endrin ketone	25	U
8001-35-2	Toxaphene	1300	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18127-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSD-T5-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07018

% Moisture: 27 decanted: (Y/N) N Date Received: 12/13/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/07/02

Injection Volume: 2.0(uL) Dilution Factor: 25.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	17	U
58-89-9	gamma-BHC (Lindane)	58	U
319-85-7	beta-BHC	17	U
76-44-8	Heptachlor	58	U
319-86-8	delta-BHC	17	U
309-00-2	Aldrin	58	U
1024-57-3	Heptachlor epoxide	58	U
5103-74-2	gamma-Chlordane	4.0	JP-P
5103-71-9	alpha-Chlordane	58	U
959-98-8	Endosulfan I	58	U
72-55-9	4,4'-DDE	110	U
60-57-1	Dieldrin	110	U
72-20-8	Endrin	110	U
72-54-8	4,4'-DDD	110	U
33213-65-9	Endosulfan II	110	U
50-29-3	4,4'-DDT	110	U
7421-93-4	Endrin aldehyde	110	U
1031-07-8	Endosulfan sulfate	110	U
72-43-5	Methoxychlor	8.8	JP-P-L
53494-70-5	Endrin ketone	110	U
8001-35-2	Toxaphene	5800	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18127-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSD-T6-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA07019

% Moisture: 31 decanted: (Y/N) N Date Received: 12/13/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/07/02 + 1/10/02

Injection Volume: 2.0(uL) Dilution Factor: 5.0 1:20 Dieldrin

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.6	U
58-89-9	gamma-BHC (Lindane)	12	U
319-85-7	beta-BHC	3.6	U
76-44-8	Heptachlor	12	U
319-86-8	delta-BHC	1.9	J
309-00-2	Aldrin	9.0	JP-P
1024-57-3	Heptachlor epoxide	12	U
5103-74-2	gamma-Chlordane	67	~~J-P~~
5103-71-9	alpha-Chlordane	12	J
959-98-8	Endosulfan I	12	U
72-55-9	4,4'-DDE	24	U
60-57-1	Dieldrin	690 ~~480~~	~~B~~ 1/10/02
72-20-8	Endrin	24	U
72-54-8	4,4'-DDD	24	U
33213-65-9	Endosulfan II	24	U
50-29-3	4,4'-DDT	240	~~J-P~~
7421-93-4	Endrin aldehyde	24	U
1031-07-8	Endosulfan sulfate	9.5	JP-P
72-43-5	Methoxychlor	62	JP-P-L
53494-70-5	Endrin ketone	24	U
8001-35-2	Toxaphene	1200	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18127-6DL

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL074

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSD-T6-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA10007

% Moisture: 31 decanted: (Y/N) N Date Received: 12/13/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/19/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/10/02

Injection Volume: 2.0(uL) Dilution Factor: 20.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	14	U
58-89-9	gamma-BHC (Lindane)	49	U
319-85-7	beta-BHC	14	U
76-44-8	Heptachlor	49	U
319-86-8	delta-BHC	14	U
309-00-2	Aldrin	12	DJP
1024-57-3	Heptachlor epoxide	49	U
5103-74-2	gamma-Chlordane	49	U
5103-71-9	alpha-Chlordane	9.1	DJP
959-98-8	Endosulfan I	49	U
72-55-9	4,4'-DDE	23	DJP
60-57-1	Dieldrin	690	D
72-20-8	Endrin	96	U
72-54-8	4,4'-DDD	96	U
33213-65-9	Endosulfan II	96	U
50-29-3	4,4'-DDT	96	U
7421-93-4	Endrin aldehyde	96	U
1031-07-8	Endosulfan sulfate	96	U
72-43-5	Methoxychlor	41	DJP
53494-70-5	Endrin ketone	96	U
8001-35-2	Toxaphene	4900	U

report only
RW 4/29/02

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 18, 2002
From:	Linda Sulkowski/Westford	**File:**	SO015pphLS.doc 06105-012-202
RE:	Data Validation Pesticide, PCB, and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL081	**CC:**	A. Mischel/Westford

SUMMARY

Full validation was performed on the data for four soil samples analyzed for organochlorine (OC) pesticides by SW-846 method 8081A, polychlorinated biphenyls (PCBs) by USEPA method 680, and herbicides by SW-846 method 8151A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on January 16, 2002 and were submitted to Severn Trent Laboratories (STL) in Savannah GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL081.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (*1997*)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSF-T6-1	CBS-CSF-T6-1-D (field duplicate of CBS-CSF-T6-1)
CBS-CSF-T7-1	CBS-CSF-T13-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters, where applicable to the method:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Gas chromatography/mass spectrometry (GC/MS) tunes
- Initial and continuing calibrations
- Pesticide instrument performance
- Method blanks
- Surrogate spike recoveries
- Internal standard performance
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results

- Compound quantitation
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification code (ID) in the "Lab Sample ID" field on the results pages (Form 1s) in order to avoid truncating the field IDs.

It should be noted that sample SP012-ED, which was listed on the COC, was not included in the scope of this validation.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformances were not noted by the laboratory. No validation action was taken on this basis.

The samples were extracted and analyzed within the method specified holding times for all parameters.

GC/MS Tunes

PCB Analysis

The frequency and abundance of the decafluorotriphenylphosphine (DFTPP) tunes were within the QC acceptance criteria. All samples were analyzed within 12 hours from the DFTPP tune.

Initial and Continuing Calibrations

OC Pesticides Analysis

The percent relative standard deviations (%RSDs) of all target analytes were within the QC acceptance criteria in the initial calibrations associated with the sample analyses.

The continuing calibration standards were analyzed at the method-required frequency of every 20 samples. The following table summarizes percent difference (%D) nonconformances in the continuing calibration standards:

Date	Compound	Column I	Column II
1/23/02	Alpha-Chlordane	23.1	ok
	Endrin aldehyde	17.4	ok
1/23/02	Alpha-Chlordane	23.6	ok
	4,4'-DDD	15.4	ok
	4,4'-DDT	-36.7	-36.2
	Methoxychlor	-36.6	-37.5
Samples Affected: Continuing and post calibrations for all samples.			

The above listed %D nonconformances were due to high recovery of alpha-chlordane, endrin aldehyde, and 4,4'-DDD and low recoveries of 4,4'-DDT and methoxychlor in the calibration standards. Alpha-chlordane, endrin aldehyde, and 4,4'-DDD were not detected in the associated samples. Qualification of the results for these analytes was therefore not required. Positive and non-detected results for methoxychlor and 4,4'DDT were qualified as estimated (J/UJ).

PCB Analysis

The %RSDs of all target analytes were within the QC acceptance criteria in the initial calibrations associated with the sample analyses.

The continuing calibration standards were analyzed at the method required frequency of every 20 samples. The %Ds of all target analytes were within the QC acceptance criteria in the continuing calibrations associated with all sample analyses.

Herbicide Analysis

The %RSDs and/or the correlation coefficient (r) of all target analytes were within the QC acceptance criteria in the initial calibrations associated with the sample analyses.

The continuing calibration standards were analyzed at the method required frequency of every 20 samples. The following tables summarize continuing calibration %Ds nonconformances:

Date	Compound	Column I	Column II
1/29/02	MCPP	ok	17.6
1/30/02	MCPP	ok	36.9
	2,4-DB	ok	15.4
Samples Affected: Continuing and post calibrations for all samples except sample CBS-CSF-T6-1-FD.			

The above listed %D nonconformances were due to a high recovery of the analytes in the calibration standards. These analytes were not detected in the associated samples. Qualification of the data was therefore not required.

Date	Compound	Column I	Column II
2/4/02	Dicamba	ok	-15.5
	2,4-D	ok	-20.0
	2,4,5-T	ok	-15.6
2/4/02	2,4-DB	ok	18.4
Sample Affected: Continuing and post calibrations for sample CBS-CSF-T6-1-FD.			

The above listed %D nonconformances were due to a low recovery of the analytes in the calibration standards. These analytes were not detected in the associated samples. Qualification of the data was not required since Column I was within the QC acceptance criteria.

Instrument Performance

OC Pesticide Analysis

The DDT/endrin breakdown check standards were analyzed at the method required frequency of every 12 hours. The percent breakdown of endrin and DDT was within the QC acceptance criteria in the breakdown check standards associated with all sample analyses.

Method Blanks

Target analytes were not detected in the laboratory method blanks associated with all samples for all parameters.

Surrogate Spike Recoveries

OC Pesticide and PCB Analyses

The surrogate recoveries were within the QC acceptance limits in all sample analyses.

Herbicide Analysis

The percent recovery of 2,4-dichlorophenylacetic acid (24%) fell below the QC acceptance criteria on Column I in the analysis of sample CBS-CSF-T6-1. Positive and non-detected results for this sample were qualified as estimated (J/UJ).

Internal Standard Performance

OC Pesticides and PCB Analyses

Internal standard performance met the QC acceptance criteria in all sample analyses.

LCS Results

OC Pesticides Analysis

With the following exception, the %Rs of the spiked target analytes were within the QC acceptance criteria in the LCS associated with all sample analyses. The %R of endrin ketone (139%) exceeded the QC acceptance criteria. Endrin ketone was not detected in the samples. Qualification of the data was therefore not required.

PCB and Herbicide Analyses

The %Rs of the spiked target analytes were within the QC acceptance criteria in the LCSs associated with all sample analyses.

MS/MSD Results

OC Pesticide Analysis

MS/MSD analyses were performed on sample CBS-CSF-T13-1. The %Rs and the relative percent differences (RPDs) of the spiked target analytes were within the QC acceptance limits in the MS/MSD analyses performed on this sample.

PCB Analysis

MS/MSD analyses were performed on sample CBS-CSF-T7-1. The %Rs and the RPDs of the spiked target analytes were within the QC acceptance limits in the MS/MSD analyses performed on this sample.

Herbicide Analysis

MS/MSD analyses were not performed on a sample from this SDG. Accuracy in the laboratory was demonstrated by the analysis of an LCS.

Field Duplicate Results

Samples CBS-CSF-T6-1 and CBS-CSF-T6-1-FD were submitted as the field duplicate pair with this sample set. Qualification of the data on the basis of field duplicate results is not required per Regional Guidelines. Field duplicate RPDs are informational only.

OC Pesticide Analysis

The following table summarizes the RPDs of the detected analytes in field duplicate pair CBS-CSF-T6-1 and CBS-CSF-T6-1-FD. The RPDs for 4,4'-DDE and 4,4'-DDT were not calculable (NC) due to non-detected results in the field duplicate sample.

Compound	CBS-CSF-T6-1 (µg/kg)	CBS-CSF-T6-1-FD (µg/kg)	RPD (%)
4,4'-DDE	1.2 J	9.4 U	NC
Dieldrin	2.6	1.0	89
4,4'-DDT	4.0	9.4 U	NC

PCB Analysis

The following table summarizes the RPDs of the detected analytes in field duplicate pair CBS-CSF-T6-1 and CBS-CSF-T6-1-FD.

Compound	CBS-CSF-T6-1 (µg/kg)	CBS-CSF-T6-1-FD (µg/kg)	RPD (%)
Tetrachlorobiphenyls	2.0 J	7.9 J	119
Pentachlorobiphenyls	8.7 J	17	65
Hexachlorobiphenyls	4.7 J	7.9 J	51

Herbicide Analysis

The following table summarizes the RPDs of the detected analytes in field duplicate pair CBS-CSF-T6-1 and CBS-CSF-T6-1-FD. The RPD for pentachlorophenol was NC due to a non-detected result in the field duplicate sample.

Compound	CBS-CSF-T6-1 (µg/kg)	CBS-CSF-T6-1-FD (µg/kg)	RPD (%)
Pentachlorophenol	2.4 J	24 U	NC

Compound Quantitation

OC Pesticide Analysis

The following table summarizes the RPDs of the results between the two analytical columns which exceeded the QC acceptance criteria of <40%. The laboratory qualified these results with a "P" due to the high RPD. The "P" qualifier was removed during validation. These results were also qualified as estimated (J) by the laboratory due to quantitation below the sample quantitation limit (SQL). It should be noted that the laboratory reported the lower of the two values from the two analytical columns when the %D exceeded 40%. Since there was no apparent interference, these results were changed by the validator to the higher of the two results.

Samples	Compound	RPD (%)
CBS-CSF-T6-1	Dieldrin	74
	4,4'-DDT	86
CBS-CSF-T6-1-FD	Dieldrin	70
CBS-CSF-T7-1	4,4'-DDE	47
	Dieldrin	45

Herbicide Analysis

The dual column RPD was within the QC acceptance criteria of < 40%.

Quantitation Limits and Sample Results

Sample results were spot-checked. No discrepancies were noted.

The percent solids criterion of > 50% was met for all samples.

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OC Pesticide Analysis

Samples CBS-CSF-T6-1 (5x), CBS-CSF-T6-1-FD (2x), and CBS-CSF-T7-1 (2x) were analyzed on dilution due to the matrix of the sample. SQLs for these samples were elevated accordingly by the laboratory.

PCB Analysis

Dilutions were not required; SQLs were therefore not affected.

Herbicide Analysis

Dilutions were not required; SQLs were therefore not affected.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40367-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL081

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T6-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA29018

% Moisture: 33 decanted: (Y/N) N Date Received: 01/17/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/24/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/29/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	97	U J-S
1918-00-9	Dicamba	30	U
7085-19-0	MCPP	3000	U
94-74-6	MCPA	3000	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	2.4	J-S
93-72-1	2,4,5-TP	12	U J-S
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	150	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40367-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL081

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T6-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: SFB04005

% Moisture: 30 decanted: (Y/N) N Date Received: 01/17/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/24/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/04/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	93	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	24	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40367-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL081

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T7-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA29020

% Moisture: 28 decanted: (Y/N) N Date Received: 01/17/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/24/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/29/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	3.1	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40367-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL081

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T13-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA29021

% Moisture: 25 decanted: (Y/N) N Date Received: 01/17/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/24/02

Concentrated Extract Volume: 10 (mL) Date Analyzed: 01/29/02

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	87	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	23	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	130	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40367-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL081

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T6-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA23015

% Moisture: 33 decanted: (Y/N) N Date Received: 01/17/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/21/02

Concentrated Extract Volume: 5 (mL) Date Analyzed: 01/23/02

Injection Volume: 2.0 (uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.7	U
58-89-9	gamma-BHC (Lindane)	13	U
319-85-7	beta-BHC	3.7	U
76-44-8	Heptachlor	13	U
319-86-8	delta-BHC	3.7	U
309-00-2	Aldrin	13	U
1024-57-3	Heptachlor epoxide	13	U
5103-74-2	gamma-Chlordane	13	U
5103-71-9	alpha-Chlordane	13	U
959-98-8	Endosulfan I	13	U
72-55-9	4,4'-DDE	1.2	J
60-57-1	Dieldrin	2.6 ~~1.2~~	J~~P~~
72-20-8	Endrin	25	U
72-54-8	4,4'-DDD	25	U
33213-65-9	Endosulfan II	25	U
50-29-3	4,4'-DDT	4.0 ~~1.6~~	J~~P~~-C
7421-93-4	Endrin aldehyde	25	U
1031-07-8	Endosulfan sulfate	25	U
72-43-5	Methoxychlor	130	UJ-C
53494-70-5	Endrin ketone	25	U
8001-35-2	Toxaphene	1300	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40367-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL081

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T6-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA23016

% Moisture: 30 decanted: (Y/N) N Date Received: 01/17/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/21/02

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/23/02

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG		Q
319-84-6	alpha-BHC		1.4	U
58-89-9	gamma-BHC (Lindane)		4.8	U
319-85-7	beta-BHC		1.4	U
76-44-8	Heptachlor		4.8	U
319-86-8	delta-BHC		1.4	U
309-00-2	Aldrin		4.8	U
1024-57-3	Heptachlor epoxide		4.8	U
5103-74-2	gamma-Chlordane		4.8	U
5103-71-9	alpha-Chlordane		4.8	U
959-98-8	Endosulfan I		4.8	U
72-55-9	4,4'-DDE		9.4	U
60-57-1	Dieldrin	1.0	~~0.48~~	J~~P~~
72-20-8	Endrin		9.4	U
72-54-8	4,4'-DDD		9.4	U
33213-65-9	Endosulfan II		9.4	U
50-29-3	4,4'-DDT		9.4	UJ-C
7421-93-4	Endrin aldehyde		9.4	U
1031-07-8	Endosulfan sulfate		9.4	U
72-43-5	Methoxychlor		48	UJ-C
53494-70-5	Endrin ketone		9.4	U
8001-35-2	Toxaphene		480	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40367-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL081

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T7-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA23017

% Moisture: 28 decanted: (Y/N) N Date Received: 01/17/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/21/02

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/23/02

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.4	U
58-89-9	gamma-BHC (Lindane)	4.7	U
319-85-7	beta-BHC	1.4	U
76-44-8	Heptachlor	4.7	U
319-86-8	delta-BHC	1.4	U
309-00-2	Aldrin	4.7	U
1024-57-3	Heptachlor epoxide	4.7	U
5103-74-2	gamma-Chlordane	4.7	U
5103-71-9	alpha-Chlordane	4.7	U
959-98-8	Endosulfan I	4.7	U
72-55-9	4,4'-DDE	1.6 ~~0.99~~	J~~P~~
60-57-1	Dieldrin	3.0 ~~1.9~~	J~~P~~
72-20-8	Endrin	9.2	U
72-54-8	4,4'-DDD	9.2	U
33213-65-9	Endosulfan II	9.2	U
50-29-3	4,4'-DDT	9.2	UJ-C
7421-93-4	Endrin aldehyde	9.2	U
1031-07-8	Endosulfan sulfate	9.2	U
72-43-5	Methoxychlor	47	UJ-C
53494-70-5	Endrin ketone	9.2	U
8001-35-2	Toxaphene	470	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40367-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL081

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T13-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA23018

% Moisture: 25 decanted: (Y/N) N Date Received: 01/17/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/21/02

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/23/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.67	U
58-89-9	gamma-BHC (Lindane)	2.3	U
319-85-7	beta-BHC	0.67	U
76-44-8	Heptachlor	2.3	U
319-86-8	delta-BHC	0.67	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	U
959-98-8	Endosulfan I	2.3	U
72-55-9	4,4'-DDE	4.4	U
60-57-1	Dieldrin	4.4	U
72-20-8	Endrin	4.4	U
72-54-8	4,4'-DDD	4.4	U
33213-65-9	Endosulfan II	4.4	U
50-29-3	4,4'-DDT	4.4	U J-C
7421-93-4	Endrin aldehyde	4.4	U
1031-07-8	Endosulfan sulfate	4.4	U
72-43-5	Methoxychlor	23	U J-C
53494-70-5	Endrin ketone	4.4	U
8001-35-2	Toxaphene	230	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40367-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL081

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T6-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4787

Level: (low/med) LOW Date Received: 01/17/02

% Moisture: 33 decanted: (Y/N) N Date Extracted: 01/23/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/28/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.9	U
C-DICHLOROBI----	Dichlorobiphenyl	4.9	U
C-TRICHLOROB----	Trichlorobiphenyl	4.9	U
C-TETRACHLOR----	Tetrachlorobiphenyl	2.0	J
C-PENTBIPHEN----	Pentachlorobiphenyl	8.7	J
C-HEXACHLORO----	Hexachlorobiphenyl	4.7	J
C-HEPTACHLOR----	Heptachlorobiphenyl	15	U
C-OCTA-BIPHE----	Octachlorobiphenyl	15	U
C-NONACHLORO----	Nonachlorobibiphenyl	25	U
2051-24-3-------	Decachlorobiphenyl	25	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40367-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL081

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T6-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: K4788

Level: (low/med) LOW Date Received: 01/17/02

% Moisture: 30 decanted: (Y/N) N Date Extracted: 01/23/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/28/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.7	U
C-DICHLOROBI----	Dichlorobiphenyl	4.7	U
C-TRICHLOROB----	Trichlorobiphenyl	4.7	U
C-TETRACHLOR----	Tetrachlorobiphenyl	7.9	J
C-PENTBIPHEN----	Pentachlorobiphenyl	17	
C-HEXACHLORO----	Hexachlorobiphenyl	7.9	J
C-HEPTACHLOR----	Heptachlorobiphenyl	14	U
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	24	U
2051-24-3-------	Decachlorobiphenyl	24	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40367-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL081

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T7-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4789

Level: (low/med) LOW Date Received: 01/17/02

% Moisture: 28 decanted: (Y/N) N Date Extracted:01/23/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/28/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.6	U
C-DICHLOROBI----	Dichlorobiphenyl	4.6	U
C-TRICHLOROB----	Trichlorobiphenyl	4.6	U
C-TETRACHLOR----	Tetrachlorobiphenyl	9.3	U
C-PENTBIPHEN----	Pentachlorobiphenyl	9.1	J
C-HEXACHLORO----	Hexachlorobiphenyl	4.9	J
C-HEPTACHLOR----	Heptachlorobiphenyl	14	U
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	23	U
2051-24-3-------	Decachlorobiphenyl	23	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40367-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL081

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T13-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4792

Level: (low/med) LOW Date Received: 01/17/02

% Moisture: 25 decanted: (Y/N) N Date Extracted: 01/23/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/28/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.4	U
C-DICHLOROBI----	Dichlorobiphenyl	4.4	U
C-TRICHLOROB----	Trichlorobiphenyl	4.4	U
C-TETRACHLOR----	Tetrachlorobiphenyl	8.9	U
C-PENTBIPHEN----	Pentachlorobiphenyl	8.9	U
C-HEXACHLORO----	Hexachlorobiphenyl	8.9	U
C-HEPTACHLOR----	Heptachlorobiphenyl	13	U
C-OCTA-BIPHE----	Octachlorobiphenyl	13	U
C-NONACHLORO----	Nonachlorobibiphenyl	22	U
2051-24-3-------	Decachlorobiphenyl	22	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 25, 2002
From:	Linda Sulkowski/Westford	**File:**	SO016 06105-012-201
RE:	Data Validation PCB and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL075	**CC:**	A. Mischel/Westford

SUMMARY

Limited validation was performed on the data for 10 soil samples analyzed for polychlorinated biphenyls (PCBs) by USEPA Method 680 and herbicides by SW-846 method 8151A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on December 18, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL075.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (*1997*)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSE-T1-1	CBS-CSE-T2-1
CBS-CSE-T3-1	CBS-CSE-T3-1-FD (field duplicate of CBS-CSE-T3-1)
CBS-CSE-T4-1	CBS-CSE-T5-1
CBS-CSE-T14-1	CBS-CSE-T15-1
CBS-CSE-T15-1-FD (field duplicate of CBS-CSE-T15-1)	CBS-CSE-T6-1

ENSR

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformances were not noted by the laboratory. No validation action was taken on this basis.

The samples were extracted and analyzed within the method specified holding times for both parameters.

Method Blanks/Equipment Blank

There was no equipment blank submitted with this sample set. There was no validation action taken on this basis.

Target analytes were not detected in the laboratory method blanks associated with all samples for both parameters.

Surrogate Spike Recoveries

PCB Analysis

The surrogate recoveries were within the QC acceptance limits in all sample analyses.

Herbicide Analysis

The percent recovery (%R) of the surrogate 2,4-dichlorophenylacetic acid (440%) exceeded the QC acceptance criteria on Column II in the analysis of sample CBS-CSE-T15-1 for dinoseb only. Dinoseb was not detected in this sample. Qualification of the data on this basis was not required.

LCS Results

The %Rs of the spiked target analytes were within the QC acceptance criteria in the LCSs associated with all sample analyses for both parameters.

MS/MSD Results

MS/MSD analyses were performed on a sample from another SDG. Accuracy in the laboratory was demonstrated by the analysis of LCS.

Field Duplicate Results

Samples CBS-CSE-T3-1/CBS-CSE-T3-1-FD and CBS-CSE-T15-1/CBS-CSE-T15-1-FD were submitted as the field duplicate pairs with this sample set. Qualification of the data on the basis of field duplicate results was not required per Regional Guidelines.

PCB Analysis

The following table summarizes the relative percent difference (RPD) of the detected analyte in field duplicate pair CBS-CSE-T3-1/CBS-CSE-T3-1-FD.

Compound	CBS-CSE-T3-1 (µg/kg)	CBS-CSE-T3-1-FD (µg/kg)	RPD (%)
Pentachlorobiphenyls	4.4 J	2.5 J	55

Target analytes were not detected in field duplicate pair CBS-CSE-T15-1/CBS-CSE-T15-1-FD.

Herbicide Analysis

Target analytes were not detected in field duplicate pair CBS-CSE-T3-1/CBS-CSE-T3-1-FD or in field duplicate pair CBS-CSE-T15-1/CBS-CSE-T15-1-FD.

Quantitation Limits and Sample Results

The percent solids criterion was met for all samples.

PCB Analysis

Dilutions were not performed. Sample quantitation limits (SQLs) were therefore not affected.

Herbicide Analysis

The RPD between the two analytical columns for pentachlorophenol in sample CBS-CSE-T5-1 exceeded the QC acceptance criteria of 40%. In this instance, the laboratory reported the lower of the two values with a "P" qualifier. During validation, the "P" qualifier was removed.

Dilutions were not performed. SQLs were therefore not affected.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T1-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31085

% Moisture: 33 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/02/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	97	U
1918-00-9	Dicamba	30	U
7085-19-0	MCPP	3000	U
94-74-6	MCPA	3000	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	3.3	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-1RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T1-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05054

% Moisture: 33 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/07/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	150	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T2-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31086

% Moisture: 26 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/02/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	88	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	2.0	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-2RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T2-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05055

% Moisture: 26 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/07/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	140	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T3-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31087

% Moisture: 32 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/02/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	96	U
1918-00-9	Dicamba	29	U
7085-19-0	MCPP	2900	U
94-74-6	MCPA	2900	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	25	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-3RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T3-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05056

% Moisture: 32 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/07/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	150	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T3-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31088

% Moisture: 29 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/02/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	92	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	24	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-4RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T3-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05057

% Moisture: 29 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/07/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	140	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T4-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31089

% Moisture: 28 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/02/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	24	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-5RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T4-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05058

% Moisture: 28 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/07/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	140	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T5-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31090

% Moisture: 23 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/02/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	84	U
1918-00-9	Dicamba	26	U
7085-19-0	MCPP	2600	U
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	35	
87-86-5	Pentachlorophenol	2.2	JP-7
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-6RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T5-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05059

% Moisture: 23 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/07/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	130	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-7

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T14-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31091

% Moisture: 32 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/02/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	96	U
1918-00-9	Dicamba	29	U
7085-19-0	MCPP	2900	U
94-74-6	MCPA	2900	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	25	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-7RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T14-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05060

% Moisture: 32 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/07/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	150	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-8

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T15-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31092

% Moisture: 21 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/02/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	82	U
1918-00-9	Dicamba	25	U
7085-19-0	MCPP	2500	U
94-74-6	MCPA	2500	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	10	U
87-86-5	Pentachlorophenol	22	U
93-72-1	2,4,5-TP	10	U
93-76-5	2,4,5-T	10	U
94-82-6	2,4-DB	10	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-8RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T15-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05061

% Moisture: 21 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/07/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	130	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-9

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T15-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31093

% Moisture: 22 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/02/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	83	U
1918-00-9	Dicamba	26	U
7085-19-0	MCPP	2600	U
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	22	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-9RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T15-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05062

% Moisture: 22 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/07/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	130	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-10

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T6-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31094

% Moisture: 30 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/02/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	93	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	1.6	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-10RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T6-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05063

% Moisture: 30 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/07/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	140	U

FORM I SG

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T1-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4603

Level: (low/med) LOW Date Received: 12/19/01

% Moisture: 33 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/30/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.9	U
C-DICHLOROBI----	Dichlorobiphenyl	4.9	U
C-TRICHLOROB----	Trichlorobiphenyl	4.9	U
C-TETRACHLOR----	Tetrachlorobiphenyl	10	U
C-PENTBIPHEN----	Pentachlorobiphenyl	9.1	J
C-HEXACHLORO----	Hexachlorobiphenyl	6.7	J
C-HEPTACHLOR----	Heptachlorobiphenyl	15	U
C-OCTA-BIPHE----	Octachlorobiphenyl	15	U
C-NONACHLORO----	Nonachlorobibiphenyl	25	U
2051-24-3-------	Decachlorobiphenyl	7.4	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-2

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T2-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4604

Level: (low/med) LOW Date Received: 12/19/01

% Moisture: 26 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/30/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.4	U
C-DICHLOROBI----	Dichlorobiphenyl	4.4	U
C-TRICHLOROB----	Trichlorobiphenyl	4.4	U
C-TETRACHLOR----	Tetrachlorobiphenyl	2.4	J
C-PENTBIPHEN----	Pentachlorobiphenyl	18	
C-HEXACHLORO----	Hexachlorobiphenyl	9.5	
C-HEPTACHLOR----	Heptachlorobiphenyl	14	U
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	22	U
2051-24-3-------	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-3

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T3-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4605

Level: (low/med) LOW Date Received: 12/19/01

% Moisture: 32 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/30/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.8	U
C-DICHLOROBI----	Dichlorobiphenyl	4.8	U
C-TRICHLOROB----	Trichlorobiphenyl	4.8	U
C-TETRACHLOR----	Tetrachlorobiphenyl	9.8	U
C-PENTBIPHEN----	Pentachlorobiphenyl	4.4	J
C-HEXACHLORO----	Hexachlorobiphenyl	9.8	U
C-HEPTACHLOR----	Heptachlorobiphenyl	15	U
C-OCTA-BIPHE----	Octachlorobiphenyl	15	U
C-NONACHLORO----	Nonachlorobibiphenyl	24	U
2051-24-3-------	Decachlorobiphenyl	24	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-4

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T3-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: K4606

Level: (low/med) LOW Date Received: 12/19/01

% Moisture: 29 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/30/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.6	U
C-DICHLOROBI----	Dichlorobiphenyl	4.6	U
C-TRICHLOROB----	Trichlorobiphenyl	4.6	U
C-TETRACHLOR----	Tetrachlorobiphenyl	9.4	U
C-PENTBIPHEN----	Pentachlorobiphenyl	2.5	J
C-HEXACHLORO----	Hexachlorobiphenyl	9.4	U
C-HEPTACHLOR----	Heptachlorobiphenyl	14	U
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	24	U
2051-24-3-------	Decachlorobiphenyl	24	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-5

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T4-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4607

Level: (low/med) LOW Date Received: 12/19/01

% Moisture: 28 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/30/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.6	U
C-DICHLOROBI----	Dichlorobiphenyl	4.6	U
C-TRICHLOROB----	Trichlorobiphenyl	4.6	U
C-TETRACHLOR----	Tetrachlorobiphenyl	9.3	U
C-PENTBIPHEN----	Pentachlorobiphenyl	9.3	U
C-HEXACHLORO----	Hexachlorobiphenyl	9.3	U
C-HEPTACHLOR----	Heptachlorobiphenyl	14	U
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	23	U
2051-24-3-------	Decachlorobiphenyl	23	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-6

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T5-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4608

Level: (low/med) LOW Date Received: 12/19/01

% Moisture: 23 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/30/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.3	U
C-DICHLOROBI----	Dichlorobiphenyl	4.3	U
C-TRICHLOROB----	Trichlorobiphenyl	4.3	U
C-TETRACHLOR----	Tetrachlorobiphenyl	8.7	U
C-PENTBIPHEN----	Pentachlorobiphenyl	1.1	J
C-HEXACHLORO----	Hexachlorobiphenyl	1.3	J
C-HEPTACHLOR----	Heptachlorobiphenyl	13	U
C-OCTA-BIPHE----	Octachlorobiphenyl	13	U
C-NONACHLORO----	Nonachlorobibiphenyl	22	U
2051-24-3-------	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-7

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T14-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4609

Level: (low/med) LOW Date Received: 12/19/01

% Moisture: 32 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/30/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
	C-MONOCHLORO----Monochlorobiphenyl	4.8	U
	C-DICHLOROBI----Dichlorobiphenyl	4.8	U
	C-TRICHLOROB----Trichlorobiphenyl	4.8	U
	C-TETRACHLOR----Tetrachlorobiphenyl	9.8	U
	C-PENTBIPHEN----Pentachlorobiphenyl	9.8	U
	C-HEXACHLORO----Hexachlorobiphenyl	9.8	U
	C-HEPTACHLOR----Heptachlorobiphenyl	15	U
	C-OCTA-BIPHE----Octachlorobiphenyl	15	U
	C-NONACHLORO----Nonachlorobibiphenyl	24	U
2051-24-3	-------Decachlorobiphenyl	24	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-8

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T15-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4610

Level: (low/med) LOW Date Received: 12/19/01

% Moisture: 21 decanted: (Y/N) N Date Extracted: 12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/30/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.2	U
C-DICHLOROBI----	Dichlorobiphenyl	4.2	U
C-TRICHLOROB----	Trichlorobiphenyl	4.2	U
C-TETRACHLOR----	Tetrachlorobiphenyl	8.5	U
C-PENTBIPHEN----	Pentachlorobiphenyl	8.5	U
C-HEXACHLORO----	Hexachlorobiphenyl	8.5	U
C-HEPTACHLOR----	Heptachlorobiphenyl	13	U
C-OCTA-BIPHE----	Octachlorobiphenyl	13	U
C-NONACHLORO----	Nonachlorobibiphenyl	21	U
2051-24-3-------	Decachlorobiphenyl	21	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-9

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T15-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: K4611

Level: (low/med) LOW Date Received: 12/19/01

% Moisture: 22 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/30/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.2	U
C-DICHLOROBI----	Dichlorobiphenyl	4.2	U
C-TRICHLOROB----	Trichlorobiphenyl	4.2	U
C-TETRACHLOR----	Tetrachlorobiphenyl	8.6	U
C-PENTBIPHEN----	Pentachlorobiphenyl	8.6	U
C-HEXACHLORO----	Hexachlorobiphenyl	8.6	U
C-HEPTACHLOR----	Heptachlorobiphenyl	13	U
C-OCTA-BIPHE----	Octachlorobiphenyl	13	U
C-NONACHLORO----	Nonachlorobibiphenyl	21	U
2051-24-3-------	Decachlorobiphenyl	21	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-10

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T6-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4612

Level: (low/med) LOW Date Received: 12/19/01

% Moisture: 30 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/30/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.7	U
C-DICHLOROBI----	Dichlorobiphenyl	4.7	U
C-TRICHLOROB----	Trichlorobiphenyl	1.1	J
C-TETRACHLOR----	Tetrachlorobiphenyl	12	
C-PENTBIPHEN----	Pentachlorobiphenyl	46	
C-HEXACHLORO----	Hexachlorobiphenyl	18	
C-HEPTACHLOR----	Heptachlorobiphenyl	14	U
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	24	U
2051-24-3-------	Decachlorobiphenyl	8.4	J

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 26, 2002
From:	Marcia Motta/Westford	**File:**	SO016pestMKM.doc 06105-012-201
RE:	Data Validation Pesticide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL075	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for ten sediment samples analyzed for organochlorine pesticides by SW-846 method 8081A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on December 18 and were submitted to Severn Trent Laboratories (STL) in Savannah GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL075.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
CBS-CSE-T1-1
CBS-CSE-T2-1
CBS-CSE-T3-1
CBS-CSE-T3-1-FD (field duplicate of CBS-CSE-T3-1)
CBS-CSE-T4-1
CBS-CSE-T5-1
CBS-CSE-T14-1
CBS-CSE-T15-1
CBS-CSE-T15-1-FD (field duplicate of CBS-CSE-T15-1)
CBS-CSE-T6-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation

- Blank analysis results
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancy was noted.

It should be mentioned that the laboratory reported the full field sample identification (ID) in the "Lab Sample ID" field on the sample result pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The laboratory does not record cooler receipt temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptable range of 4°C ± 2°C). Non-conformances were not observed for this sample set.

Blank Analysis Results

Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The percent recoveries (%R) of the surrogate decachlorobiphenyl were within the QC acceptance criteria on both columns in all sample analyses.

The %R of the surrogate tetrachloro-m-xylene (27) fell below the QC acceptance criteria in sample CBS-CSE-T14-1. Qualification of the data was not required since the surrogate %R nonconformance occurred in only one of the two analytical columns in the sample.

LCS Results

The %Rs of all spiked target analytes in the LCS were within the QC acceptance criteria.

MS/MSD Results

Batch MS/MSD analyses were reported with this sample set. No validation action was taken on this basis.

Field Duplicate Results

Samples CBS-CSE-T3-1/CBS-CSE-T3-1-FD and CBS-CSE-T15-1/CBS-CSE-T15-1-FD were submitted as the field duplicate pairs with this sample set. The following tables summarize the relative percent differences (RPDs) of the detected analytes in the field duplicate pairs. Under Regional guidelines, sample results are not qualified on the basis of field duplicates. The results and RPDs tabulated below are informational only. It should be noted that several RPDs were not calculable (NC) due to a nondetect result in either the sample or the field duplicate.

ENSR

Analyte	CBS-CSE-T3-1 (µg/kg)	CBS-CSE-T3-1-FD (µg/kg)	RPD (%)
4,4'-DDE	0.53 J	0.35 J	41
Dieldrin	0.87 J	0.61 J	35
4,4'-DDT	0.77 J	4.6 U	NC

Analyte	CBS-CSE-T15-1 (µg/kg)	CBS-CSE-T15-1-FD (µg/kg)	RPD (%)
Dieldrin	4.2 U	0.60 J	NC

Sample Results

The RPD of the results between the two analytical columns exceeded the QC acceptance limit of 40% for various compounds. The laboratory qualified these results with a "P" and reported the lower of the two values. The "P" qualifiers were removed during validation. Positive results, which were greater than the sample quantitation limit (SQLs) for these compounds, were qualified as estimated (J).

Dilutions were not performed on any samples in this sample set. SQLs were not affected.

All sample percent solids were > 50%.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T1-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA03014

% Moisture: 33 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/22/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/03/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.75	U
58-89-9	gamma-BHC (Lindane)	2.5	U
319-85-7	beta-BHC	0.75	U
76-44-8	Heptachlor	2.5	U
319-86-8	delta-BHC	0.75	U
309-00-2	Aldrin	2.5	U
1024-57-3	Heptachlor epoxide	2.5	U
5103-74-2	gamma-Chlordane	2.5	U
5103-71-9	alpha-Chlordane	2.5	U
959-98-8	Endosulfan I	2.5	U
72-55-9	4,4'-DDE	0.63	J
60-57-1	Dieldrin	1.3	J~~P~~-P
72-20-8	Endrin	4.9	U
72-54-8	4,4'-DDD	4.9	U
33213-65-9	Endosulfan II	4.9	U
50-29-3	4,4'-DDT	0.68	J~~P~~-P
7421-93-4	Endrin aldehyde	4.9	U
1031-07-8	Endosulfan sulfate	4.9	U
72-43-5	Methoxychlor	25	U
53494-70-5	Endrin ketone	4.9	U
8001-35-2	Toxaphene	250	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T2-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA03015

% Moisture: 26 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/22/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/03/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.68	U
58-89-9	gamma-BHC (Lindane)	2.3	U
319-85-7	beta-BHC	0.68	U
76-44-8	Heptachlor	2.3	U
319-86-8	delta-BHC	0.68	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	U
959-98-8	Endosulfan I	2.3	U
72-55-9	4,4'-DDE	0.24	J~~P~~-P
60-57-1	Dieldrin	1.2	J~~P~~-P
72-20-8	Endrin	4.4	U
72-54-8	4,4'-DDD	4.4	U
33213-65-9	Endosulfan II	0.66	J~~P~~-P
50-29-3	4,4'-DDT	0.56	J~~P~~-P
7421-93-4	Endrin aldehyde	4.4	U
1031-07-8	Endosulfan sulfate	4.4	U
72-43-5	Methoxychlor	23	U
53494-70-5	Endrin ketone	4.4	U
8001-35-2	Toxaphene	230	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T3-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA03016

% Moisture: 32 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/22/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/03/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.74	U
58-89-9	gamma-BHC (Lindane)	2.5	U
319-85-7	beta-BHC	0.74	U
76-44-8	Heptachlor	2.5	U
319-86-8	delta-BHC	0.74	U
309-00-2	Aldrin	2.5	U
1024-57-3	Heptachlor epoxide	2.5	U
5103-74-2	gamma-Chlordane	2.5	U
5103-71-9	alpha-Chlordane	2.5	U
959-98-8	Endosulfan I	2.5	U
72-55-9	4,4'-DDE	0.53	J
60-57-1	Dieldrin	0.87	JP-P
72-20-8	Endrin	4.8	U
72-54-8	4,4'-DDD	4.8	U
33213-65-9	Endosulfan II	4.8	U
50-29-3	4,4'-DDT	0.77	JP-P
7421-93-4	Endrin aldehyde	4.8	U
1031-07-8	Endosulfan sulfate	4.8	U
72-43-5	Methoxychlor	25	U
53494-70-5	Endrin ketone	4.8	U
8001-35-2	Toxaphene	250	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T3-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA03017

% Moisture: 29 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/22/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/03/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.70	U
58-89-9	gamma-BHC (Lindane)	2.4	U
319-85-7	beta-BHC	0.70	U
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.70	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	U
959-98-8	Endosulfan I	2.4	U
72-55-9	4,4'-DDE	0.35	J
60-57-1	Dieldrin	0.61	JP-P
72-20-8	Endrin	4.6	U
72-54-8	4,4'-DDD	4.6	U
33213-65-9	Endosulfan II	4.6	U
50-29-3	4,4'-DDT	4.6	U
7421-93-4	Endrin aldehyde	4.6	U
1031-07-8	Endosulfan sulfate	4.6	U
72-43-5	Methoxychlor	24	U
53494-70-5	Endrin ketone	4.6	U
8001-35-2	Toxaphene	240	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T4-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA03018

% Moisture: 28 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/22/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/03/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.69	U
58-89-9	gamma-BHC (Lindane)	2.4	U
319-85-7	beta-BHC	0.69	U
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.69	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	U
959-98-8	Endosulfan I	2.4	U
72-55-9	4,4'-DDE	0.24	J
60-57-1	Dieldrin	0.46	JP-P
72-20-8	Endrin	4.6	U
72-54-8	4,4'-DDD	4.6	U
33213-65-9	Endosulfan II	4.6	U
50-29-3	4,4'-DDT	4.6	U
7421-93-4	Endrin aldehyde	4.6	U
1031-07-8	Endosulfan sulfate	4.6	U
72-43-5	Methoxychlor	0.49	JP-P
53494-70-5	Endrin ketone	4.6	U
8001-35-2	Toxaphene	240	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T5-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA03019

% Moisture: 23 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/22/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/03/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.65	U
58-89-9	gamma-BHC (Lindane)	2.2	U
319-85-7	beta-BHC	0.65	U
76-44-8	Heptachlor	2.2	U
319-86-8	delta-BHC	0.65	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
5103-71-9	alpha-Chlordane	2.2	U
959-98-8	Endosulfan I	2.2	U
72-55-9	4,4'-DDE	4.3	U
60-57-1	Dieldrin	0.19	JP-P
72-20-8	Endrin	4.3	U
72-54-8	4,4'-DDD	4.3	U
33213-65-9	Endosulfan II	4.3	U
50-29-3	4,4'-DDT	4.3	U
7421-93-4	Endrin aldehyde	4.3	U
1031-07-8	Endosulfan sulfate	4.3	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.3	U
8001-35-2	Toxaphene	220	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-7

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T14-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA03020

% Moisture: 32 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/22/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/03/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.74	U
58-89-9	gamma-BHC (Lindane)	2.5	U
319-85-7	beta-BHC	0.74	U
76-44-8	Heptachlor	2.5	U
319-86-8	delta-BHC	0.74	U
309-00-2	Aldrin	2.5	U
1024-57-3	Heptachlor epoxide	2.5	U
5103-74-2	gamma-Chlordane	2.5	U
5103-71-9	alpha-Chlordane	2.5	U
959-98-8	Endosulfan I	2.5	U
72-55-9	4,4'-DDE	0.85	J
60-57-1	Dieldrin	0.67	JP-P
72-20-8	Endrin	4.8	U
72-54-8	4,4'-DDD	4.8	U
33213-65-9	Endosulfan II	4.8	U
50-29-3	4,4'-DDT	4.8	U
7421-93-4	Endrin aldehyde	4.8	U
1031-07-8	Endosulfan sulfate	4.8	U
72-43-5	Methoxychlor	25	U
53494-70-5	Endrin ketone	4.8	U
8001-35-2	Toxaphene	250	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-8

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T15-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA03021

% Moisture: 21 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/22/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/03/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.63	U
58-89-9	gamma-BHC (Lindane)	2.2	U
319-85-7	beta-BHC	0.63	U
76-44-8	Heptachlor	2.2	U
319-86-8	delta-BHC	0.63	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
5103-71-9	alpha-Chlordane	2.2	U
959-98-8	Endosulfan I	2.2	U
72-55-9	4,4'-DDE	4.2	U
60-57-1	Dieldrin	4.2	U
72-20-8	Endrin	4.2	U
72-54-8	4,4'-DDD	4.2	U
33213-65-9	Endosulfan II	4.2	U
50-29-3	4,4'-DDT	4.2	U
7421-93-4	Endrin aldehyde	4.2	U
1031-07-8	Endosulfan sulfate	4.2	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.2	U
8001-35-2	Toxaphene	220	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-9

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T15-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA03022

% Moisture: 22 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/22/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/03/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.64	U
58-89-9	gamma-BHC (Lindane)	2.2	U
319-85-7	beta-BHC	0.64	U
76-44-8	Heptachlor	2.2	U
319-86-8	delta-BHC	0.64	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
5103-71-9	alpha-Chlordane	2.2	U
959-98-8	Endosulfan I	2.2	U
72-55-9	4,4'-DDE	4.2	U
60-57-1	Dieldrin	0.60	J~~P~~-P
72-20-8	Endrin	4.2	U
72-54-8	4,4'-DDD	4.2	U
33213-65-9	Endosulfan II	4.2	U
50-29-3	4,4'-DDT	4.2	U
7421-93-4	Endrin aldehyde	4.2	U
1031-07-8	Endosulfan sulfate	4.2	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.2	U
8001-35-2	Toxaphene	220	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18270-10

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL075

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T6-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA03023

% Moisture: 30 decanted: (Y/N) N Date Received: 12/19/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/22/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/03/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.71	U
58-89-9	gamma-BHC (Lindane)	2.4	U
319-85-7	beta-BHC	0.71	U
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.71	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	U
959-98-8	Endosulfan I	2.4	U
72-55-9	4,4'-DDE	4.7	U
60-57-1	Dieldrin	6.4	~~P~~ J-P
72-20-8	Endrin	4.7	U
72-54-8	4,4'-DDD	4.7	U
33213-65-9	Endosulfan II	4.7	U
50-29-3	4,4'-DDT	17	~~P~~ J-P
7421-93-4	Endrin aldehyde	4.7	U
1031-07-8	Endosulfan sulfate	4.7	U
72-43-5	Methoxychlor	24	U
53494-70-5	Endrin ketone	4.7	U
8001-35-2	Toxaphene	240	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 27, 2002
From:	Linda Sulkowski/Westford	**File:**	SO017 06105-012-201
RE:	Data Validation PCB and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL082	**CC:**	A. Mischel/Westford

SUMMARY

Limited validation was performed on the data for six soil samples analyzed for polychlorinated biphenyls (PCBs) by USEPA Method 680 and herbicides by SW-846 method 8151A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on January 23 and 25, 2002 and were submitted to Severn Trent Laboratories (STL) in Savannah GA for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL082.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (*1997*)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSF-T8-1	CBS-CSF-T9-1
CBS-CSF-T9-1-FD (field duplicate of CBS-CSF-T9-1)	CBS-CSF-T12-1
CBS-CSF-T10-1	CBS-CSF-T11-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformance was not noted by the laboratory. No validation action was taken on this basis.

The samples were extracted and analyzed within the method specified holding times for both parameters.

Method Blanks/Equipment Blank

There was no equipment blank submitted with this sample set. There was no validation action taken on this basis.

Target analytes were not detected in the laboratory method blanks associated with all samples for both parameters.

Surrogate Spike Recoveries

The surrogate recoveries were within the QC acceptance limits in all sample analyses for both parameters.

LCS Results

The percent recoveries (%Rs) of the spiked target analytes were within the QC acceptance criteria in the LCSs associated with all sample analyses for both parameters.

MS/MSD Results

<u>PCB Analysis</u>

MS/MSD analyses were performed on sample CBS-CSF-T11-1. The %Rs and the relative percent differences (RPDs) of the spiked target analytes were all within the QC acceptance criteria.

<u>Herbicide Analysis</u>

MS/MSD analyses were performed on sample CBS-CSF-T11-1. With the following exception, the %Rs and the RPDs of the spiked target analytes were all within the QC acceptance criteria. The RPD of 2,4-DB (51) exceeded the QC acceptance criteria. The non-detected result for 2,4-DB in the unspiked sample CBS-CSF-T11-1 was qualified as estimated (UJ).

Field Duplicate Results

Samples CBS-CSF-T9-1 and CBS-CSF-T9-1-FD were submitted as the field duplicate pair with this sample set. Qualification of the data on the basis of field duplicate results was not required per the Regional Guidelines.

PCB Analysis

The following table summarizes the RPDs of the detected analyte in field duplicate pair CBS-CSF-T9-1/CBS-CSF-T9-1-FD.

Compound	CBS-CSF-T9-1 (µg/kg)	CBS-CSF-T9-1-FD (µg/kg)	RPD (%)
Pentachlorobiphenyls	3.2 J	1.4 J	78
Hexachlorobiphenyls	3.4 J	3.3 J	3.0
Decachlorobiphenyls	3.1 J	3.3 J	6.3

Herbicide Analysis

The following table summarizes the RPDs of the detected analyte in field duplicate pair CBS-CSF-T9-1/CBS-CSF-T9-1-FD. The RPD of 2,4-D was not calculable (NC) due to a non-detected result in the field duplicate sample.

Compound	CBS-CSF-T9-1 (µg/kg)	CBS-CSF-T9-1-FD (µg/kg)	RPD (%)
2,4-D	8.4 J	11 U	NC
Pentachlorophenol	2.0 J	1.8 J	10

Quantitation Limits and Sample Results

The percent solids criteria were met for all samples.

Dilutions were not performed. Sample quantitation limits (SQLs) were therefore not affected.

Herbicide Analysis

The RPD between the two analytical columns for several analytes exceeded the QC acceptance criteria of 40% in several samples, In these instances, the laboratory reported the lower of the two values with a "P" qualifier. During validation, the "P" qualifier was removed.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40504-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T8-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SFB04011

~~% Moisture: 27 decanted: (Y/N) N Date Received: 01/24/02~~

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/30/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/04/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	89	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	2.3	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40504-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T9-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SFB04012

~~% Moisture: 33 decanted: (Y/N) N Date Received: 01/24/02~~

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/30/02

Concentrated Extract Volume: 10 (mL) Date Analyzed: 02/04/02

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	97	U
1918-00-9	Dicamba	30	U
7085-19-0	MCPP	3000	U
94-74-6	MCPA	3000	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	8.4	J~~F~~-P
87-86-5	Pentachlorophenol	2.0	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	150	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40504-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T9-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: SFB04013

~~% Moisture: 24 decanted: (Y/N) N Date Received: 01/24/02~~

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/30/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/04/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	86	U
1918-00-9	Dicamba	26	U
7085-19-0	MCPP	2600	U
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	1.8	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	130	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40504-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T12-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SFB04014

~~% Moisture: 26 decanted: (Y/N) N Date Received: 01/24/02~~

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/30/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/04/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	88	U
1918-00-9	Dicamba	27	U
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	23	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40588-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T10-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SFB04015

~~% Moisture: 23 decanted: (Y/N) N Date Received: 01/28/02~~

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/30/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/04/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	84	U
1918-00-9	Dicamba	26	U
7085-19-0	MCPP	2600	U
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	22	U
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	130	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40588-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T11-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SFB04016

~~% Moisture: 28 decanted: (Y/N) N Date Received: 01/28/02~~

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/30/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/04/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	U
1918-00-9	Dicamba	2.1	J
7085-19-0	MCPP	2300	J
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	2.3	J ~~P~~ -P
87-86-5	Pentachlorophenol	1.5	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	~~U~~ UJ-PCD
88-85-7	Dinoseb	140	U

FORM I SG

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40504-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T8-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4803

Level: (low/med) LOW Date Received: 01/24/02

% Moisture: 27 decanted: (Y/N) N Date Extracted: 01/29/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/30/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.5	U
C-DICHLOROBI----	Dichlorobiphenyl	4.5	U
C-TRICHLOROB----	Trichlorobiphenyl	4.5	U
C-TETRACHLOR----	Tetrachlorobiphenyl	9.2	U
C-PENTBIPHEN----	Pentachlorobiphenyl	9.2	U
C-HEXACHLORO----	Hexachlorobiphenyl	9.2	U
C-HEPTACHLOR----	Heptachlorobiphenyl	14	U
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	23	U
2051-24-3-------	Decachlorobiphenyl	23	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40504-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T9-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4804

Level: (low/med) LOW Date Received: 01/24/02

% Moisture: 33 decanted: (Y/N) N Date Extracted: 01/29/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/30/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.9	U
C-DICHLOROBI----	Dichlorobiphenyl	4.9	U
C-TRICHLOROB----	Trichlorobiphenyl	4.9	U
C-TETRACHLOR----	Tetrachlorobiphenyl	10	U
C-PENTBIPHEN----	Pentachlorobiphenyl	3.2	J
C-HEXACHLORO----	Hexachlorobiphenyl	3.4	J
C-HEPTACHLOR----	Heptachlorobiphenyl	15	U
C-OCTA-BIPHE----	Octachlorobiphenyl	15	U
C-NONACHLORO----	Nonachlorobibiphenyl	25	U
2051-24-3-------	Decachlorobiphenyl	3.1	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40504-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T9-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: K4797

Level: (low/med) LOW Date Received: 01/24/02

% Moisture: 24 decanted: (Y/N) N Date Extracted: 01/29/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/30/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.3	U
C-DICHLOROBI----	Dichlorobiphenyl	4.3	U
C-TRICHLOROB----	Trichlorobiphenyl	4.3	U
C-TETRACHLOR----	Tetrachlorobiphenyl	8.8	U
C-PENTBIPHEN----	Pentachlorobiphenyl	1.4	J
C-HEXACHLORO----	Hexachlorobiphenyl	3.3	J
C-HEPTACHLOR----	Heptachlorobiphenyl	13	U
C-OCTA-BIPHE----	Octachlorobiphenyl	13	U
C-NONACHLORO----	Nonachlorobibiphenyl	22	U
2051-24-3-------	Decachlorobiphenyl	3.3	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40504-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T12-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4805

Level: (low/med) LOW Date Received: 01/24/02

% Moisture: 26 decanted: (Y/N) N Date Extracted: 01/29/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/30/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.4	U
C-DICHLOROBI----	Dichlorobiphenyl	4.4	U
C-TRICHLOROB----	Trichlorobiphenyl	4.4	U
C-TETRACHLOR----	Tetrachlorobiphenyl	9.0	U
C-PENTBIPHEN----	Pentachlorobiphenyl	9.0	U
C-HEXACHLORO----	Hexachlorobiphenyl	9.0	U
C-HEPTACHLOR----	Heptachlorobiphenyl	14	U
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	22	U
2051-24-3-------	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40588-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T10-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4806

Level: (low/med) LOW Date Received: 01/28/02

% Moisture: 23 decanted: (Y/N) N Date Extracted: 01/29/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/30/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.3	U
C-DICHLOROBI----	Dichlorobiphenyl	4.3	U
C-TRICHLOROB----	Trichlorobiphenyl	4.3	U
C-TETRACHLOR----	Tetrachlorobiphenyl	8.7	U
C-PENTBIPHEN----	Pentachlorobiphenyl	8.7	U
C-HEXACHLORO----	Hexachlorobiphenyl	8.7	U
C-HEPTACHLOR----	Heptachlorobiphenyl	13	U
C-OCTA-BIPHE----	Octachlorobiphenyl	13	U
C-NONACHLORO----	Nonachlorobibiphenyl	22	U
2051-24-3-------	Decachlorobiphenyl	22	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40588-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T11-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4800

Level: (low/med) LOW Date Received: 01/28/02

% Moisture: 28 decanted: (Y/N) N Date Extracted: 01/29/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/30/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.6	U
C-DICHLOROBI----	Dichlorobiphenyl	4.6	U
C-TRICHLOROB----	Trichlorobiphenyl	4.6	U
C-TETRACHLOR----	Tetrachlorobiphenyl	9.3	U
C-PENTBIPHEN----	Pentachlorobiphenyl	9.3	U
C-HEXACHLORO----	Hexachlorobiphenyl	9.3	U
C-HEPTACHLOR----	Heptachlorobiphenyl	14	U
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	23	U
2051-24-3-------	Decachlorobiphenyl	23	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 26, 2002
From:	Marcia Motta/Westford	**File:**	SO017pestMKM.doc 06105-012-201
RE:	Data Validation Pesticide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL082	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for six sediment samples analyzed for organochlorine pesticides by SW-846 method 8081A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on January 23 and 25, 2002 and were submitted to Severn Trent Laboratories (STL) in Savannah, GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL082

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
CBS-CSF-T8-1
CBS-CSF-T9-1
CBS-CSF-T9-1-FD (field duplicate sample of CBS-CSF-T9-1)
CBS-CSF-T12-1
CBS-CSF-T10-1
CBS-CSF-T11-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Blank analysis results
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancy was noted.

It should be mentioned that the laboratory reported the full field sample identification (ID) in the "Lab Sample ID" field on the sample result pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The laboratory does not record cooler receipt temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptable range of 4°C ± 2°C). Non-conformances were not observed for this sample set.

Blank Analysis Results

Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The percent recoveries (%R) of the surrogate decachlorobiphenyl were within the QC acceptance criteria on both columns in all sample analyses.

The following table summarizes the %Rs of the surrogate tetrachloro-m-xylene (TCMX) which were below the QC acceptance criteria. Positive results and nondetects were qualified as estimated (J and UJ, respectively) for the affected samples.

Sample	TCMX (%R) Column I/Column II
CBS-CSF-T9-1-FD	18/20
CBS-CSF-T10-1	24/27
CBS-CSF-T11-1	22/24

LCS Results

With the exception of alpha-BHC, the %Rs of all spiked target analytes in the LCS were within the QC acceptance criteria. The %R of alpha-BHC (106) exceeded the QC limits. Positive results for alpha-BHC were qualified as estimated (J) in the associated samples.

MS/MSD Results

MS/MSD analyses were performed on sample CBS-CSF-T11-1. The %Rs and relative percent differences (RPDs) were within the QC acceptance limits for all spiked target analytes.

Field Duplicate Results

Samples CBS-CSF-T9-1 and CBS-CSF-T9-1-FD were submitted as the field duplicate pair with this sample set. The following table summarizes the RPDs of the detected analytes in the field duplicate pair. Under Regional guidelines, sample results are not qualified on the basis of field duplicates. The results and RPDs tabulated below are informational only.

ENSR

Analyte	CBS-CSF-T9-1 (µg/kg)	CBS-CSF-T9-1-FD (µg/kg)	RPD (%)
Dieldrin	1.9	2.1	10

Sample Results

The RPD of the results between the two analytical columns exceeded the QC acceptance limit of 40% for various compounds. The laboratory qualified these results with a "P" and reported the lower of the two values. The "P" qualifiers were removed during validation. Positive results, which were greater than the sample quantitation limit (SQLs) for these compounds, were qualified as estimated (J).

All sample percent solids were > 50%.

The following samples were diluted due to the sample matrix. The laboratory adjusted the SQLs accordingly.

Sample	Dilution
CBS-CSF-T8-1	2x
CBS-CSF-T9-1	2x
CBS-CSF-T9-1-FD	4x
CBS-CSF-T10-1	2x
CBS-CSF-T11-1	2x
CBS-CSF-T12-1	4x

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40504-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T8-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA31011

% Moisture: 27 decanted: (Y/N) N Date Received: 01/24/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/29/02

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/31/02

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.4	U
58-89-9	gamma-BHC (Lindane)	4.6	U
319-85-7	beta-BHC	1.4	U
76-44-8	Heptachlor	4.6	U
319-86-8	delta-BHC	1.4	U
309-00-2	Aldrin	4.6	U
1024-57-3	Heptachlor epoxide	4.6	U
5103-74-2	gamma-Chlordane	0.54	J
5103-71-9	alpha-Chlordane	4.6	U
959-98-8	Endosulfan I	4.6	U
72-55-9	4,4'-DDE	9.0	U
60-57-1	Dieldrin	9.0	U
72-20-8	Endrin	9.0	U
72-54-8	4,4'-DDD	9.0	U
33213-65-9	Endosulfan II	9.0	U
50-29-3	4,4'-DDT	9.0	U
7421-93-4	Endrin aldehyde	9.0	U
1031-07-8	Endosulfan sulfate	9.0	U
72-43-5	Methoxychlor	46	U
53494-70-5	Endrin ketone	9.0	U
8001-35-2	Toxaphene	460	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40504-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T9-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA31012

% Moisture: 33 decanted: (Y/N) N Date Received: 01/24/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/29/02

Concentrated Extract Volume: 5 (mL) Date Analyzed: 01/31/02

Injection Volume: 2.0 (uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.5	U
58-89-9	gamma-BHC (Lindane)	5.1	U
319-85-7	beta-BHC	1.5	U
76-44-8	Heptachlor	5.1	U
319-86-8	delta-BHC	1.5	U
309-00-2	Aldrin	5.1	U
1024-57-3	Heptachlor epoxide	5.1	U
5103-74-2	gamma-Chlordane	5.1	U
5103-71-9	alpha-Chlordane	5.1	U
959-98-8	Endosulfan I	5.1	U
72-55-9	4,4'-DDE	9.8	U
60-57-1	Dieldrin	1.9	J
72-20-8	Endrin	9.8	U
72-54-8	4,4'-DDD	9.8	U
33213-65-9	Endosulfan II	9.8	U
50-29-3	4,4'-DDT	9.8	U
7421-93-4	Endrin aldehyde	9.8	U
1031-07-8	Endosulfan sulfate	9.8	U
72-43-5	Methoxychlor	51	U
53494-70-5	Endrin ketone	9.8	U
8001-35-2	Toxaphene	510	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40504-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T9-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA31013

% Moisture: 24 decanted: (Y/N) N Date Received: 01/24/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/29/02

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/31/02

Injection Volume: 2.0(uL) Dilution Factor: 4.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.6	UJ-S
58-89-9	gamma-BHC (Lindane)	8.9	U
319-85-7	beta-BHC	2.6	U
76-44-8	Heptachlor	8.9	U
~~319-86-8~~	~~delta-BHC~~	2.6	U
309-00-2	Aldrin	8.9	U
1024-57-3	Heptachlor epoxide	8.9	U
5103-74-2	gamma-Chlordane	0.92	J~~P~~-P-S
5103-71-9	alpha-Chlordane	8.9	UJ-S
959-98-8	Endosulfan I	8.9	U
72-55-9	4,4'-DDE	17	U
60-57-1	Dieldrin	2.1	J-S
72-20-8	Endrin	17	UJ-S
72-54-8	4,4'-DDD	17	U
33213-65-9	Endosulfan II	17	U
50-29-3	4,4'-DDT	17	U
7421-93-4	Endrin aldehyde	17	U
1031-07-8	Endosulfan sulfate	17	U
72-43-5	Methoxychlor	89	U
53494-70-5	Endrin ketone	17	U
8001-35-2	Toxaphene	890	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40504-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T12-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA31014

% Moisture: 26 decanted: (Y/N) N Date Received: 01/24/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/29/02

Concentrated Extract Volume: 5 (mL) Date Analyzed: 01/31/02

Injection Volume: 2.0 (uL) Dilution Factor: 4.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	2.7	U
58-89-9	gamma-BHC (Lindane)	9.2	U
319-85-7	beta-BHC	2.7	U
76-44-8	Heptachlor	9.2	U
319-86-8	delta-BHC	2.7	U
309-00-2	Aldrin	9.2	U
1024-57-3	Heptachlor epoxide	9.2	U
5103-74-2	gamma-Chlordane	0.82	J
5103-71-9	alpha-Chlordane	9.2	U
959-98-8	Endosulfan I	9.2	U
72-55-9	4,4'-DDE	18	U
60-57-1	Dieldrin	0.80	JP-P
72-20-8	Endrin	18	U
72-54-8	4,4'-DDD	18	U
33213-65-9	Endosulfan II	18	U
50-29-3	4,4'-DDT	18	U
7421-93-4	Endrin aldehyde	18	U
1031-07-8	Endosulfan sulfate	18	U
72-43-5	Methoxychlor	92	U
53494-70-5	Endrin ketone	18	U
8001-35-2	Toxaphene	920	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40588-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T10-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA31009

% Moisture: 23 decanted: (Y/N) N Date Received: 01/28/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/29/02

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/31/02

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.3	UJ-S
58-89-9	gamma-BHC (Lindane)	4.4	U
319-85-7	beta-BHC	1.3	U
76-44-8	Heptachlor	4.4	U
~~319-86-8~~	~~delta-BHC~~	1.3	U
309-00-2	Aldrin	4.4	U
1024-57-3	Heptachlor epoxide	4.4	U
5103-74-2	gamma-Chlordane	4.4	U
5103-71-9	alpha-Chlordane	4.4	U
959-98-8	Endosulfan I	4.4	U
72-55-9	4,4'-DDE	8.6	U
60-57-1	Dieldrin	0.80	J
72-20-8	Endrin	8.6	UJ-S
72-54-8	4,4'-DDD	8.6	U
33213-65-9	Endosulfan II	8.6	U
50-29-3	4,4'-DDT	8.6	U
7421-93-4	Endrin aldehyde	8.6	U
1031-07-8	Endosulfan sulfate	8.6	U
72-43-5	Methoxychlor	44	U
53494-70-5	Endrin ketone	8.6	U
8001-35-2	Toxaphene	440	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40588-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL082

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T11-1

Sample wt/vol: 30 (g/mL) G Lab File ID: RJA31010

% Moisture: 28 decanted: (Y/N) N Date Received: 01/28/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/29/02

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/31/02

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.4	UJ-S
58-89-9	gamma-BHC (Lindane)	4.7	U
319-85-7	beta-BHC	1.4	U
76-44-8	Heptachlor	4.7	U
319-86-8	delta-BHC	1.4	U
309-00-2	Aldrin	4.7	U
1024-57-3	Heptachlor epoxide	4.7	U
5103-74-2	gamma-Chlordane	0.46	J-S
5103-71-9	alpha-Chlordane	4.7	UJ-S
959-98-8	Endosulfan I	4.7	U
72-55-9	4,4'-DDE	9.2	U
60-57-1	Dieldrin	0.72	J-S
72-20-8	Endrin	9.2	UJ-S
72-54-8	4,4'-DDD	9.2	U
33213-65-9	Endosulfan II	9.2	U
50-29-3	4,4'-DDT	9.2	U
7421-93-4	Endrin aldehyde	9.2	U
1031-07-8	Endosulfan sulfate	9.2	U
72-43-5	Methoxychlor	47	U
53494-70-5	Endrin ketone	9.2	U
8001-35-2	Toxaphene	470	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 25, 2002
From:	Linda Sulkowski/Westford	**File:**	SO018 06105-012-201
RE:	Data Validation PCB and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL077	**CC:**	A. Mischel/Westford

SUMMARY

Limited validation was performed on the data for six soil samples analyzed for polychlorinated biphenyls (PCBs) by USEPA Method 680 and herbicides by SW-846 method 8151A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on December 19, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah GA for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL077.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (*1997*)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSE-T12-1	CBS-CSE-T11-1
CBS-CSE-T7-1	CBS-CSE-T8-1
CBS-CSE-T9-1	CBS-CSE-T10-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample result pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformances were not noted by the laboratory. No validation action was taken on this basis.

The samples were extracted and analyzed within the method specified holding times for both parameters.

Method Blanks/Equipment Blank

There was no equipment blank submitted with this sample set. There was no validation action taken on this basis.

Target analytes were not detected in the laboratory method blanks associated with all samples for both parameters.

Surrogate Spike Recoveries

The surrogate recoveries were within the QC acceptance limits in all sample analyses for both parameters.

LCS Results

The percent recoveries (%Rs) of the spiked target analytes were within the QC acceptance criteria in the LCSs associated with all sample analyses for both parameters.

MS/MSD Results

MS/MSD analyses were performed on sample CBS-CSE-T10-1 for both parameters.

PCB Analysis

Seven of nine spiked compounds fell below the QC acceptance criteria in the MS and in the MSD. Target analytes were not detected in the unspiked sample CBS-CSE-T10-1. All results were nondetect and were qualified as estimated (UJ) in the unspiked sample since >50% of the spiked compounds failed %R criteria.

Herbicide Analysis

The RPD of dalapon (100%) exceeded the QC acceptance criteria in the MS/MSD analyses. The non-detected result for dalapon in the unspiked sample CBS-CSE-T10-1 was qualified as estimated (UJ).

Field Duplicate Results

Field duplicate samples were not submitted with this sample set. No validation action was taken on this basis.

ENSR

Quantitation Limits and Sample Results

The percent solid criterion were met for all samples.

PCB Analysis

Dilutions were not performed. Sample quantitation limits (SQLs) were therefore not affected.

Herbicide Analysis

The RPD between the two analytical columns for dicamba in sample CBS-CSE-T10-1 exceeded the QC acceptance criteria of 40%. In this instance, the laboratory reported the lower of the two values with a "P" qualifier. During validation, the "P" qualifier was removed.

Dilutions were not performed. SQLs were therefore not affected.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T12-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31095

% Moisture: 35 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/03/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	100	U
1918-00-9	Dicamba	31	U
7085-19-0	MCPP	3100	U
94-74-6	MCPA	3100	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	13	U
87-86-5	Pentachlorophenol	26	U
93-72-1	2,4,5-TP	13	U
93-76-5	2,4,5-T	13	U
94-82-6	2,4-DB	13	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-1RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T12-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05064

% Moisture: 35 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/08/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	150	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T11-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31096

% Moisture: 32 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/03/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	96	U
1918-00-9	Dicamba	29	U
7085-19-0	MCPP	2900	U
94-74-6	MCPA	2900	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	25	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-2RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T11-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05065

% Moisture: 32 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/08/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	150	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T7-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31097

% Moisture: 31 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/03/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	94	U
1918-00-9	Dicamba	29	U
7085-19-0	MCPP	2900	U
94-74-6	MCPA	2900	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	25	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-3RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T7-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05066

% Moisture: 31 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/08/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	140	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T8-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31098

% Moisture: 37 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/03/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	100	U
1918-00-9	Dicamba	32	U
7085-19-0	MCPP	3200	U
94-74-6	MCPA	3200	U
120-36-5	Dichlorprop	160	U
94-75-7	2,4-D	13	U
87-86-5	Pentachlorophenol	27	U
93-72-1	2,4,5-TP	13	U
93-76-5	2,4,5-T	13	U
94-82-6	2,4-DB	13	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-4RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T8-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05067

% Moisture: 37 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/08/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	160	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T9-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31099

% Moisture: 33 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/03/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	97	U
1918-00-9	Dicamba	30	U
7085-19-0	MCPP	3000	U
94-74-6	MCPA	3000	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	25	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-5RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T9-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05068

% Moisture: 33 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/08/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	150	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T10-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SDC31100

% Moisture: 28 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/03/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	UJ-H
1918-00-9	Dicamba	2.5	J~~P~~-P
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	24	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-6RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T10-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA05069

% Moisture: 28 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/08/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	140	U

FORM I SG

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T12-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4594

Level: (low/med) LOW Date Received: 12/20/01

% Moisture: 35 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	5.1	U
C-DICHLOROBI----	Dichlorobiphenyl	5.1	U
C-TRICHLOROB----	Trichlorobiphenyl	5.1	U
C-TETRACHLOR----	Tetrachlorobiphenyl	10	U
C-PENTBIPHEN----	Pentachlorobiphenyl	10	U
C-HEXACHLORO----	Hexachlorobiphenyl	10	U
C-HEPTACHLOR----	Heptachlorobiphenyl	15	U
C-OCTA-BIPHE----	Octachlorobiphenyl	15	U
C-NONACHLORO----	Nonachlorobibiphenyl	26	U
2051-24-3-------	Decachlorobiphenyl	26	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-2

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T11-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4595

Level: (low/med) LOW Date Received: 12/20/01

% Moisture: 32 decanted: (Y/N) N Date Extracted: 12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.8	U
C-DICHLOROBI----	Dichlorobiphenyl	4.8	U
C-TRICHLOROB----	Trichlorobiphenyl	4.8	U
C-TETRACHLOR----	Tetrachlorobiphenyl	9.8	U
C-PENTBIPHEN----	Pentachlorobiphenyl	18	
C-HEXACHLORO----	Hexachlorobiphenyl	10	
C-HEPTACHLOR----	Heptachlorobiphenyl	15	U
C-OCTA-BIPHE----	Octachlorobiphenyl	15	U
C-NONACHLORO----	Nonachlorobibiphenyl	24	U
2051-24-3-------	Decachlorobiphenyl	7.9	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-3

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T7-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4596

Level: (low/med) LOW Date Received: 12/20/01

% Moisture: 31 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.8	U
C-DICHLOROBI----	Dichlorobiphenyl	4.8	U
C-TRICHLOROB----	Trichlorobiphenyl	4.8	U
C-TETRACHLOR----	Tetrachlorobiphenyl	9.7	U
C-PENTBIPHEN----	Pentachlorobiphenyl	9.7	U
C-HEXACHLORO----	Hexachlorobiphenyl	9.7	U
C-HEPTACHLOR----	Heptachlorobiphenyl	14	U
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	24	U
2051-24-3-------	Decachlorobiphenyl	24	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-4

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T8-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4597

Level: (low/med) LOW Date Received: 12/20/01

% Moisture: 37 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	5.2	U
C-DICHLOROBI----	Dichlorobiphenyl	5.2	U
C-TRICHLOROB----	Trichlorobiphenyl	5.2	U
C-TETRACHLOR----	Tetrachlorobiphenyl	11	U
C-PENTBIPHEN----	Pentachlorobiphenyl	15	
C-HEXACHLORO----	Hexachlorobiphenyl	7.7	J
C-HEPTACHLOR----	Heptachlorobiphenyl	16	U
C-OCTA-BIPHE----	Octachlorobiphenyl	16	U
C-NONACHLORO----	Nonachlorobibiphenyl	26	U
2051-24-3-------	Decachlorobiphenyl	6.2	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-5

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T9-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4598

Level: (low/med) LOW Date Received: 12/20/01

% Moisture: 33 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/29/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.9	U
C-DICHLOROBI----	Dichlorobiphenyl	4.9	U
C-TRICHLOROB----	Trichlorobiphenyl	4.9	U
C-TETRACHLOR----	Tetrachlorobiphenyl	10	U
C-PENTBIPHEN----	Pentachlorobiphenyl	10	U
C-HEXACHLORO----	Hexachlorobiphenyl	10	U
C-HEPTACHLOR----	Heptachlorobiphenyl	15	U
C-OCTA-BIPHE----	Octachlorobiphenyl	15	U
C-NONACHLORO----	Nonachlorobibiphenyl	25	U
2051-24-3-------	Decachlorobiphenyl	25	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-6

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T10-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4562

Level: (low/med) LOW Date Received: 12/20/01

% Moisture: 28 decanted: (Y/N) N Date Extracted:12/21/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 12/28/01

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.6	U J-M
C-DICHLOROBI----	Dichlorobiphenyl	4.6	U
C-TRICHLOROB----	Trichlorobiphenyl	4.6	U
C-TETRACHLOR----	Tetrachlorobiphenyl	9.3	U
C-PENTBIPHEN----	Pentachlorobiphenyl	9.3	U
C-HEXACHLORO----	Hexachlorobiphenyl	9.3	U
C-HEPTACHLOR----	Heptachlorobiphenyl	14	U
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	23	U
2051-24-3-------	Decachlorobiphenyl	23	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	May 1, 2002
From:	Phuong Vu/Westford	**File:**	SO018pestDPV.doc 06105-012-201
RE:	Data Validation Pesticide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL077	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for six sediment samples analyzed for organochlorine pesticides by SW-846 method 8081A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on December 19, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah, GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL077.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997),* the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identification
CBS-CSE-T12-1
CBS-CSE-T11-1
CBS-CSE-T7-1
CBS-CSE-T8-1
CBS-CSE-T9-1
CBS-CSE-T10-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Blank analysis results
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Sample results

ENSR

DISEUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancy was noted.

It should be mentioned that the laboratory reported the full field sample identification (ID) in the "Lab Sample ID" field on the sample result pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The laboratory does not record cooler receipt temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptable range of 4°C ± 2°C). Non-conformances were not observed for this sample set.

Blank Analysis Results

Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

Surrogate recoveries were within the QC acceptance criteria in all sample analyses.

LCS Results

The recoveries of all spiked target analytes in the LCS were within the QC acceptance criteria.

MS/MSD Results

MS/MSD analyses were performed on sample CBS-CSE-T10-1. The following table summarizes %Rs and/or relative percent difference (RPD) nonconformances. Nondetects were reported for the listed compounds in the unspiked sample CBS-CSE-T10-1; these nondetects were qualified as estimated (UJ).

Compound	MS (%R)	MSD (%R)	RPD (%)
Alpha-Chlordane	33	ok	46
Aldrin	ok	ok	44
Dieldrin	ok	ok	41

Field Duplicate Results

A field duplicate pair was not submitted with this sample set.

Sample Results

The RPD of the results between the two analytical columns exceeded the QC acceptance limit of 40% for various compounds. The laboratory qualified these results with a "P" and reported the lower of the two values. The "P" qualifiers were removed during validation. There were no positive results which were greater than the sample quantitation limit (SQLs) for these compounds.

All sample percent solids were > 50%.

Dilutions were not performed on any samples in this data set. SQLs were therefore not affected.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T12-1

Sample wt/vol: 30 (g/mL) G Lab File ID: JJA07026

% Moisture: 35 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/22/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/08/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.77	U
58-89-9	gamma-BHC (Lindane)	2.6	U
319-85-7	beta-BHC	0.77	U
76-44-8	Heptachlor	2.6	U
319-86-8	delta-BHC	0.77	U
309-00-2	Aldrin	2.6	U
1024-57-3	Heptachlor epoxide	2.6	U
5103-74-2	gamma-Chlordane	2.6	U
5103-71-9	alpha-Chlordane	2.6	U
959-98-8	Endosulfan I	0.17	J
72-55-9	4,4'-DDE	5.1	U
60-57-1	Dieldrin	5.1	U
72-20-8	Endrin	5.1	U
72-54-8	4,4'-DDD	5.1	U
33213-65-9	Endosulfan II	5.1	U
50-29-3	4,4'-DDT	5.1	U
7421-93-4	Endrin aldehyde	5.1	U
1031-07-8	Endosulfan sulfate	5.1	U
72-43-5	Methoxychlor	26	U
53494-70-5	Endrin ketone	5.1	U
8001-35-2	Toxaphene	260	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T11-1

Sample wt/vol: 30 (g/mL) G Lab File ID: JJA07027

% Moisture: 32 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/22/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/08/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	0.74	U	
58-89-9	gamma-BHC (Lindane)	2.5	U	
319-85-7	beta-BHC	0.74	U	
76-44-8	Heptachlor	2.5	U	
319-86-8	delta-BHC	0.74	U	
309-00-2	Aldrin	2.5	U	
1024-57-3	Heptachlor epoxide	0.58	~~JP~~	J-P
5103-74-2	gamma-Chlordane	2.5	U	
5103-71-9	alpha-Chlordane	2.5	U	
959-98-8	Endosulfan I	2.5	U	
72-55-9	4,4'-DDE	4.8	U	
60-57-1	Dieldrin	0.31	~~JP~~	J-P
72-20-8	Endrin	4.8	U	
72-54-8	4,4'-DDD	4.8	U	
33213-65-9	Endosulfan II	4.8	U	
50-29-3	4,4'-DDT	1.7	~~JP~~	J-P
7421-93-4	Endrin aldehyde	4.8	U	
1031-07-8	Endosulfan sulfate	4.8	U	
72-43-5	Methoxychlor	25	U	
53494-70-5	Endrin ketone	4.8	U	
8001-35-2	Toxaphene	250	U	

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T7-1

Sample wt/vol: 30 (g/mL) G Lab File ID: JJA07028

% Moisture: 31 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/22/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/08/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.72	U
58-89-9	gamma-BHC (Lindane)	2.5	U
319-85-7	beta-BHC	0.72	U
76-44-8	Heptachlor	2.5	U
319-86-8	delta-BHC	0.72	U
309-00-2	Aldrin	2.5	U
1024-57-3	Heptachlor epoxide	0.18	~~JP~~ J-P
5103-74-2	gamma-Chlordane	2.5	U
5103-71-9	alpha-Chlordane	2.5	U
959-98-8	Endosulfan I	2.5	U
72-55-9	4,4'-DDE	4.8	U
60-57-1	Dieldrin	4.8	U
72-20-8	Endrin	4.8	U
72-54-8	4,4'-DDD	0.59	J
33213-65-9	Endosulfan II	4.8	U
50-29-3	4,4'-DDT	4.8	U
7421-93-4	Endrin aldehyde	4.8	U
1031-07-8	Endosulfan sulfate	4.8	U
72-43-5	Methoxychlor	0.78	J
53494-70-5	Endrin ketone	4.8	U
8001-35-2	Toxaphene	250	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T8-1

Sample wt/vol: 30 (g/mL) G Lab File ID: JJA07029

% Moisture: 37 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/22/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/08/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	0.79	U	
58-89-9	gamma-BHC (Lindane)	2.7	U	
319-85-7	beta-BHC	0.79	U	
76-44-8	Heptachlor	2.7	U	
319-86-8	delta-BHC	0.79	U	
309-00-2	Aldrin	2.7	U	
1024-57-3	Heptachlor epoxide	0.30	~~JP~~	J-P
5103-74-2	gamma-Chlordane	2.7	U	
5103-71-9	alpha-Chlordane	2.7	U	
959-98-8	Endosulfan I	0.15	J	
72-55-9	4,4'-DDE	5.2	U	
60-57-1	Dieldrin	0.20	~~JP~~	J-P
72-20-8	Endrin	5.2	U	
72-54-8	4,4'-DDD	5.2	U	
33213-65-9	Endosulfan II	5.2	U	
50-29-3	4,4'-DDT	0.73	~~JP~~	J-P
7421-93-4	Endrin aldehyde	5.2	U	
1031-07-8	Endosulfan sulfate	5.2	U	
72-43-5	Methoxychlor	27	U	
53494-70-5	Endrin ketone	5.2	U	
8001-35-2	Toxaphene	270	U	

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-5

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T9-1

Sample wt/vol: 30 (g/mL) G Lab File ID: JJA07030

% Moisture: 33 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/22/01

Concentrated Extract Volume: 5 (mL) Date Analyzed: 01/08/02

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q	
319-84-6	alpha-BHC	0.75	U	
58-89-9	gamma-BHC (Lindane)	2.5	U	
319-85-7	beta-BHC	0.75	U	
76-44-8	Heptachlor	2.5	U	
319-86-8	delta-BHC	0.75	U	
309-00-2	Aldrin	2.5	U	
1024-57-3	Heptachlor epoxide	0.59	J	
5103-74-2	gamma-Chlordane	0.24	~~JP~~	J-P
5103-71-9	alpha-Chlordane	2.5	U	
959-98-8	Endosulfan I	2.5	U	
72-55-9	4,4'-DDE	4.9	U	
60-57-1	Dieldrin	4.9	U	
72-20-8	Endrin	4.9	U	
72-54-8	4,4'-DDD	4.9	U	
33213-65-9	Endosulfan II	4.9	U	
50-29-3	4,4'-DDT	4.9	U	
7421-93-4	Endrin aldehyde	4.9	U	
1031-07-8	Endosulfan sulfate	4.9	U	
72-43-5	Methoxychlor	0.89	~~JP~~	J-P
53494-70-5	Endrin ketone	4.9	U	
8001-35-2	Toxaphene	250	U	

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18334A-6

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL077

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T10-1

Sample wt/vol: 30 (g/mL) G Lab File ID: JJA07031

% Moisture: 28 decanted: (Y/N) N Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/22/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/08/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) Y

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.69	U
58-89-9	gamma-BHC (Lindane)	2.4	U
319-85-7	beta-BHC	0.69	U
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.69	U
309-00-2	Aldrin	2.4	UJ-AK D
1024-57-3	Heptachlor epoxide	0.52	J
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	UJ-AK-D
959-98-8	Endosulfan I	0.11	~~JP~~ J-AK J-1
72-55-9	4,4'-DDE	4.6	U
60-57-1	Dieldrin	4.6	UJ-AK D
72-20-8	Endrin	4.6	U
72-54-8	4,4'-DDD	4.6	U
33213-65-9	Endosulfan II	4.6	U
50-29-3	4,4'-DDT	4.6	U
7421-93-4	Endrin aldehyde	4.6	U
1031-07-8	Endosulfan sulfate	4.6	U
72-43-5	Methoxychlor	24	U
53494-70-5	Endrin ketone	4.6	U
8001-35-2	Toxaphene	240	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 27, 2002
From:	Linda Sulkowski/Westford	**File:**	SO019 06105-012-201
RE:	Data Validation PCB and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL083	**CC:**	A. Mischel/Westford

SUMMARY

Limited validation was performed on the data for one soil sample analyzed for polychlorinated biphenyls (PCBs) by USEPA Method 680 and herbicides by SW-846 method 8151A. The sample was collected at the Sauget Area 1 site in Sauget and Cahokia, IL on February 6, 2002 and was submitted to Severn Trent Laboratories (STL) in Savannah, GA for analysis. STL processed the sample and reported the results under sample delivery group (SDG) SIL083.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (*1997*)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Qualification of the data was not required.

SAMPLES

The sample included in this review is listed below:

Sample Identification
CBS-CSF-T16-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformances were not noted by the laboratory. No validation action was taken on this basis.

It should be noted that samples SP-013 and SW-EF-004, which were listed on the COC, were not included in the scope of this validation.

The sample was extracted and analyzed within the method specified holding times for both parameters.

Method Blanks/Equipment Blank

There was no equipment blank submitted with this sample set. There was no validation action taken on this basis.

Target analytes were not detected in the laboratory method blanks associated with the sample for both parameters.

Surrogate Spike Recoveries

The surrogate recoveries were within the QC acceptance limits in the sample analyses for both parameters.

LCS Results

The percent recoveries (%Rs) of the spiked target analytes were within the QC acceptance criteria in the LCSs associated with the sample analyses for both parameters.

MS/MSD Results

MS/MSD analyses were performed on sample from CBS-CSF-T16-1. The %Rs and relative percent differences (RPDs) of the spiked target analytes were within the QC acceptance criteria for both parameters.

Field Duplicate Results

Field duplicate samples were not submitted with this sample set. No validation action was taken on this basis.

Quantitation Limits and Sample Results

The percent solids criteria were met for the sample.

Dilutions were not performed. Sample quantitation limits (SQLs) were therefore not affected.

ENSR

Herbicide Analysis

Target analytes were not detected in the sample.

Dual column RPD met the acceptance criteria of <40%.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40850-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: AF03 SAS No.: 8081 SDG No.: SIL083

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T16-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SFB14013

~~% Moisture: 30 decanted: (Y/N) N Date Received: 02/07/02~~

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/13/02

Concentrated Extract Volume: 10 (mL) Date Analyzed: 02/14/02

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	93	U
1918-00-9	Dicamba	28	U
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	24	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40850-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL083

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T16-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4906

Level: (low/med) LOW Date Received: 02/07/02

% Moisture: 30 decanted: (Y/N) N Date Extracted: 02/13/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 02/15/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.7	U
C-DICHLOROBI----	Dichlorobiphenyl	4.7	U
C-TRICHLOROB----	Trichlorobiphenyl	4.7	U
C-TETRACHLOR----	Tetrachlorobiphenyl	9.6	U
C-PENTBIPHEN----	Pentachlorobiphenyl	9.6	U
C-HEXACHLORO----	Hexachlorobiphenyl	9.6	U
C-HEPTACHLOR----	Heptachlorobiphenyl	14	U
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	24	U
2051-24-3-------	Decachlorobiphenyl	24	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 25, 2002
From:	Marcia Motta/Westford	**File:**	SO019pestMKM.doc 06105-012-201
RE:	Data Validation Pesticide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL083	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for one sediment sample analyzed for organochlorine pesticides by SW-846 method 8081A. The sample was collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on February 6, 2002 and was submitted to Severn Trent Laboratories (STL) in Savannah GA, for analysis. STL processed the sample and reported the results under sample delivery group (SDG) SIL083.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997),* the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The sample included in this review is listed below:

Sample Identification
CBS-CSF-T16-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Blank analysis results
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports corresponded to analytical requests as designated on the COC with the exception of sample SP013, which was not included in the scope of this data validation effort.

It should be mentioned that the laboratory reported the full field sample identification (ID) in the "Lab Sample ID" field on the sample result pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

The sample was extracted and analyzed within the method specified holding times.

The laboratory does not record cooler receipt temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptable range of 4°C ± 2°C). Non-conformances were not observed for this sample set.

Blank Analysis Results

Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The surrogate recoveries were within the QC acceptance criteria in the sample analysis.

LCS Results

The recoveries of all spiked target analytes in the LCS were within the QC acceptance criteria.

MS/MSD Results

Batch MS/MSD analyses were reported with this sample set. No validation action was taken on this basis.

Field Duplicate Results

A field duplicate pair was not submitted with this sample set.

Sample Results

The relative percent difference of the results between the two analytical columns exceeded the QC acceptance limit of 40% for various compounds. The laboratory qualified these results with a "P" and reported the lower of the two values. The "P" qualifiers were removed during validation. Positive results, which were greater than the sample quantitation limit (SQLs) for these compounds, were qualified as estimated (J).

Dilutions were not performed. Sample quantitation limit (SQLs) were therefore not affected.

The sample percent solids was > 50%.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40850-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: AF03 SAS No.: 8081 SDG No.: SIL083

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T16-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IFB20012

% Moisture: 30 decanted: (Y/N) N Date Received: 02/07/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/19/02

Concentrated Extract Volume: 5 (mL) Date Analyzed: 02/20/02

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.71	U
58-89-9	gamma-BHC (Lindane)	2.4	U
319-85-7	beta-BHC	0.71	U
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.71	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
5103-74-2	gamma-Chlordane	1.6	J~~P~~-P
5103-71-9	alpha-Chlordane	2.8	~~P~~J-P
959-98-8	Endosulfan I	2.4	U
72-55-9	4,4'-DDE	0.86	J
60-57-1	Dieldrin	1.0	J
72-20-8	Endrin	4.7	U
72-54-8	4,4'-DDD	4.7	U
33213-65-9	Endosulfan II	4.7	U
50-29-3	4,4'-DDT	4.7	U
7421-93-4	Endrin aldehyde	4.7	U
1031-07-8	Endosulfan sulfate	4.7	U
72-43-5	Methoxychlor	24	U
53494-70-5	Endrin ketone	4.7	U
8001-35-2	Toxaphene	240	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 25, 2002
From:	Linda Sulkowski/Westford	**File:**	SO020 06105-012-201
RE:	Data Validation PCB and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL079	**CC:**	A. Mischel/Westford

SUMMARY

Limited validation was performed on the data for six soil samples analyzed for polychlorinated biphenyls (PCBs) by USEPA Method 680 and herbicides by SW-846 method 8151A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on December 20-21, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah GA for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL079.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSB-T15-1	CBS-CSB-T16-1
CBS-CSB-T14-1	CBS-CSE-T17-1
CBS-CSF-T1-1	CBS-CSE-T16-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Surrogate spike recoveries

- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

It should be noted that sample CBS-CSB-T6-1, which was listed on the COC for TCLP analysis, was not included in the scope of this validation.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformances were not noted by the laboratory. No validation action was taken on this basis.

The samples were extracted and analyzed within the method specified holding times for both parameters.

Method Blanks/Equipment Blank

There was no equipment blank submitted with this sample set. There was no validation action taken on this basis.

Target analytes were not detected in the laboratory method blanks associated with all samples for both parameters.

Surrogate Spike Recoveries

The surrogate recoveries were within the QC acceptance limits in all sample analyses for both parameters.

LCS Results

The percent recoveries (%Rs) of the spiked target analytes were within the QC acceptance criteria in the LCSs associated with all sample analyses for both parameters.

MS/MSD Results

PCB Analysis

MS/MSD analyses were performed on sample CBS-CSF-T1-1. The %Rs and the relative percent differences (RPDs) of the spiked target analytes were all within the QC acceptance criteria.

Herbicide Analysis

MS/MSD analyses were performed on a sample from another SDG. Accuracy in the laboratory was demonstrated by the analysis of an LCS.

Field Duplicate Results

Field duplicate samples were not submitted with this sample set. No validation action was taken on this basis.

Quantitation Limits and Sample Results

With the exception of sample CBS-CSE-T16-1 (49%), the percent solids criteria were met for all samples. The positive and non-detected PCB and herbicide results for sample CBS-CSB-T16-1 were qualified as estimated (J/UJ).

PCB Analysis

Dilutions were not performed. Sample quantitation limits (SQLs) were therefore not affected.

Herbicide Analysis

The RPD between the two analytical columns for several analytes exceeded the QC acceptance criteria of <40% in several samples. In these instances, the laboratory reported the lower of the two values with a "P" qualifier. During validation, the "P" qualifier was removed. The positive result for 2,4-D, which was above the SQL, in sample CBS-CSB-T16-1 was qualified as estimated (J).

Dilutions were not performed; SQLs were therefore not affected.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18395-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T15-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4642

Level: (low/med) LOW Date Received: 12/21/01

% Moisture: 24 decanted: (Y/N) N Date Extracted:12/28/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/03/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.3	U
C-DICHLOROBI----	Dichlorobiphenyl	4.3	U
C-TRICHLOROB----	Trichlorobiphenyl	4.3	U
C-TETRACHLOR----	Tetrachlorobiphenyl	36	
C-PENTBIPHEN----	Pentachlorobiphenyl	42	
C-HEXACHLORO----	Hexachlorobiphenyl	4.4	J
C-HEPTACHLOR----	Heptachlorobiphenyl	2.6	J
C-OCTA-BIPHE----	Octachlorobiphenyl	13	U
C-NONACHLORO----	Nonachlorobibiphenyl	2.8	J
2051-24-3-------	Decachlorobiphenyl	8.3	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18395-2

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T16-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4643

Level: (low/med) LOW Date Received: 12/21/01

% Moisture: 31 decanted: (Y/N) N Date Extracted:12/28/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/03/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.8	U
C-DICHLOROBI----	Dichlorobiphenyl	4.8	U
C-TRICHLOROB----	Trichlorobiphenyl	2.8	J
C-TETRACHLOR----	Tetrachlorobiphenyl	16	
C-PENTBIPHEN----	Pentachlorobiphenyl	78	
C-HEXACHLORO----	Hexachlorobiphenyl	12	
C-HEPTACHLOR----	Heptachlorobiphenyl	3.8	J
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	24	U
2051-24-3-------	Decachlorobiphenyl	7.4	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18395-3

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T14-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4636

Level: (low/med) LOW Date Received: 12/21/01

% Moisture: 35 decanted: (Y/N) N Date Extracted:12/28/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/03/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	5.1	U
C-DICHLOROBI----	Dichlorobiphenyl	5.1	U
C-TRICHLOROB----	Trichlorobiphenyl	5.1	U
C-TETRACHLOR----	Tetrachlorobiphenyl	10	U
C-PENTBIPHEN----	Pentachlorobiphenyl	10	U
C-HEXACHLORO----	Hexachlorobiphenyl	10	U
C-HEPTACHLOR----	Heptachlorobiphenyl	15	U
C-OCTA-BIPHE----	Octachlorobiphenyl	15	U
C-NONACHLORO----	Nonachlorobibiphenyl	26	U
2051-24-3-------	Decachlorobiphenyl	26	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18419-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T17-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4637

Level: (low/med) LOW Date Received: 12/22/01

% Moisture: 43 decanted: (Y/N) N Date Extracted: 12/28/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/03/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	5.8	U
C-DICHLOROBI----	Dichlorobiphenyl	5.8	U
C-TRICHLOROB----	Trichlorobiphenyl	5.8	U
C-TETRACHLOR----	Tetrachlorobiphenyl	3.6	J
C-PENTBIPHEN----	Pentachlorobiphenyl	61	
C-HEXACHLORO----	Hexachlorobiphenyl	12	
C-HEPTACHLOR----	Heptachlorobiphenyl	5.9	J
C-OCTA-BIPHE----	Octachlorobiphenyl	18	U
C-NONACHLORO----	Nonachlorobibiphenyl	3.9	J
2051-24-3-------	Decachlorobiphenyl	17	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18419-2

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T1-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4644

Level: (low/med) LOW Date Received: 12/22/01

% Moisture: 40 decanted: (Y/N) N Date Extracted:12/28/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/03/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	5.5	U
C-DICHLOROBI----	Dichlorobiphenyl	5.5	U
C-TRICHLOROB----	Trichlorobiphenyl	5.5	U
C-TETRACHLOR----	Tetrachlorobiphenyl	11	U
C-PENTBIPHEN----	Pentachlorobiphenyl	11	U
C-HEXACHLORO----	Hexachlorobiphenyl	11	U
C-HEPTACHLOR----	Heptachlorobiphenyl	17	U
C-OCTA-BIPHE----	Octachlorobiphenyl	17	U
C-NONACHLORO----	Nonachlorobibiphenyl	28	U
2051-24-3-------	Decachlorobiphenyl	28	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18419-3

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T16-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4646

Level: (low/med) LOW Date Received: 12/22/01

% Moisture: 51 decanted: (Y/N) N Date Extracted:12/28/01

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/03/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	6.7	UJ-X
C-DICHLOROBI----	Dichlorobiphenyl	5.7	J-X
C-TRICHLOROB----	Trichlorobiphenyl	64	J-X
C-TETRACHLOR----	Tetrachlorobiphenyl	160	
C-PENTBIPHEN----	Pentachlorobiphenyl	570	
C-HEXACHLORO----	Hexachlorobiphenyl	82	
C-HEPTACHLOR----	Heptachlorobiphenyl	64	
C-OCTA-BIPHE----	Octachlorobiphenyl	32	
C-NONACHLORO----	Nonachlorobibiphenyl	94	
2051-24-3-------	Decachlorobiphenyl	180	

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18395-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T15-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA10014

% Moisture: 24 decanted: (Y/N) N Date Received: 12/21/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/03/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/10/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	86	U
1918-00-9	Dicamba	26	U
7085-19-0	MCPP	2600	U
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	5.6	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	130	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18395-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T16-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA10015

% Moisture: 31 decanted: (Y/N) N Date Received: 12/21/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/03/02

Concentrated Extract Volume: 10 (mL) Date Analyzed: 01/10/02

Injection Volume: 1.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	94	U
1918-00-9	Dicamba	29	U
7085-19-0	MCPP	2900	U
94-74-6	MCPA	2900	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	17	~~P~~ J-P
87-86-5	Pentachlorophenol	12	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18395-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T14-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA10016

% Moisture: 35 decanted: (Y/N) N Date Received: 12/21/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:01/03/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/10/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	100	U
1918-00-9	Dicamba	31	U
7085-19-0	MCPP	3100	U
94-74-6	MCPA	3100	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	13	U
87-86-5	Pentachlorophenol	2.5	J
93-72-1	2,4,5-TP	13	U
93-76-5	2,4,5-T	13	U
94-82-6	2,4-DB	13	U
88-85-7	Dinoseb	150	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18419-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T17-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA10017

% Moisture: 43 decanted: (Y/N) N Date Received: 12/22/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/03/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/11/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	110	U
1918-00-9	Dicamba	35	U
7085-19-0	MCPP	3500	U
94-74-6	MCPA	3500	U
120-36-5	Dichlorprop	180	U
94-75-7	2,4-D	14	U
87-86-5	Pentachlorophenol	10	J
93-72-1	2,4,5-TP	14	U
93-76-5	2,4,5-T	14	U
94-82-6	2,4-DB	14	U
88-85-7	Dinoseb	180	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18419-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T1-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA10018

% Moisture: 40 decanted: (Y/N) N Date Received: 12/22/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:01/03/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/11/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	110	U
1918-00-9	Dicamba	33	U
7085-19-0	MCPP	3300	U
94-74-6	MCPA	3300	U
120-36-5	Dichlorprop	170	U
94-75-7	2,4-D	14	U
87-86-5	Pentachlorophenol	28	U
93-72-1	2,4,5-TP	14	U
93-76-5	2,4,5-T	14	U
94-82-6	2,4-DB	14	U
88-85-7	Dinoseb	170	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18419-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T16-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA10019

% Moisture: 51 decanted: (Y/N) N Date Received: 12/22/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/03/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/11/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	130	UJ-X
1918-00-9	Dicamba	41	U
7085-19-0	MCPP	4100	U
94-74-6	MCPA	4100	U
120-36-5	Dichlorprop	200	U
94-75-7	2,4-D	16	J-P-X
87-86-5	Pentachlorophenol	33	J-X
93-72-1	2,4,5-TP	17	UJ-X
93-76-5	2,4,5-T	17	U
94-82-6	2,4-DB	17	U
88-85-7	Dinoseb	200	U

FORM I SG

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 25, 2002
From:	Marcia Motta/Westford	**File:**	SO020pestMKM.doc 06105-012-201
RE:	Data Validation Pesticide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL079	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for six sediment samples analyzed for organochlorine pesticides by SW-846 method 8081A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on December 20 and 21, 2001 and were submitted to Severn Trent Laboratories (STL) in Savannah, GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL079.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identification
CBS-CSB-T15-1
CBS-CSB-T16-1
CBS-CSB-T14-1
CBS-CSE-T17-1
CBS-CSF-T1-1
CBS-CSE-T16-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Blank analysis results
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Sample results

ENSR

DISEUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancy was noted.

It should be mentioned that the laboratory reported the full field sample identification (ID) in the "Lab Sample ID" field on the sample result pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The laboratory does not record cooler receipt temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptable range of 4°C ± 2°C). Non-conformances were not observed for this sample set.

Blank Analysis Results

Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The following table summarizes the percent recoveries (%Rs) of the surrogate decachlorobiphenyl (DCB) that exceeded the QC acceptance criteria in samples analyzed at less than a 5-fold dilution. Positive results were qualified as estimated (J) for the affected sample.

Sample	DCB (%R) Column I/Column II
CBS-CSB-T15-1	273/273

LCS Results

With the exception of endrin ketone, the %Rs of all spiked target analytes in the LCS were within the QC acceptance criteria. The %R of endrin ketone (145) exceeded the QC limits. Nondetects were reported for endrin ketone in the associated samples; these nondetects were accepted unqualified.

MS/MSD Results

MS/MSD analyses were performed on sample CBS-CSF-T1-1. The %Rs of all spiked target analytes in were within the QC acceptance criteria in the MS/MSD. The following table summarizes the relative percent difference (RPD) nonconformances. Positive results and nondetects for the listed compounds in the unspiked sample CBS-CSF-T1-1 were qualified as estimated (J and UJ, respectively).

Compound	RPD (%)
Aldrin	40
Heptachlor epoxide	54
gamma-Chlordane	102
4,4'-DDE	39
Dieldrin	32
4,4'-DDT	40

ENSR

Field Duplicate Results

A field duplicate pair was not submitted with this sample set.

Sample Results

The RPD of the results between the two analytical columns exceeded the QC acceptance limit of 40% for various compounds. The laboratory qualified these results with a "P" and reported the lower of the two values. The "P" qualifiers were removed during validation. Positive results, which were greater than the sample quantitation limit (SQLs) for these compounds, were qualified as estimated (J).

With the exception of CBS-CSE-T16-1, all sample percent solids were > 50%. Sample percent solid for CBS-CSE-T16-1 was below 50%, Positive results and nondetects for this sample were qualified as estimated (J and UJ, respectively).

The following samples were diluted due to the sample matrix. The laboratory adjusted the SQLs accordingly.

Sample	Dilution
CBS-CSB-T15-1	2X
CBS-CSB-T16-1	5X
CBS-CSB-T14-1	2X
CBS-CSE-T17-1	5X
CBS-CSE-T16-1	5X

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18395-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T15-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA11013

% Moisture: 24 decanted: (Y/N) N Date Received: 12/21/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/11/02

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.3	U
58-89-9	gamma-BHC (Lindane)	4.5	U
319-85-7	beta-BHC	1.3	U
76-44-8	Heptachlor	4.5	U
319-86-8	delta-BHC	1.3	U
309-00-2	Aldrin	4.5	U
1024-57-3	Heptachlor epoxide	4.5	U
5103-74-2	gamma-Chlordane	4.5	U
5103-71-9	alpha-Chlordane	4.5	U
959-98-8	Endosulfan I	4.5	U
72-55-9	4,4'-DDE	4.0	JP-P-~~5~~ 5
60-57-1	Dieldrin	6.0	JP-P-~~5~~ 5
72-20-8	Endrin	8.7	U
72-54-8	4,4'-DDD	8.7	U
33213-65-9	Endosulfan II	8.7	U
50-29-3	4,4'-DDT	8.7	U
7421-93-4	Endrin aldehyde	8.7	U
1031-07-8	Endosulfan sulfate	8.7	U
72-43-5	Methoxychlor	45	U
53494-70-5	Endrin ketone	8.7	U
8001-35-2	Toxaphene	450	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18395-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T16-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA11014

% Moisture: 31 decanted: (Y/N) N Date Received: 12/21/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/11/02

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.6	U
58-89-9	gamma-BHC (Lindane)	12	U
319-85-7	beta-BHC	3.6	U
76-44-8	Heptachlor	12	U
319-86-8	delta-BHC	3.6	U
309-00-2	Aldrin	12	U
1024-57-3	Heptachlor epoxide	12	U
5103-74-2	gamma-Chlordane	12	U
5103-71-9	alpha-Chlordane	12	U
959-98-8	Endosulfan I	12	U
72-55-9	4,4'-DDE	24	U
60-57-1	Dieldrin	38	~~P~~ J-P
72-20-8	Endrin	24	U
72-54-8	4,4'-DDD	24	U
33213-65-9	Endosulfan II	24	U
50-29-3	4,4'-DDT	130	~~P~~ J-P
7421-93-4	Endrin aldehyde	24	U
1031-07-8	Endosulfan sulfate	12	J~~P~~-P
72-43-5	Methoxychlor	120	U
53494-70-5	Endrin ketone	24	U
8001-35-2	Toxaphene	1200	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18395-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSB-T14-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA11015

% Moisture: 35 decanted: (Y/N) N Date Received: 12/21/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/11/02

Injection Volume: 2.0(uL) Dilution Factor: 2.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.5	U
58-89-9	gamma-BHC (Lindane)	5.2	U
319-85-7	beta-BHC	1.5	U
76-44-8	Heptachlor	5.2	U
319-86-8	delta-BHC	1.5	U
309-00-2	Aldrin	5.2	U
1024-57-3	Heptachlor epoxide	5.2	U
5103-74-2	gamma-Chlordane	5.2	U
5103-71-9	alpha-Chlordane	5.2	U
959-98-8	Endosulfan I	5.2	U
72-55-9	4,4'-DDE	10	U
60-57-1	Dieldrin	10	U
72-20-8	Endrin	10	U
72-54-8	4,4'-DDD	10	U
33213-65-9	Endosulfan II	10	U
50-29-3	4,4'-DDT	10	U
7421-93-4	Endrin aldehyde	10	U
1031-07-8	Endosulfan sulfate	10	U
72-43-5	Methoxychlor	52	U
53494-70-5	Endrin ketone	10	U
8001-35-2	Toxaphene	520	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18419-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T17-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA11018

% Moisture: 43 decanted: (Y/N) N Date Received: 12/22/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:12/28/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/11/02

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	4.4	U
58-89-9	gamma-BHC (Lindane)	15	U
319-85-7	beta-BHC	4.4	U
76-44-8	Heptachlor	15	U
319-86-8	delta-BHC	4.4	U
309-00-2	Aldrin	15	U
1024-57-3	Heptachlor epoxide	15	U
5103-74-2	gamma-Chlordane	5.5	J~~P~~-P-~~B~~
5103-71-9	alpha-Chlordane	8.7	J-~~B~~
959-98-8	Endosulfan I	15	U
72-55-9	4,4'-DDE	7.2	J-~~B~~
60-57-1	Dieldrin	9.8	J~~P~~-P-~~B~~
72-20-8	Endrin	29	U
72-54-8	4,4'-DDD	47	J-~~B~~
33213-65-9	Endosulfan II	29	U
50-29-3	4,4'-DDT	9.1	J~~P~~-P-~~B~~
7421-93-4	Endrin aldehyde	29	U
1031-07-8	Endosulfan sulfate	1.5	J~~P~~-P-~~B~~
72-43-5	Methoxychlor	150	U
53494-70-5	Endrin ketone	29	U
8001-35-2	Toxaphene	1500	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18419-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T1-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA11019

% Moisture: 40 decanted: (Y/N) N Date Received: 12/22/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/28/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/11/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.83	U~~J~~-M mm 4/25/02
58-89-9	gamma-BHC (Lindane)	2.8	U~~J~~-M
319-85-7	beta-BHC	0.83	U~~J~~-M
76-44-8	Heptachlor	2.8	U~~J~~-M
319-86-8	delta-BHC	0.83	U~~J~~-M
309-00-2	Aldrin	2.8	U~~J~~-~~M~~-D
1024-57-3	Heptachlor epoxide	2.8	U~~J~~-~~M~~-D
5103-74-2	gamma-Chlordane	2.8	U~~J~~-~~M~~-D
5103-71-9	alpha-Chlordane	2.8	U
959-98-8	Endosulfan I	2.8	U
72-55-9	4,4'-DDE	0.36	J-~~M~~-D
60-57-1	Dieldrin	0.35	J~~P~~-~~P~~-~~M~~-D
72-20-8	Endrin	5.5	U
72-54-8	4,4'-DDD	5.5	U
33213-65-9	Endosulfan II	5.5	U
50-29-3	4,4'-DDT	5.5	U~~J~~-~~M~~-D
7421-93-4	Endrin aldehyde	5.5	U
1031-07-8	Endosulfan sulfate	5.5	U
72-43-5	Methoxychlor	28	U
53494-70-5	Endrin ketone	5.5	U
8001-35-2	Toxaphene	280	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18419-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T16-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA11020

% Moisture: 51 decanted: (Y/N) N Date Received: 12/22/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 12/28/01

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/11/02

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	1.3	J~~P~~-P-X
58-89-9	gamma-BHC (Lindane)	17	UJ-X
319-85-7	beta-BHC	5.1	U
76-44-8	Heptachlor	17	U
319-86-8	delta-BHC	5.1	U
309-00-2	Aldrin	17	U
1024-57-3	Heptachlor epoxide	17	U
5103-74-2	gamma-Chlordane	17	U
5103-71-9	alpha-Chlordane	17	U
959-98-8	Endosulfan I	17	U
72-55-9	4,4'-DDE	34	U
60-57-1	Dieldrin	34	~~P~~J-P-X
72-20-8	Endrin	34	UJ-X
72-54-8	4,4'-DDD	34	U
33213-65-9	Endosulfan II	34	U
50-29-3	4,4'-DDT	34	U
7421-93-4	Endrin aldehyde	34	U
1031-07-8	Endosulfan sulfate	16	J~~P~~-P-X
72-43-5	Methoxychlor	170	UJ-X
53494-70-5	Endrin ketone	34	U
8001-35-2	Toxaphene	1700	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

18419-3RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL079

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T16-1

Sample wt/vol: 30 (g/mL) G Lab File ID: IJA21045

% Moisture: 51 decanted: (Y/N) N Date Received: 12/22/01

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/21/02

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/22/02

Injection Volume: 2.0(uL) Dilution Factor: 5.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	5.1	U
58-89-9	gamma-BHC (Lindane)	17	U
319-85-7	beta-BHC	5.1	U
76-44-8	Heptachlor	17	U
319-86-8	delta-BHC	5.1	U
309-00-2	Aldrin	17	U
1024-57-3	Heptachlor epoxide	17	U
5103-74-2	gamma-Chlordane	17	U
5103-71-9	alpha-Chlordane	17	U
959-98-8	Endosulfan I	17	U
72-55-9	4,4'-DDE	34	U
60-57-1	Dieldrin	26	JP
72-20-8	Endrin	34	U
72-54-8	4,4'-DDD	34	U
33213-65-9	Endosulfan II	34	U
50-29-3	4,4'-DDT	24	JP
7421-93-4	Endrin aldehyde	34	U
1031-07-8	Endosulfan sulfate	18	JP
72-43-5	Methoxychlor	170	U
53494-70-5	Endrin ketone	34	U
8001-35-2	Toxaphene	1700	U

not reported mm 4/25/02

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 25, 2002
From:	Linda Sulkowski/Westford	**File:**	SO021 06105-012-201
RE:	Data Validation PCB and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL080	**CC:**	A. Mischel/Westford

SUMMARY

Limited validation was performed on the data for four soil samples analyzed for polychlorinated biphenyls (PCBs) by USEPA Method 680 and herbicides by SW-846 method 8151A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on January 8, 2002 and were submitted to Severn Trent Laboratories (STL) in Savannah GA for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL080.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
CBS-CSF-T5-1
CBS-CSF-T14-1
CBS-CSF-T15-1
CBS-CSF-T15-1-FD (field duplicate of CBS-CSF-T15-1)

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

It should be noted that sample SP-011, which was listed on the COC, was not included in the scope of this validation.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformances were not noted by the laboratory. No validation action was taken on this basis.

The samples were extracted and analyzed within the method specified holding times for both parameters.

Method Blanks/Equipment Blank

There was no equipment blank submitted with this sample set. There was no validation action taken on this basis.

Target analytes were not detected in the laboratory method blanks associated with all samples for both parameters.

Surrogate Spike Recoveries

PCB Analysis

The surrogate recoveries were within the QC acceptance limits in all sample analyses .

Herbicide Analysis

The percent recovery (%R) of the surrogate 2,4-dichlorophenylacetic acid (217%) exceeded the QC acceptance criteria on Column II in the analysis of sample CBS-CSF-T5-1 for dinoseb only. Dinoseb was not detected in this sample. Qualification of the result was therefore not required.

LCS Results

The percent recoveries (%Rs) of the spiked target analytes were within the QC acceptance criteria in the LCSs associated with all sample analyses for both parameters.

MS/MSD Results

MS/MSD analyses were performed on sample CBS-CSF-T15-1 for both parameters.

PCB Analysis

The %Rs and the relative percent differences (RPDs) of the detected analytes were all within the QC acceptance criteria.

Herbicide Analysis

The %Rs and/or the RPDs of the majority of the spiked target analytes fell outside the QC acceptance criteria. Since >50% of the spiked compounds failed recovery criteria, all positive and non-detected results in the unspiked sample CBS-CSF-T15-1 were qualified as estimated (J/UJ).

Field Duplicate Results

Samples CBS-CSF-T15-1 and CBS-CSF-T15-1-FD were submitted as the field duplicate pair with this sample set. Qualification of the data on the basis of field duplicate results was not required per Regional Guidelines.

PCB Analysis

The following table summarizes the RPDs of the detected analytes in field duplicate pair CBS-CSF-T15-1 and CBS-CSF-T15-1-FD.

Compound	CBS-CSF-T15-1 (µg/kg)	CBS-CSF-T15-1-FD (µg/kg)	RPD (%)
Pentachlorobiphenyls	5.8 J	3.9 J	25
Hexachlorobiphenyls	6.5 J	6.7 J	30
Decachlorobiphenyl	6.2 J	10 J	47

Herbicide Analysis

The following table summarizes the RPDs of the detected analyte in field duplicate pair CBS-CSF-T15-1 and CBS-CSF-T15-1-FD. The RPD for 2,4-D was not calculable (NC) due to a nondetect in the field duplicate.

Compound	CBS-CSF-T15-1 (µg/kg)	CBS-CSF-T15-1-FD (µg/kg)	RPD (%)
Dicamba	10 J	2.5 J	120
2,4-D	47 J	11 U	NC
Pentachlorphenol	5.3 J	6.2 J	16

Quantitation Limits and Sample Results

The percent solids criterion was met for all samples.

PCB Analysis

Dilutions were not performed; Sample quantitation limits (SQLs) were therefore not affected.

Herbicide Analysis

Dilutions were not performed; SQLs were therefore not affected.

All dual column RPDs met the acceptance criteria of <40%.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T5-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4710

Level: (low/med) LOW Date Received: 01/09/02

% Moisture: 28 decanted: (Y/N) N Date Extracted: 01/15/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/16/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.6	U
C-DICHLOROBI----	Dichlorobiphenyl	4.6	U
C-TRICHLOROB----	Trichlorobiphenyl	1.0	J
C-TETRACHLOR----	Tetrachlorobiphenyl	9.3	U
C-PENTBIPHEN----	Pentachlorobiphenyl	9.3	U
C-HEXACHLORO----	Hexachlorobiphenyl	9.3	U
C-HEPTACHLOR----	Heptachlorobiphenyl	14	U
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	23	U
2051-24-3-------	Decachlorobiphenyl	23	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-2

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T14-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4711

Level: (low/med) LOW Date Received: 01/09/02

% Moisture: 26 decanted: (Y/N) N Date Extracted: 01/15/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/16/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.4	U
C-DICHLOROBI----	Dichlorobiphenyl	4.4	U
C-TRICHLOROB----	Trichlorobiphenyl	4.4	U
C-TETRACHLOR----	Tetrachlorobiphenyl	9.0	U
C-PENTBIPHEN----	Pentachlorobiphenyl	11	
C-HEXACHLORO----	Hexachlorobiphenyl	7.9	J
C-HEPTACHLOR----	Heptachlorobiphenyl	14	U
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	22	U
2051-24-3-------	Decachlorobiphenyl	6.1	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-3

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T15-1

Sample wt/vol: 30 (g/mL) G Lab File ID: K4712

Level: (low/med) LOW Date Received: 01/09/02

% Moisture: 30 decanted: (Y/N) N Date Extracted: 01/15/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/16/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.7	U
C-DICHLOROBI----	Dichlorobiphenyl	4.7	U
C-TRICHLOROB----	Trichlorobiphenyl	4.7	U
C-TETRACHLOR----	Tetrachlorobiphenyl	9.6	U
C-PENTBIPHEN----	Pentachlorobiphenyl	5.8	J
C-HEXACHLORO----	Hexachlorobiphenyl	6.5	J
C-HEPTACHLOR----	Heptachlorobiphenyl	14	U
C-OCTA-BIPHE----	Octachlorobiphenyl	14	U
C-NONACHLORO----	Nonachlorobibiphenyl	24	U
2051-24-3-------	Decachlorobiphenyl	6.2	J

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-4

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T15-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: K4721

Level: (low/med) LOW Date Received: 01/09/02

% Moisture: 24 decanted: (Y/N) N Date Extracted: 01/15/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 01/17/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.3	U
C-DICHLOROBI----	Dichlorobiphenyl	4.3	U
C-TRICHLOROB----	Trichlorobiphenyl	4.3	U
C-TETRACHLOR----	Tetrachlorobiphenyl	8.8	U
C-PENTBIPHEN----	Pentachlorobiphenyl	3.9	J
C-HEXACHLORO----	Hexachlorobiphenyl	6.7	J
C-HEPTACHLOR----	Heptachlorobiphenyl	13	U
C-OCTA-BIPHE----	Octachlorobiphenyl	13	U
C-NONACHLORO----	Nonachlorobibiphenyl	3.3	J
2051-24-3-------	Decachlorobiphenyl	10	J

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T5-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA18011

% Moisture: 28 decanted: (Y/N) N Date Received: 01/09/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/14/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/18/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	90	U
1918-00-9	Dicamba	5.9	J
7085-19-0	MCPP	2800	U
94-74-6	MCPA	2800	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	24	U
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-1RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T5-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA22008

% Moisture: 28 decanted: (Y/N) N Date Received: 01/09/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/14/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/22/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T14-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA18012

% Moisture: 26 decanted: (Y/N) N Date Received: 01/09/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:01/14/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/18/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	88	U
1918-00-9	Dicamba	2.1	J
7085-19-0	MCPP	2700	U
94-74-6	MCPA	2700	U
120-36-5	Dichlorprop	140	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	4.0	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	140	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-2RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T14-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA22009

% Moisture: 26 decanted: (Y/N) N Date Received: 01/09/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/14/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/22/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	140	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T15-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA18013

% Moisture: 30 decanted: (Y/N) N Date Received: 01/09/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:01/14/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/18/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	93	UJ-M-D
1918-00-9	Dicamba	10	J-M-D
7085-19-0	MCPP	2800	UJ-M-D
94-74-6	MCPA	2800	UJ-M-D
120-36-5	Dichlorprop	140	UJ-M-D
94-75-7	2,4-D	47	J-M-D
87-86-5	Pentachlorophenol	5.3	J-M-D
93-72-1	2,4,5-TP	12	UJ-M-D
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	140	U

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-3RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T15-1

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA22010

% Moisture: 30 decanted: (Y/N) N Date Received: 01/09/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:01/14/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/22/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	140	UJ-M -D

FORM I SG

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T15-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA18014

% Moisture: 24 decanted: (Y/N) N Date Received: 01/09/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted:01/14/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/18/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	86	U
1918-00-9	Dicamba	2.5	J
7085-19-0	MCPP	2600	U
94-74-6	MCPA	2600	U
120-36-5	Dichlorprop	130	U
94-75-7	2,4-D	11	U
87-86-5	Pentachlorophenol	6.2	J
93-72-1	2,4,5-TP	11	U
93-76-5	2,4,5-T	11	U
94-82-6	2,4-DB	11	U
88-85-7	Dinoseb	130	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-4RE

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T15-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: SJA22011

% Moisture: 24 decanted: (Y/N) N Date Received: 01/09/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/14/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 01/22/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
88-85-7	Dinoseb	130	U

FORM I SG

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 26, 2002
From:	Marcia Motta/Westford	**File:**	SO021pestMKM.doc 06105-012-201
RE:	Data Validation Pesticide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL080	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for four sediment samples analyzed for organochlorine pesticides by SW-846 method 8081A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on January 8, 2002 and were submitted to Severn Trent Laboratories (STL) in Savannah, GA, for analysis. STL processed the samples and reported the results under sample delivery group (SDG) SIL080.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997),* the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. The nondetect results for three analytes in sample CBS-CSF-T15-1 were rejected (R) due to percent recoveries (%Rs) <10% in the MS/MSD analyses. Selected data points were also qualified as estimated due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
CBS-CSF-T5-1
CBS-CSF-T14-1
CBS-CSF-T15-1
CBS-CSF-T15-1-FD (field duplicate sample of CBS-CSF-T15-1)

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Blank analysis results
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC with the exception of sample SP011, which was not included in the scope of this data validation effort.

It should be mentioned that the laboratory reported the full field sample identification (ID) in the "Lab Sample ID" field on the sample result pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

The samples were extracted and analyzed within the method specified holding times.

The laboratory does not record cooler receipt temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptable range of 4°C ± 2°C). Non-conformances were not observed for this sample set.

Blank Analysis Results

Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The following table summarizes the %Rs of the surrogate decachlorobiphenyl (DCB) and/or tetrachloro-m-xylene (TCMX) that exceeded the QC acceptance criteria.

Sample	%R (TCMX) Column I/Column II	%R (DCB) Column I/Column II
CBS-CSF-T15-1	27/ok	300/325
CBS-CSF-T15-1-FD	ok/ok	291/254

Sample results were qualified as follows:

- If one or both surrogates were above the QC limits on both columns, positive results were qualified as estimated (J).
- If one surrogate was below QC limits on one column but met QC criteria on the other column, no qualification of the results was required.

LCS Results

With the exception of endrin ketone, the %Rs of all spiked target analytes in the LCS were within the QC acceptance criteria. The %R of endrin ketone (115) exceeded the QC limits. Endrin ketone was not detected in the associated samples; qualification of the data was therefore not required.

MS/MSD Results

MS/MSD analyses were performed on sample CBS-CSF-T15-1. The following table summarizes %Rs and/or relative percent difference (RPD) nonconformances.

Compound	%R (MS)	%R (MSD)	RPD
4,4'-DDE	4	3	42
Dieldrin	19	ok	70
Endrin	27	12	76
4,4'-DDT	16	9	60
Methoxychlor	11	ok	89
Heptachlor	6	ok	140
Endosulfan I	ok	ok	48
Endosulfan II	ok	ok	71

Results for the affected compounds in the unspiked sample CBS-CSF-T15-1 were qualified as follows:

- If the RPD exceeded the laboratory QC limit, positive results and nondetects were estimated (J and UJ, respectively).
- If the %R exceeded the laboratory QC limit, positive results were estimated (J).
- If the %R was below the laboratory QC limit but ≥10%, positive results and nondetects were estimated (J and UJ, respectively).
- If the %R was <10%, positive results were estimated (J) and nondetects were rejected (R).

Field Duplicate Results

Samples CBS-CSF-T15-1 and CBS-CSF-T15-1-FD were submitted as the field duplicate pair with this sample set. Target analytes were not detected in these samples. Field duplicate precision was deemed acceptable.

Sample Results

Dilutions were not performed. Sample quantitation limit (SQLs) were therefore not affected.

All sample percent solids were > 50%.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T5-1

Sample wt/vol: 30 (g/mL) G Lab File ID: JJA22021

% Moisture: 28 decanted: (Y/N) N Date Received: 01/09/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/15/02

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/22/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.69	U
58-89-9	gamma-BHC (Lindane)	2.4	U
319-85-7	beta-BHC	0.69	U
76-44-8	Heptachlor	2.4	U
319-86-8	delta-BHC	0.69	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	U
959-98-8	Endosulfan I	2.4	U
72-55-9	4,4'-DDE	4.6	U
60-57-1	Dieldrin	4.6	U
72-20-8	Endrin	4.6	U
72-54-8	4,4'-DDD	4.6	U
33213-65-9	Endosulfan II	4.6	U
50-29-3	4,4'-DDT	4.6	U
7421-93-4	Endrin aldehyde	4.6	U
1031-07-8	Endosulfan sulfate	4.6	U
72-43-5	Methoxychlor	24	U
53494-70-5	Endrin ketone	4.6	U
8001-35-2	Toxaphene	240	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-2

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T14-1

Sample wt/vol: 30 (g/mL) G Lab File ID: JJA22022

% Moisture: 26 decanted: (Y/N) N Date Received: 01/09/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/15/02

Concentrated Extract Volume: 5 (mL) Date Analyzed: 01/22/02

Injection Volume: 2.0 (uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.68	U
58-89-9	gamma-BHC (Lindane)	2.3	U
319-85-7	beta-BHC	0.68	U
76-44-8	Heptachlor	2.3	U
319-86-8	delta-BHC	0.68	U
309-00-2	Aldrin	2.3	U
1024-57-3	Heptachlor epoxide	2.3	U
5103-74-2	gamma-Chlordane	2.3	U
5103-71-9	alpha-Chlordane	2.3	U
959-98-8	Endosulfan I	2.3	U
72-55-9	4,4'-DDE	4.4	U
60-57-1	Dieldrin	4.4	U
72-20-8	Endrin	4.4	U
72-54-8	4,4'-DDD	4.4	U
33213-65-9	Endosulfan II	4.4	U
50-29-3	4,4'-DDT	4.4	U
7421-93-4	Endrin aldehyde	4.4	U
1031-07-8	Endosulfan sulfate	4.4	U
72-43-5	Methoxychlor	23	U
53494-70-5	Endrin ketone	4.4	U
8001-35-2	Toxaphene	230	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-3

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T15-1

Sample wt/vol: 30 (g/mL) G Lab File ID: JJA22023

% Moisture: 30 decanted: (Y/N) N Date Received: 01/09/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/15/02

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/22/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.71	U
58-89-9	gamma-BHC (Lindane)	2.4	U
319-85-7	beta-BHC	0.71	U
76-44-8	Heptachlor	~~2.4~~	~~UJ-M~~ R-M-D
319-86-8	delta-BHC	0.71	U
309-00-2	Aldrin	2.4	U
1024-57-3	Heptachlor epoxide	2.4	U
5103-74-2	gamma-Chlordane	2.4	U
5103-71-9	alpha-Chlordane	2.4	U
959-98-8	Endosulfan I	2.4	UJ-M-D
72-55-9	4,4'-DDE	~~4.7~~	~~U~~ R-M-D
60-57-1	Dieldrin	4.7	UJ-M-D
72-20-8	Endrin	4.7	~~UJ~~ M-D
72-54-8	4,4'-DDD	4.7	U
33213-65-9	Endosulfan II	4.7	UJ-M-D
50-29-3	4,4'-DDT	~~4.7~~	~~UJ-M~~ R-M-D
7421-93-4	Endrin aldehyde	4.7	U
1031-07-8	Endosulfan sulfate	4.7	U
72-43-5	Methoxychlor	24	UJ-M-D
53494-70-5	Endrin ketone	4.7	U
8001-35-2	Toxaphene	240	U

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

40124-4

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL080

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSF-T15-1-FD

Sample wt/vol: 30 (g/mL) G Lab File ID: JJA22024

% Moisture: 24 decanted: (Y/N) N Date Received: 01/09/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 01/15/02

Concentrated Extract Volume: 5(mL) Date Analyzed: 01/22/02

Injection Volume: 2.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	0.66	U
58-89-9	gamma-BHC (Lindane)	2.2	U
319-85-7	beta-BHC	0.66	U
76-44-8	Heptachlor	2.2	U
319-86-8	delta-BHC	0.66	U
309-00-2	Aldrin	2.2	U
1024-57-3	Heptachlor epoxide	2.2	U
5103-74-2	gamma-Chlordane	2.2	U
5103-71-9	alpha-Chlordane	2.2	U
959-98-8	Endosulfan I	2.2	U
72-55-9	4,4'-DDE	4.3	U
60-57-1	Dieldrin	4.3	U
72-20-8	Endrin	4.3	U
72-54-8	4,4'-DDD	4.3	U
33213-65-9	Endosulfan II	4.3	U
50-29-3	4,4'-DDT	4.3	U
7421-93-4	Endrin aldehyde	4.3	U
1031-07-8	Endosulfan sulfate	4.3	U
72-43-5	Methoxychlor	22	U
53494-70-5	Endrin ketone	4.3	U
8001-35-2	Toxaphene	220	U

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 27, 2002
From:	Linda Sulkowski/Westford	**File:**	SO022 06105-012-201
RE:	Data Validation PCB and Herbicide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL084	**CC:**	A. Mischel/Westford

SUMMARY

Limited validation was performed on the data for one soil sample analyzed for polychlorinated biphenyls (PCBs) by USEPA Method 680 and herbicides by SW-846 method 8151A. The sample was collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on February 14, 2002 and was submitted to Severn Trent Laboratories (STL) in Savannah, GA for analysis. STL processed the sample and reported the results under sample delivery group (SDG) SIL084.

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (*1997*)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodologies.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The sample included in this review is listed below:

Sample Identification
CBS-CSE-T13-2

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Quantitation limits and sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. No discrepancies were found. The laboratory reported the full field sample identification (ID) in the lab ID field on the sample results pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

It should be noted that STL typically does not record cooler receipt temperatures unless there is a nonconformance of the QC acceptance criteria of 4°C ± 2°C. Cooler temperature nonconformances were not noted by the laboratory. No validation action was taken on this basis.

The sample was extracted and analyzed within the method specified holding times for both parameters.

Method Blanks/Equipment Blank

There was no equipment blank submitted with this sample set. There was no validation action taken on this basis.

Target analytes were not detected in the laboratory method blanks associated with the sample for both parameters.

Surrogate Spike Recoveries

The surrogate recoveries were within the QC acceptance limits in the sample analyses for both parameters.

LCS Results

The percent recoveries (%Rs) of the spiked target analytes were within the QC acceptance criteria in the LCSs associated with the sample analyses for both parameters.

MS/MSD Results

<u>PCB Analysis</u>

MS/MSD analyses were performed on sample CBS-CSE-T13-2. With the following exception, the %Rs and the relative percent differences (RPDs) of the spiked target analytes were all within the QC acceptance criteria. The %Rs of pentachlorobiphenyls (160%/35%) fell outside the QC acceptance criteria. Positive results for pentachlorobiphenyls were qualified as estimated (J) in sample CBS-CSE-T13-2.

<u>Herbicide Analysis</u>

MS/MSD analyses were performed on sample CBS-CSE-T13-2. The %Rs and RPDs of the spiked target analytes were within the QC acceptance criteria.

Field Duplicate Results

Field duplicate samples were not submitted with this sample set. No validation action was taken on this basis.

ENSR

Quantitation Limits and Sample Results

The percent solids criteria were met for the sample.

Dilutions were not performed. Sample quantitation limits (SQLs) were therefore not affected.

Herbicide Analysis

The dual columnRPD criteria met the QC acceptance criteria of <40%.

It should be noted that the laboratory reported 4-nitrophenol as a SVOC compound using method 8270C in order to obtain a lower detection limit than could be obtained by method 8151A.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

41071-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: SAS No.: SDG No.: SIL084

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T13-2

Sample wt/vol: 30 (g/mL) G Lab File ID: SFB21012

~~% Moisture: 33 decanted: (Y/N) N Date Received: 02/15/02~~

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/19/02

Concentrated Extract Volume: 10(mL) Date Analyzed: 02/21/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
75-99-0	Dalapon	97	U
1918-00-9	Dicamba	30	U
7085-19-0	MCPP	3000	UJ ~~NCD~~
94-74-6	MCPA	3000	U
120-36-5	Dichlorprop	150	U
94-75-7	2,4-D	12	U
87-86-5	Pentachlorophenol	16	J
93-72-1	2,4,5-TP	12	U
93-76-5	2,4,5-T	12	U
94-82-6	2,4-DB	12	U
88-85-7	Dinoseb	150	U

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

41071-1

Lab Name: STL SAVANNAH Contract:

Lab Code: SL-SAV Case No.: SAS No.: SDG No.: SIL084

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T13-2

Sample wt/vol: 30 (g/mL) G Lab File ID: K5013

Level: (low/med) LOW Date Received: 02/15/02

% Moisture: 33 decanted: (Y/N) N Date Extracted: 02/19/02

Concentrated Extract Volume: 1(mL) Date Analyzed: 02/22/02

Injection Volume: 1.0(uL) Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: ___

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
C-MONOCHLORO----	Monochlorobiphenyl	4.9	U
C-DICHLOROBI----	Dichlorobiphenyl	4.9	U
C-TRICHLOROB----	Trichlorobiphenyl	1.1	J
C-TETRACHLOR----	Tetrachlorobiphenyl	140	
C-PENTBIPHEN----	Pentachlorobiphenyl	380	J-M
C-HEXACHLORO----	Hexachlorobiphenyl	240	
C-HEPTACHLOR----	Heptachlorobiphenyl	41	
C-OCTA-BIPHE----	Octachlorobiphenyl	16	
C-NONACHLORO----	Nonachlorobibiphenyl	35	
2051-24-3-------	Decachlorobiphenyl	64	

ENSR

MEMORANDUM

To:	Lisa Bradley/Westford	**Date:**	April 25, 2002
From:	Marcia Motta/Westford	**File:**	SO022pestMKM.doc 06105-012-201
RE:	Data Validation Pesticide Analyses Solutia Inc., Creek Bottom Sediment Removal Action Sauget & Cahokia, Illinois STL SDG SIL084	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for one sediment sample analyzed for organochlorine pesticides by SW-846 method 8081A. The sample was collected at the Sauget Area 1 site in Sauget and Cahokia, IL, on February 14, 2002 and was submitted to Severn Trent Laboratories (STL) in Savannah GA, for analysis. STL processed the sample and reported the results under sample delivery group (SDG) SIL084

The analytical data were evaluated with reference to the USEPA Region V *Standard Operating Procedures for Validaton of Contract Laboratory Program Organic Data (1997)*, the *USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review* (10/99), and the quality control (QC) criteria specified in the Quality Assurance Project Plan (QAPP). The Regional and National Functional Guidelines were modified to accommodate the non-CLP methodology.

In general, the data are valid as reported and may be used for decision making purposes. Selected data points were qualified as estimated due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The sample included in this review is listed below:

Sample Identification
CBS-CSE-T13-2

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Holding times and sample preservation
- Blank analysis results
- Surrogate spike recoveries
- Laboratory control sample (LCS) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Sample results

ENSR

DISCUSSION

Agreement of Analyses Conducted with COC Requests

The sample reports corresponded to analytical requests as designated on the COC.

It should be mentioned that the laboratory reported the full field sample identification (ID) in the "Lab Sample ID" field on the sample result pages (Form 1s) in order to avoid truncating the IDs.

Holding Times and Sample Preservation

The sample was extracted and analyzed within the method specified holding times.

The laboratory does not record cooler receipt temperatures on COC forms unless there is a non-conformance (cooler temperature outside of the acceptable range of 4°C ± 2°C). Non-conformances were not observed for this sample set.

Blank Analysis Results

Target analytes were not detected in the laboratory method blank.

Surrogate Spike Recoveries

The percent recoveries (%R) of the surrogate tetrachloro-m-xylene were within the QC acceptance criteria on both columns in the sample analysis.

The following table summarizes the %Rs of the surrogate decachlorobiphenyl (DCB) that exceeded the QC acceptance criteria. Positive results were qualified as estimated (J) for the affected sample.

Sample	DCB (%R) Column I/Column II
CBS-CSE-T13-2	376/300

LCS Results

The recoveries of all spiked target analytes in the LCS were within the QC acceptance criteria.

MS/MSD Results

MS/MSD analyses were performed on sample CBS-CSE-T13-2. The following table summarizes %R and relative percent difference (RPD) nonconformances.

Compound	MS (%R)	MSD (%R)	RPD (%)
alpha-Chlordane	174	200	ok
gamma-Chlordane	440	600	ok
4,4'-DDE	310	460	39
Dieldrin	0	ok	36
Endrin	22	160	152
4,4'-DDT	720	1100	42
Endrin aldehyde	230	ok	116
4,4'-DDD	ok	230	84
Endosulfan II	ok	280	87
Methoxychlor	ok	190	53
beta-BHC	ok	ok	49
Heptachlor	ok	ok	50
Heptachlor epoxide	ok	ok	46

Since %R and/or RPD failures affected more than half of the spiked analytes. All positive results and nondetects for this sample were therefore qualified as estimated (J and UJ, respectively). It should be noted that since the result of dieldrin in the unspiked sample was greater than 2x the spike amount, it was the opinion of the data validator that the result for dieldrin was qualified as estimated rather than rejected due to low MS recovery.

Field Duplicate Results

A field duplicate pair was not submitted with this sample set.

Sample Results

The relative percent difference of the results between the two analytical columns exceeded the QC acceptance limit of 40% for various compounds. The laboratory qualified these results with a "P" and reported the lower of the two values. The "P" qualifiers were removed during validation. Positive results, which were greater than the sample quantitation limit (SQLs) for these compounds, were qualified as estimated (J).

Sample CBS-CSE-T13-2 was analyzed at 4-fold dilution due to the sample matrix. The laboratory adjusted SQLs accordingly.

The sample percent solids was > 50%.

FORM 1
PESTICIDE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

41071-1

Lab Name: STL SAVANNAH Contract:

Lab Code: Case No.: AF03 SAS No.: 8081 SDG No.: SIL084

Matrix: (soil/water) SOIL Lab Sample ID: CBS-CSE-T13-2

Sample wt/vol: 30 (g/mL) G Lab File ID: IFB20013

% Moisture: 33 decanted: (Y/N) N Date Received: 02/15/02

Extraction: (SepF/Cont/Sonc) SONC Date Extracted: 02/19/02

Concentrated Extract Volume: 5(mL) Date Analyzed: 02/20/02

Injection Volume: 2.0(uL) Dilution Factor: 4.0

GPC Cleanup: (Y/N) N pH: ___ Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/KG	Q
319-84-6	alpha-BHC	3.0	UJ-M-D
58-89-9	gamma-BHC (Lindane)	10	U
319-85-7	beta-BHC	3.0	UJ-M-D
76-44-8	Heptachlor	10	UJ-M-D
319-86-8	delta-BHC	3.0	UJ-M-D
309-00-2	Aldrin	10	U
1024-57-3	Heptachlor epoxide	10	UJ-M-D
5103-74-2	gamma-Chlordane	10	UJ-M
5103-71-9	alpha-Chlordane	10	UJ-M
959-98-8	Endosulfan I	10	U
72-55-9	4,4'-DDE	20	UJ-M-D
60-57-1	Dieldrin	27	~~P~~ J-S-P-M-D
72-20-8	Endrin	20	UJ-M-D
72-54-8	4,4'-DDD	20	UJ-M-D
33213-65-9	Endosulfan II	20	UJ-M-D
50-29-3	4,4'-DDT	20	UJ-M-D
7421-93-4	Endrin aldehyde	20	UJ-M-D
1031-07-8	Endosulfan sulfate	20	U
72-43-5	Methoxychlor	100	UJ-M-D
53494-70-5	Endrin ketone	20	U
8001-35-2	Toxaphene	1000	U

APPENDIX A-5

DIOXINS/FURANS

ENSR

MEMORANDUM

TO:	Lisa Bradley/Westford	**DATE:**	April 24, 2002
FROM:	Paula DiMattei/Westford	**FILE:**	SO005dioxin.doc
			06105-012-202
RE:	Data Validation Dioxin/Furan Analysis Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia, Illinois Triangle Lab Lot #54426	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for four sediment samples and analyzed for dioxins and furans using SW-846 Method 8280A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on June 22, 2001 and were submitted to Triangle Laboratories (Triangle) in Durham, North Carolina for analysis. Triangle logged in the samples and reported the results under lot number 54426.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Dioxin/Furan Data Validation (Draft 4/93)", the quality control criteria specified in the Quality Assurance Project Plan (QAPP), and the quality control (QC) criteria specified in the analytical method. The functional guidelines were modified to accommodate the analytical method as necessary.

All the data are valid as reported and may be used for decision making purposes. Several selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
SED-M-S2-(0-6")
SED-M-S5-(0-6")
SED-M-S8-(0-6")
SED-M-S10-(0-6")

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with the chain of custody (COC) requests
- Holding times and sample preservation

- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Internal standard recoveries
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. All samples requiring dioxin/furan analyses were analyzed and reported by Triangle. However, the laboratory analyzed the samples by SW-846 method 8280A instead of 8290 as specified in the project specific QAPP.

Holding Times and Sample Preservation

All samples were extracted and analyzed within the holding times specified in Section 6.3 of the analytical method and the project specific QAPP.

All cooler temperatures met the QC acceptance criteria of 4ºC ± 2ºC.

Method Blanks/Equipment Blanks

The following table summarizes the level of blank contamination detected in the method blank associated with the sediment samples. The presence of blank contamination indicates the possibility of false positive results in the associated samples. An action limit (AL) was set at 5x the maximum blank concentration and used to assess the samples.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)	Actions
Total TCDD	2.2	11.0	Qualify result (U) in samples SED-M-S2-(0-6"), SED-M-S5-(0-6"), SED-M-S8-(0-6").
Total TCDF	0.05	0.25	Qualify result (U) in sample SED-M-S2-(0-6").

Although the National Functional guidelines stipulate that sample results reported at concentrations less than the AL should be rejected (R) for blank contamination, professional judgment was used to consider these results to be non-detects (U). The positive total TCDD results in sediment samples SED-M-S2-(0-6"), SED-M-S5-(0-6"), and SED-M-S8-(0-6"), and the total TCDF result in sediment sample SED-M-S2-(0-6") were considered to be non-detect (U) at the reported value due to method blank contamination.

Equipment blank samples were not collected with this set of samples; no validation action was taken on this basis.

MS/MSD Results

MS/MSD samples were not submitted with this sample set. No data validation actions were taken on this basis.

Field Duplicate Results

A field duplicate pair was not submitted with this sample set. No data validation actions were taken on this basis.

LCS/LCSD Results

An LCS and LCSD were extracted and analyzed with this set of samples. The recoveries (%R) and precision (RPD) of all compounds were within the QC acceptance criteria (70-130%R; and 20%RPD).

Internal Standard Recoveries

Internal standard recoveries were acceptable for all field and quality control sample analyses. Cleanup standard recoveries were acceptable for all field and quality control sample analyses.

Sample Results

The OCDD, OCDF, and total HpCDF results in sample SED-M-S8-(0-6") and the 1,2,3,4,6,7,8-HpCDD, OCDD, 1,2,3,4,6,7,8-HpCDF, OCDF, total TCDD, total HpCDD, total HxCDF, and total HpCDF results in sample SED-M-S10-(0-6") were reported from the 1:4 dilution and 1:8 dilution, respectively, since the results exceeded the calibration range in the initial analyses. During validation, the validator combined the results from the diluted and undiluted analyses in order to report the lowest possible detection limits and all results within the calibration range.

All sample percent solids were >50%.

The positive dioxin and furan isomer results in several samples were qualified as estimated (J) by the laboratory due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit. The positive homologue results in several samples were qualified as estimated (J) by the validator due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit.

The detection limits for the dioxins and furans did not meet the project quantitation limits defined in the project specific QAPP because the laboratory performed the analysis by SW-846 method 8280A rather than method 8290.

Estimated maximum possible concentrations (EMPCs) were reported for the following compounds and/or homologues in the samples listed below:

SED-M-S2-(0-6"): total TCDD, total PeCDD, total HxCDD, total TCDF, total HxCDF

SED-M-S5-(0-6"): 2,3,7,8-TCDF, 2,3,4,7,8-PeCDF, total TCDD, total PeCDD, total HxCDD, total TCDF, total PeCDF, total HxCDF

SED-M-S8-(0-6"): 2,3,7,8-TCDF, total TCDD, total PeCDD, total HxCDD, total TCDF

SED-M-S10-(0-6"): 1,2,3,7,8,9-HxCDD, 2,3,7,8-TCDF, 2,3,4,6,7,8-HxCDF, total TCDD, total PeCDD, total HxCDD, total TCDF, total PeCDF, total HxCDF

The laboratory reported EMPC values for compounds that did not meet ion abundance ratio criteria. For the homologue results in which some peaks met ion abundance ratio criteria and some did not, the EMPC value reported represents the total concentration of peaks that met ion abundance criteria plus those that did not meet criteria. A conservative approach was taken and the value reported as the EMPC concentration was reported as estimated (J) since this result represents the maximum possible concentration present in the sample.

Solutia, Inc.

TLI Project: **54426** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **SED-M-S2 0-6"** Analysis File: **ZU55400**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	0.14 J	0.02	ND
1,2,3,7,8,9-HxCDD	0.09 J	0.02	ND
1,2,3,4,6,7,8-HpCDD	4.3	0.03	ND
1,2,3,4,6,7,8,9-OCDD	34.7	0.04	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.01	ND
1,2,3,4,7,8-HxCDF	ND	0.009	ND
1,2,3,6,7,8-HxCDF	ND	0.009	ND
2,3,4,6,7,8-HxCDF	ND	0.01	ND
1,2,3,7,8,9-HxCDF	ND	0.01	ND
1,2,3,4,6,7,8-HpCDF	2.3 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	0.11 J	0.02	ND
1,2,3,4,6,7,8,9-OCDF	13.4	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.56~~	0.01	2.5 ~~B-4~~ WJ B-2
Total PeCDD	~~0.05~~	0.02	0.62 J B2
Total HxCDD	~~0.93~~	0.02	1.3 J B2
Total HpCDD	7.9	0.03	
Total TCDF	~~0.07~~	0.01	0.16 ~~B-4~~ WJ B 2
Total PeCDF	0.13 J	0.01	
Total HxCDF	~~1.2~~	0.009	1.3 J B2
Total HpCDF	9.1	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03, LARS 6.25.0

Triangle Laboratories, Inc.®
801 Capitola Drive • Durham, North Carolina 27713
Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 20:26 06/28/2001

Solutia, Inc.

TLI Project: **54426** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **SED-M-S5 0-6"** Analysis File: **ZU55500**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	0.59 J	0.04	ND
1,2,3,7,8,9-HxCDD	0.23 J	0.04	ND
1,2,3,4,6,7,8-HpCDD	14.2	0.05	ND
1,2,3,4,6,7,8,9-OCDD	110	0.10	ND
2,3,7,8-TCDF	~~ND~~ 0.08 J-Z	0.01	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	~~ND~~ 0.06 J-Z	0.02	ND
1,2,3,4,7,8-HxCDF	0.38 J	0.02	ND
1,2,3,6,7,8-HxCDF	0.15 J	0.02	ND
2,3,4,6,7,8-HxCDF	0.14 J	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	11.6	0.03	ND
1,2,3,4,7,8,9-HpCDF	0.54 J	0.03	ND
1,2,3,4,6,7,8,9-OCDF	53.3	0.08	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.98~~	0.02	2.8 ~~J-B~~ UJ-B-Z
Total PeCDD	~~0.42~~	0.03	13.7 J-Z
Total HxCDD	~~4.9~~	0.03	16.1 J-Z
Total HpCDD	27.0	0.05	
Total TCDF	~~1.7~~	0.01	2.5 J-Z
Total PeCDF	~~2.2~~	0.01	2.3 J-Z
Total HxCDF	~~10.5~~	0.02	11.7 J-Z
Total HpCDF	42.1	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03. LARS 6.25.01

Triangle Laboratories, Inc.
801 Capitola Drive • Durham, North Carolina 27713
Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 20:29 06/28/2001

Solutia, Inc.

TLI Project: **54426** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **SED-M-S8 0-6"** Analysis File: **ZU55600**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.04	ND
1,2,3,6,7,8-HxCDD	0.94 J	0.04	ND
1,2,3,7,8,9-HxCDD	ND	0.04	ND
1,2,3,4,6,7,8-HpCDD	24.3	0.06	ND
1,2,3,4,6,7,8,9-OCDD	~~209~~ 112	0.1	ND
2,3,7,8-TCDF	~~ND~~ 0.095-Z	0.01	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	0.47 J	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	0.19 J	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	17.0	0.04	ND
1,2,3,4,7,8,9-HpCDF	1.1 J	0.05	ND
1,2,3,4,6,7,8,9-OCDF	~~177~~ 139	0.1	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)
Total TCDD	~~0.61~~	0.02 3.8 Z-MB
Total PeCDD	~~0.47~~	0.03 8.7 J-Z
Total HxCDD	~~4.6~~	0.04 15.1 J-Z
Total HpCDD	43.4	0.06
Total TCDF	~~1.8~~	0.01 2.1 J-Z
Total PeCDF	1.4 J	0.01
Total HxCDF	13.2	0.02
Total HpCDF	~~96.5~~ 73.6	0.04

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03. LARS 6.25.01

Triangle Laboratories, Inc.
801 Capitola Drive • Durham, North Carolina 27713
Phone: (919) 544-5729 • Fax: (919) 544-5491

Printed: 20:33 06/28/2001

Solutia, Inc.

TLI Project: **54426** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **SED-M-S10 0-6"** Analysis File: **ZU55700**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.08	ND
1,2,3,7,8-PeCDD	ND	0.2	ND
1,2,3,4,7,8-HxCDD	ND	0.2	ND
1,2,3,6,7,8-HxCDD	5.9	0.3	ND
1,2,3,7,8,9-HxCDD	~~ND~~ 0.84 J-Z	0.3	ND
1,2,3,4,6,7,8-HpCDD	~~121~~ 250	0.4	ND
1,2,3,4,6,7,8,9-OCDD	~~673~~ 1360	1.1	ND
2,3,7,8-TCDF	~~ND~~ 0.90 J-Z	0.05	ND
1,2,3,7,8-PeCDF	0.62 J	0.05	ND
2,3,4,7,8-PeCDF	0.36 J	0.08	ND
1,2,3,4,7,8-HxCDF	4.3	0.2	ND
1,2,3,6,7,8-HxCDF	0.79 J	0.2	ND
2,3,4,6,7,8-HxCDF	~~ND~~ 0.59 J-Z	0.2	ND
1,2,3,7,8,9-HxCDF	ND	0.2	ND
1,2,3,4,6,7,8-HpCDF	~~118~~ 89.6	0.3	ND
1,2,3,4,7,8,9-HpCDF	7.2	0.3	ND
1,2,3,4,6,7,8,9-OCDF	~~472~~ 880	0.9	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~82.7~~	0.08	~~80.4~~ 80.2 J-Z
Total PeCDD	~~1.3~~	0.2	24.8 J-Z
Total HxCDD	~~24.6~~	0.2	43.9 J-Z
Total HpCDD	~~222~~ 447	0.4	
Total TCDF	~~5.4~~	0.05	8.7 J-Z
Total PeCDF	~~6.6~~	0.05	7.2 J-Z
Total HxCDF	~~127~~	0.2	~~130~~ 153 J-Z
Total HpCDF	~~596~~ 590	0.3	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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MEMORANDUM

TO:	Lisa Bradley/Westford	**DATE:**	April 24, 2002
FROM:	Paula DiMattei/Westford	**FILE:**	SO023dioxin.doc
			06105-012-202
RE:	Data Validation Dioxin/Furan Analysis Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia, Illinois Triangle Lab Lot #54644	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for three sediment samples and analyzed for dioxins and furans using SW-846 Method 8280A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on July 10, 2001 and were submitted to Triangle Laboratories (Triangle) in Durham, North Carolina for analysis. Triangle logged in the samples and reported the results under lot number 54644.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Dioxin/Furan Data Validation (Draft 4/93)", the quality control criteria specified in the Quality Assurance Project Plan (QAPP), and the quality control (QC) criteria specified in the analytical method. The functional guidelines were modified to accommodate the analytical method as necessary.

All the data are valid as reported and may be used for decision making purposes. Several selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
SED-M-S3-(0-6")
SED-M-S6-(0-6")
SED-M-S9-(0-6")

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REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with the chain of custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Internal standard recoveries
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. All samples requiring dioxin/furan analyses were analyzed and reported by Triangle. However, the laboratory analyzed the samples by SW-846 method 8280A instead of method 8290 as specified in the project specific QAPP.

Holding Times and Sample Preservation

All samples were extracted and analyzed within the holding times specified in Section 6.3 of the analytical method and the project specific QAPP.

All cooler temperatures met the QC acceptance criteria of 4ºC ± 2ºC.

Method Blanks/Equipment Blanks

The following table summarizes the level of blank contamination detected in the method blank associated with the sediment samples. The presence of blank contamination indicates the possibility of false positive results in the associated samples. An action limit (AL) was set at 5x the maximum blank concentration and used to assess the samples.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)	Actions
Total TCDD	2.4	12	Qualify result (U) in all samples.
Total TCDF	0.04	0.2	None. The results were non-detect in all samples.

Although the National Functional guidelines stipulate that sample results reported at concentrations less than the AL should be rejected (R) for blank contamination, professional judgment was used to consider these results to be non-detects (U). The positive total TCDD results in all sediment samples were considered to be non-detect (U) at the reported value due to method blank contamination.

Equipment blank samples were not collected with this set of samples; no validation action was taken on this basis.

MS/MSD Results

Sample SED-M-S6-(0-6") was submitted for MS/MSD analyses with this sample set. The percent recoveries (%Rs) and relative percent differences (RPDs) were within the QC acceptance criteria (70-130%R; and 20%RPD) with the following exceptions. Actions taken on sample SED-M-S6-(0-6") are indicated below.

Compound	MS/MSD %R	MS/MSD %RPD	Actions
1,2,3,4,6,7,8-HpCDD	57.8/59.2	ok	Estimate (J) the positive result in SED-M-S6-(0-6").
OCDD	12.4/-9.6	1570	Estimate (J) the positive result in SED-M-S6-(0-6").

Field Duplicate Results

A field duplicate pair was not submitted with this sample set. No data validation actions were taken on this basis.

LCS/LCSD Results

An LCS and LCSD were extracted and analyzed with this set of samples. The %R and RPD of all compounds were within the QC acceptance criteria (70-130%R; and 20%RPD) with the following exceptions.

Compound	LCS/LCSD %R	Actions
1,2,3,7,8-PeCDD	138/134	None. All samples were non-detect.
1,2,3,7,8-PeCDF	134/ok	None. All samples were non-detect.

Internal Standard Recoveries

Internal standard recoveries were acceptable for all field and quality control sample analyses. Cleanup standard recoveries were acceptable for all field and quality control sample analyses.

Sample Results

The OCDD result for samples SED-M-S3-(0-6") and SED-M-S9-(0-6") were reported from the 1:4 dilution since the results exceeded the calibration range in the initial analysis. During validation, the validator combined the results from the diluted and undiluted analyses in order to report the lowest possible detection limits and all results within the calibration range.

All sample percent solids were >50%.

The positive dioxin and furan isomer results in several samples were qualified as estimated (J) by the laboratory due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit. The positive homologue results in several samples were qualified as estimated (J) by the validator due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit.

The detection limits for the dioxins and furans did not meet the project quantitation limits defined in the project specific QAPP because the laboratory performed the analysis by SW-846 method 8280A rather than method 8290.

Estimated maximum possible concentrations (EMPCs) were reported for the following compounds and/or homologues in the samples listed below:

SED-M-S3-(0-6"): total TCDD, total PeCDD, total HxCDD

SED-M-S6-(0-6"): total TCDD, total HxCDF

SED-M-S9-(0-6"): total TCDD, total PeCDD, total HxCDF

The laboratory reported EMPC values for compounds that did not meet ion abundance ratio criteria. For the homologue results in which some peaks met ion abundance ratio criteria and some did not, the EMPC value reported represents the total concentration of peaks that met ion abundance criteria plus those that did not meet criteria. A conservative approach was taken and the value reported as the EMPC concentration was reported as estimated (J) since this result represents the maximum possible concentration present in the sample.

Solutia, Inc.

TLI Project: **54644** Method 8280-A PCDD/PCDF Analysis (b
Client Sample: **SED-M-S3-(0-6")** Analysis File: **VS1800**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMEN

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	0.28 J	0.04	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	10.2	0.05	ND
1,2,3,4,6,7,8,9-OCDD	~~155~~ 135	0.1	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	0.13 J	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	3.8	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.04	ND
1,2,3,4,6,7,8,9-OCDF	32.0	0.1	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	3.4 ~~2.08~~
Total PeCDD	~~0.68~~	0.04	2.4
Total HxCDD	~~7.3~~	0.03	8.2
Total HpCDD	28.3	0.05	
Total TCDF	0.03 J	0.01	
Total PeCDF	0.07 J	0.01	
Total HxCDF	1.9 J	0.02	
Total HpCDF	14.9	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **54644** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **SED-M-S6-(0-6")** Analysis File: **VS18100**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.03	ND
1,2,3,7,8-PeCDD	ND	0.06	ND
1,2,3,4,7,8-HxCDD	ND	0.04	ND
1,2,3,6,7,8-HxCDD	0.15 J	0.05	ND
1,2,3,7,8,9-HxCDD	ND	0.04	ND
1,2,3,4,6,7,8-HpCDD	4.0 J-M	0.07	ND
1,2,3,4,6,7,8,9-OCDD	40.7 J-M-D	0.1	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.03	ND
1,2,3,6,7,8-HxCDF	ND	0.03	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	0.85 J	0.04	ND
1,2,3,4,7,8,9-HpCDF	ND	0.05	ND
1,2,3,4,6,7,8,9-OCDF	5.0 J	0.09	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.03	2.3 ~~Z-UB~~ UJ-B-Z
Total PeCDD	0.14 J	0.06	
Total HxCDD	1.3 J	0.04	
Total HpCDD	6.9	0.07	
Total TCDF	~~ND~~ ND	0.02	
Total PeCDF	0.07 J	0.02	
Total HxCDF	~~0.66~~	0.03	0.75 J-Z
Total HpCDF	3.4	0.04	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 54644 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: SED-M-S9-(0-6") — Analysis File: VS18200
Client Project: Sauget Area 1 - Site M — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	0.56 J	0.04	ND
1,2,3,7,8,9-HxCDD	0.13 J	0.03	ND
1,2,3,4,6,7,8-HpCDD	21.1	0.06	ND
1,2,3,4,6,7,8,9-OCDD	~~160~~ 142	0.1	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	0.22 J	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	8.5	0.03	ND
1,2,3,4,7,8,9-HpCDF	0.55 J	0.04	ND
1,2,3,4,6,7,8,9-OCDF	67.7	0.09	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~4.7~~	0.02	7.4 ~~2 UB~~ UJ-B 2
Total PeCDD	~~0.82~~	0.04	1.4 J- 2
Total HxCDD	7.5	0.03	
Total HpCDD	42.2	0.06	
Total TCDF	0.29 J	0.02	
Total PeCDF	0.36 J	0.02	
Total HxCDF	~~5.6~~	0.02	5.9 J- 2
Total HpCDF	42.0	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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MEMORANDUM

TO:	Lisa Bradley/Westford	**DATE:**	April 23, 2002
FROM:	Paula DiMattei/Westford	**FILE:**	SO006dioxin.doc
			06105-012-202
RE:	Data Validation Dioxin/Furan Analysis Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia, Illinois Triangle Lab Lot #54861	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for three sediment samples and analyzed for dioxins and furans using SW-846 Method 8280A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on August 1, 2001 and were submitted to Triangle Laboratories (Triangle) in Durham, North Carolina for analysis. Triangle logged in the samples and reported the results under lot number 54861.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Dioxin/Furan Data Validation (Draft 4/93)", the quality control criteria specified in the Quality Assurance Project Plan (QAPP), and the quality control (QC) criteria specified in the analytical method. The functional guidelines were modified to accommodate the analytical method as necessary.

All the data are valid as reported and may be used for decision making purposes. Several selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
SED-M-S4-(0-6")
SED-M-S7-(0-6")
SED-M-S7-FD(0-6") (Field duplicate of SED-M-S7-(0-6"))

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with the chain of custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results

- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Internal standard recoveries
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. All samples requiring dioxin/furan analyses were analyzed and reported by Triangle. However, the laboratory analyzed the samples using SW-846 method 8280A instead of method 8290 as specified in the project specific QAPP.

Holding Times and Sample Preservation

All samples were extracted and analyzed within the holding times specified in Section 6.3 of the analytical method and the project specific QAPP.

All cooler temperatures met the QC acceptance criteria of 4ºC ± 2ºC.

Method Blanks/Equipment Blanks

The following table summarizes the level of blank contamination detected in the method blank associated with the sediment samples. The presence of blank contamination indicates the possibility of false positive results in the associated samples. An action limit (AL) was set at 5x the maximum blank concentration and used to assess the samples.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)	Actions
Total TCDD	2.1	10.5	Qualify result (U) in all samples.
Total TCDF	0.05	0.25	None. The results were either non-detect or greater than action level in all samples.

Although the National Functional guidelines stipulate that sample results reported at concentrations less than the AL should be rejected (R) for blank contamination, professional judgment was used to consider these results to be non-detects (U). The positive total TCDD results in all sediment samples were considered to be non-detect (U) at the reported value due to method blank contamination.

Equipment blank samples were not collected with this set of samples; no validation action was taken on this basis.

MS/MSD Results

MS/MSD samples were not submitted with this sample set. No data validation actions were taken on this basis.

Field Duplicate Results

Samples SED-M-S7-(0-6") and SED-M-S7-FD(0-6") were submitted as the field duplicate pair with this sample set. The following table displays the results and calculated relative percent differences (RPDs) for

detected analytes. Qualifications to sample results were not made based upon field duplicate RPDs.

Compound	SED-M-S7-(0-6") (µg/Kg)	SED-M-S7-FD(0-6") (µg/Kg)	RPD (%)
1,2,3,6,7,8-HxCDD	1.4	1.4	0
1,2,3,7,8,9-HxCDD	0.89	0.81	9.4
1,2,3,4,6,7,8-HpCDD	39.9	41.3	3.4
OCDD	440	455	3.3
1,2,3,4,6,7,8-HpCDF	14.1	14.8	4.8
1,2,3,4,7,8,9-HpCDF	1.2	1.1	8.6
OCDF	120	129	7.2
Total TCDD	7.7	8.0	3.8
Total PeCDD	1.9	1.4	30
Total HxCDD	10.1	11.1	9.4
Total HpCDD	72.8	78.3	7.3
Total TCDF	2.3	3.2	33
Total PeCDF	0.38	0.38	0
Total HxCDF	11.1	10.4	6.5
Total HpCDF	66.3	69.5	4.7

LCS/LCSD Results

LCS/LCSD samples were not submitted with this sample set. No data validation actions were taken on this basis.

Internal Standard Recoveries

Internal standard recoveries were acceptable for all field and quality control sample analyses. Cleanup standard recoveries were acceptable for all field and quality control sample analyses.

Sample Results

The positive OCDD and OCDF results in samples SED-M-S4-(0-6") and SED-M-S7-FD(0-6"), and the positive OCDD result in sample SED-M-S7-(0-6") were qualified as estimated (J) due to the uncertainty in the quantitation of these results since the results exceeded the upper limit of the calibration range.

All sample percent solids were >50%.

The positive dioxin and furan isomer results in several samples were qualified as estimated (J) by the laboratory due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit. The positive homologue results in several samples were qualified as estimated (J) by the validator due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit.

The detection limits for the dioxins and furans did not meet the project quantitation limits defined in the project specific QAPP because the laboratory performed the analysis by SW-846 method 8280A rather than method 8290.

Estimated maximum possible concentrations (EMPCs) were reported for the following compounds and/or homologues in the samples listed below:

SED-M-S4-(0-6"): 1,2,3,7,8,9-HxCDD, 1,2,3,4,7,8,9-HpCDF, total TCDD, total PeCDD, total HxCDD, total PeCDF, total HxCDF, total HpCDF

SED-M-S7-(0-6"): 1,2,3,7,8,9-HxCDD, 1,2,3,4,7,8,9-HpCDF, total TCDD, total PeCDD, total HxCDD, total HpCDF

SED-M-S7-FD(0-6"): total TCDD, total PeCDD, total HxCDD, total TCDF, total HxCDF

The laboratory reported EMPC values for compounds that did not meet ion abundance ratio criteria. For the homologue results in which some peaks met ion abundance ratio criteria and some did not, the EMPC value reported represents the total concentration of peaks that met ion abundance criteria plus those that did not meet criteria. A conservative approach was taken and the value reported as the EMPC concentration was reported as estimated (J) since this result represents the maximum possible concentration present in the sample.

Solutia, Inc.

TLI Project: **54861** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **SED-M-S4-(0-6")** Analysis File: **VS29300**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.03	ND
1,2,3,7,8-PeCDD	ND	0.06	ND
1,2,3,4,7,8-HxCDD	ND	0.04	ND
1,2,3,6,7,8-HxCDD	0.91J	0.06	ND
1,2,3,7,8,9-HxCDD	~~ND~~ 0.24 J-2	0.04	ND
1,2,3,4,6,7,8-HpCDD	27.8	0.08	ND
1,2,3,4,6,7,8,9-OCDD	339J-E	0.2	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.03	ND
1,2,3,6,7,8-HxCDF	ND	0.03	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.04	ND
1,2,3,4,6,7,8-HpCDF	15.3	0.04	ND
1,2,3,4,7,8,9-HpCDF	0.88 ~~ND~~ 0.[illegible] J-2	0.05	ND
1,2,3,4,6,7,8,9-OCDF	153J-E	0.1	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~2.0~~	0.03	5.1 ~~2.0~~ UJ-B-Z
Total PeCDD	~~ND~~	0.06	2.2 J-Z
Total HxCDD	~~6.1~~	0.04	7.8 J-Z
Total HpCDD	53.8	0.08	
Total TCDF	ND	0.02	J-Z
Total PeCDF	~~0.25~~	0.02	0.49
Total HxCDF	~~6.9~~	0.03	9.0 J-Z
Total HpCDF	~~67.0~~	0.04	68.3 J-Z

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03, LARS 6.25.01j

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Printed: 20:32 08/09/2001

TLI Project: 54861 Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: SED-M-S7-(0-6") Analysis File: VS29400
Client Project: Sauget Area 1 - Site M Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.06	ND
1,2,3,7,8-PeCDD	ND	0.1	ND
1,2,3,4,7,8-HxCDD	ND	0.09	ND
1,2,3,6,7,8-HxCDD	1.4 J	0.1	ND
1,2,3,7,8,9-HxCDD	~~ND~~ 0.89 J-Z	0.09	ND
1,2,3,4,6,7,8-HpCDD	39.9	0.2	ND
1,2,3,4,6,7,8,9-OCDD	440 J-E	0.4	ND
2,3,7,8-TCDF	ND	0.04	ND
1,2,3,7,8-PeCDF	ND	0.04	ND
2,3,4,7,8-PeCDF	ND	0.05	ND
1,2,3,4,7,8-HxCDF	ND	0.06	ND
1,2,3,6,7,8-HxCDF	ND	0.06	ND
2,3,4,6,7,8-HxCDF	ND	0.06	ND
1,2,3,7,8,9-HxCDF	ND	0.07	ND
1,2,3,4,6,7,8-HpCDF	14.1	0.08	ND
1,2,3,4,7,8,9-HpCDF	~~ND~~ 1.2 J-Z	0.09	ND
1,2,3,4,6,7,8,9-OCDF	120	0.3	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~4.3~~	0.06	27 J-B-Z
Total PeCDD	~~ND~~	0.1	1.9 J-Z
Total HxCDD	~~9.3~~	0.09	10.1 J-Z
Total HpCDD	72.8	0.2	
Total TCDF	2.3	0.04	
Total PeCDF	0.38 J	0.04	
Total HxCDF	11.1	0.06	
Total HpCDF	~~65.1~~	0.08	66.3 J-Z

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

8280A_PSR v1.03, LARS 6.25.01

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TLI Project: **54861** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **SED-M-S7-FD(0-6")** Analysis File: **VS29500**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.06	ND
1,2,3,7,8-PeCDD	ND	0.1	ND
1,2,3,4,7,8-HxCDD	ND	0.09	ND
1,2,3,6,7,8-HxCDD	1.4 J	0.1	ND
1,2,3,7,8,9-HxCDD	0.81 J	0.09	ND
1,2,3,4,6,7,8-HpCDD	41.3	0.2	ND
1,2,3,4,6,7,8,9-OCDD	455 J-E	0.4	ND
2,3,7,8-TCDF	ND	0.04	ND
1,2,3,7,8-PeCDF	ND	0.04	ND
2,3,4,7,8-PeCDF	ND	0.05	ND
1,2,3,4,7,8-HxCDF	ND	0.06	ND
1,2,3,6,7,8-HxCDF	ND	0.06	ND
2,3,4,6,7,8-HxCDF	ND	0.06	ND
1,2,3,7,8,9-HxCDF	ND	0.07	ND
1,2,3,4,6,7,8-HpCDF	14.8	0.09	ND
1,2,3,4,7,8,9-HpCDF	1.1 J	0.10	ND
1,2,3,4,6,7,8,9-OCDF	129 J-E	0.3	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~5.1~~	0.06	8.0 ~~Z-U-B~~ UJ-B-Z
Total PeCDD	~~ND~~	0.1	1.4 J Z
Total HxCDD	3.5	0.09	11.1 J-Z
Total HpCDD	78.3	0.2	
Total TCDF	~~2.4~~	0.04	3.2 J Z
Total PeCDF	0.38 J	0.04	
Total HxCDF	~~9.6~~	0.06	10.4 J-Z
Total HpCDF	69.5	0.09	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03. LARS 6.25.01j

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ENSR

MEMORANDUM

TO:	Lisa Bradley/Westford	**DATE:**	April 25, 2002
FROM:	Paula DiMattei/Westford	**FILE:**	SO024dioxin.doc
			06105-012-202
RE:	Data Validation Dioxin/Furan Analysis Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia, Illinois Triangle Lab Lot #55755	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for nine sediment samples and analyzed for dioxins and furans using SW-846 Method 8280A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on October 31, 2001 and were submitted to Triangle Laboratories (Triangle) in Durham, North Carolina for analysis. Triangle logged in the samples and reported the results under lot number 55755.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Dioxin/Furan Data Validation (Draft 4/93)", the quality control criteria specified in the Quality Assurance Project Plan (QAPP), and the quality control (QC) criteria specified in the analytical method. The functional guidelines were modified to accommodate the analytical method as necessary.

All the data are valid as reported and may be used for decision making purposes. Several selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications		
CBS-CSB-T1-C1	CBS-CSB-T2-E1	CBS-CSB-T3-W1
CBS-CSB-T1-E1	CBS-CSB-T2-W1	CBS-CSB-T3-E1
CBS-CSB-T1-W1	CBS-CSB-T3-C1	CBS-CSB-T2-C1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with the chain of custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results

- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Internal standard recoveries
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. All samples requiring dioxin/furan analyses were analyzed and reported by Triangle. However, the laboratory analyzed the samples by SW-846 method 8280A instead of method 8290 as specified in the project specific QAPP.

Holding Times and Sample Preservation

All samples were extracted and analyzed within the holding times specified in Section 6.3 of the analytical method and the project specific QAPP.

All cooler temperatures met the QC acceptance criteria of 4ºC ± 2ºC.

Method Blanks/Equipment Blanks

The following table summarizes the level of blank contamination detected in the method blank associated with the sediment samples. The presence of blank contamination indicates the possibility of false positive results in the associated samples. An action limit (AL) was set at 5x the maximum blank concentration and used to assess the samples.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)	Actions
Total TCDD	2.0	10	Qualify result (U) in all samples.
Total TCDF	0.05	0.25	Qualify result (U) in CBS-CSB-T1-C1, CBS-CSB-T1-E1, CBS-CSB-T2-C1, CBS-CSB-T2-W1, CBS-CSB-T3-W1.

Although the National Functional guidelines stipulate that sample results reported at concentrations less than the AL should be rejected (R) for blank contamination, professional judgment was used to consider these results to be non-detects (U). The positive total TCDD results in all sediment samples, and the positive total TCDF results in samples were CBS-CSB-T1-C1, CBS-CSB-T1-E1, CBS-CSB-T2-C1, CBS-CSB-T2-W1, and CBS-CSB-T3-W1 considered to be non-detect (U) at the reported value due to method blank contamination.

Equipment blank samples were not collected with this set of samples; no validation action was taken on this basis.

MS/MSD Results

MS/MSD samples were not submitted with this sample set. No data validation actions were taken on this basis.

Field Duplicate Results

A field duplicate pair was not submitted with this sample set. No data validation actions were taken on this basis.

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LCS/LCSD Results

An LCS and LCSD were extracted and analyzed with this set of samples. The recoveries (%R) and precision (RPD) of all compounds were within the QC acceptance criteria (70-130%R; and 20%RPD).

Internal Standard Recoveries

Internal standard recoveries were acceptable for all field and quality control sample analyses. Cleanup standard recoveries were acceptable for all field and quality control sample analyses.

Sample Results

The OCDD result for sample CBS-CSB-T3-E1 was reported from the 1:10 dilution since the result exceeded the calibration range in the initial analysis. During validation, the validator combined the results from the diluted and undiluted analyses in order to report the lowest possible detection limits and all results within the calibration range.

All sample percent solids were >50%.

The positive dioxin and furan isomer results in several samples were qualified as estimated (J) by the laboratory due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit. The positive homologue results in several samples were qualified as estimated (J) by the validator due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit.

The detection limits for the dioxins and furans did not meet the project quantitation limits defined in the project specific QAPP because the laboratory performed the analysis by SW-846 method 8280A rather than method 8290.

Estimated maximum possible concentrations (EMPCs) were reported for the following compounds and/or homologues in the samples listed below:

CBS-CSB-T3-C1: 1,2,3,7,8-PeCDD, total TCDD, total PeCDD, total PeCDF

CBS-CSB-T1-C1: total TCDD, total TCDF

CBS-CSB-T1-E1: 1,2,3,7,8,9-HxCDD, total TCDD, total HxCDD, total TCDF, total HxCDF

CBS-CSB-T1-W1: total TCDD, total PeCDD, total HxCDD

CBS-CSB-T2-C1: total TCDD, total TCDF

CBS-CSB-T2-E1: total TCDD, total HxCDD, total HxCDF

CBS-CSB-T2-W1: OCDD, total TCDD, total TCDF

CBS-CSB-T3-E1: 2,3,4,7,8-PeCDF, total TCDD, total PeCDD, total TCDF

CBS-CSB-T3-W1: total TCDD, total TCDF

The laboratory reported EMPC values for compounds that did not meet ion abundance ratio criteria. For the homologue results in which some peaks met ion abundance ratio criteria and some did not, the EMPC value reported represents the total concentration of peaks that met ion abundance criteria plus those that did not meet criteria. A conservative approach was taken and the value reported as the EMPC concentration was reported as estimated (J) since this result represents the maximum possible concentration present in the sample.

TLI Project: **55755** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T3-C1** Analysis File: **VS87800**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.05	ND
1,2,3,7,8-PeCDD	~~ND~~ 0.21 J-Z	0.07	ND
1,2,3,4,7,8-HxCDD	ND	0.06	ND
1,2,3,6,7,8-HxCDD	0.13 J	0.08	ND
1,2,3,7,8,9-HxCDD	0.14 J	0.07	ND
1,2,3,4,6,7,8-HpCDD	2.1 J	0.1	ND
1,2,3,4,6,7,8,9-OCDD	31.6	0.1	ND
2,3,7,8-TCDF	ND	0.03	ND
1,2,3,7,8-PeCDF	0.09 J	0.04	ND
2,3,4,7,8-PeCDF	ND	0.04	ND
1,2,3,4,7,8-HxCDF	0.74 J	0.04	ND
1,2,3,6,7,8-HxCDF	0.30 J	0.04	ND
2,3,4,6,7,8-HxCDF	ND	0.04	ND
1,2,3,7,8,9-HxCDF	ND	0.04	ND
1,2,3,4,6,7,8-HpCDF	1.1 J	0.05	ND
1,2,3,4,7,8,9-HpCDF	0.13 J	0.06	ND
1,2,3,4,6,7,8,9-OCDF	3.2 J	0.10	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~1.7~~	0.05	5.5
Total PeCDD	~~0.42~~	0.07	1.0 J-Z
Total HxCDD	1.1 J	0.06	
Total HpCDD	3.6 J	0.1	
Total TCDF	0.18 J	0.03	
Total PeCDF	~~0.73~~	0.04	0.85 J-Z
Total HxCDF	2.4 J	0.04	
Total HpCDF	2.5 J	0.05	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55755** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T1-C1** Analysis File: **VS8720**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.03	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	ND	0.04	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	0.21 J	0.06	ND
1,2,3,4,6,7,8,9-OCDD	2.1 J	0.08	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.08 J	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	0.70 J	0.06	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.03	3.2 ~~ZuB~~ UJ B-2
Total PeCDD	ND	0.04	
Total HxCDD	ND	0.03	
Total HpCDD	0.42 J	0.06	
Total TCDF	~~ND~~	0.02	0.08 ~~ZuB~~ UJ B-2
Total PeCDF	ND	0.03	
Total HxCDF	0.05 J	0.02	
Total HpCDF	0.41 J	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55755** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T1-E1** Analysis File: **VS87300**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.03	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	0.07 J	0.03	ND
1,2,3,7,8,9-HxCDD	~~ND~~ 0.03 J-Z	0.03	ND
1,2,3,4,6,7,8-HpCDD	2.1 J	0.05	ND
1,2,3,4,6,7,8,9-OCDD	25.0	0.06	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	0.03 J	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.67 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	0.06 J	0.03	ND
1,2,3,4,6,7,8,9-OCDF	5.3 J	0.05	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.03	3.3 ~~Z-U-B~~ UJ-B-Z
Total PeCDD	ND	0.04	
Total HxCDD	~~0.28~~	0.03	0.31 J-Z
Total HpCDD	4.2	0.05	
Total TCDF	~~ND~~	0.02	0.07 ~~Z-U-B~~ UJ-B-Z
Total PeCDF	ND	0.02	
Total HxCDF	~~0.33~~	0.02	0.50 J-Z
Total HpCDF	3.0 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55755** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T1-W1** Analysis File: **VS87400**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.03	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.04	ND
1,2,3,6,7,8-HxCDD	0.17 J	0.04	ND
1,2,3,7,8,9-HxCDD	0.08 J	0.04	ND
1,2,3,4,6,7,8-HpCDD	7.1	0.06	ND
1,2,3,4,6,7,8,9-OCDD	87.9	0.09	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	2.5 J	0.03	ND
1,2,3,4,7,8,9-HpCDF	0.15 J	0.03	ND
1,2,3,4,6,7,8,9-OCDF	22.6	0.07	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.03	2.5-2-4B
Total PeCDD	~~ND~~	0.04	0.18 J-2
Total HxCDD	~~0.92~~	0.04	1.0 J-2
Total HpCDD	13.7	0.06	
Total TCDF	ND	0.02	
Total PeCDF	0.07 J	0.03	
Total HxCDF	1.2 J	0.02	
Total HpCDF	10.2	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55755
Client Sample: CBS-CSB-T2-C1
Client Project: Creek Bottom Sampling

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: VS87500
Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.04	ND
1,2,3,7,8-PeCDD	ND	0.05	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	ND	0.04	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	ND	0.05	ND
1,2,3,4,6,7,8,9-OCDD	1.5 J	0.08	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.03	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	ND	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.04	ND
1,2,3,4,6,7,8,9-OCDF	0.17 J	0.07	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.04	2.7 ~~2.4~~
Total PeCDD	ND	0.05	
Total HxCDD	ND	0.03	
Total HpCDD	ND	0.05	
Total TCDF	~~ND~~	0.02	0.08 ~~2.0~~
Total PeCDF	ND	0.03	
Total HxCDF	ND	0.02	
Total HpCDF	ND	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55755** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T2-E1** Analysis File: **VS87600**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	0.07 J	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	2.0 J	0.04	ND
1,2,3,4,6,7,8,9-OCDD	20.8	0.06	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.79 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	4.2 J	0.05	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.41~~	0.02	3.4 ~~Z~~ UCB UKJ-B-Z
Total PeCDD	ND	0.04	
Total HxCDD	~~0.31~~	0.02	0.42 J Z
Total HpCDD	3.9	0.04	
Total TCDF	ND	0.02	
Total PeCDF	ND	0.02	
Total HxCDF	~~0.32~~	0.02	0.81 J Z
Total HpCDF	2.9 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55755 Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSB-T2-W1 Analysis File: VS87700
Client Project: Creek Bottom Sampling Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.03	ND
1,2,3,7,8-PeCDD	ND	0.05	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	ND	0.04	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	ND	0.05	ND
1,2,3,4,6,7,8,9-OCDD	~~ND~~ 0.32 J-Z	0.08	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	ND	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	0.06 J	0.06	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.03	2.1 Z-UB UJ-B-2
Total PeCDD	ND	0.05	
Total HxCDD	ND	0.03	
Total HpCDD	ND	0.05	
Total TCDF	~~ND~~	0.02	0.06 Z-UB UJ-B-2
Total PeCDF	ND	0.03	
Total HxCDF	ND	0.02	
Total HpCDF	ND	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55755** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T3-E1** Analysis File: **VS87900**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.06	ND
1,2,3,7,8-PeCDD	0.28 J	0.08	ND
1,2,3,4,7,8-HxCDD	0.48 J	0.1	ND
1,2,3,6,7,8-HxCDD	1.5 J	0.2	ND
1,2,3,7,8,9-HxCDD	1.6 J	0.1	ND
1,2,3,4,6,7,8-HpCDD	58.4	0.2	ND
1,2,3,4,6,7,8,9-OCDD	~~616~~ 483	0.4	ND
2,3,7,8-TCDF	0.63 J	0.04	ND
1,2,3,7,8-PeCDF	0.11 J	0.05	ND
2,3,4,7,8-PeCDF	~~ND~~ 0.31 J-Z	0.05	ND
1,2,3,4,7,8-HxCDF	0.33 J	0.06	ND
1,2,3,6,7,8-HxCDF	ND	0.06	ND
2,3,4,6,7,8-HxCDF	ND	0.07	ND
1,2,3,7,8,9-HxCDF	ND	0.07	ND
1,2,3,4,6,7,8-HpCDF	9.7	0.08	ND
1,2,3,4,7,8,9-HpCDF	ND	0.09	ND
1,2,3,4,6,7,8,9-OCDF	39.0	0.3	ND

Definitions:

Conc. - The concentration of the *specific analyte in the* units shown.

DL - The detection limit of the *specific analyte in the* units shown.

1/10 DL

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~4.8~~	0.06	7.8 Z
Total PeCDD	~~2.6~~	0.08	2.8 Z
Total HxCDD	10.1	0.1	
Total HpCDD	98.6	0.2	
Total TCDF	0.63 J	0.04	
Total PeCDF	~~1.4~~	0.05	1.9 J-Z
Total HxCDF	21.4	0.06	
Total HpCDF	41.5	0.08	

US-8-2

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55755** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T3-W1** Analysis File: **VS88000**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.05	ND
1,2,3,7,8-PeCDD	ND	0.07	ND
1,2,3,4,7,8-HxCDD	ND	0.07	ND
1,2,3,6,7,8-HxCDD	ND	0.09	ND
1,2,3,7,8,9-HxCDD	ND	0.08	ND
1,2,3,4,6,7,8-HpCDD	0.27 J	0.1	ND
1,2,3,4,6,7,8,9-OCDD	3.4 J	0.2	ND
2,3,7,8-TCDF	ND	0.04	ND
1,2,3,7,8-PeCDF	ND	0.05	ND
2,3,4,7,8-PeCDF	ND	0.05	ND
1,2,3,4,7,8-HxCDF	ND	0.05	ND
1,2,3,6,7,8-HxCDF	ND	0.06	ND
2,3,4,6,7,8-HxCDF	ND	0.06	ND
1,2,3,7,8,9-HxCDF	ND	0.06	ND
1,2,3,4,6,7,8-HpCDF	ND	0.07	ND
1,2,3,4,7,8,9-HpCDF	ND	0.08	ND
1,2,3,4,6,7,8,9-OCDF	0.62 J	0.2	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.05	2.8 ~~2-4-8~~ UJ-B-2
Total PeCDD	ND	0.07	
Total HxCDD	ND	0.07	
Total HpCDD	0.49 J	0.1	
Total TCDF	~~ND~~	0.04	0.10 ~~2-0-8~~ UJ-B-2
Total PeCDF	ND	0.05	
Total HxCDF	ND	0.05	
Total HpCDF	0.28 J	0.07	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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MEMORANDUM

TO:	Lisa Bradley/Westford	**DATE:**	April 24, 2002
FROM:	Paula DiMattei/Westford	**FILE:**	SO031dioxin.doc
			06105-012-202
RE:	Data Validation Dioxin/Furan Analysis Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia, Illinois Triangle Lab Lot #55766	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for seven sediment samples and analyzed for dioxins and furans using SW-846 method 8280A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on November 1, 2001 and were submitted to Triangle Laboratories (Triangle) in Durham, North Carolina for analysis. Triangle logged in the samples and reported the results under lot number 55766.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Dioxin/Furan Data Validation (Draft 4/93)", the quality control criteria specified in the Quality Assurance Project Plan (QAPP), and the quality control (QC) criteria specified in the analytical method. The functional guidelines were modified to accommodate the analytical method as necessary.

All the data are valid as reported and may be used for decision making purposes. Several selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSB-T0-E1	CBS-CSB-T5-C1
CBS-CSB-T4-C1	CBS-CSB-T5-E1
CBS-CSB-T4-E1	CBS-CSB-T5-W1
CBS-CSB-T4-W1	

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with the chain of custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Internal standard recoveries
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. All samples requiring dioxin/furan analyses were analyzed and reported by Triangle. However, the laboratory analyzed the samples by SW-846 method 8280A instead of method 8290 as specified in the project specific QAPP.

Holding Times and Sample Preservation

All samples were extracted and analyzed within the holding times specified in Section 6.3 of the analytical method and the project specific QAPP.

All cooler temperatures met the QC acceptance criteria of 4ºC ± 2ºC.

Method Blanks/Equipment Blanks

The following table summarizes the level of blank contamination detected in the method blank associated with the sediment samples. The presence of blank contamination indicates the possibility of false positive results in the associated samples. An action limit (AL) was set at 5x the maximum blank concentration and used to assess the samples.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)	Actions
Total TCDD	2.0	10	Qualify result (U) in all samples except CBS-CSB-T0-E1.
Total TCDF	0.05	0.25	Qualify result (U) in all samples except CBS-CSB-T0-E1.

Although the National Functional guidelines stipulate that sample results reported at concentrations less than the AL should be rejected (R) for blank contamination, professional judgment was used to consider these results to be non-detects (U). The positive total TCDD and total TCDF results in all sediment samples, except CBS-CSB-T0-E1, were considered to be non-detect (U) at the reported value due to method blank contamination.

Equipment blank samples were not collected with this set of samples; no validation action was taken on this basis.

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MS/MSD Results

MS/MSD samples were not submitted with this sample set. No data validation actions were taken on this basis.

Field Duplicate Results

A field duplicate pair was not submitted with this sample set. No data validation actions were taken on this basis.

LCS/LCSD Results

An LCS and LCSD were extracted and analyzed with this set of samples. The recoveries (%R) and relative percent difference (RPD) of all compounds were within the QC acceptance criteria (70-130%R; and 20%RPD)

Internal Standard Recoveries

Internal standard recoveries were acceptable for all field and quality control sample analyses. Cleanup standard recoveries were acceptable for all field and quality control sample analyses.

Sample Results

The positive total TCDD result in sample CBS-CSB-T0-E1 was qualified as estimated (J) due to the uncertainty in the quantitation of this result since the result exceeded the upper limit of the calibration range.

The 1,2,3,4,6,7,8-HpCDD, OCDD, 1,2,3,4,6,7,8-HpCDF, OCDF, total HpCDD, total HxCDF, and total HpCDF results for sample CBS-CSB-T0-E1 were reported from the 1:25 dilution since the results exceeded the calibration range in the initial analysis. During validation, the validator combined the results from the diluted and undiluted analyses in order to report the lowest possible detection limits and all results within the calibration range.

All sample percent solids were >50%.

The positive dioxin and furan isomer results in several samples were qualified as estimated (J) by the laboratory due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit. The positive homologue results in several samples were qualified as estimated (J) by the validator due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit.

The detection limits for the dioxins and furans did not meet the project quantitation limits defined in the project specific QAPP because the laboratory performed the analysis by SW-846 method 8280A rather than method 8290.

Estimated maximum possible concentrations (EMPCs) were reported for the following compounds and/or homologues in the samples listed below:

CBS-CSB-T0-E1: 1,2,3,7,8-PeCDD, total TCDD, total PeCDD, total HxCDD

CBS-CSB-T4-C1: total TCDD, total TCDF

CBS-CSB-T4-E1: total TCDD, total HxCDD, total TCDF, total HxCDF

CBS-CSB-T4-W1: total TCDD, total TCDF

CBS-CSB-T5-C1: total TCDD, total TCDF

CBS-CSB-T5-E1: 1,2,3,7,8,9-HxCDD, total TCDD, total PeCDD, total HxCDD, total TCDF, total PeCDF, total HxCDF

CBS-CSB-T5-W1: total TCDD, total TCDF

The laboratory reported EMPC values for compounds that did not meet ion abundance ratio criteria. For the homologue results in which some peaks met ion abundance ratio criteria and some did not, the EMPC value reported represents the total concentration of peaks that met ion abundance criteria plus those that did not meet criteria. A conservative approach was taken and the value reported as the EMPC concentration was reported as estimated (J) since this result represents the maximum possible concentration present in the sample.

Solutia, Inc.

TLI Project: 55766 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSB-T0-E1 — Analysis File: ZV37500
Client Project: Creek Bottom Sampling — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)	
2,3,7,8-TCDD	ND	0.1	ND	
1,2,3,7,8-PeCDD	~~ND~~ 1.5J Z	0.2	ND	
1,2,3,4,7,8-HxCDD	1.5J	0.6	ND	
1,2,3,6,7,8-HxCDD	6.5	0.7	ND	
1,2,3,7,8,9-HxCDD	2.5J	0.6	ND	
1,2,3,4,6,7,8-HpCDD	~~149~~ 210	0.9	ND	1/25
1,2,3,4,6,7,8,9-OCDD	~~2270~~ 2490	3.5	ND	1/25 DL
2,3,7,8-TCDF	ND	0.09	ND	
1,2,3,7,8-PeCDF	ND	0.1	ND	
2,3,4,7,8-PeCDF	ND	0.1	ND	
1,2,3,4,7,8-HxCDF	6.3	0.7	ND	
1,2,3,6,7,8-HxCDF	2.9J	0.6	ND	
2,3,4,6,7,8-HxCDF	ND	0.7	ND	
1,2,3,7,8,9-HxCDF	ND	0.8	ND	
1,2,3,4,6,7,8-HpCDF	~~94.2~~ 68.6	0.9	ND	1/25
1,2,3,4,7,8,9-HpCDF	5.6	1.0	ND	
1,2,3,4,6,7,8,9-OCDF	~~530~~ 517	3.0	ND	1/25

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~21.1~~	0.1	53.2J-Z-E
Total PeCDD	~~1.2~~	0.2	22.8J-Z
Total HxCDD	~~36.1~~	0.6	139J-Z
Total HpCDD	~~329~~ 457	0.9	
Total TCDF	5.8	0.09	
Total PeCDF	3.6J	0.1	
Total HxCDF	~~141~~ 76.1	0.6	~~[illegible]~~
Total HpCDF	~~460~~ 393	0.9	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55766** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T4-C1** Analysis File: **ZV37600**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.03	ND
1,2,3,7,8-PeCDD	ND	0.05	ND
1,2,3,4,7,8-HxCDD	ND	0.04	ND
1,2,3,6,7,8-HxCDD	ND	0.04	ND
1,2,3,7,8,9-HxCDD	ND	0.04	ND
1,2,3,4,6,7,8-HpCDD	0.23 J	0.06	ND
1,2,3,4,6,7,8,9-OCDD	3.0 J	0.1	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.03	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	0.11 J	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.04	ND
1,2,3,4,6,7,8,9-OCDF	0.68 J	0.1	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.03	3.2 ~~2-4~~ LCJ-B-2
Total PeCDD	ND	0.05	
Total HxCDD	ND	0.04	
Total HpCDD	0.43 J	0.06	
Total TCDF	~~ND~~	0.02	0.09 ~~2-4~~ LCJ-B-2
Total PeCDF	ND	0.03	
Total HxCDF	0.13 J	0.02	
Total HpCDF	0.42 J	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55766 Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSB-T4-E1 Analysis File: ZV37700
Client Project: Creek Bottom Sampling Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.55 J	0.03	ND
1,2,3,4,6,7,8,9-OCDD	7.3	0.07	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.01	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.26 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	1.2 J	0.06	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.08~~	0.02	2.7 ~~Z-UJ~~ UJ-B-Z
Total PeCDD	ND	0.03	J-
Total HxCDD	~~0.17~~	0.02	0.30 Z
Total HpCDD	1.1 J	0.03	
Total TCDF	~~ND~~	0.01	0.07 ~~Z-4-B~~ UJ-B-Z
Total PeCDF	ND	0.02	
Total HxCDF	~~0.13~~	0.01	0.34 J- Z
Total HpCDF	0.87 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03, LARS 6.25.01

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TLI Project: **55766** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T4-W1** Analysis File: **ZV37800**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDD	0.18 J	0.06	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.01	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	ND	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	0.06 J	0.05	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.8 ~~2-4-B~~ UJ-B-2
Total PeCDD	ND	0.03	
Total HxCDD	ND	0.02	
Total HpCDD	ND	0.03	
Total TCDF	~~0.03~~	0.01	0.09 ~~2-4-B~~ UJ-B-2
Total PeCDF	ND	0.02	
Total HxCDF	ND	0.01	
Total HpCDF	ND	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55766 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSB-T5-C1 — Analysis File: ZV37900
Client Project: Creek Bottom Sampling — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	ND	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	ND	0.04	ND
1,2,3,4,6,7,8,9-OCDD	0.72 J	0.1	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	ND	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	0.19 J	0.08	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.8 ~~2.4~~ UJ-B2
Total PeCDD	ND	0.04	
Total HxCDD	ND	0.03	
Total HpCDD	ND	0.04	
Total TCDF	~~ND~~	0.02	0.09 ~~2.4~~ UJ-B-2
Total PeCDF	ND	0.02	
Total HxCDF	ND	0.02	
Total HpCDF	0.04 J	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55766 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSB-T5-E1 — Analysis File: ZV38000
Client Project: Creek Bottom Sampling — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	0.20 J	0.02	ND
1,2,3,7,8,9-HxCDD	~~ND~~ 0.063-Z	0.02	ND
1,2,3,4,6,7,8-HpCDD	5.4	0.03	ND
1,2,3,4,6,7,8,9-OCDD	61.1	0.06	ND
2,3,7,8-TCDF	0.04 J	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	0.08 J	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	3.2 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	0.12 J	0.03	ND
1,2,3,4,6,7,8,9-OCDF	22.8	0.05	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.69~~	0.02	3.2 UJ-B-Z
Total PeCDD	~~ND~~	0.03	0.59 J-Z
Total HxCDD	~~0.83~~	0.02	1.3 J-Z
Total HpCDD	10.2	0.03	
Total TCDF	~~0.07~~	0.01	0.20 UJ-B-Z
Total PeCDF	~~0.19~~	0.02	0.22 J-Z
Total HxCDF	~~2.4~~	0.02	0.75-Z
Total HpCDF	13.8	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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Solutia, Inc.

TLI Project: 55766 Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSB-T5-W1 Analysis File: ZV38100
Client Project: Creek Bottom Sampling Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	ND	0.04	ND
1,2,3,4,6,7,8,9-OCDD	0.23 J	0.08	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	ND	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	ND	0.07	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.6 ~~2.6 Z-4-B~~ UJ-B-Z
Total PeCDD	ND	0.03	
Total HxCDD	ND	0.02	
Total HpCDD	ND	0.04	
Total TCDF	~~ND~~	0.02	0.10 ~~Z-4B~~ UJ-B-Z
Total PeCDF	ND	0.02	
Total HxCDF	ND	0.02	
Total HpCDF	ND	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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ENSR

MEMORANDUM

TO: Lisa Bradley/Westford

DATE: April 23, 2002

FROM: Paula L. DiMattei/Westford

FILE: SO035fulldioxin.doc
06105-012-202

RE: Data Validation
Dioxin/Furan Analysis
Solutia Inc., Creek Bottom Sediment Removal Action
Sauget and Cahokia, Illinois
Triangle Lab Lot #55827

CC: D. McGrath/Westford

SUMMARY

Full validation was performed on the data for 16 sediment samples analyzed for dioxins and furans using SW-846 method 8280A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia IL, on November 8, 2001 and were submitted to Triangle Laboratories (Triangle) in Durham, North Carolina for analysis. Triangle logged in the samples and reported the results under lot number 55827.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Dioxin/Furan Data Validation (Draft 4/93)", the quality control criteria specified in the Quality Assurance Project Plan (QAPP), and the quality control (QC) criteria specified in the analytical method. The functional guidelines were modified to accommodate the analytical method as necessary.

All the data are valid as reported and may be used for decision making purposes. Several selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

Samples included in this review are listed below:

Sample Identifications			
CBS-CSB-T6-C1	CBS-CSB-T7-W1	CBS-CSB-T8-W1	CBS-CSB-T9-C1
CBS-CSB-T6-C1D (field duplicate of CBS-CSB-T6-C1)	CBS-CSB-T7-E1	CBS-CSB-T8-E1	CBS-CSB-T10-E1
CBS-CSB-T6-E1	CBS-CSB-T7-C1	CBS-CSB-T9-W1	CBS-CSB-T10-C1
CBS-CSB-T6-W1	CBS-CSB-T8-C1	CBS-CSB-T9-E1	CBS-CSB-T10-W1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody requests
- Holding times
- Initial and continuing calibrations
- Method blanks/equipment blanks
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Internal and cleanup standard performance
- Recovery standard performance
- Field duplicate results
- Quantitation limits and sample results.

DISCUSSION

Agreement of Analyses Conducted with Chain-of-Custody Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. All samples requiring dioxin/furan analyses were analyzed and reported by Triangle. However, the laboratory analyzed the samples by SW-846 method 8280A instead of method 8290 as specified in the project specific QAPP.

Holding Times

All samples were extracted and analyzed within the holding times specified in Section 6.3 of the analytical method and the project specific QAPP.

All cooler temperatures met the QC acceptance criteria of 4ºC ± 2ºC.

Initial and Continuing Calibration

The percent relative standard deviations of all target analytes were within the QC acceptance criteria for the initial calibration associated with the sample analyses. Peaks met the relative ion abundance criteria and signal-to-noise ratio QC acceptance criteria specified in the method.

The percent differences of all target analytes were within the QC acceptance criteria in the calibration verifications (continuing calibration) associated with the sample analyses. Peaks met the relative ion abundance criteria and signal-to-noise ratio QC acceptance criteria specified in the method.

Chromatographic resolution for the $^{13}C_{12}$-2,3,7,8-TCDD and the $^{13}C_{12}$-1,2,3,4-TCDD peaks and the 1,2,3,4,7,8-HxCDD and 1,2,3,6,7,8-HxCDD peaks met the QC acceptance criteria for resolution specified in the method.

Calculations for response factors and relative ion abundance ratios were performed for selected target analytes in the calibration verification analyses. There were no discrepancies noted.

Method Blanks/Equipment Blanks

The following table summarizes the level of blank contamination detected in the method blank associated with the sediment samples. The presence of blank contamination indicates the possibility of false positive results in the associated samples. An action limit (AL) was set at 5x the maximum blank concentration and used to assess the samples.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)
Total TCDD	2.0	10.0

Although the National Functional guidelines stipulate that sample results reported at concentrations less than the AL should be rejected (R) for blank contamination, professional judgment was used to consider these results to be non-detects (U). The positive total TCDD results in all sediment samples were considered to be non-detect (U) at the reported value due to method blank contamination.

Equipment blank samples were not collected with this set of samples; no validation action was taken on this basis.

LCS/LCSD Results

An LCS and LCSD were extracted and analyzed with this set of samples. The recoveries (%R) and precision (RPD) of all compounds were within the QC acceptance criteria (70-130%R; and 20%RPD) with the following exceptions.

Compound	LCS/LCSD %R	Actions
1,2,3,7,8-PeCDD	ok/131	None. All samples were non-detect.
2,3,4,7,8-PeCDF	131/ok	None. All samples were non-detect.

MS/MSD Results

Sample CBS-CSB-T7-W1 was selected for MS/MSD analyses and was extracted and analyzed with this set of samples. The %R and RPD of all spiked compounds were within the QC acceptance criteria (70-130%R; and 20%RPD) with the following exceptions. Actions taken on sample CBS-CSB-T7-W1 are indicated below.

Compound	MS/MSD %R	MS/MSD %RPD	Actions
1,2,3,7,8-PeCDD	143/143	ok	None. Sample result was non-detect.
OCDD	58.5/ok	45.2	Estimate (J) the positive result in CBS-CSB-T7-W1.
1,2,3,7,8-PeCDF	137/139	ok	None. Sample result was non-detect.
2,3,4,7,8-PeCDF	145/156	ok	None. Sample result was non-detect.

Internal and Cleanup Standard Performance

Internal standard recoveries were acceptable for all field and quality control sample analyses. Cleanup standard recoveries were acceptable for all field and quality control sample analyses.

Recovery Standard Performance

The two recovery standards in each sample analysis met the method QC requirements for retention time shifts and for area recoveries.

ENSR

Field Duplicate Results

Samples CBS-CSB-T6-C1 and CBS-CSB-T6-C1D were submitted as the field duplicate pair with this sample set. The following table displays the results and calculated relative percent differences (RPDs) for detected analytes. One RPD was not calculable (NC) due to a non-detect result in the original sample. Qualifications to sample results were not made based upon field duplicate RPDs.

Compound	CBS-CSB-T6-C1 (µg/Kg)	CBS-CSB-T6-C1D (µg/Kg)	RPD (%)
1,2,3,4,6,7,8-HpCDD	1.2	0.91	27
OCDD	14.0	11.0	24
1,2,3,4,6,7,8-HpCDF	0.68	0.60	12
OCDF	4.2	4.6	9.1
Total TCDD	2.9	2.4	19
Total HxCDD	0.19	0.31	48
Total HpCDD	2.3	1.7	30
Total HxCDF	0.48	0.23	70
Total HpCDF	2.3	1.8	24
Total TCDF	0.07 U	0.13	NC

Quantitation Limits and Sample Results

An example calculation of the 1,2,3,6,7,8-HxCDD result in sample CBS-CSB-T10-E1 was performed; there were no discrepancies noted.

All sample percent solids were >50%.

The positive dioxin and furan isomer results in several samples were qualified as estimated (J) by the laboratory due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit. The positive homologue results in several samples were qualified as estimated (J) by the validator due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit.

The detection limits for the dioxins and furans did not meet the project quantitation limits defined in the project specific QAPP because the laboratory performed the analysis by SW-846 method 8280A rather than method 8290.

Estimated maximum possible concentrations (EMPCs) were reported for the following compounds and/or homologues in the samples listed below:

CBS-CSB-T6-C1: total TCDD, total HxCDF

CBS-CSB-T6-C1D: total TCDD, total HxCDD, total TCDF

CBS-CSB-T6-E1: total TCDD, total PeCDD, total TCDF, total HXCDF

CBS-CSB-T6-W1: total TCDD

CBS-CSB-T7-W1: total TCDD, total HxCDD, total TCDF, total HxCDF

CBS-CSB-T7-E1: total TCDD, total TCDF

CBS-CSB-T7-C1: total TCDD, total TCDF

CBS-CSB-T8-C1: total TCDD, total TCDF, total PeCDF

CBS-CSB-T8-W1: 1,2,3,6,7,8-HxCDD, total TCDD, total HxCDD, total TCDF, total HxCDF

CBS-CSB-T8-E1: total TCDD, total TCDF, total HxCDF

CBS-CSB-T9-W1: 1,2,3,6,7,8-HXCDD, 1,2,3,7,8,9-HxCDD, total TCDD, total HxCDD, total TCDF, total HxCDF

CBS-CSB-T9-E1: total TCDD, total PeCDD, total HxCDD, total TCDF, total HxCDF

CBS-CSB-T9-C1: total TCDD, total TCDF

CBS-CSB-T10-E1: total TCDD, total PeCDD, total HxCDD, total TCDF, total PeCDF, total HxCDF

CBS-CSB-T10-C1: total TCDD, total HxCDD, total TCDF

CBS-CSB-T10-W1: 1,2,3,7,8,9-HxCDD, total TCDD, total PeCDD, total HxCDD, total TCDF, total HxCDF

The laboratory reported EMPC values for compounds that did not meet ion abundance ratio criteria. For the homologue results in which some peaks met ion abundance ratio criteria and some did not, the EMPC value reported represents the total concentration of peaks that met ion abundance criteria plus those that did not meet criteria. A conservative approach was taken and the value reported as the EMPC concentration was reported as estimated (J) since this result represents the maximum possible concentration present in the sample.

Solutia, Inc.

TLI Project: **55827** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T6-C1** Analysis File: **VS93100**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.09	ND
1,2,3,7,8-PeCDD	ND	0.1	ND
1,2,3,4,7,8-HxCDD	ND	0.07	ND
1,2,3,6,7,8-HxCDD	ND	0.08	ND
1,2,3,7,8,9-HxCDD	ND	0.07	ND
1,2,3,4,6,7,8-HpCDD	1.2 J	0.1	ND
1,2,3,4,6,7,8,9-OCDD	14.0	0.1	ND
2,3,7,8-TCDF	ND	0.07	ND
1,2,3,7,8-PeCDF	ND	0.09	ND
2,3,4,7,8-PeCDF	ND	0.10	ND
1,2,3,4,7,8-HxCDF	ND	0.05	ND
1,2,3,6,7,8-HxCDF	ND	0.05	ND
2,3,4,6,7,8-HxCDF	ND	0.06	ND
1,2,3,7,8,9-HxCDF	ND	0.05	ND
1,2,3,4,6,7,8-HpCDF	0.68 J	0.05	ND
1,2,3,4,7,8,9-HpCDF	ND	0.06	ND
1,2,3,4,6,7,8,9-OCDF	4.2 J	0.1	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.09	2.9 J-B-2
Total PeCDD	ND	0.1	
Total HxCDD	0.19 J	0.07	
Total HpCDD	2.3 J	0.1	
Total TCDF	ND	0.07	
Total PeCDF	ND	0.09	
Total HxCDF	~~0.33~~	0.05	0.48 J-Z
Total HpCDF	2.3 J	0.05	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

NOTE. All "J" that were lab qualifiers were reported on a second page of the summary report. These qualifiers were added to all samples.

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Solutia, Inc.

TLI Project: 55827
Client Sample: CBS-CSB-T6-C1D
Client Project: Creek Bottom Sampling

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: VS93200
Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.09	ND
1,2,3,7,8-PeCDD	ND	0.1	ND
1,2,3,4,7,8-HxCDD	ND	0.08	ND
1,2,3,6,7,8-HxCDD	ND	0.1	ND
1,2,3,7,8,9-HxCDD	ND	0.08	ND
1,2,3,4,6,7,8-HpCDD	0.91 J	0.1	ND
1,2,3,4,6,7,8,9-OCDD	11.0	0.2	ND
2,3,7,8-TCDF	ND	0.09	ND
1,2,3,7,8-PeCDF	ND	0.1	ND
2,3,4,7,8-PeCDF	ND	0.1	ND
1,2,3,4,7,8-HxCDF	ND	0.06	ND
1,2,3,6,7,8-HxCDF	ND	0.06	ND
2,3,4,6,7,8-HxCDF	ND	0.07	ND
1,2,3,7,8,9-HxCDF	ND	0.07	ND
1,2,3,4,6,7,8-HpCDF	0.60 J	0.07	ND
1,2,3,4,7,8,9-HpCDF	ND	0.07	ND
1,2,3,4,6,7,8,9-OCDF	4.6 J	0.2	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.09	2.4 J 0-2
Total PeCDD	ND	0.1	
Total HxCDD	~~ND~~	0.08	0.31 J-2
Total HpCDD	1.7 J	0.1	
Total TCDF	~~ND~~	0.09	0.13 J-2
Total PeCDF	ND	0.1	
Total HxCDF	0.23 J	0.06	
Total HpCDF	1.8 J	0.07	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03, LARS 6.25.01

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TLI Project: **55827** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T6-E1** Analysis File: **VS9330**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.05	ND
1,2,3,7,8-PeCDD	ND	0.08	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	0.03 J	0.04	ND
1,2,3,7,8,9-HxCDD	0.03 J	0.04	ND
1,2,3,4,6,7,8-HpCDD	0.67 J	0.06	ND
1,2,3,4,6,7,8,9-OCDD	7.5	0.08	ND
2,3,7,8-TCDF	ND	0.04	ND
1,2,3,7,8-PeCDF	ND	0.05	ND
2,3,4,7,8-PeCDF	ND	0.05	ND
1,2,3,4,7,8-HxCDF	ND	0.03	ND
1,2,3,6,7,8-HxCDF	ND	0.03	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	0.23 J	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	0.79 J	0.07	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.05	2.4 ~~U~~ J-B-Z
Total PeCDD	~~ND~~	0.08	0.085-Z
Total HxCDD	0.22 J	0.03	
Total HpCDD	1.4 J	0.06	
Total TCDF	~~ND~~	0.04	0.47 J-Z
Total PeCDF	ND	0.05	
Total HxCDF	~~0.09~~	0.03	0.45 J-Z
Total HpCDF	0.66 J	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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Solutia, Inc.

TLI Project: **55827** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T6-W1** Analysis File: **VS93400**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.05	ND
1,2,3,7,8-PeCDD	ND	0.08	ND
1,2,3,4,7,8-HxCDD	ND	0.05	ND
1,2,3,6,7,8-HxCDD	ND	0.06	ND
1,2,3,7,8,9-HxCDD	ND	0.05	ND
1,2,3,4,6,7,8-HpCDD	0.13 J	0.09	ND
1,2,3,4,6,7,8,9-OCDD	1.1 J	0.1	ND
2,3,7,8-TCDF	ND	0.04	ND
1,2,3,7,8-PeCDF	ND	0.05	ND
2,3,4,7,8-PeCDF	ND	0.05	ND
1,2,3,4,7,8-HxCDF	ND	0.04	ND
1,2,3,6,7,8-HxCDF	ND	0.04	ND
2,3,4,6,7,8-HxCDF	ND	0.05	ND
1,2,3,7,8,9-HxCDF	ND	0.05	ND
1,2,3,4,6,7,8-HpCDF	0.06 J	0.05	ND
1,2,3,4,7,8,9-HpCDF	ND	0.05	ND
1,2,3,4,6,7,8,9-OCDF	0.39 J	0.1	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.05	2.1 [illegible]
Total PeCDD	ND	0.08	
Total HxCDD	ND	0.05	
Total HpCDD	0.24 J	0.09	
Total TCDF	ND	0.04	
Total PeCDF	ND	0.05	
Total HxCDF	ND	0.04	
Total HpCDF	0.22 J	0.05	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55827** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T7-W1** Analysis File: **VS93500**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.04	ND
1,2,3,7,8-PeCDD	ND	0.07	ND
1,2,3,4,7,8-HxCDD	ND	0.04	ND
1,2,3,6,7,8-HxCDD	0.04 J	0.05	ND
1,2,3,7,8,9-HxCDD	ND	0.04	ND
1,2,3,4,6,7,8-HpCDD	1.2 J	0.06	ND
1,2,3,4,6,7,8,9-OCDD	16.6 J-[illegible]	0.09	ND
2,3,7,8-TCDF	ND	0.03	ND
1,2,3,7,8-PeCDF	ND	0.04	ND
2,3,4,7,8-PeCDF	ND	0.04	ND
1,2,3,4,7,8-HxCDF	ND	0.03	ND
1,2,3,6,7,8-HxCDF	ND	0.03	ND
2,3,4,6,7,8-HxCDF	ND	0.04	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	0.38 J	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.04	ND
1,2,3,4,6,7,8,9-OCDF	1.3 J	0.08	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.04	2.6 [illegible]
Total PeCDD	ND	0.07	
Total HxCDD	~~0.24~~	0.04	0.82 J-Z
Total HpCDD	2.3 J	0.06	
Total TCDF	~~ND~~	0.03	0.07 J-Z
Total PeCDF	ND	0.04	
Total HxCDF	~~0.17~~	0.03	0.58 J-Z
Total HpCDF	1.2 J	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55827 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T7-E1** — Analysis File: **VS93600**
Client Project: **Creek Bottom Sampling** — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.06	ND
1,2,3,7,8-PeCDD	ND	0.09	ND
1,2,3,4,7,8-HxCDD	ND	0.04	ND
1,2,3,6,7,8-HxCDD	ND	0.05	ND
1,2,3,7,8,9-HxCDD	ND	0.04	ND
1,2,3,4,6,7,8-HpCDD	0.11 J	0.07	ND
1,2,3,4,6,7,8,9-OCDD	3.0 J	0.1	ND
2,3,7,8-TCDF	ND	0.04	ND
1,2,3,7,8-PeCDF	ND	0.06	ND
2,3,4,7,8-PeCDF	ND	0.06	ND
1,2,3,4,7,8-HxCDF	ND	0.03	ND
1,2,3,6,7,8-HxCDF	ND	0.03	ND
2,3,4,6,7,8-HxCDF	ND	0.04	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	0.06 J	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.04	ND
1,2,3,4,6,7,8,9-OCDF	0.24 J	0.08	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.06	2.7 J
Total PeCDD	ND	0.09	
Total HxCDD	ND	0.04	
Total HpCDD	0.24 J	0.07	
Total TCDF	~~ND~~	0.04	0.06 J
Total PeCDF	ND	0.06	
Total HxCDF	ND	0.03	
Total HpCDF	0.17 J	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55827** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T7-C1** Analysis File: **VS93700**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.06	ND
1,2,3,7,8-PeCDD	ND	0.08	ND
1,2,3,4,7,8-HxCDD	ND	0.04	ND
1,2,3,6,7,8-HxCDD	ND	0.05	ND
1,2,3,7,8,9-HxCDD	ND	0.04	ND
1,2,3,4,6,7,8-HpCDD	ND	0.07	ND
1,2,3,4,6,7,8,9-OCDD	0.69 J	0.1	ND
2,3,7,8-TCDF	ND	0.04	ND
1,2,3,7,8-PeCDF	ND	0.05	ND
2,3,4,7,8-PeCDF	ND	0.05	ND
1,2,3,4,7,8-HxCDF	ND	0.03	ND
1,2,3,6,7,8-HxCDF	ND	0.03	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	0.03 J	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	0.14 J	0.08	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.06	2.9 J-B-2
Total PeCDD	ND	0.08	
Total HxCDD	ND	0.04	
Total HpCDD	ND	0.07	
Total TCDF	~~ND~~	0.04	0.075-2
Total PeCDF	ND	0.05	
Total HxCDF	ND	0.03	
Total HpCDF	0.09 J	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55827** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T8-C1** Analysis File: **VS93900**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.06	
1,2,3,7,8-PeCDD	ND	0.09	
1,2,3,4,7,8-HxCDD	ND	0.05	
1,2,3,6,7,8-HxCDD	ND	0.06	
1,2,3,7,8,9-HxCDD	ND	0.05	
1,2,3,4,6,7,8-HpCDD	ND	0.08	
1,2,3,4,6,7,8,9-OCDD	0.54 J	0.1	
2,3,7,8-TCDF	ND	0.04	
1,2,3,7,8-PeCDF	ND	0.06	
2,3,4,7,8-PeCDF	ND	0.06	
1,2,3,4,7,8-HxCDF	ND	0.03	
1,2,3,6,7,8-HxCDF	ND	0.03	
2,3,4,6,7,8-HxCDF	ND	0.04	
1,2,3,7,8,9-HxCDF	ND	0.03	
1,2,3,4,6,7,8-HpCDF	0.04 J	0.04	
1,2,3,4,7,8,9-HpCDF	ND	0.04	
1,2,3,4,6,7,8,9-OCDF	0.20 J	0.09	

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.06	3.1 J UG-0-2
Total PeCDD	ND	0.09	
Total HxCDD	ND	0.05	
Total HpCDD	ND	0.08	
Total TCDF	~~ND~~	0.04	0.08 J-2
Total PeCDF	~~ND~~	0.06	1.1 J-2
Total HxCDF	ND	0.03	
Total HpCDF	0.13 J	0.04	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55827** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T8-W1** Analysis File: **ZV41200**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	~~ND~~ 0.03 J-Z	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	0.65 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	7.1	0.02	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.008	ND
1,2,3,6,7,8-HxCDF	ND	0.007	ND
2,3,4,6,7,8-HxCDF	ND	0.009	ND
1,2,3,7,8,9-HxCDF	ND	0.009	ND
1,2,3,4,6,7,8-HpCDF	0.23 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	0.63 J	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.4 J-B-Z
Total PeCDD	ND	0.02	
Total HxCDD	~~0.03~~	0.01	0.16 J-Z
Total HpCDD	1.2 J	0.02	
Total TCDF	~~ND~~	0.01	0.06 J-Z
Total PeCDF	ND	0.01	
Total HxCDF	~~0.16~~	0.007	0.22 J-Z
Total HpCDF	0.69 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55827** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T8-E1** Analysis File: **ZV41300**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	ND	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	0.18 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	2.9 J	0.02	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.007	ND
1,2,3,6,7,8-HxCDF	ND	0.007	ND
2,3,4,6,7,8-HxCDF	ND	0.008	ND
1,2,3,7,8,9-HxCDF	ND	0.008	ND
1,2,3,4,6,7,8-HpCDF	0.11 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	0.46 J	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.5 J WG6-Z
Total PeCDD	ND	0.02	
Total HxCDD	0.02 J	0.01	
Total HpCDD	0.37 J	0.02	
Total TCDF	~~ND~~	0.01	0.07 J-Z
Total PeCDF	ND	0.01	
Total HxCDF	~~0.01~~	0.007	0.07 J-Z
Total HpCDF	0.34 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55827 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T9-W1** — Analysis File: **ZV41400**
Client Project: **Creek Bottom Sampling** — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
	EMPC		
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	~~ND~~ 0.03 J-Z	0.01	ND
1,2,3,7,8,9-HxCDD	~~ND~~ 0.02 J-Z	0.01	ND
1,2,3,4,6,7,8-HpCDD	0.93 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	9.2	0.02	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.007	ND
1,2,3,6,7,8-HxCDF	ND	0.007	ND
2,3,4,6,7,8-HxCDF	ND	0.008	ND
1,2,3,7,8,9-HxCDF	ND	0.008	ND
1,2,3,4,6,7,8-HpCDF	0.34 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	1.1 J	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.3 J-B-Z
Total PeCDD	ND	0.02	
Total HxCDD	~~0.15~~	0.01	0.27 J-Z
Total HpCDD	1.8 J	0.02	
Total TCDF	~~ND~~	0.01	0.07 J-Z
Total PeCDF	ND	0.01	
Total HxCDF	~~0.20~~	0.007	0.86 J-Z
Total HpCDF	1.0 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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Solutia, Inc.

TLI Project: **55827** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T9-E1** Analysis File: **ZV41500**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	ND	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	0.52 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	5.4 J	0.02	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.008	ND
1,2,3,6,7,8-HxCDF	ND	0.008	ND
2,3,4,6,7,8-HxCDF	ND	0.01	ND
1,2,3,7,8,9-HxCDF	ND	0.009	ND
1,2,3,4,6,7,8-HpCDF	0.36 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	1.4 J	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.05 U~~	0.01	2.4 ~~U~~ J-B-Z
Total PeCDD	~~ND~~	0.02	0.07 J-Z
Total HxCDD	~~0.06~~	0.01	0.18 J-Z
Total HpCDD	1.1 J	0.02	
Total TCDF	~~ND~~	0.01	0.07 JZ
Total PeCDF	ND	0.01	
Total HxCDF	~~0.16~~	0.008	0.23 J-Z
Total HpCDF	1.1 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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Solutia, Inc.

TLI Project: 55827 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T9-C1** — Analysis File: **ZV41600**
Client Project: **Creek Bottom Sampling** — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	ND	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDD	0.17 J	0.02	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.01	ND
1,2,3,4,7,8-HxCDF	ND	0.007	ND
1,2,3,6,7,8-HxCDF	ND	0.006	ND
2,3,4,6,7,8-HxCDF	ND	0.008	ND
1,2,3,7,8,9-HxCDF	ND	0.007	ND
1,2,3,4,6,7,8-HpCDF	ND	0.009	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	0.04 J	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.6 J-B-Z
Total PeCDD	ND	0.02	
Total HxCDD	ND	0.01	
Total HpCDD	ND	0.02	
Total TCDF	~~ND~~	0.01	0.06 J-Z
Total PeCDF	ND	0.01	
Total HxCDF	ND	0.006	
Total HpCDF	ND	0.009	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55827 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T10-E1** — Analysis File: **ZV41700**
Client Project: **Creek Bottom Sampling** — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	0.09 J	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	2.5 J	0.03	ND
1,2,3,4,6,7,8,9-OCDD	23.7	0.04	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	0.04 J	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.009	ND
2,3,4,6,7,8-HxCDF	ND	0.01	ND
1,2,3,7,8,9-HxCDF	ND	0.01	ND
1,2,3,4,6,7,8-HpCDF	1.7 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	0.07 J	0.01	ND
1,2,3,4,6,7,8,9-OCDF	10.3	0.03	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	3.1 ~~8.1~~ U-B-Z
Total PeCDD	~~ND~~	0.03	0.28 J-Z
Total HxCDD	~~0.26~~	0.02	0.59 J-Z
Total HpCDD	4.7	0.03	
Total TCDF	~~ND~~	0.01	0.06 J-Z
Total PeCDF	~~0.06~~	0.02	0.12 J-Z
Total HxCDF	~~0.90~~	0.009	1.1 J-Z
Total HpCDF	6.4	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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Solutia, Inc.

TLI Project: 55827 Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T10-C1** Analysis File: **ZV41800**
Client Project: **Creek Bottom Sampling** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	ND	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	0.10 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	1.1 J	0.03	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.007	ND
1,2,3,6,7,8-HxCDF	ND	0.007	ND
2,3,4,6,7,8-HxCDF	ND	0.008	ND
1,2,3,7,8,9-HxCDF	ND	0.008	ND
1,2,3,4,6,7,8-HpCDF	0.09 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	0.54 J	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.7 ~~U~~ J B-2
Total PeCDD	ND	0.02	
Total HxCDD	~~0.02~~	0.01	0.07J-Z
Total HpCDD	0.20 J	0.02	
Total TCDF	~~ND~~	0.01	0.07J-Z
Total PeCDF	ND	0.02	
Total HxCDF	0.04 J	0.007	
Total HpCDF	0.40 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55827 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T10-W1** — Analysis File: **ZV41900**
Client Project: **Creek Bottom Sampling** — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	0.06 J	0.02	ND
1,2,3,7,8,9-HxCDD	~~ND~~ 0.04 J-Z	0.02	ND
1,2,3,4,6,7,8-HpCDD	1.5 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	13.8	0.03	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	0.02 J	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.01	ND
2,3,4,6,7,8-HxCDF	ND	0.01	ND
1,2,3,7,8,9-HxCDF	ND	0.01	ND
1,2,3,4,6,7,8-HpCDF	0.97 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	4.2 J	0.03	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.17 U~~	0.02	2.5 U-J-Z
Total PeCDD	~~0.04~~	0.03	0.28 J-Z
Total HxCDD	~~0.28~~	0.02	0.48 J-Z
Total HpCDD	2.8 J	0.02	
Total TCDF	~~ND~~	0.02	0.07 J-Z
Total PeCDF	0.05 J	0.02	
Total HxCDF	~~0.43~~	0.01	0.80 J-Z
Total HpCDF	2.9 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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ENSR

MEMORANDUM

TO:	Lisa Bradley/Westford	**DATE:**	April 24, 2002
FROM:	Paula DiMattei/Westford	**FILE:**	SO034dioxin.doc
			06105-012-202
RE:	Data Validation Dioxin/Furan Analysis Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia, Illinois Triangle Lab Lot #55844	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for eight sediment samples and analyzed for dioxins and furans using SW-846 method 8280A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on November 9, 2001 and were submitted to Triangle Laboratories (Triangle) in Durham, North Carolina for analysis. Triangle logged in the samples and reported the results under lot number 55844.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Dioxin/Furan Data Validation (Draft 4/93)", the quality control criteria specified in the Quality Assurance Project Plan (QAPP), and the quality control (QC) criteria specified in the analytical method. The functional guidelines were modified to accommodate the analytical method as necessary.

All the data are valid as reported and may be used for decision making purposes. Several selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSB-17-C1	CBS-CSB-18-C1
CBS-CSB-17-E1	CBS-CSB-18-W1
CBS-CSB-17-E1-D (field duplicate of CBS-CSB-17-E1)	CBS-CSB-18-W1-D (field duplicate of CBS-CSB-18-W1)
CBS-CSB-17-W1	CBS-CSB-18-E1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with the chain of custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Internal standard recoveries
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. All samples requiring dioxin/furan analyses were analyzed and reported by Triangle. However, the laboratory analyzed the samples by SW-846 method 8280A instead of method 8290 as specified in the project specific QAPP

Samples SP-006 and SP-007 were analyzed and reported as part of this sample set but these samples were not reviewed in the scope of this validation.

Holding Times and Sample Preservation

All samples were extracted and analyzed within the holding times specified in Section 6.3 of the analytical method and the project specific QAPP.

All cooler temperatures met the QC acceptance criteria of 4ºC ± 2ºC.

Method Blanks/Equipment Blanks

The following table summarizes the level of blank contamination detected in the method blank associated with the sediment samples. The presence of blank contamination indicates the possibility of false positive results in the associated samples. An action limit (AL) was set at 5x the maximum blank concentration and used to assess the samples.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)	Actions
Total TCDD	1.7	8.5	Qualify result (U) in samples CBS-CSB-17-C1, CBS-CSB-17-E1-D, CBS-CSB-17-W1, CBS-CSB-18-C1, CBS-CSB-18-W1, CBS-CSB-18-W1-D, CBS-CSB-18-E1.
Total TCDF	0.04	0.20	Qualify result (U) in samples CBS-CSB-17-C1, CBS-CSB-17-W1, CBS-CSB-18-C1, CBS-CSB-18-W1-D, CBS-CSB-18-E1.

Although the National Functional guidelines stipulate that sample results reported at concentrations less than the AL should be rejected (R) for blank contamination, professional judgment was used to consider these results to be non-detects (U). The positive total TCDD results in sediment samples CBS-CSB-17-C1, CBS-

CSB-17-E1-D, CBS-CSB-17-W1, CBS-CSB-18-C1, CBS-CSB-18-W1, CBS-CSB-18-W1-D, and CBS-CSB-18-E1, and the total TCDF results in sediment samples CBS-CSB-17-C1, CBS-CSB-17-W1, CBS-CSB-18-C1, CBS-CSB-18-W1-D, and CBS-CSB-18-E1 were considered to be non-detect (U) at the reported value due to method blank contamination.

Equipment blank samples were not collected with this set of samples; no validation action was taken on this basis.

MS/MSD Results

Sample CBS-CSB-18-E1 was selected for MS/MSD analyses and was extracted and analyzed with the samples. The percent recoveries (%Rs) and relative percent differences (RPDs) were within the QC acceptance criteria (70-130%R; and 20%RPD) with the following exceptions. Actions taken on sample CBS-CSB-18-E1 are indicated below.

Compound	MS/MSD %R	MS/MSD %RPD	Actions
1,2,3,4,6,7,8-HpCDD	ok/ok	26.9	Estimate (UJ) the non-detect result in CBS-CSB-18-E1.
OCDD	142/ok	30.9	Estimate (J) the positive result in CBS-CSB-18-E1.
2,3,4,7,8-PeCDF	ok/ok	23.2	Estimate (UJ) the non-detect result in CBS-CSB-18-E1.

Field Duplicate Results

Samples CBS-CSB-17-E1/CBS-CSB-17-E1-D and CBS-CSB-18-W1/CBS-CSB-18-W1-D were submitted as the field duplicate pairs with this sample set. The following tables display the results and calculated relative percent differences (RPDs) for detected analytes. Several RPDs were not calculable (NC) due to a non-detect result in either the original or duplicate sample. Qualifications to sample results were not made based upon field duplicate RPDs.

Compound	CBS-CSB-17-E1 (µg/Kg)	CBS-CSB-17-E1-D (µg/Kg)	RPD (%)
1,2,3,6,7,8-HxCDD	11.6	0.2 U	NC
1,2,3,4,6,7,8-HpCDD	39.2	7.2	138
OCDD	410	83.2	132
1,2,3,4,6,7,8-HpCDF	21.5	3.7	141
OCDF	238	31.1	154
Total TCDD	29.2	4.3	149
Total PeCDD	4.4	2.9	41
Total HxCDD	19.5	1.2	177
Total HpCDD	72.6	14.1	135
Total PeCDF	0.1 U	0.87	NC
Total HxCDF	19.3	3.5	138
Total HpCDF	90.0	14.7	144

ENSR

Compound	CBS-CSB-18-W1 (µg/Kg)	CBS-CSB-18-W1-D (µg/Kg)	RPD (%)
OCDD	1.9	1.1	53
Total TCDD	3.2	3.4	6
Total TCDF	0.03 U	0.08	NC

LCS/LCSD Results

An LCS and LCSD were extracted and analyzed with this set of samples. The %R and RPD of all compounds were within the QC acceptance criteria (70-130%R; and 20%RPD).

Internal Standard Recoveries

Internal standard recoveries were acceptable for all field and quality control sample analyses. Cleanup standard recoveries were acceptable for all field and quality control sample analyses.

Sample Results

The OCDD and OCDF results for sample CBS-CSB-17-E1 were reported from the 1:5 dilution since the results exceeded the calibration range in the initial analysis. During validation, the validator combined the results from the diluted and undiluted analyses in order to report the lowest possible detection limits and all results within the calibration range.

All sample percent solids were >50%.

The positive dioxin and furan isomer results in several samples were qualified as estimated (J) by the laboratory due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit. The positive homologue results in several samples were qualified as estimated (J) by the validator due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit.

The detection limits for the dioxins and furans did not meet the project quantitation limits defined in the project specific QAPP because the laboratory performed the analysis by SW-846 method 8280A rather than method 8290.

Estimated maximum possible concentrations (EMPCs) were reported for the following compounds and/or homologues in the samples listed below:

CBS-CSB-17-C1: total TCDD, total TCDF

CBS-CSB-17-E1: 1,2,3,6,7,8-HxCDD, total PeCDD, total HxCDD, total HxCDF

CBS-CSB-17-E1-D: total TCDD, total PeCDD, total PeCDF, total HxCDF

CBS-CSB-17-W1: total TCDD, total TCDF

CBS-CSB-18-C1: total TCDD, total TCDF

CBS-CSB-18-W1: total TCDD

CBS-CSB-18-W1-D: total TCDD, total TCDF

CBS-CSB-18-E1: total TCDD, total TCDF

The laboratory reported EMPC values for compounds that did not meet ion abundance ratio criteria. For the homologue results in which some peaks met ion abundance ratio criteria and some did not, the EMPC value reported represents the total concentration of peaks that met ion abundance criteria plus those that did not meet criteria. A conservative approach was taken and the value reported as the EMPC concentration was reported as estimated (J) since this result represents the maximum possible concentration present in the sample.

Solutia, Inc.

TLI Project: **55844** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-17-C1** Analysis File: **VS98900**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDD	0.74 J	0.07	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.01	ND
2,3,4,6,7,8-HxCDF	ND	0.01	ND
1,2,3,7,8,9-HxCDF	ND	0.01	ND
1,2,3,4,6,7,8-HpCDF	ND	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	0.10 J	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	3.2 ~~Z-U-B~~ UJ-B-Z
Total PeCDD	ND	0.02	
Total HxCDD	ND	0.02	
Total HpCDD	ND	0.03	
Total TCDF	~~ND~~	0.01	0.06 ~~Z-U-B~~ UJ-B-Z
Total PeCDF	ND	0.01	
Total HxCDF	ND	0.01	
Total HpCDF	ND	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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Solutia, Inc.

TLI Project: **55844** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-17-E1** Analysis File: **VS99000**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.1	ND
1,2,3,7,8-PeCDD	ND	0.2	ND
1,2,3,4,7,8-HxCDD	ND	0.3	ND
1,2,3,6,7,8-HxCDD	~~ND~~ 11.5 J Z	0.4	ND
1,2,3,7,8,9-HxCDD	ND	0.4	ND
1,2,3,4,6,7,8-HpCDD	39.2	0.5	ND
1,2,3,4,6,7,8,9-OCDD	~~247~~ 410 /	2.0	ND
2,3,7,8-TCDF	ND	0.07	ND
1,2,3,7,8-PeCDF	ND	0.1	ND
2,3,4,7,8-PeCDF	ND	0.1	ND
1,2,3,4,7,8-HxCDF	ND	0.2	ND
1,2,3,6,7,8-HxCDF	ND	0.3	ND
2,3,4,6,7,8-HxCDF	ND	0.3	ND
1,2,3,7,8,9-HxCDF	ND	0.3	ND
1,2,3,4,6,7,8-HpCDF	21.5	0.4	ND
1,2,3,4,7,8,9-HpCDF	ND	0.5	ND
1,2,3,4,6,7,8,9-OCDF	~~212~~ 238 /	1.1	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	29.2	0.1	
Total PeCDD	~~ND~~	0.2	4.4 J Z
Total HxCDD	~~ND~~	0.3	19.5 J Z
Total HpCDD	72.6	0.5	
Total TCDF	ND	0.07	
Total PeCDF	ND	0.1	
Total HxCDF	~~ND~~	0.2	19.3 J Z
Total HpCDF	90.0	0.4	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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Solutia, Inc.

TLI Project: **55844** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-17-E1-D** Analysis File: **VS99100**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMEN

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.08	ND
1,2,3,7,8-PeCDD	ND	0.1	ND
1,2,3,4,7,8-HxCDD	ND	0.1	ND
1,2,3,6,7,8-HxCDD	ND	0.2	ND
1,2,3,7,8,9-HxCDD	ND	0.2	ND
1,2,3,4,6,7,8-HpCDD	7.2	0.2	ND
1,2,3,4,6,7,8,9-OCDD	83.2	0.9	ND
2,3,7,8-TCDF	ND	0.05	ND
1,2,3,7,8-PeCDF	ND	0.08	ND
2,3,4,7,8-PeCDF	ND	0.08	ND
1,2,3,4,7,8-HxCDF	ND	0.09	ND
1,2,3,6,7,8-HxCDF	ND	0.10	ND
2,3,4,6,7,8-HxCDF	ND	0.1	ND
1,2,3,7,8,9-HxCDF	ND	0.1	ND
1,2,3,4,6,7,8-HpCDF	3.7	0.2	ND
1,2,3,4,7,8,9-HpCDF	ND	0.2	ND
1,2,3,4,6,7,8,9-OCDF	31.1	0.5	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~1.2~~	0.08	4.3 ~~Z~~ UJ-B-Z
Total PeCDD	~~ND~~	0.1	2.9 J Z
Total HxCDD	1.2 J	0.1	
Total HpCDD	14.1	0.2	
Total TCDF	ND	0.05	
Total PeCDF	~~0.20~~	0.08	0.8 J Z
Total HxCDF	~~1.7~~	0.09	3.5 J Z
Total HpCDF	14.7	0.2	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55844** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-17-W1** Analysis File: **ZV47100**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.006	ND
1,2,3,7,8-PeCDD	ND	0.009	ND
1,2,3,4,7,8-HxCDD	ND	0.005	ND
1,2,3,6,7,8-HxCDD	ND	0.006	ND
1,2,3,7,8,9-HxCDD	ND	0.005	ND
1,2,3,4,6,7,8-HpCDD	ND	0.008	ND
1,2,3,4,6,7,8,9-OCDD	0.51 J	0.01	ND
2,3,7,8-TCDF	ND	0.005	ND
1,2,3,7,8-PeCDF	ND	0.006	ND
2,3,4,7,8-PeCDF	ND	0.008	ND
1,2,3,4,7,8-HxCDF	ND	0.004	ND
1,2,3,6,7,8-HxCDF	ND	0.004	ND
2,3,4,6,7,8-HxCDF	ND	0.004	ND
1,2,3,7,8,9-HxCDF	ND	0.004	ND
1,2,3,4,6,7,8-HpCDF	ND	0.005	ND
1,2,3,4,7,8,9-HpCDF	ND	0.006	ND
1,2,3,4,6,7,8,9-OCDF	ND	0.01	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.006	2.7 ~~[illegible]~~ [illegible]
Total PeCDD	ND	0.009	
Total HxCDD	ND	0.005	
Total HpCDD	ND	0.008	
Total TCDF	~~ND~~	0.005	0.05 ~~[illegible]~~ [illegible]
Total PeCDF	ND	0.006	
Total HxCDF	ND	0.004	
Total HpCDF	ND	0.005	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55844** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-18-C1** Analysis File: **ZV47200**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.005	ND
1,2,3,7,8-PeCDD	ND	0.008	ND
1,2,3,4,7,8-HxCDD	ND	0.005	ND
1,2,3,6,7,8-HxCDD	ND	0.006	ND
1,2,3,7,8,9-HxCDD	ND	0.005	ND
1,2,3,4,6,7,8-HpCDD	0.03 J	0.008	ND
1,2,3,4,6,7,8,9-OCDD	0.46 J	0.01	ND
2,3,7,8-TCDF	ND	0.005	ND
1,2,3,7,8-PeCDF	ND	0.006	ND
2,3,4,7,8-PeCDF	ND	0.008	ND
1,2,3,4,7,8-HxCDF	ND	0.004	ND
1,2,3,6,7,8-HxCDF	ND	0.004	ND
2,3,4,6,7,8-HxCDF	ND	0.004	ND
1,2,3,7,8,9-HxCDF	ND	0.004	ND
1,2,3,4,6,7,8-HpCDF	0.02 J	0.005	ND
1,2,3,4,7,8,9-HpCDF	ND	0.006	ND
1,2,3,4,6,7,8,9-OCDF	0.08 J	0.01	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.005	2.7 ~~2.0~~ UJ-B 2
Total PeCDD	ND	0.008	
Total HxCDD	0.01 J	0.005	
Total HpCDD	0.05 J	0.008	
Total TCDF	~~ND~~	0.005	0.04 ~~2.0~~ UJ-B 2
Total PeCDF	ND	0.006	
Total HxCDF	ND	0.004	
Total HpCDF	0.05 J	0.005	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55844** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-18-W1** Analysis File: **VS99200**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.04	ND
1,2,3,7,8-PeCDD	ND	0.08	ND
1,2,3,4,7,8-HxCDD	ND	0.09	ND
1,2,3,6,7,8-HxCDD	ND	0.1	ND
1,2,3,7,8,9-HxCDD	ND	0.1	ND
1,2,3,4,6,7,8-HpCDD	ND	0.2	ND
1,2,3,4,6,7,8,9-OCDD	1.9 J	0.5	ND
2,3,7,8-TCDF	ND	0.03	ND
1,2,3,7,8-PeCDF	ND	0.05	ND
2,3,4,7,8-PeCDF	ND	0.05	ND
1,2,3,4,7,8-HxCDF	ND	0.06	ND
1,2,3,6,7,8-HxCDF	ND	0.06	ND
2,3,4,6,7,8-HxCDF	ND	0.07	ND
1,2,3,7,8,9-HxCDF	ND	0.07	ND
1,2,3,4,6,7,8-HpCDF	ND	0.1	ND
1,2,3,4,7,8,9-HpCDF	ND	0.1	ND
1,2,3,4,6,7,8,9-OCDF	ND	0.3	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.04	3.2
Total PeCDD	ND	0.08	
Total HxCDD	ND	0.09	
Total HpCDD	ND	0.2	
Total TCDF	ND	0.03	
Total PeCDF	ND	0.05	
Total HxCDF	ND	0.06	
Total HpCDF	ND	0.1	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55844** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-18-W1-D** Analysis File: **VS99300**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.04	ND
1,2,3,7,8-PeCDD	ND	0.07	ND
1,2,3,4,7,8-HxCDD	ND	0.07	ND
1,2,3,6,7,8-HxCDD	ND	0.1	ND
1,2,3,7,8,9-HxCDD	ND	0.10	ND
1,2,3,4,6,7,8-HpCDD	ND	0.1	ND
1,2,3,4,6,7,8,9-OCDD	1.1 J	0.5	ND
2,3,7,8-TCDF	ND	0.03	ND
1,2,3,7,8-PeCDF	ND	0.04	ND
2,3,4,7,8-PeCDF	ND	0.04	ND
1,2,3,4,7,8-HxCDF	ND	0.06	ND
1,2,3,6,7,8-HxCDF	ND	0.06	ND
2,3,4,6,7,8-HxCDF	ND	0.06	ND
1,2,3,7,8,9-HxCDF	ND	0.07	ND
1,2,3,4,6,7,8-HpCDF	ND	0.1	ND
1,2,3,4,7,8,9-HpCDF	ND	0.1	ND
1,2,3,4,6,7,8,9-OCDF	ND	0.3	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.04	3.4 ~~Z-UB~~ UJ-B-Z
Total PeCDD	ND	0.07	
Total HxCDD	ND	0.07	
Total HpCDD	ND	0.1	
Total TCDF	~~ND~~	0.03	0.08 ~~Z-UB~~ UJ-B-Z
Total PeCDF	ND	0.04	
Total HxCDF	ND	0.06	
Total HpCDF	ND	0.1	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55844** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-18-E1** Analysis File: **VS99400**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.03	ND
1,2,3,7,8-PeCDD	ND	0.06	ND
1,2,3,4,7,8-HxCDD	ND	0.07	ND
1,2,3,6,7,8-HxCDD	ND	0.1	ND
1,2,3,7,8,9-HxCDD	ND	0.09	ND
1,2,3,4,6,7,8-HpCDD	ND UJ-B	0.1	ND
1,2,3,4,6,7,8,9-OCDD	1.8 J-M→D	0.4	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.04	ND
2,3,4,7,8-PeCDF	ND UJ-B	0.04	ND
1,2,3,4,7,8-HxCDF	ND	0.05	ND
1,2,3,6,7,8-HxCDF	ND	0.06	ND
2,3,4,6,7,8-HxCDF	ND	0.06	ND
1,2,3,7,8,9-HxCDF	ND	0.06	ND
1,2,3,4,6,7,8-HpCDF	ND	0.09	ND
1,2,3,4,7,8,9-HpCDF	ND	0.1	ND
1,2,3,4,6,7,8,9-OCDF	0.34 J	0.2	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.03	3.0 ~~Zal-B~~ UJ-B-Z
Total PeCDD	ND	0.06	
Total HxCDD	ND	0.07	
Total HpCDD	ND	0.1	
Total TCDF	~~ND~~	0.02	0.06 ~~Zal-B~~ UJ-B-Z
Total PeCDF	ND	0.04	
Total HxCDF	ND	0.05	
Total HpCDF	ND	0.09	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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ENSR

MEMORANDUM

TO:	Lisa Bradley/Westford	**DATE:**	April 24, 2002
FROM:	Paula DiMattei/Westford	**FILE:**	SO036dioxin.doc
			06105-012-202
RE:	Data Validation Dioxin/Furan Analysis Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia, Illinois Triangle Lab Lot #55928	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for 10 sediment samples and analyzed for dioxins and furans using SW-846 method 8280A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on November 19, 2001 and were submitted to Triangle Laboratories (Triangle) in Durham, North Carolina for analysis. Triangle logged in the samples and reported the results under lot number 55928.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Dioxin/Furan Data Validation (Draft 4/93)", the quality control criteria specified in the Quality Assurance Project Plan (QAPP), and the quality control (QC) criteria specified in the analytical method. The functional guidelines were modified to accommodate the analytical method as necessary.

All the data are valid as reported and may be used for decision making purposes. Several selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications	
CBS-CSB-T11-C1	CBS-CSB-T12-W1
CBS-CSB-T11-C1-D (Field duplicate of CBS-CSB-T11-C1)	CBS-CSB-T12-E1
CBS-CSB-T11-W1	CBS-CSB-T13-C1
CBS-CSB-T11-E1	CBS-CSB-T13-W1
CBS-CSB-T12-C1	CBS-CSB-T13-E1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with the chain of custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks

- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Internal standard recoveries
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. All samples requiring dioxin/furan analyses were analyzed and reported by Triangle. However, the laboratory analyzed the samples by SW-846 method 8280A instead of method 8290 as specified in the project specific QAPP.

Samples SP-008, SP-008-D, and SP-009 were analyzed and reported as part of this sample set but these samples were not reviewed in the scope of this validation.

Holding Times and Sample Preservation

All samples were extracted and analyzed within the holding times specified in Section 6.3 of the analytical method and the project specific QAPP.

All cooler temperatures met the QC acceptance criteria of 4ºC ± 2ºC.

Method Blanks/Equipment Blanks

The following table summarizes the level of blank contamination detected in the method blank associated with the sediment samples. The presence of blank contamination indicates the possibility of false positive results in the associated samples. An action limit (AL) was set at 5x the maximum blank concentration and used to assess the samples.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)	Actions
Total TCDD	1.9	9.5	Qualify result (U) in all samples.
Total TCDF	0.06	0.3	Qualify result (U) in all samples except CBS-CSB-T12-C1.

Although the National Functional guidelines stipulate that sample results reported at concentrations less than the AL should be rejected (R) for blank contamination, professional judgment was used to consider these results to be non-detects (U). The positive total TCDD results in all sediment samples, and the total TCDF results in all sediment samples except, CBS-CSB-T12-C1, were considered to be non-detect (U) at the reported value due to method blank contamination.

Equipment blank samples were not collected with this set of samples; no validation action was taken on this basis.

MS/MSD Results

Sample CBS-CSB-T13-E1 was submitted for MS/MSD analyses with this sample set. The percent recoveries (%Rs) and relative percent differences (RPDs) were within the QC acceptance criteria (70-130%R; and 20%RPD) with the following exceptions. Actions taken on sample CBS-CSB-T13-E1 are indicated below.

ENSR

Compound	MS/MSD %RPD	Actions
OCDD	25	Estimate (J) the positive result in CBS-CSB-T13-E1.

Field Duplicate Results

Samples CBS-CSB-T11-C1 and CBS-CSB-T11-C1-D were submitted as the field duplicate pair with this sample set. The following table displays the results and calculated relative percent differences (RPDs) for detected analytes. Several RPDs were not calculable (NC) due to a non-detect result in the original sample. Qualifications to sample results were not made based upon field duplicate RPDs.

Compound	CBS-CSB-T11-C1 (µg/Kg)	CBS-CSB-T11-C1-D (µg/Kg)	RPD (%)
1,2,3,6,7,8-HxCDD	0.09	0.34	116
1,2,3,7,8,9-HxCDD	0.03 U	0.05	NC
1,2,3,4,6,7,8-HpCDD	2.7	14.5	137
OCDD	29.8	117	119
2,3,7,8-TCDF	0.02 U	0.06	NC
1,2,3,4,7,8-HxCDF	0.02 U	0.15	NC
1,2,3,4,6,7,8-HpCDF	1.3	7.9	143
1,2,3,4,7,8,9-HpCDF	0.02 U	0.42	NC
OCDF	9.4	58.7	145
Total TCDD	3.3	6.6	67
Total PeCDD	0.16	1.6	164
Total HxCDD	0.39	2.7	149
Total HpCDD	4.8	25.7	137
Total TCDF	0.11	0.20	58
Total PeCDF	0.02 U	0.16	NC
Total HxCDF	0.89	5.2	141
Total HpCDF	5.0	37.4	153

LCS/LCSD Results

An LCS and LCSD were extracted and analyzed with this set of samples. The %R and RPD of all compounds were within the QC acceptance criteria (70-130%R; and 20%RPD).

Internal Standard Recoveries

Internal standard recoveries were acceptable for all field and quality control sample analyses. Cleanup standard recoveries were acceptable for all field and quality control sample analyses.

Sample Results

All sample percent solids were >50%.

The positive dioxin and furan isomer results in several samples were qualified as estimated (J) by the laboratory due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit. The positive homologue results in several samples were qualified as estimated (J) by the validator due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit.

The detection limits for the dioxins and furans did not meet the project quantitation limits defined in the project specific QAPP because the laboratory performed the analysis by SW-846 method 8280A rather than method 8290.

Estimated maximum possible concentrations (EMPCs) were reported for the following compounds and/or homologues in the samples listed below:

CBS-CSB-T11-C1: total TCDD, total PeCDD, total TCDF

CBS-CSB-T11-C1-D:total TCDD, total PeCDD, total HxCDD, total TCDF, total PeCDF, total HxCDF

CBS-CSB-T11-W1: 1,2,3,4,6,7,8-HpCDF, total TCDD, total TCDF, total HxCDF, total HpCDF

CBS-CSB-T11-E1: total TCDD, total TCDF, total HxCDF

CBS-CSB-T12-C1: 1,2,3,4,6,7,8-HpCDF, total TCDD, total PeCDD, total HxCDD, total TCDF, total PeCDF, total HxCDF, total HpCDF

CBS-CSB-T12-W1: 1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,4,6,7,8-HpCDF, total TCDD, total PeCDD, total HxCDD, total TCDF, total HxCDF, total HpCDF

CBS-CSB-T12-E1: 1,2,3,4,7,8-HxCDD, total TCDD, total PeCDD, total HxCDD, total TCDF, total PeCDF, total HxCDF

CBS-CSB-T13-C1: total TCDD, total TCDF

CBS-CSB-T13-W1: 1,2,3,4,6,7,8-HxCDF, total TCDD, total HxCDD, total TCDF, total HxCDF, total HpCDF

CBS-CSB-T13-E1: total TCDD, total HxCDD, total HpCDD, total TCDF

The laboratory reported EMPC values for compounds that did not meet ion abundance ratio criteria. For the homologue results in which some peaks met ion abundance ratio criteria and some did not, the EMPC value reported represents the total concentration of peaks that met ion abundance criteria plus those that did not meet criteria. A conservative approach was taken and the value reported as the EMPC concentration was reported as estimated (J) since this result represents the maximum possible concentration present in the sample.

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TLI Project: **55928** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T11-C1** Analysis File: **VT04200**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	0.09 J	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	2.7 J	0.04	ND
1,2,3,4,6,7,8,9-OCDD	29.8	0.08	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	1.3 J	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	9.4	0.05	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.31~~	0.02	3.3 ~~2.3~~ ~~2.48~~
Total PeCDD	~~ND~~	0.04	~~0.15 Z~~ 0.16 J-Z
Total HxCDD	0.39 J	0.03	
Total HpCDD	4.8	0.04	
Total TCDF	~~ND~~	0.02	0.11 ~~Z-48~~
Total PeCDF	ND	0.02	
Total HxCDF	0.89 J	0.02	
Total HpCDF	5.0	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55928** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T11-C1-D** Analysis File: **VT04300**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	0.34 J	0.02	ND
1,2,3,7,8,9-HxCDD	0.05 J	0.02	ND
1,2,3,4,6,7,8-HpCDD	14.5	0.03	ND
1,2,3,4,6,7,8,9-OCDD	117	0.06	ND
2,3,7,8-TCDF	0.06 J	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	0.15 J	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.01	ND
1,2,3,7,8,9-HxCDF	ND	0.01	ND
1,2,3,4,6,7,8-HpCDF	7.9	0.02	ND
1,2,3,4,7,8,9-HpCDF	0.42 J	0.02	ND
1,2,3,4,6,7,8,9-OCDF	58.7	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~3.6~~	0.01	6.6 ~~Z-UB~~ UJ-BZ
Total PeCDD	~~0.26~~	0.03	1.6 J Z
Total HxCDD	~~2.4~~	0.02	2.7 J Z
Total HpCDD	25.7	0.03	
Total TCDF	~~0.06~~	0.01	0.20 ~~Z-UB~~ UJ-BZ
Total PeCDF	~~0.10~~	0.02	0.16 J Z
Total HxCDF	~~4.2~~	0.01	5.2 J Z
Total HpCDF	37.4	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55928** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T11-W1** Analysis File: **VT04400**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	0.06 J	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	1.6 J	0.04	ND
1,2,3,4,6,7,8,9-OCDD	15.9	0.09	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	~~ND~~ 0.44 J-Z	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	1.7 J	0.05	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.30~~	0.02	3.2 ~~Z-48~~ WJ-B-Z
Total PeCDD	0.17 J	0.04	
Total HxCDD	0.57 J	0.03	
Total HpCDD	3.0 J	0.04	
Total TCDF	~~ND~~	0.02	0.08 ~~Z-48~~ WJ-B-Z
Total PeCDF	ND	0.03	
Total HxCDF	~~0.22~~	0.02	0.7 JZ
Total HpCDF	~~1.1~~	0.03	1.6 JZ

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55928 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T11-E1** — Analysis File: **VT04500**
Client Project: **Sauget Area 1 - Site M** — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	ND	0.04	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	0.64 J	0.05	ND
1,2,3,4,6,7,8,9-OCDD	7.2	0.1	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.50 J	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	2.0 J	0.06	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.09~~	0.02	2.4 ~~Z-48~~ uJ-BZ
Total PeCDD	ND	0.04	
Total HxCDD	0.44 J	0.03	
Total HpCDD	1.3 J	0.05	
Total TCDF	~~ND~~	0.02	0.08 ~~Z-48~~ uJ-BZ
Total PeCDF	ND	0.03	
Total HxCDF	~~0.26~~	0.02	0.46 J Z
Total HpCDF	1.5 J	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55928** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T12-C1** Analysis File: **VT04600**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	0.09 J	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.04	ND
1,2,3,6,7,8-HxCDD	ND	0.05	ND
1,2,3,7,8,9-HxCDD	0.15 J	0.04	ND
1,2,3,4,6,7,8-HpCDD	0.30 J	0.06	ND
1,2,3,4,6,7,8,9-OCDD	0.84 J	0.1	ND
2,3,7,8-TCDF	0.18 J	0.02	ND
1,2,3,7,8-PeCDF	0.08 J	0.03	ND
2,3,4,7,8-PeCDF	0.14 J	0.03	ND
1,2,3,4,7,8-HxCDF	0.17 J	0.03	ND
1,2,3,6,7,8-HxCDF	ND	0.04	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	~~ND~~ 0.17 J-Z	0.04	ND
1,2,3,4,7,8,9-HpCDF	0.37 J	0.05	ND
1,2,3,4,6,7,8,9-OCDF	0.48 J	0.08	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.11~~	0.02	3.6 Z-MB
Total PeCDD	~~0.21~~	0.04	0.6 J-Z
Total HxCDD	~~0.15~~	0.04	0.60 J-Z
Total HpCDD	0.51 J	0.06	
Total TCDF	~~0.92~~	0.02	1.1 J-Z
Total PeCDF	~~0.30~~	0.03	0.48 J-Z
Total HxCDF	~~0.42~~	0.03	1.4 J-Z
Total HpCDF	~~0.37~~	0.04	0.54 J-Z

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55928 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T12-W1** — Analysis File: **ZV49900**
Client Project: **Sauget Area 1 - Site M** — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	
1,2,3,7,8-PeCDD	ND	0.02	
1,2,3,4,7,8-HxCDD	~~ND~~ 0.03J-Z	0.01	
1,2,3,6,7,8-HxCDD	~~ND~~ 0.02J-Z	0.01	
1,2,3,7,8,9-HxCDD	~~ND~~ 0.02J-Z	0.01	
1,2,3,4,6,7,8-HpCDD	1.0 J	0.02	
1,2,3,4,6,7,8,9-OCDD	12.0	0.02	
2,3,7,8-TCDF	ND	0.008	
1,2,3,7,8-PeCDF	ND	0.01	
2,3,4,7,8-PeCDF	ND	0.01	
1,2,3,4,7,8-HxCDF	ND	0.006	
1,2,3,6,7,8-HxCDF	ND	0.006	
2,3,4,6,7,8-HxCDF	ND	0.007	
1,2,3,7,8,9-HxCDF	ND	0.007	
1,2,3,4,6,7,8-HpCDF	~~ND~~ 0.36J-Z	0.008	
1,2,3,4,7,8,9-HpCDF	ND	0.01	
1,2,3,4,6,7,8,9-OCDF	1.8J	0.02	

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.12~~	0.01	2.7 ~~Z-NB~~
Total PeCDD	~~ND~~	0.02	0.24JZ
Total HxCDD	~~0.34~~	0.01	0.49JZ
Total HpCDD	2.2 J	0.02	
Total TCDF	~~ND~~	0.008	0.06 ~~Z-NB~~
Total PeCDF	ND	0.01	
Total HxCDF	~~0.08~~	0.006	0.55JZ
Total HpCDF	~~0.86~~	0.008	1.2JZ

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55928 Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSB-T12-E1 Analysis File: ZV50000
Client Project: Sauget Area 1 - Site M Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	
1,2,3,7,8-PeCDD	ND	0.03	
1,2,3,4,7,8-HxCDD	~~ND~~ 0.04 J-Z	0.02	
1,2,3,6,7,8-HxCDD	ND	0.03	
1,2,3,7,8,9-HxCDD	ND	0.02	
1,2,3,4,6,7,8-HpCDD	0.86 J	0.04	
1,2,3,4,6,7,8,9-OCDD	10.1	0.06	
2,3,7,8-TCDF	0.02 J	0.02	
1,2,3,7,8-PeCDF	ND	0.02	
2,3,4,7,8-PeCDF	ND	0.03	
1,2,3,4,7,8-HxCDF	ND	0.02	
1,2,3,6,7,8-HxCDF	ND	0.02	
2,3,4,6,7,8-HxCDF	ND	0.02	
1,2,3,7,8,9-HxCDF	ND	0.02	
1,2,3,4,6,7,8-HpCDF	0.64 J	0.02	
1,2,3,4,7,8,9-HpCDF	ND	0.03	
1,2,3,4,6,7,8,9-OCDF	2.9 J	0.05	

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.3 ~~Z-48~~ 4J-B-Z
Total PeCDD	~~0.17~~	0.03	0.22 J Z
Total HxCDD	~~0.60~~	0.02	0.69 J Z
Total HpCDD	1.8 J	0.04	
Total TCDF	~~0.02~~	0.02	0.07 ~~Z-48~~ 4J-B-Z
Total PeCDF	~~0.04~~	0.02	0.28 J Z
Total HxCDF	~~0.34~~	0.02	0.57 J Z
Total HpCDF	2.0 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **55928** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T13-C1** Analysis File: **ZV50100**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	ND	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	0.08 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	1.1 J	0.03	ND
2,3,7,8-TCDF	ND	0.008	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.01	ND
1,2,3,4,7,8-HxCDF	ND	0.007	ND
1,2,3,6,7,8-HxCDF	ND	0.007	ND
2,3,4,6,7,8-HxCDF	ND	0.008	ND
1,2,3,7,8,9-HxCDF	ND	0.008	ND
1,2,3,4,6,7,8-HpCDF	0.04 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	0.30 J	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.6 ~~2.6 Z-48~~ UJ-B-Z
Total PeCDD	ND	0.02	
Total HxCDD	ND	0.01	
Total HpCDD	0.16 J	0.02	
Total TCDF	~~ND~~	0.008	0.09 ~~Z-48~~ UJ-B-Z
Total PeCDF	ND	0.01	
Total HxCDF	ND	0.007	
Total HpCDF	0.16 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 55928 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSB-T13-W1 — Analysis File: ZV50200
Client Project: Sauget Area 1 - Site M — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	0.30 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	3.4 J	0.03	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.009	ND
2,3,4,6,7,8-HxCDF	ND	0.01	ND
1,2,3,7,8,9-HxCDF	ND	0.01	ND
1,2,3,4,6,7,8-HpCDF	~~ND~~ 0.16J-Z	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	0.63 J	0.03	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.04~~	0.01	2.6 ~~Z-UB~~ UJ-B-Z
Total PeCDD	ND	0.02	
Total HxCDD	~~0.11~~	0.01	0.15 J-Z
Total HpCDD	0.57 J	0.02	
Total TCDF	~~ND~~	0.01	0.06 ~~Z-UB~~ UJ-B-Z
Total PeCDF	ND	0.02	
Total HxCDF	~~0.07~~	0.009	0.18 J-Z
Total HpCDF	~~0.35~~	0.01	0.51 J-Z

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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565

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TLI Project: 55928 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T13-E1** — Analysis File: **ZV50300**
Client Project: **Sauget Area 1 - Site M** — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	ND	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	0.13 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	2.3 J-B	0.03	ND
2,3,7,8-TCDF	ND	0.009	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.01	ND
1,2,3,4,7,8-HxCDF	ND	0.008	ND
1,2,3,6,7,8-HxCDF	ND	0.007	ND
2,3,4,6,7,8-HxCDF	ND	0.008	ND
1,2,3,7,8,9-HxCDF	ND	0.009	ND
1,2,3,4,6,7,8-HpCDF	0.09 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	0.36 J	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.3-Z ~~UB~~ UJ B2
Total PeCDD	ND	0.02	
Total HxCDD	~~ND~~	0.01	0.12 J-Z
Total HpCDD	~~0.13~~	0.02	0.33 J-Z
Total TCDF	~~ND~~	0.009	0.06 Z ~~UB~~ UJ B Z
Total PeCDF	ND	0.01	
Total HxCDF	0.05 J	0.007	
Total HpCDF	0.28 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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ENSR

MEMORANDUM

TO:	Lisa Bradley/Westford	**DATE:**	April 23, 2002
FROM:	Paula DiMattei/Westford	**FILE:**	SO027andSO033dioxin.doc
			06105-012-202
RE:	Data Validation Dioxin/Furan Analysis Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia, Illinois Triangle Lab Lot #56144 and 56124	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for 19 sediment samples and analyzed for dioxins and furans using SW-846 method 8280A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on December 11, 2001 through December 13, 2001 and were submitted to Triangle Laboratories (Triangle) in Durham, North Carolina for analysis. Triangle logged in the samples and reported the results under lot numbers 56144 and 56124.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Dioxin/Furan Data Validation (Draft 4/93)", the quality control criteria specified in the Quality Assurance Project Plan (QAPP), and the quality control (QC) criteria specified in the analytical method. The functional guidelines were modified to accommodate the analytical method as necessary.

All the data are valid as reported and may be used for decision making purposes. Several selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications				
CBS-CSC-T1-1	CBS-CSC-T4-1-FD (field duplicate of CBS-CSC-T4-1)	CBS-CSC-T8-1	CBS-CSF-T4-1	CBS-CSD-T4-1
CBS-CSC-T2-1	CBS-CSC-T5-1	CBS-CSC-T9-1	CBS-CSD-T1-1	CBS-CSD-T5-1
CBS-CSC-T3-1	CBS-CSC-T6-1	CBS-CSF-T2-1	CBS-CSD-T2-1	CBS-CSD-T6-1
CBS-CSC-T4-1	CBS-CSC-T7-1	CBS-CSF-T3-1	CBS-CSD-T3-1	

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with the chain of custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Internal standard recoveries
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. All samples requiring dioxin/furan analyses were analyzed and reported by Triangle. However, the laboratory analyzed the samples by SW-846 method 8280A instead of method 8290 as specified in the project specific QAPP.

Sample SP-010 was analyzed and reported as part of this sample set but this sample was not reviewed in the scope of this validation.

Holding Times and Sample Preservation

All samples were extracted and analyzed within the holding times specified in Section 6.3 of the analytical method and the project specific QAPP.

All cooler temperatures met the QC acceptance criteria of 4ºC $\pm$ 2ºC.

Method Blanks/Equipment Blanks

The following table summarizes the level of blank contamination detected in the method blank associated with the sediment samples. The presence of blank contamination indicates the possibility of false positive results in the associated samples. An action limit (AL) was set at 5x the maximum blank concentration and used to assess the samples.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)	Actions
Lot # 56144			
Total TCDD	1.6	8	Qualify result (U) in all samples.
Total TCDF	0.04	0.2	Qualify result (U) in all samples except CBS-CSC-T4-1.
Lot # 56124			
Total TCDD	1.9	9.5	Qualify result (U) in all samples except CBS-CSD-T6-1.
Total TCDF	0.04	0.2	Qualify result (U) in all samples except CBS-CSF-T3-1 and CBS-CSD-T6-1.

Although the National Functional guidelines stipulate that sample results reported at concentrations less than the AL should be rejected (R) for blank contamination, professional judgment was used to consider these results to be non-detects (U). The positive total TCDD results in all sediment samples except CBS-CSD-T6-1, and the total TCDF results in all sediment samples except CBS-CSC-T4-1, CBS-CSF-T3-1, and CBS-CSD-T6-1 were considered to be non-detect (U) at the reported value due to method blank contamination.

Equipment blank samples were not collected with this set of samples; no validation action was taken on this basis.

MS/MSD Results

Sample CBS-CSF-T4-1 was submitted for MS/MSD analyses with this sample set. The recoveries (%R) and precision (RPD) of all spiked target compounds were within the QC acceptance criteria (70-130%R; and 20%RPD).

Field Duplicate Results

Samples CBS-CSC-T4-1 and CBS-CSC-T4-1-FD were submitted as the field duplicate pair with this sample set. The following table displays the results and calculated relative percent differences (RPDs) for detected analytes. Several RPDs were not calculable (NC) due to a non-detect result in the duplicate sample. Qualifications to sample results were not made based upon field duplicate RPDs.

Compound	CBS-CSC-T4-1 (µg/Kg)	CBS-CSC-T4-1-FD (µg/Kg)	RPD (%)
1,2,3,6,7,8-HxCDD	0.06	0.02 U	NC
1,2,3,7,8,9-HxCDD	0.03	0.02 U	NC
1,2,3,4,6,7,8-HpCDD	2.3	0.10	183
OCDD	23.5	1.1	182
2,3,7,8-TCDF	0.02	0.02 U	NC
1,2,3,4,7,8-HxCDF	0.03	0.01 U	NC
1,2,3,6,7,8-HxCDF	0.01	0.01 U	NC
2,3,4,6,7,8-HxCDF	0.02	0.01 U	NC
1,2,3,4,6,7,8-HpCDF	2.3	0.05	191
1,2,3,4,7,8,9-HpCDF	0.05	0.02 U	NC
OCDF	11.2	0.41	186
Total TCDD	2.7	2.7	0
Total PeCDD	0.39	0.03 U	NC
Total HxCDD	0.66	0.02 U	NC
Total HpCDD	4.4	0.18	184
Total TCDF	0.20	0.07	96
Total PeCDF	2.7	0.02 U	NC
Total HxCDF	10.4	0.01 U	NC

Compound	CBS-CSC-T4-1 (µg/Kg)	CBS-CSC-T4-1-FD (µg/Kg)	RPD (%)
Total HpCDF	8.1	0.17	192

LCS/LCSD Results

An LCS and LCSD were extracted and analyzed with this set of samples. The recoveries (%R) and precision (RPD) of all compounds were within the QC acceptance criteria (70-130%R; and 20%RPD) with the following exceptions.

Compound	LCS/LCSD %R	RPD (%)	Actions	
			Positive	Nondetect
2,3,4,6,7,8-HxCDF	ok/131	22.0	J	UJ
1,2,3,4,7,8-HxCDF	ok/ok	26.6	J	UJ
1,2,3,6,7,8-HxCDF	ok/ok	21.4	J	UJ
1,2,3,7,8,9-HxCDF	ok/ok	26.1	J	UJ
Associated samples: CBS-CSF-T2-1, CSB-CSF-T3-1, CBS-CSF-T4-1, CBS-CSD-T1-1, CBS-CSD-T2-1, CBS-CSD-T3-1, CBS-CSD-T4-1, CBS-CSD-T5-1, CBS-CSD-T6-1.				

Internal Standard Recoveries

Internal standard recoveries were acceptable for all field and quality control sample analyses. Cleanup standard recoveries were acceptable for all field and quality control sample analyses.

Sample Results

The positive OCDD and OCDF results in sample CBS-CSD-T6-1 were qualified as estimated (J) due to the uncertainty in the quantitation of these results since the results exceeded the upper limit of the calibration range.

All sample percent solids were >50%.

The positive dioxin and furan isomer results in several samples were qualified as estimated (J) by the laboratory due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit. The positive homologue results in several samples were qualified as estimated (J) by the validator due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit.

The detection limits for the dioxins and furans did not meet the project quantitation limits defined in the project specific QAPP because the laboratory performed the analysis by SW-846 method 8280A rather than method 8290.

Estimated maximum possible concentrations (EMPCs) were reported for the following compounds and/or homologues in the samples listed below:

CBS-CSF-T2-1: total TCDD, total TCDF

CBS-CSF-T3-1: total TCDD, total HxCDD, total TCDF, total PeCDF

CBS-CSF-T4-1: total TCDD, total TCDF

CBS-CSD-T1-1: total TCDD, total TCDF

CBS-CSD-T2-1: 1,2,3,7,8,9-HxCDD, total TCDD, total PeCDD, total HxCDD, total TCDF, total HpCDF

CBS-CSD-T3-1: total TCDD, total HpCDD, total TCDF

CBS-CSD-T4-1: total TCDD, total HpCDD, total TCDF

CBS-CSD-T5-1: total TCDD, total HpCDD, total TCDF

CBS-CSD-T6-1: 2,3,7,8-TCDF, 2,3,4,7,8-PeCDF, 1,2,3,6,7,8-HxCDF, total TCDD, total PeCDD, total TCDF, total PeCDF, total HxCDF

CBS-CSC-T1-1: total TCDD, total TCDF

CBS-CSC-T2-1: total TCDD, total PeCDD, total HxCDD, total TCDF

CBS-CSC-T3-1: total TCDD, total TCDF

CBS-CSC-T4-1: 2,3,7,8-TCDF, total TCDD, total PeCDD, total HxCDD, total TCDF, total HxCDF

CBS-CSC-T4-1-FD:total TCDD, total TCDF

CBS-CSC-T5-1: total TCDD, total TCDF

CBS-CSC-T6-1: 1,2,3,4,7,8-HxCDF, total TCDD, total PeCDD, total HxCDD, total TCDF, total HxCDF

CBS-CSC-T7-1: total TCDD, total TCDF

CBS-CSC-T8-1: total TCDD, total TCDF

CBS-CSC-T9-1: 1,2,3,4,6,7,8-HpCDD, total TCDD, total HpCDD, total TCDF

The laboratory reported EMPC values for compounds that did not meet ion abundance ratio criteria. For the homologue results in which some peaks met ion abundance ratio criteria and some did not, the EMPC value reported represents the total concentration of peaks that met ion abundance criteria plus those that did not meet criteria. A conservative approach was taken and the value reported as the EMPC concentration was reported as estimated (J) since this result represents the maximum possible concentration present in the sample.

Solutia, Inc.

TLI Project: **56144** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSC-T1-1** Analysis File: **ZV57800**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.008	ND
1,2,3,7,8-PeCDD	ND	0.01	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	ND	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	0.05 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	0.74 J	0.02	ND
2,3,7,8-TCDF	ND	0.009	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.01	ND
1,2,3,4,7,8-HxCDF	ND	0.006	ND
1,2,3,6,7,8-HxCDF	ND	0.006	ND
2,3,4,6,7,8-HxCDF	ND	0.007	ND
1,2,3,7,8,9-HxCDF	ND	0.007	ND
1,2,3,4,6,7,8-HpCDF	0.03 J	0.009	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	0.14 J	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.008	2.3 ~~2-4~~ UJ-B-Z
Total PeCDD	ND	0.01	
Total HxCDD	ND	0.01	
Total HpCDD	0.12 J	0.02	
Total TCDF	~~ND~~	0.009	0.07 ~~2-4~~ UJ-B-Z
Total PeCDF	ND	0.01	
Total HxCDF	0.01 J	0.006	
Total HpCDF	0.10 J	0.009	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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C1

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TLI Project: **56144** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSC-T2-1** Analysis File: **ZV57900**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	0.02 J	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	0.55 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	8.1	0.02	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.01	ND
1,2,3,4,7,8-HxCDF	0.01 J	0.006	ND
1,2,3,6,7,8-HxCDF	ND	0.006	ND
2,3,4,6,7,8-HxCDF	ND	0.007	ND
1,2,3,7,8,9-HxCDF	ND	0.007	ND
1,2,3,4,6,7,8-HpCDF	0.36 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	2.7 J	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.02~~	0.01	2.5 ~~J-B~~ UJ-B-Z
Total PeCDD	~~ND~~	0.02	0.15 J-Z
Total HxCDD	~~0.12~~	0.01	0.29 J-Z
Total HpCDD	1.2 J	0.02	
Total TCDF	~~ND~~	0.01	0.06 ~~J-B~~ UJ-B-Z
Total PeCDF	ND	0.01	
Total HxCDF	0.15 J	0.006	
Total HpCDF	1.2 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56144** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSC-T3-1** Analysis File: **ZV58000**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.008	ND
1,2,3,7,8-PeCDD	ND	0.01	ND
1,2,3,4,7,8-HxCDD	ND	0.009	ND
1,2,3,6,7,8-HxCDD	ND	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	0.04 J	0.01	ND
1,2,3,4,6,7,8,9-OCDD	0.60 J	0.02	ND
2,3,7,8-TCDF	ND	0.008	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.01	ND
1,2,3,4,7,8-HxCDF	ND	0.006	ND
1,2,3,6,7,8-HxCDF	ND	0.005	ND
2,3,4,6,7,8-HxCDF	ND	0.006	ND
1,2,3,7,8,9-HxCDF	ND	0.006	ND
1,2,3,4,6,7,8-HpCDF	0.02 J	0.008	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	0.06 J	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.008	2.5 ~~2-45~~ UJ-B-Z
Total PeCDD	ND	0.01	
Total HxCDD	ND	0.009	
Total HpCDD	0.10 J	0.01	
Total TCDF	~~ND~~	0.008	0.06 ~~2-48~~ UJ-B-Z
Total PeCDF	ND	0.01	
Total HxCDF	ND	0.005	
Total HpCDF	0.06 J	0.008	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56144** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSC-T4-1** Analysis File: **ZV58100**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
	EMPC		
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	0.06 J	0.01	ND
1,2,3,7,8,9-HxCDD	0.03 J	0.01	ND
1,2,3,4,6,7,8-HpCDD	2.3 J	0.01	ND
1,2,3,4,6,7,8,9-OCDD	23.5	0.02	ND
2,3,7,8-TCDF	~~ND~~ 0.02 J-Z	0.01	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.01	ND
1,2,3,4,7,8-HxCDF	0.03 J	0.007	ND
1,2,3,6,7,8-HxCDF	0.01 J	0.006	ND
2,3,4,6,7,8-HxCDF	0.02 J	0.007	ND
1,2,3,7,8,9-HxCDF	ND	0.007	ND
1,2,3,4,6,7,8-HpCDF	2.3 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	0.05 J	0.01	ND
1,2,3,4,6,7,8,9-OCDF	11.2	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.17~~	0.01	2.7 Z-UB WT-B Z
Total PeCDD	~~ND~~	0.02	0.39 J-Z
Total HxCDD	~~0.35~~	0.01	0.66 J-Z
Total HpCDD	4.4	0.01	
Total TCDF	~~0.12~~	0.01	0.20 J-Z
Total PeCDF	2.7 J	0.01	
Total HxCDF	~~10.4~~	0.006	10.4 J-Z
Total HpCDF	8.1	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56144** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSC-T4-1-FD** Analysis File: **ZV59000**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.10 J	0.03	ND
1,2,3,4,6,7,8,9-OCDD	1.1 J	0.04	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.01	ND
2,3,4,6,7,8-HxCDF	ND	0.01	ND
1,2,3,7,8,9-HxCDF	ND	0.01	ND
1,2,3,4,6,7,8-HpCDF	0.05 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	0.41 J	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.7 ~~Z=UB~~ UJ-B-Z
Total PeCDD	ND	0.03	
Total HxCDD	ND	0.02	
Total HpCDD	0.18 J	0.03	
Total TCDF	~~ND~~	0.02	0.07 ~~Z=UB~~ UJ-B-Z
Total PeCDF	ND	0.02	
Total HxCDF	ND	0.01	
Total HpCDF	0.17 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56144** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSC-T5-1** Analysis File: **ZV59100**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.09 J	0.03	ND
1,2,3,4,6,7,8,9-OCDD	1.2 J	0.03	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.008	ND
2,3,4,6,7,8-HxCDF	ND	0.01	ND
1,2,3,7,8,9-HxCDF	ND	0.01	ND
1,2,3,4,6,7,8-HpCDF	0.06 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	0.30 J	0.03	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.2 ~~Z-UB~~ UJ-B-Z
Total PeCDD	ND	0.02	
Total HxCDD	ND	0.02	
Total HpCDD	0.22 J	0.03	
Total TCDF	~~ND~~	0.01	0.06 ~~Z-UB~~ UJ-BZ
Total PeCDF	ND	0.02	
Total HxCDF	0.02 J	0.008	
Total HpCDF	0.18 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56144** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSC-T6-1** Analysis File: **ZV59200**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	0.03 J	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.64 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	10.5	0.02	ND
2,3,7,8-TCDF	0.02 J	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	~~ND~~ 0.02 J-Z	0.008	ND
1,2,3,6,7,8-HxCDF	ND	0.007	ND
2,3,4,6,7,8-HxCDF	ND	0.008	ND
1,2,3,7,8,9-HxCDF	ND	0.009	ND
1,2,3,4,6,7,8-HpCDF	0.34 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	2.5 J	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.9 ~~2-UB~~ UJ-B-2
Total PeCDD	~~0.04~~	0.02	0.58 ~~J-Z~~ J-2
Total HxCDD	~~0.27~~	0.01	0.6 ~~J-Z~~ J-2
Total HpCDD	1.5 J	0.02	
Total TCDF	~~0.05~~	0.01	0.13 ~~2-UB~~ UJ-B-2
Total PeCDF	0.07 J	0.02	
Total HxCDF	~~0.21~~	0.007	0.28 ~~Z~~ J-2
Total HpCDF	1.3 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56144** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSC-T7-1** Analysis File: **ZV59300**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDD	0.69 J	0.03	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.01	ND
2,3,4,6,7,8-HxCDF	ND	0.01	ND
1,2,3,7,8,9-HxCDF	ND	0.01	ND
1,2,3,4,6,7,8-HpCDF	0.02 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	0.08 J	0.03	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.2 ~~2.4~~ UJ B Z
Total PeCDD	ND	0.02	
Total HxCDD	ND	0.02	
Total HpCDD	ND	0.02	
Total TCDF	~~ND~~	0.01	0.07 ~~2.0~~ UJ B Z
Total PeCDF	ND	0.02	
Total HxCDF	ND	0.01	
Total HpCDF	0.05 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56144** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSC-T8-1** Analysis File: **ZV59400**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.22 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	2.5 J	0.03	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.009	ND
2,3,4,6,7,8-HxCDF	ND	0.01	ND
1,2,3,7,8,9-HxCDF	ND	0.01	ND
1,2,3,4,6,7,8-HpCDF	0.13 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	1.0 J	0.03	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.5 ~~Z=UB~~ UJ-B-Z
Total PeCDD	ND	0.02	
Total HxCDD	0.02 J	0.02	
Total HpCDD	0.42 J	0.02	
Total TCDF	~~ND~~	0.01	0.07 ~~Z=UB~~ UJ-B-Z
Total PeCDF	ND	0.02	
Total HxCDF	0.08 J	0.009	
Total HpCDF	0.48 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56144** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSC-T9-1** Analysis File: **ZV59500**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	ND	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	~~ND~~ 0.18 J-Z	0.02	ND
1,2,3,4,6,7,8,9-OCDD	3.1 J	0.02	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.01	ND
1,2,3,4,7,8-HxCDF	ND	0.007	ND
1,2,3,6,7,8-HxCDF	ND	0.006	ND
2,3,4,6,7,8-HxCDF	ND	0.008	ND
1,2,3,7,8,9-HxCDF	ND	0.008	ND
1,2,3,4,6,7,8-HpCDF	0.08 J	0.01	ND
2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	0.54 J	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.3 ILJ-B-Z
Total PeCDD	ND	0.02	
Total HxCDD	0.04 J	0.01	
Total HpCDD	~~0.28~~	0.02	0.46 Z
Total TCDF	~~ND~~	0.01	0.06 ILJ-B-Z
Total PeCDF	ND	0.01	
Total HxCDF	0.04 J	0.006	
Total HpCDF	0.28 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56124** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T2-1** Analysis File: **VT23400**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.009	ND
1,2,3,7,8-PeCDD	ND	0.01	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	ND	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDD	0.58 J	0.03	ND
2,3,7,8-TCDF	ND	0.007	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.01	ND
1,2,3,4,7,8-HxCDF	ND 4J -D	0.01	ND
1,2,3,6,7,8-HxCDF	ND 4J -D	0.01	ND
2,3,4,6,7,8-HxCDF	ND 4J -D	0.01	ND
1,2,3,7,8,9-HxCDF	ND 4J -D	0.01	ND
1,2,3,4,6,7,8-HpCDF	ND	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	0.13 J	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.009	2.7 ~~Z=4B~~ 4J-B-2
Total PeCDD	ND	0.01	
Total HxCDD	ND	0.01	
Total HpCDD	ND	0.01	
Total TCDF	~~ND~~	0.007	0.06 ~~Z=4B~~ 4J-B-2
Total PeCDF	ND	0.01	
Total HxCDF	ND	0.01	
Total HpCDF	0.05 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56124** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T3-1** Analysis File: **VT23500**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.008	ND
1,2,3,7,8-PeCDD	ND	0.01	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	ND	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	0.61 J	0.01	ND
1,2,3,4,6,7,8,9-OCDD	7.4	0.03	ND
2,3,7,8-TCDF	ND	0.007	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.01	ND
1,2,3,4,7,8-HxCDF	ND UJ-D	0.01	ND
1,2,3,6,7,8-HxCDF	ND UJ-D	0.01	ND
2,3,4,6,7,8-HxCDF	ND UJ-D	0.01	ND
1,2,3,7,8,9-HxCDF	ND UJ-D	0.01	ND
1,2,3,4,6,7,8-HpCDF	0.37 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	2.5 J	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.05~~	0.008	2.8 ~~Z-OB~~ UJ-BZ
Total PeCDD	ND	0.01	
Total HxCDD	~~ND~~	0.01	0.07 Z
Total HpCDD	1.2 J	0.01	
Total TCDF	~~0.03~~	0.007	0.23 J-Z
Total PeCDF	~~ND~~	0.01	0.08 J-Z
Total HxCDF	0.29 J	0.01	
Total HpCDF	1.4 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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Solutia, Inc.

TLI Project: **56124** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T4-1** Analysis File: **VT23600**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDD	0.84 J	0.05	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND UJ-D	0.02	ND
1,2,3,6,7,8-HxCDF	ND UJ-D	0.02	ND
2,3,4,6,7,8-HxCDF	ND UJ ~~NB~~-D	0.02	ND
1,2,3,7,8,9-HxCDF	ND UJ-D	0.02	ND
1,2,3,4,6,7,8-HpCDF	ND	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	ND	0.03	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.6 ~~ZNB~~ UJ-B-Z
Total PeCDD	ND	0.02	
Total HxCDD	ND	0.02	
Total HpCDD	ND	0.02	
Total TCDF	~~ND~~	0.01	0.07 ~~ZNB~~ UJ-B-Z
Total PeCDF	ND	0.02	
Total HxCDF	ND	0.02	
Total HpCDF	ND	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56124** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSD-T1-1** Analysis File: **VT25100**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.17 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	3.3 J	0.05	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND UJ-D	0.01	ND
1,2,3,6,7,8-HxCDF	ND UJ-D	0.02	ND
2,3,4,6,7,8-HxCDF	ND UJ-D	0.01	ND
1,2,3,7,8,9-HxCDF	ND UJ-D	0.01	ND
1,2,3,4,6,7,8-HpCDF	0.10 J	0.02	ND
2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	0.47 J	0.03	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.4 ~~Z-UB~~ UJ-B Z
Total PeCDD	ND	0.02	
Total HxCDD	ND	0.02	
Total HpCDD	0.35 J	0.02	
Total TCDF	~~ND~~	0.01	0.07 ~~Z-UB~~ UJ-B Z
Total PeCDF	ND	0.02	
Total HxCDF	0.04 J	0.01	
Total HpCDF	0.31 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56124** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSD-T2-1** Analysis File: **VT23700**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	~~ND~~	0.02	ND
1,2,3,7,8,9-HxCDD	ND ~~ND~~ 0.06 J-Z	0.02	ND
1,2,3,4,6,7,8-HpCDD	1.2 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	13.6	0.05	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND UJ-D	0.01	ND
1,2,3,6,7,8-HxCDF	ND UJ-D	0.01	ND
2,3,4,6,7,8-HxCDF	ND UJ-D	0.02	ND
1,2,3,7,8,9-HxCDF	ND UJ-D	0.02	ND
1,2,3,4,6,7,8-HpCDF	1.3 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	8.9	0.03	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.08~~	0.01	2.6 ~~Z=UB~~ UJ-B-Z
Total PeCDD	~~ND~~	0.02	0.10 J-Z
Total HxCDD	~~0.18~~	0.02	0.51 J-Z
Total HpCDD	2.1 J	0.02	
Total TCDF	~~ND~~	0.01	0.06 ~~Z=UB~~ UJ-B-Z
Total PeCDF	ND	0.02	
Total HxCDF	0.59 J	0.01	
Total HpCDF	~~3.9~~	0.02	4.0 J-Z

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TLI Project: **56124** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSD-T3-1** Analysis File: **VT23800**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.09 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	1.4 J	0.06	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND WJ-D	0.02	ND
1,2,3,6,7,8-HxCDF	ND WJ-D	0.02	ND
2,3,4,6,7,8-HxCDF	ND WJ-D	0.02	ND
1,2,3,7,8,9-HxCDF	ND WJ-D	0.02	ND
1,2,3,4,6,7,8-HpCDF	ND	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	0.31 J	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.7 Z-4B WJ-B-2
Total PeCDD	ND	0.02	
Total HxCDD	ND	0.02	
Total HpCDD	~~0.09~~	0.02	0.21 J-Z
Total TCDF	~~ND~~	0.01	0.07 Z-4B WJ-B-2
Total PeCDF	ND	0.02	
Total HxCDF	ND	0.02	
Total HpCDF	0.10 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56124** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSD-T4-1** Analysis File: **VT23900**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.10 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	1.1 J	0.05	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND UJ-D	0.01	ND
1,2,3,6,7,8-HxCDF	ND UJ-D	0.02	ND
2,3,4,6,7,8-HxCDF	ND UJ-D	0.02	ND
1,2,3,7,8,9-HxCDF	ND UJ-D	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.09 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	0.44 J	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.9 ~~Z-UB~~ UJ-B-Z
Total PeCDD	ND	0.02	
Total HxCDD	ND	0.02	
Total HpCDD	~~0.10~~	0.02	0.19 J Z
Total TCDF	~~ND~~	0.01	0.07 ~~Z-UB~~ UJ-B-Z
Total PeCDF	ND	0.02	
Total HxCDF	ND	0.01	
Total HpCDF	0.27 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56124** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSD-T5-1** Analysis File: **VT24000**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.29 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	3.7 J	0.06	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND UJ-D	0.01	ND
1,2,3,6,7,8-HxCDF	ND UJ-D	0.01	ND
2,3,4,6,7,8-HxCDF	ND UJ-D	0.01	ND
1,2,3,7,8,9-HxCDF	ND UJ D	0.01	ND
1,2,3,4,6,7,8-HpCDF	0.26 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	1.6 J	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.8 ~~Z-48~~ UJ-B-Z
Total PeCDD	ND	0.02	
Total HxCDD	ND	0.02	
Total HpCDD	~~0.29~~	0.02	0.59 J-Z
Total TCDF	~~ND~~	0.01	0.07 ~~Z-48~~ UJ-B-Z
Total PeCDF	ND	0.02	
Total HxCDF	0.08 J	0.01	
Total HpCDF	0.86 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56124** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSD-T6-1** Analysis File: **VT24100**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	0.10 J	0.02	ND
1,2,3,6,7,8-HxCDD	0.99 J	0.02	ND
1,2,3,7,8,9-HxCDD	0.29 J	0.02	ND
1,2,3,4,6,7,8-HpCDD	27.7	0.03	ND
1,2,3,4,6,7,8,9-OCDD	312 J -E	0.08	ND
2,3,7,8-TCDF	~~ND~~ 0.20 J-Z	0.01	ND
1,2,3,7,8-PeCDF	0.38 J	0.02	ND
2,3,4,7,8-PeCDF	~~ND~~ 0.09 J Z	0.02	ND
1,2,3,4,7,8-HxCDF	0.48 J -D	0.02	ND
1,2,3,6,7,8-HxCDF	~~ND~~ 0.12 J Z -D	0.02	ND
2,3,4,6,7,8-HxCDF	0.31 J-L-D	0.02	ND
1,2,3,7,8,9-HxCDF	0.10 J-D	0.02	ND
1,2,3,4,6,7,8-HpCDF	22.6	0.03	ND
1,2,3,4,7,8,9-HpCDF	1.1 J	0.03	ND
1,2,3,4,6,7,8,9-OCDF	174 J -E	0.05	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~3.6~~	0.01	10.5 J Z
Total PeCDD	~~0.27~~	0.02	1.6 J Z
Total HxCDD	6.2	0.02	
Total HpCDD	52.6	0.03	
Total TCDF	~~0.97~~	0.01	2.1 J Z
Total PeCDF	~~2.1~~	0.02	2.5 J Z
Total HxCDF	~~15.2~~	0.02	15.6 J Z
Total HpCDF	85.0	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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ENSR

MEMORANDUM

TO:	Lisa Bradley/Westford	**DATE:**	April 23, 2002
FROM:	Paula DiMattei/Westford	**FILE:**	SO025dioxin.doc 06105-012-202
RE:	Data Validation Dioxin/Furan Analysis Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia, Illinois Triangle Lab Lot #56202	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for 11 sediment samples and analyzed for dioxins and furans using SW-846 Method 8280A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on December 18, 2001 and were submitted to Triangle Laboratories (Triangle) in Durham, North Carolina for analysis. Triangle logged in the samples and reported the results under lot number 56202.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Dioxin/Furan Data Validation (Draft 4/93)", the quality control criteria specified in the Quality Assurance Project Plan (QAPP), and the quality control (QC) criteria specified in the analytical method. The functional guidelines were modified to accommodate the analytical method as necessary.

All the data are valid as reported and may be used for decision making purposes. Several selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications		
CBS-CSE-T1-1	CBS-CSE-T4-1	CBS-CSE-T15-1-FD (field duplicate of CBS-CSE-T15-1)
CBS-CSE-T2-1	CBS-CSE-T5-1	CBS-CSE-T6-1
CBS-CSE-T3-1	CBS-CSE-T14-1	CBS-CSE-T13-1
CBS-CSE-T3-1-FD (field duplicate of CBS-CSE-T3-1)	CBS-CSE-T15-1	

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with the chain of custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Internal standard recoveries
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. All samples requiring dioxin/furan analyses were analyzed and reported by Triangle. However, the laboratory analyzed the samples by SW-846 method 8280A instead of method 8290 as specified in the project specific QAPP.

Holding Times and Sample Preservation

All samples were extracted and analyzed within the holding times specified in Section 6.3 of the analytical method and the project specific QAPP.

All cooler temperatures met the QC acceptance criteria of 4ºC ± 2ºC.

Method Blanks/Equipment Blanks

The following table summarizes the level of blank contamination detected in the method blank associated with the sediment samples. The presence of blank contamination indicates the possibility of false positive results in the associated samples. An action limit (AL) was set at 5x the maximum blank concentration and used to assess the samples.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)	Actions
Total TCDD	1.9	9.5	Qualify result (U) in all samples.
Total TCDF	0.04	0.2	Qualify result (U) in all samples.

Although the National Functional guidelines stipulate that sample results reported at concentrations less than the AL should be rejected (R) for blank contamination, professional judgment was used to consider these results to be non-detects (U). The positive total TCDD and total TCDF results in all sediment samples were considered to be non-detect (U) at the reported value due to method blank contamination.

Equipment blank samples were not collected with this set of samples; no validation action was taken on this basis.

ENSR

MS/MSD Results

MS/MSD samples were not submitted with this sample set. No data validation actions were taken on this basis.

Field Duplicate Results

Samples CBS-CSE-T15-1/CBS-CSE-T15-1-FD and CBS-CSE-T3-1/CBS-CSE-T3-1-FD were submitted as the field duplicate pairs with this sample set. The following tables display the results and calculated relative percent differences (RPDs) for detected analytes. Several RPDs were not calculable (NC) due to a non-detect result in either the original or duplicate sample. Qualifications to sample results were not made based upon field duplicate RPDs.

Compound	CBS-CSE-T15-1 (µg/Kg)	CBS-CSE-T15-1-FD (µg/Kg)	RPD (%)
1,2,3,4,6,7,8-HpCDD	0.05	0.04	22
OCDD	0.62	0.60	3
1,2,3,4,6,7,8-HpCDF	0.02	0.03	40
OCDF	0.09	0.12	28
Total TCDD	2.0	2.0	0
Total HpCDD	0.1	0.09	10
Total TCDF	0.05	0.05	0
Total HxCDF	0.004 U	0.009	NC
Total HpCDF	0.05	0.07	33

Compound	CBS-CSE-T3-1 (µg/Kg)	CBS-CSE-T3-1-FD (µg/Kg)	RPD (%)
1,2,3,4,6,7,8-HpCDD	0.16	0.14	13
OCDD	1.4	1.8	25
1,2,3,4,6,7,8-HpCDF	0.09	0.14	43
OCDF	0.65	0.64	2
Total TCDD	2.6	2.5	3.0
Total HpCDD	0.3	0.32	6
Total TCDF	0.07	0.08	13
Total HxCDF	0.03	0.02 U	NC
Total HpCDD	0.33	0.42	24

ENSR

LCS/LCSD Results

An LCS and LCSD were extracted and analyzed with this set of samples. The recoveries (%R) and precision (RPD) of all compounds were within the QC acceptance criteria (70-130%R: and 20%RPD).

Internal Standard Recoveries

Internal standard recoveries were acceptable for all field and quality control sample analyses. Cleanup standard recoveries were acceptable for all field and quality control sample analyses.

Sample Results

All sample percent solids were >50%.

The positive dioxin and furan isomer results in several samples were qualified as estimated (J) by the laboratory due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit. The positive homologue results in several samples were qualified as estimated (J) by the validator due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit.

The detection limits for the dioxins and furans did not meet the project quantitation limits defined in the project specific QAPP because the laboratory performed the analysis by SW-846 method 8280A rather than method 8290.

Estimated maximum possible concentrations (EMPCs) were reported for the following compounds and/or homologues in the samples listed below:

CBS-CSE-T1-1: total TCDD, total TCDF

CBS-CSE-T2-1: total TCDD, total TCDF

CBS-CSE-T3-1: total TCDD, total TCDF

CBS-CSE-T3-1-FD: total TCDD, total TCDF

CBS-CSE-T4-1: total TCDD, total TCDF

CBS-CSE-T5-1: OCDF, total TCDD, total TCDF

CBS-CSE-T14-1: total TCDD, total HxCDD, total TCDF, total HxCDF

CBS-CSE-T15-1: total TCDD, total TCDF

CBS-CSE-T15-1-FD: total TCDD, total TCDF

CBS-CSE-T6-1: total TCDD, total TCDF

CBS-CSE-T13-1: total TCDD, total PeCDD, total TCDF

The laboratory reported EMPC values for compounds that did not meet ion abundance ratio criteria. For the homologue results in which some peaks met ion abundance ratio criteria and some did not, the EMPC value reported represents the total concentration of peaks that met ion abundance criteria plus those that did not meet criteria. A conservative approach was taken and the value reported as the EMPC concentration was reported as estimated (J) since this result represents the maximum possible concentration present in the sample.

TLI Project: 56202 Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSE-T1-1 Analysis File: VT28200
Client Project: Sauget Area 1 - Site M Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.07 J	0.03	ND
1,2,3,4,6,7,8,9-OCDD	0.74 J	0.06	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	ND	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	0.17 J	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.3 ~~2-4-B~~ RJ-B-2
Total PeCDD	ND	0.03	
Total HxCDD	ND	0.02	
Total HpCDD	0.15 J	0.03	
Total TCDF	~~ND~~	0.01	0.07 ~~2-4-B~~ RJ-B-2
Total PeCDF	ND	0.02	
Total HxCDF	ND	0.02	
Total HpCDF	0.08 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project:	56202	Method 8280-A PCDD/PCDF Analysis (b)	
Client Sample:	CBS-CSE-T2-1	Analysis File:	VT28300
Client Project:	Sauget Area 1 - Site M	Matrix:	SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.31 J	0.03	ND
1,2,3,4,6,7,8,9-OCDD	3.5 J	0.05	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.20 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	0.98 J	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.5-2-4-8 UJ-B-2
Total PeCDD	ND	0.03	
Total HxCDD	0.07 J	0.02	
Total HpCDD	0.67 J	0.03	
Total TCDF	~~ND~~	0.01	0.06-2-4-8 UJ-B-2
Total PeCDF	ND	0.02	
Total HxCDF	0.10 J	0.01	
Total HpCDF	0.56 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56202** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSE-T3-1** Analysis File: **VT28400**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.16 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	1.4 J	0.04	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.01	ND
2,3,4,6,7,8-HxCDF	ND	0.01	ND
1,2,3,7,8,9-HxCDF	ND	0.01	ND
1,2,3,4,6,7,8-HpCDF	0.09 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	0.65 J	0.03	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.6-~~2-4-8~~ UJ-B-2
Total PeCDD	ND	0.02	
Total HxCDD	ND	0.02	
Total HpCDD	0.30 J	0.02	
Total TCDF	~~ND~~	0.01	0.07-~~2-4-8~~ UJ-B-2
Total PeCDF	ND	0.02	
Total HxCDF	0.03 J	0.01	
Total HpCDF	0.33 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 56202 Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSE-T3-1-FD Analysis File: VT28500
Client Project: Sauget Area 1 - Site M Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	0.14 J	0.03	ND
1,2,3,4,6,7,8,9-OCDD	1.8 J	0.06	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.14 J	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	0.64 J	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.5-~~2.4~~ UJ B 2
Total PeCDD	ND	0.03	
Total HxCDD	ND	0.02	
Total HpCDD	0.32 J	0.03	
Total TCDF	~~ND~~	0.02	0.08-~~2.4~~ UJ B 2
Total PeCDF	ND	0.03	
Total HxCDF	ND	0.02	
Total HpCDF	0.42 J	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56202** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSE-T4-1** Analysis File: VT28600
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	ND	0.04	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	0.06 J	0.04	ND
1,2,3,4,6,7,8,9-OCDD	1.0 J	0.08	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.03	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	ND	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	0.11 J	0.06	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.4-~~2-4-8~~ UJ-B-2
Total PeCDD	ND	0.04	
Total HxCDD	ND	0.03	
Total HpCDD	0.14 J	0.04	
Total TCDF	~~ND~~	0.02	0.10-~~2-4-8~~ UJ-B2
Total PeCDF	ND	0.03	
Total HxCDF	ND	0.02	
Total HpCDF	ND	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 56202 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSE-T5-1 — Analysis File: VT28700
Client Project: Sauget Area 1 - Site M — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND EMPC	0.03	ND
1,2,3,7,8-PeCDD	ND	0.05	ND
1,2,3,4,7,8-HxCDD	ND	0.04	ND
1,2,3,6,7,8-HxCDD	ND	0.04	ND
1,2,3,7,8,9-HxCDD	ND	0.04	ND
1,2,3,4,6,7,8-HpCDD	ND	0.05	ND
1,2,3,4,6,7,8,9-OCDD	0.51 J	0.1	ND
2,3,7,8-TCDF	ND	0.03	ND
1,2,3,7,8-PeCDF	ND	0.04	ND
2,3,4,7,8-PeCDF	ND	0.04	ND
1,2,3,4,7,8-HxCDF	ND	0.03	ND
1,2,3,6,7,8-HxCDF	ND	0.04	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.04	ND
1,2,3,4,6,7,8-HpCDF	ND	0.05	ND
1,2,3,4,7,8,9-HpCDF	ND	0.05	ND
1,2,3,4,6,7,8,9-OCDF	~~ND~~ 0.13J-2	0.08	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.03	2.3-~~2-4-6~~ UJ-B-2
Total PeCDD	ND	0.05	
Total HxCDD	ND	0.04	
Total HpCDD	ND	0.05	
Total TCDF	~~ND~~	0.03	0.11-~~2-4-6~~ UJ-B-2
Total PeCDF	ND	0.04	
Total HxCDF	ND	0.03	
Total HpCDF	ND	0.05	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 56202 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSE-T14-1 — Analysis File: ZV61700
Client Project: Sauget Area 1 - Site M — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.007	ND
1,2,3,7,8-PeCDD	ND	0.01	ND
1,2,3,4,7,8-HxCDD	ND	0.007	ND
1,2,3,6,7,8-HxCDD	0.01 J	0.007	ND
1,2,3,7,8,9-HxCDD	ND	0.008	ND
1,2,3,4,6,7,8-HpCDD	0.24 J	0.01	ND
1,2,3,4,6,7,8,9-OCDD	2.6 J	0.01	ND
2,3,7,8-TCDF	ND	0.007	ND
1,2,3,7,8-PeCDF	ND	0.008	ND
2,3,4,7,8-PeCDF	ND	0.008	ND
1,2,3,4,7,8-HxCDF	ND	0.005	ND
1,2,3,6,7,8-HxCDF	ND	0.005	ND
2,3,4,6,7,8-HxCDF	ND	0.005	ND
1,2,3,7,8,9-HxCDF	ND	0.005	ND
1,2,3,4,6,7,8-HpCDF	0.19 J	0.007	ND
1,2,3,4,7,8,9-HpCDF	ND	0.007	ND
1,2,3,4,6,7,8,9-OCDF	1.1 J	0.01	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.007	2.2-2 ~~UJ~~ B 2
Total PeCDD	ND	0.01	
Total HxCDD	~~0.03~~	0.007	0.05 J-2
Total HpCDD	0.46 J	0.01	
Total TCDF	~~ND~~	0.007	0.06 ~~2-4~~ UJ B 2
Total PeCDF	ND	0.008	
Total HxCDF	~~0.08~~	0.005	0.09 J-2
Total HpCDF	0.61 J	0.007	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56202** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSE-T15-1** Analysis File: **ZV61800**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.007	ND
1,2,3,7,8-PeCDD	ND	0.01	ND
1,2,3,4,7,8-HxCDD	ND	0.007	ND
1,2,3,6,7,8-HxCDD	ND	0.006	ND
1,2,3,7,8,9-HxCDD	ND	0.007	ND
1,2,3,4,6,7,8-HpCDD	0.05 J	0.008	ND
1,2,3,4,6,7,8,9-OCDD	0.62 J	0.01	ND
2,3,7,8-TCDF	ND	0.007	ND
1,2,3,7,8-PeCDF	ND	0.008	ND
2,3,4,7,8-PeCDF	ND	0.008	ND
1,2,3,4,7,8-HxCDF	ND	0.004	ND
1,2,3,6,7,8-HxCDF	ND	0.004	ND
2,3,4,6,7,8-HxCDF	ND	0.004	ND
1,2,3,7,8,9-HxCDF	ND	0.004	ND
1,2,3,4,6,7,8-HpCDF	0.02 J	0.006	ND
1,2,3,4,7,8,9-HpCDF	ND	0.006	ND
1,2,3,4,6,7,8,9-OCDF	0.09 J	0.01	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.007	2.0 ~~2-4-8~~ UJ-B-Z
Total PeCDD	ND	0.01	
Total HxCDD	ND	0.006	
Total HpCDD	0.10 J	0.008	
Total TCDF	~~ND~~	0.007	0.05 ~~2-4-8~~ UJ-B-Z
Total PeCDF	ND	0.008	
Total HxCDF	ND	0.004	
Total HpCDF	0.05 J	0.006	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 56202 Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSE-T15-1-FD Analysis File: ZV61900
Client Project: Sauget Area 1 - Site M Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.006	ND
1,2,3,7,8-PeCDD	ND	0.008	ND
1,2,3,4,7,8-HxCDD	ND	0.006	ND
1,2,3,6,7,8-HxCDD	ND	0.006	ND
1,2,3,7,8,9-HxCDD	ND	0.006	ND
1,2,3,4,6,7,8-HpCDD	0.04 J	0.008	ND
1,2,3,4,6,7,8,9-OCDD	0.60 J	0.01	ND
2,3,7,8-TCDF	ND	0.006	ND
1,2,3,7,8-PeCDF	ND	0.007	ND
2,3,4,7,8-PeCDF	ND	0.007	ND
1,2,3,4,7,8-HxCDF	ND	0.004	ND
1,2,3,6,7,8-HxCDF	ND	0.003	ND
2,3,4,6,7,8-HxCDF	ND	0.004	ND
1,2,3,7,8,9-HxCDF	ND	0.004	ND
1,2,3,4,6,7,8-HpCDF	0.03 J	0.005	ND
1,2,3,4,7,8,9-HpCDF	ND	0.005	ND
1,2,3,4,6,7,8,9-OCDF	0.12 J	0.01	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.006	2.0 ~~2.4~~ UJ B Z
Total PeCDD	ND	0.008	
Total HxCDD	ND	0.006	
Total HpCDD	0.09 J	0.008	
Total TCDF	~~ND~~	0.006	0.05 ~~2.4~~ UJ B Z
Total PeCDF	ND	0.007	
Total HxCDF	0.009 J	0.003	
Total HpCDF	0.07 J	0.005	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 56202 Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSE-T6-1 Analysis File: ZV62000
Client Project: Sauget Area 1 - Site M Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.007	ND
1,2,3,7,8-PeCDD	ND	0.01	ND
1,2,3,4,7,8-HxCDD	ND	0.007	ND
1,2,3,6,7,8-HxCDD	0.01 J	0.007	ND
1,2,3,7,8,9-HxCDD	ND	0.007	ND
1,2,3,4,6,7,8-HpCDD	0.26 J	0.009	ND
1,2,3,4,6,7,8,9-OCDD	2.8 J	0.01	ND
2,3,7,8-TCDF	ND	0.006	ND
1,2,3,7,8-PeCDF	ND	0.007	ND
2,3,4,7,8-PeCDF	ND	0.007	ND
1,2,3,4,7,8-HxCDF	ND	0.004	ND
1,2,3,6,7,8-HxCDF	ND	0.004	ND
2,3,4,6,7,8-HxCDF	ND	0.005	ND
1,2,3,7,8,9-HxCDF	ND	0.005	ND
1,2,3,4,6,7,8-HpCDF	0.19 J	0.006	ND
1,2,3,4,7,8,9-HpCDF	ND	0.006	ND
1,2,3,4,6,7,8,9-OCDF	1.4 J	0.01	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.007	2.5-~~Z-U-B~~ UJ-B-Z
Total PeCDD	ND	0.01	
Total HxCDD	0.06 J	0.007	
Total HpCDD	0.48 J	0.009	
Total TCDF	~~ND~~	0.006	0.06-~~Z-U-B~~ UJ-B-Z
Total PeCDF	ND	0.007	
Total HxCDF	0.11 J	0.004	
Total HpCDF	0.72 J	0.006	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 56202 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSE-T13-1 — Analysis File: ZV62100
Client Project: Sauget Area 1 - Site M — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.008	ND
1,2,3,7,8-PeCDD	ND	0.01	ND
1,2,3,4,7,8-HxCDD	ND	0.007	ND
1,2,3,6,7,8-HxCDD	0.01 J	0.007	ND
1,2,3,7,8,9-HxCDD	ND	0.007	ND
1,2,3,4,6,7,8-HpCDD	0.30 J	0.009	ND
1,2,3,4,6,7,8,9-OCDD	3.8 J	0.01	ND
2,3,7,8-TCDF	ND	0.007	ND
1,2,3,7,8-PeCDF	ND	0.008	ND
2,3,4,7,8-PeCDF	ND	0.008	ND
1,2,3,4,7,8-HxCDF	ND	0.005	ND
1,2,3,6,7,8-HxCDF	ND	0.004	ND
2,3,4,6,7,8-HxCDF	ND	0.005	ND
1,2,3,7,8,9-HxCDF	ND	0.005	ND
1,2,3,4,6,7,8-HpCDF	0.22 J	0.006	ND
1,2,3,4,7,8,9-HpCDF	ND	0.007	ND
1,2,3,4,6,7,8,9-OCDF	1.5 J	0.01	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.03~~	0.008	2.5 ~~2-4-8~~ UJ-B-2
Total PeCDD	~~ND~~	0.01	0.03 J-2
Total HxCDD	0.09 J	0.007	
Total HpCDD	0.59 J	0.009	
Total TCDF	~~ND~~	0.007	0.06 ~~2-4-6~~ UJ-B-2
Total PeCDF	ND	0.008	
Total HxCDF	0.12 J	0.004	
Total HpCDF	0.83 J	0.006	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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MEMORANDUM

TO:	Lisa Bradley/Westford	**DATE:**	April 25, 2002
FROM:	Paula DiMattei/Westford	**FILE:**	SO028dioxin.doc
			06105-012-202
RE:	Data Validation Dioxin/Furan Analysis Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia, Illinois Triangle Lab Lot #56257	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for 12 sediment samples and analyzed for dioxins and furans using SW-846 Method 8280A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on December 19, 2001 through December 21, 2001 and were submitted to Triangle Laboratories (Triangle) in Durham, North Carolina for analysis. Triangle logged in the samples and reported the results under lot number 56257.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Dioxin/Furan Data Validation (Draft 4/93)", the quality control criteria specified in the Quality Assurance Project Plan (QAPP), and the quality control (QC) criteria specified in the analytical method. The functional guidelines were modified to accommodate the analytical method as necessary.

All the data are valid as reported and may be used for decision making purposes. Several selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications		
CBS-CSB-T14-1	CBS-CSE-T17-1	CBS-CSE-T7-1
CBS-CSB-T15-1	CBS-CSF-T1-1	CBS-CSE-T8-1
CBS-CSB-T16-1	CBS-CSE-T12-1	CBS-CSE-T9-1
CBS-CSE-T16-1	CBS-CSE-T11-1	CBS-CSE-T10-1

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REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with the chain of custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Internal standard recoveries
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. All samples requiring dioxin/furan analyses were analyzed and reported by Triangle. However, the laboratory analyzed the samples by SW-846 method 8280A instead of method 8290 as specified in the project specific QAPP.

Holding Times and Sample Preservation

All samples were extracted and analyzed within the holding times specified in Section 6.3 of the analytical method and the project specific QAPP.

All cooler temperatures met the QC acceptance criteria of 4ºC ± 2ºC.

Method Blanks/Equipment Blanks

The following table summarizes the level of blank contamination detected in the method blank associated with the sediment samples. The presence of blank contamination indicates the possibility of false positive results in the associated samples. An action limit (AL) was set at 5x for all, except OCDD and OCDF, which were set at 10x the maximum blank concentration and used to assess the samples.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)	Actions
OCDD	0.06	0.6	Qualify result (U) in samples CBS-CSE-T12-1, CBS-CSE-T9-1, and CBS-CSE-T10-1.
OCDF	0.05	0.5	Qualify result (U) in samples CBS-CSE-T14-1 and CBS-CSF-T1-1.
Total TCDD	1.7	8.5	Qualify result (U) in all samples except CBS-CSB-T16-1.
Total TCDF	0.05	0.25	Qualify result (U) in all samples except CBS-CSB-T16-1, CBS-CSE-T16-1, and CBS-CSE-T17-1.

Although the National Functional guidelines stipulate that sample results reported at concentrations less than the AL should be rejected (R) for blank contamination, professional judgment was used to consider these results to be non-detects (U). The positive OCDD results in samples CBS-CSE-T12-1, CBS-CSE-T9-1, and CBS-CSE-T10-1, the positive OCDF results in samples CBS-CSE-T14-1 and CBS-CSF-T1-1, the positive total TCDD results in samples all samples except CBS-CSB-T16-1, and the positive total TCDF results in all samples except CBS-CSB-T16-1, CBS-CSE-T16-1, and CBS-CSE-T17-1 were considered to be non-detect (U) at the reported value due to method blank contamination.

Equipment blank samples were not collected with this set of samples; no validation action was taken on this basis.

MS/MSD Results

Sample CBS-CSE-T10-1 was submitted for MS/MSD analyses with this sample set. The recoveries (%R) and relative percent difference (RPD) of all spiked target compounds were within the QC acceptance criteria (70-130%R; and 20%RPD).

Field Duplicate Results

A field duplicate pair was not submitted with this sample set. No data validation actions were taken on this basis.

LCS/LCSD Results

An LCS and LCSD were extracted and analyzed with this set of samples. The recoveries (%R) and precision (RPD) of all compounds were within the QC acceptance criteria (70-130%R; and 20%RPD).

Internal Standard Recoveries

Internal standard recoveries were acceptable for all field and quality control sample analyses. Cleanup standard recoveries were acceptable for all field and quality control sample analyses.

Sample Results

The positive OCDD result in sample CBS-CSB-T16-1 was qualified as estimated (J) due to the uncertainty in the quantitation of this result since the result exceeded the upper limit of the calibration range.

All sample percent solids were >50%.

The positive dioxin and furan isomer results in several samples were qualified as estimated (J) by the laboratory due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit. The positive homologue results in several samples were qualified as estimated (J) by the validator due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit.

The detection limits for the dioxins and furans did not meet the project quantitation limits defined in the project specific QAPP because the laboratory performed the analysis by SW-846 method 8280A rather than method 8290.

Estimated maximum possible concentrations (EMPCs) were reported for the following compounds and/or homologues in the samples listed below:

CBS-CSE-T12-1: total TCDD, total TCDF

CBS-CSE-T11-1: 1,2,3,4,6,7,8-HpCDD, total TCDD, total HpCDD, total TCDF

CBS-CSE-T7-1: total TCDD, total TCDF

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CBS-CSE-T8-1:	total TCDD, total TCDF
CBS-CSE-T9-1:	total TCDD, total TCDF
CBS-CSE-T10-1:	total TCDD, total TCDF
CBS-CSB-T14-1:	total TCDD, total TCDF
CBS-CSB-T15-1:	total TCDD, total HxCDD, total TCDF, total HxCDF
CBS-CSB-T16-1:	1,2,3,7,8-PeCDD, 2,3,7,8-TCDF, 2,3,4,7,8-PeCDF, 2,3,4,6,7,8-HxCDF, 1,2,3,4,7,8,9-HpCDF, total TCDD, total PeCDD, total HxCDD, total TCDF, total PeCDF, total HpCDF
CBS-CSE-T16-1:	total TCDD, total PeCDD, total HxCDD, total TCDF, total PeCDF, total HxCDF
CBS-CSE-T17-1:	1,2,3,7,8-PeCDD, total TCDD, total PeCDD, total HxCDD, total TCDF, total PeCDF, total HxCDF
CBS-CSF-T1-1:	total TCDD, total TCDF

The laboratory reported EMPC values for compounds that did not meet ion abundance ratio criteria. For the homologue results in which some peaks met ion abundance ratio criteria and some did not, the EMPC value reported represents the total concentration of peaks that met ion abundance criteria plus those that did not meet criteria. A conservative approach was taken and the value reported as the EMPC concentration was reported as estimated (J) since this result represents the maximum possible concentration present in the sample.

Solutia, Inc.

TLI Project: **56257** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSE-T12-1** Analysis File: **VT29400**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	ND	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	ND	0.04	ND
1,2,3,4,6,7,8,9-OCDD	0.26 ~~J~~ UB	0.08	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	ND	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	ND	0.06	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.6 ~~Z-UB~~ UJ-B-Z
Total PeCDD	ND	0.03	
Total HxCDD	ND	0.03	
Total HpCDD	ND	0.04	
Total TCDF	~~ND~~	0.02	0.07 ~~Z-UB~~ UJ-B-Z
Total PeCDF	ND	0.03	
Total HxCDF	ND	0.02	
Total HpCDF	ND	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56257** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSE-T11-1** Analysis File: **VT29500**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	EMPC DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	ND	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	~~ND~~ 0.23 J-Z	0.04	ND
1,2,3,4,6,7,8,9-OCDD	2.3 J	0.08	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.15 J	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	0.99 J	0.07	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.6 ~~Z-UB~~ UJ-B-Z
Total PeCDD	ND	0.04	
Total HxCDD	ND	0.03	
Total HpCDD	~~0.23~~	0.04	0.46 J-Z
Total TCDF	~~ND~~	0.02	0.07 Z-~~UB~~ UJ-B-Z
Total PeCDF	ND	0.03	
Total HxCDF	0.05 J	0.02	
Total HpCDF	0.55 J	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56257** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSE-T7-1** Analysis File: **VT29600**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	0.43 J	0.03	ND
1,2,3,4,6,7,8,9-OCDD	5.2 J	0.07	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.19 J	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	1.3 J	0.06	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.08~~	0.02	2.5 Z-UB UJ-B-Z
Total PeCDD	ND	0.03	
Total HxCDD	0.09 J	0.02	
Total HpCDD	0.95 J	0.03	
Total TCDF	~~ND~~	0.02	0.08 Z-UB UJ-B-Z
Total PeCDF	ND	0.02	
Total HxCDF	0.16 J	0.02	
Total HpCDF	0.72 J	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56257** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSE-T8-1** Analysis File: **VT29700**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.23 J	0.03	ND
1,2,3,4,6,7,8,9-OCDD	3.1 J	0.06	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.16 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	1.3 J	0.05	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.6 ~~ND~~ UJ-B-2
Total PeCDD	ND	0.03	
Total HxCDD	ND	0.02	
Total HpCDD	0.48 J	0.03	
Total TCDF	~~ND~~	0.02	0.08 ~~ND~~ UJ-B-2
Total PeCDF	ND	0.02	
Total HxCDF	0.14 J	0.01	
Total HpCDF	0.67 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56257** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSE-T9-1** Analysis File: **VT29800**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDD	0.32 ~~B-UB~~ UB	0.06	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	ND	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	ND	0.05	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.7 ~~B-UB~~ UJ B 2
Total PeCDD	ND	0.03	
Total HxCDD	ND	0.02	
Total HpCDD	ND	0.03	
Total TCDF	~~ND~~	0.02	0.08 ~~B-UB~~ UJ B 2
Total PeCDF	ND	0.02	
Total HxCDF	ND	0.02	
Total HpCDF	ND	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56257** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSE-T10-1** Analysis File: **VT29900**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.03	ND
1,2,3,7,8-PeCDD	ND	0.05	ND
1,2,3,4,7,8-HxCDD	ND	0.04	ND
1,2,3,6,7,8-HxCDD	ND	0.04	ND
1,2,3,7,8,9-HxCDD	ND	0.05	ND
1,2,3,4,6,7,8-HpCDD	ND	0.06	ND
1,2,3,4,6,7,8,9-OCDD	0.19 ~~BNA~~ uB	0.1	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.04	ND
2,3,4,7,8-PeCDF	ND	0.04	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.03	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	ND	0.04	ND
1,2,3,4,7,8,9-HpCDF	ND	0.04	ND
1,2,3,4,6,7,8,9-OCDF	ND	0.08	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.03	2.4 ~~ND~~ uJ-B-2
Total PeCDD	ND	0.05	
Total HxCDD	ND	0.04	
Total HpCDD	ND	0.06	
Total TCDF	~~ND~~	0.02	0.08 ~~ND~~ uJ B-2
Total PeCDF	ND	0.04	
Total HxCDF	ND	0.02	
Total HpCDF	ND	0.04	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56257** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T14-1** Analysis File: **VT30000**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	ND	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	0.23 J	0.04	ND
1,2,3,4,6,7,8,9-OCDD	2.3 J	0.06	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.09 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	0.36 J-UB in B	0.05	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.4 Z-UB UJ B Z
Total PeCDD	ND	0.03	
Total HxCDD	ND	0.03	
Total HpCDD	0.48 J	0.04	
Total TCDF	~~ND~~	0.02	0.06 Z-UB UJ B Z
Total PeCDF	ND	0.02	
Total HxCDF	0.04 J	0.01	
Total HpCDF	0.23 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 56257 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T15-1** — Analysis File: **VT30100**
Client Project: **Sauget Area 1 - Site M** — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	ND	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	1.1 J	0.04	ND
1,2,3,4,6,7,8,9-OCDD	10.7	0.07	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.37 J	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	2.4 J	0.05	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.11~~	0.02	2.5 ~~Z-UB~~ UJ B Z
Total PeCDD	ND	0.04	
Total HxCDD	~~0.24~~	0.03	0.29 J Z
Total HpCDD	2.2 J	0.04	
Total TCDF	~~ND~~	0.02	0.08 ~~Z-UB~~ UJ B Z
Total PeCDF	ND	0.03	
Total HxCDF	~~0.19~~	0.02	0.33 J Z
Total HpCDF	1.4 J	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56257** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSB-T16-1** Analysis File: **ZV63000**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	~~ND~~ 0.58 J-Z	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	0.99 J	0.02	ND
1,2,3,7,8,9-HxCDD	0.17 J	0.02	ND
1,2,3,4,6,7,8-HpCDD	28.2	0.03	ND
1,2,3,4,6,7,8,9-OCDD	298 J-E	0.07	ND
2,3,7,8-TCDF	~~ND~~ 0.18 J-Z	0.01	ND
1,2,3,7,8-PeCDF	1.4 J	0.01	ND
2,3,4,7,8-PeCDF	~~ND~~ 0.19 J-Z	0.01	ND
1,2,3,4,7,8-HxCDF	0.41 J	0.02	ND
1,2,3,6,7,8-HxCDF	0.13 J	0.02	ND
2,3,4,6,7,8-HxCDF	~~ND~~ 0.18 J-Z	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	15.5	0.02	ND
1,2,3,4,7,8,9-HpCDF	~~ND~~ 0.45 J-Z	0.02	ND
1,2,3,4,6,7,8,9-OCDF	115	0.07	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~7.8~~	0.02	10.9 J-Z
Total PeCDD	~~0.15~~	0.02	2.3 J-Z
Total HxCDD	~~4.9~~	0.02	10.1 J-Z
Total HpCDD	55.4	0.03	
Total TCDF	~~3.1~~	0.01	5.8 J-Z
Total PeCDF	~~3.3~~	0.01	3.8 J-Z
Total HxCDF	18.8	0.02	
Total HpCDF	~~72.7~~	0.02	73.6 J-Z

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56257** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSE-T16-1** Analysis File: **ZV63100**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	0.09 J	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	2.9 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	37.0	0.03	ND
2,3,7,8-TCDF	0.04 J	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	0.05 J	0.01	ND
1,2,3,6,7,8-HxCDF	0.03 J	0.01	ND
2,3,4,6,7,8-HxCDF	ND	0.01	ND
1,2,3,7,8,9-HxCDF	ND	0.01	ND
1,2,3,4,6,7,8-HpCDF	1.7 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	0.10 J	0.02	ND
1,2,3,4,6,7,8,9-OCDF	16.6	0.03	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.14~~	0.02	3.0 ~~Z-UB~~ UJ-B-Z
Total PeCDD	~~ND~~	0.02	1.5 J-Z
Total HxCDD	~~0.83~~	0.02	1.8 J-Z
Total HpCDD	5.8	0.02	
Total TCDF	~~1.2~~	0.02	1.3 J-Z
Total PeCDF	~~0.87~~	0.02	0.91 J-Z
Total HxCDF	~~1.8~~	0.01	0.91 J-Z
Total HpCDF	7.8	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56257** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSE-T17-1** Analysis File: **ZV63200**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	~~ND~~ 0.04 J-Z	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	0.12 J	0.01	ND
1,2,3,7,8,9-HxCDD	0.11 J	0.01	ND
1,2,3,4,6,7,8-HpCDD	4.5	0.02	ND
1,2,3,4,6,7,8,9-OCDD	47.4	0.03	ND
2,3,7,8-TCDF	0.05 J	0.01	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.01	ND
1,2,3,4,7,8-HxCDF	0.05 J	0.01	ND
1,2,3,6,7,8-HxCDF	0.04 J	0.008	ND
2,3,4,6,7,8-HxCDF	ND	0.01	ND
1,2,3,7,8,9-HxCDF	ND	0.01	ND
1,2,3,4,6,7,8-HpCDF	2.1 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	0.10 J	0.01	ND
1,2,3,4,6,7,8,9-OCDF	14.9	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.7 ~~Z-UB~~ UJ-B Z
Total PeCDD	~~ND~~	0.02	0.70 Z
Total HxCDD	~~1.1~~	0.01	1.2 J-Z
Total HpCDD	8.6	0.02	
Total TCDF	~~1.5~~	0.01	1.6 J-Z
Total PeCDF	~~1.1~~	0.01	1.3 J-Z
Total HxCDF	~~2.1~~	0.008	2.2 J-Z
Total HpCDF	8.3	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

828A_PSR v1.03, LARS 6.25.01

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Solutia, Inc.

TLI Project: **56257** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T1-1** Analysis File: **ZV63300**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	ND	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	0.10 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	1.1 J	0.02	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.009	ND
1,2,3,6,7,8-HxCDF	ND	0.008	ND
2,3,4,6,7,8-HxCDF	ND	0.01	ND
1,2,3,7,8,9-HxCDF	ND	0.01	ND
1,2,3,4,6,7,8-HpCDF	0.05 J	0.01	ND
1,2,3,4,7,8,9-HpCDF	ND	0.01	ND
1,2,3,4,6,7,8,9-OCDF	0.38 ~~J-UB~~ UB	0.02	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.2 ~~Z-UB~~ UJ-B2
Total PeCDD	ND	0.02	
Total HxCDD	0.02 J	0.01	
Total HpCDD	0.21 J	0.02	
Total TCDF	~~ND~~	0.01	0.07 ~~Z-UB~~ UJ-B2
Total PeCDF	ND	0.02	
Total HxCDF	0.04 J	0.008	
Total HpCDF	0.20 J	0.01	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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MEMORANDUM

TO:	Lisa Bradley/Westford	**DATE:**	April 25, 2002
FROM:	Paula DiMattei/Westford	**FILE:**	SO029dioxin.doc
			06105-012-202
RE:	Data Validation Dioxin/Furan Analysis Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia, Illinois Triangle Lab Lot #56355	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for four sediment samples and analyzed for dioxins and furans using SW-846 Method 8280A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on January 8, 2002 and were submitted to Triangle Laboratories (Triangle) in Durham, North Carolina for analysis. Triangle logged in the samples and reported the results under lot number 56355.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Dioxin/Furan Data Validation (Draft 4/93)", the quality control criteria specified in the Quality Assurance Project Plan (QAPP), and the quality control (QC) criteria specified in the analytical method. The functional guidelines were modified to accommodate the analytical method as necessary.

All the data are valid as reported and may be used for decision making purposes. Several selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
CBS-CSF-T5-1
CBS-CSF-T14-1
CBS-CSF-T15-1
CBS-CSF-T15-1-FD (field duplicate of CBS-CSF-T15-1)

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REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with the chain of custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Internal standard recoveries
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. All samples requiring dioxin/furan analyses were analyzed and reported by Triangle. However, the laboratory analyzed the samples by SW-846 method 8280A instead of method 8290 as specified in the project specific QAPP.

Sample SP-011 was analyzed and reported as part of this sample set but this sample was not reviewed in the scope of this validation.

Holding Times and Sample Preservation

All samples were extracted and analyzed within the holding times specified in Section 6.3 of the analytical method and the project specific QAPP.

All cooler temperatures met the QC acceptance criteria of 4ºC ± 2ºC.

Method Blanks/Equipment Blanks

The following table summarizes the level of blank contamination detected in the method blank associated with the sediment samples. The presence of blank contamination indicates the possibility of false positive results in the associated samples. An action limit (AL) was set at 5x for all, except OCDD and OCDF, which were set at 10x the maximum blank concentration and used to assess the samples.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)	Actions
2,3,7,8-TCDD	0.04	0.2	Qualify result (U) in sample CBS-CSF-T5-1.
OCDD	0.07	0.7	None. All samples greater than action level.
1,2,3,4,7,8-HxCDF	0.03	0.15	Qualify result (U) in samples CBS-CSF-T14-1, CBS-CSF-T15-1, CBS-CSF-T15-1-FD.
1,2,3,6,7,8-HxCDF	0.04	0.2	Qualify result (U) in samples CBS-CSF-T5-1, CBS-CSF-T14-1.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)	Actions
2,3,4,6,7,8-HxCDF	0.04	0.2	Qualify result (U) in sample CBS-CSF-T5-1.
1,2,3,7,8,9-HxCDF	0.04	0.2	None. All samples non-detect or greater than action level.
OCDF	0.05	0.5	None. All samples greater than action level.
Total TCDD	1.8	0.9	Qualify result (U) in samples CBS-CSF-T14-1, CBS-CSF-T15-1, CBS-CSF-T15-1-FD.
Total TCDF	0.05	0.25	Qualify result (U) in samples CBS-CSF-T15-1, CBS-CSF-T15-1-FD.
Total HxCDF	0.16	0.8	Qualify result (U) in samples CBS-CSF-T15-1, CBS-CSF-T15-1-FD.

Although the National Functional guidelines stipulate that sample results reported at concentrations less than the AL should be rejected (R) for blank contamination, professional judgment was used to consider these results to be non-detects (U). The positive 2,3,7,8-TCDD and 2,3,4,6,7,8-HxCDF results in sample CBS-CSF-T5-1, the 1,2,3,4,7,8-HxCDF and total TCDD results in samples CBS-CSF-T14-1, CBS-CSF-T15-1, and CBS-CSF-T15-1-FD, the 1,2,3,6,7,8-Hx-CDF results in samples CBS-CSF-T14-1 and CBS-CSF-T5-1, and the total TCDF and total HxCDF results in samples CBS-CSF-T15-1 and CBS-CSF-T15-1-FD were considered to be non-detect (U) at the reported value due to method blank contamination.

Equipment blank samples were not collected with this set of samples; no validation action was taken on this basis.

MS/MSD Results

MS/MSD analyses were performed on sample SP-011. This sample was not evaluated under the scope of this validation.

Field Duplicate Results

Samples CBS-CSF-T15-1 and CBS-CSF-T15-1-FD were submitted as the field duplicate pair with this sample set. The following table displays the results and calculated relative percent differences (RPDs) for detected analytes. One RPD was not calculable (NC) due to a non-detect result in the duplicate sample. Qualifications to sample results were not made based upon field duplicate RPDs.

Compound	CBS-CSF-T15-1 (µg/Kg)	CBS-CSF-T15-1-FD (µg/Kg)	RPD (%)
1,2,3,6,7,8-HxCDD	0.05	0.04	22
1,2,3,7,8,9-HxCDD	0.06	0.06	0
1,2,3,4,6,7,8-HpCDD	0.63	0.65	3
OCDD	8.0	6.7	18
2,3,7,8-TCDF	0.05	0.04	22

Compound	CBS-CSF-T15-1 (µg/Kg)	CBS-CSF-T15-1-FD (µg/Kg)	RPD (%)
1,2,3,4,7,8-HxCDF	0.05	0.08	46
1,2,3,4,6,7,8-HpCDF	0.61	0.68	11
OCDF	4.6	4.3	6.7
Total TCDD	2.6	2.4	8
Total PeCDD	0.04	0.04	0
Total HxCDD	0.39	0.35	11
Total HpCDD	1.2	1.2	0
Total TCDF	0.22	0.10	75
Total PeCDF	0.08	0.02 U	NC
Total HxCDF	0.41	0.56	31
Total HpCDF	1.7	2.3	30

LCS/LCSD Results

An LCS and LCSD were extracted and analyzed with this set of samples. The recoveries (%R) and precision (RPD) of all compounds were within the QC acceptance criteria (70-130%R; and 20%RPD) with the following exceptions.

Compound	LCS/LCSD %R	RPD (%)	Actions	
			Positive	Nondetect
1,2,3,6,7,8-HxCDF	148/144	ok	J	Accept
2,3,4, 6,7,8-HxCDF	187/144	26	J	UJ
1,2,3,7,8,9-HxCDF	177/131	30	J	UJ
1,2,3,4,7,8,9-HpCDF	174/ok	29	J	UJ

Internal Standard Recoveries

Internal standard recoveries were acceptable for all field and quality control sample analyses. Cleanup standard recoveries were acceptable for all field and quality control sample analyses.

Sample Results

All sample percent solids were >50%.

The positive dioxin and furan isomer results in several samples were qualified as estimated (J) by the laboratory due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit. The positive homologue results in several samples were qualified as estimated (J) by the validator due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit.

The detection limits for the dioxins and furans did not meet the project quantitation limits defined in the project specific QAPP because the laboratory performed the analysis by SW-846 method 8280A rather than method 8290.

Estimated maximum possible concentrations (EMPCs) were reported for the following compounds and/or homologues in the samples listed below:

CBS-CSF-T5-1:	1,2,3,7,8-PeCDF, 1,2,3,7,8,9-HxCDF, OCDF, total TCDD, total PeCDD, total HxCDD, total TCDF, total PeCDF, total HxCDF, total HpCDF
CBS-CSF-T14-1:	1,2,3,4,7,8-HxCDD, 1,2,3,6,7,8-HxCDD, 1,2,3,7,8,9-HxCDD, 1,2,3,7,8-PeCDF, 1,2,3,4,7,8-HxCDF, 1,2,3,6,7,8-HxCDF, total TCDD, total PeCDD, total HxCDD, total TCDF, total PeCDF, total HxCDF
CBS-CSF-T15-1:	total TCDD, total TCDF, total HxCDF
CBS-CSF-T15-1-FD:	1,2,3,6,7,8-HxCDD, total TCDD, total HxCDD, total TCDF, total HxCDF

The laboratory reported EMPC values for compounds that did not meet ion abundance ratio criteria. For the homologue results in which some peaks met ion abundance ratio criteria and some did not, the EMPC value reported represents the total concentration of peaks that met ion abundance criteria plus those that did not meet criteria. A conservative approach was taken and the value reported as the EMPC concentration was reported as estimated (J) since this result represents the maximum possible concentration present in the sample.

Solutia, Inc.

TLI Project: **56355** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T5-1** Analysis File: **VT35000**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	0.06 ~~J~~ u-B	0.01	ND
1,2,3,7,8-PeCDD	0.25 J	0.02	ND
1,2,3,4,7,8-HxCDD	0.18 J	0.02	ND
1,2,3,6,7,8-HxCDD	0.41 J	0.02	ND
1,2,3,7,8,9-HxCDD	0.55 J	0.02	ND
1,2,3,4,6,7,8-HpCDD	1.5 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	5.9 J	0.05	0.07
2,3,7,8-TCDF	0.75 J	0.01	ND
1,2,3,7,8-PeCDF	~~ND~~ 0.30 J Z	0.02	ND
2,3,4,7,8-PeCDF	0.35 J	0.02	ND
1,2,3,4,7,8-HxCDF	0.64 J	0.02	0.03
1,2,3,6,7,8-HxCDF	0.26 J u-B	0.02	0.04
2,3,4,6,7,8-HxCDF	0.26 J ~~[illegible]~~	~~0.02~~ u J-B-D	0.04
1,2,3,7,8,9-HxCDF	~~ND~~ 0.38 J-Z-L-D	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.84 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	0.27 J-L-D	0.02	ND
1,2,3,4,6,7,8,9-OCDF	~~ND~~ 3.1 J-Z	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.75~~	0.01	30.7 J-Z
Total PeCDD	~~2.5~~	0.02	3.6 J-Z
Total HxCDD	~~3.7~~	0.02	4.2 J-Z
Total HpCDD	2.8 J	0.02	
Total TCDF	~~3.8~~	0.01	4.2 J-Z
Total PeCDF	~~1.9~~	0.02	2.9 J-Z
Total HxCDF	~~2.6~~	0.02	7.0 J-Z
Total HpCDF	~~2.2~~	0.02	2.4 J-Z

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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LI Project:	56355	Method 8280-A PCDD/PCDF Analysis (b)	
Client Sample:	CBS-CSF-T14-1	Analysis File:	VT35100
Client Project:	Sauget Area 1 - Site M	Matrix:	SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	0.08 J	0.02	ND
1,2,3,4,7,8-HxCDD	~~ND~~ 0.05 J-Z	0.02	ND
1,2,3,6,7,8-HxCDD	~~ND~~ 0.14 J-Z	0.02	ND
1,2,3,7,8,9-HxCDD	~~ND~~ 0.14 J-Z	0.02	ND
1,2,3,4,6,7,8-HpCDD	1.1 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	9.2	0.04	0.07
2,3,7,8-TCDF	0.17 J	0.01	ND
1,2,3,7,8-PeCDF	~~ND~~ 0.08 J-Z	0.02	ND
2,3,4,7,8-PeCDF	0.10 J UJ-B-Z	0.02	ND
1,2,3,4,7,8-HxCDF	~~ND~~ 0.17 [redacted]	0.02	0.03
1,2,3,6,7,8-HxCDF	~~ND~~ 0.08 [redacted]	0.02 UJ-B-Z	0.04
2,3,4,6,7,8-HxCDF	ND UJ-D	0.02	0.04
1,2,3,7,8,9-HxCDF	ND UJ-D	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.93 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	0.10 J-L-D	0.02	ND
1,2,3,4,6,7,8,9-OCDF	7.6	0.03	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.21~~	0.01	2.7-Z UJ-B-Z
Total PeCDD	~~0.55~~	0.02	0.83 J-Z
Total HxCDD	~~0.58~~	0.02	1.1 J-Z
Total HpCDD	2.0 J	0.02	
Total TCDF	~~0.94~~	0.01	1.1 J-Z
Total PeCDF	~~0.49~~	0.02	0.61 J-Z
Total HxCDF	~~0.58~~	0.02	1.7 J-Z
Total HpCDF	3.6	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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Solutia, Inc.

TLI Project: 56355
Client Sample: CBS-CSF-T15-1
Client Project: Sauget Area 1 - Site M

Method 8280-A PCDD/PCDF Analysis (b)
Analysis File: VT35200
Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	0.05 J	0.02	ND
1,2,3,7,8,9-HxCDD	0.06 J	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.63 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	8.0	0.05	0.07
2,3,7,8-TCDF	0.05 J	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	0.05 J-4-6	0.01	0.03
1,2,3,6,7,8-HxCDF	ND	0.02	0.04
2,3,4,6,7,8-HxCDF	ND UJ-D	0.02	0.04
1,2,3,7,8,9-HxCDF	ND UJ-D	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.61 J	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND UJ-D	0.02	ND
1,2,3,4,6,7,8,9-OCDF	4.6 J	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~0.05~~	0.01	2.6 UJ-B-2
Total PeCDD	0.04 J	0.02	
Total HxCDD	0.39 J	0.02	
Total HpCDD	1.2 J	0.02	
Total TCDF	~~0.16~~	0.01	0.22 UJ-B-2
Total PeCDF	0.08 J	0.02	
Total HxCDF	~~0.26~~	0.01	0.41 UJ-B-2
Total HpCDF	1.7 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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Solutia, Inc.

TLI Project: **56355** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T15-1-FD** Analysis File: **VT35300**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.02	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	~~ND~~ 0.04 J-2	0.02	ND
1,2,3,7,8,9-HxCDD	0.06 J	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.65 J	0.02	ND
1,2,3,4,6,7,8,9-OCDD	6.7	0.04	0.07
2,3,7,8-TCDF	0.04 J	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	0.08 ~~J-UB~~	0.02	0.03
1,2,3,6,7,8-HxCDF	ND	0.02	0.04
2,3,4,6,7,8-HxCDF	ND UJ-D	0.02	0.04
1,2,3,7,8,9-HxCDF	ND UJ-D	0.02	ND
1,2,3,4,6,7,8-HpCDF	0.68 J	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND UJ-D	0.03	ND
1,2,3,4,6,7,8,9-OCDF	4.3 J	0.03	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.4-J UJ-B2
Total PeCDD	0.04 J	0.02	
Total HxCDD	~~0.25~~	0.02	0.35-J-2
Total HpCDD	1.2 J	0.02	
Total TCDF	~~0.04~~	0.01	0.10- ~~J-UB~~ UJ-B-2
Total PeCDF	ND	0.02	
Total HxCDF	~~0.33~~	0.02	0.56- ~~J-UB~~ UJ-B-2
Total HpCDF	2.3 J	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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MEMORANDUM

TO:	Lisa Bradley/Westford	**DATE:**	April 24, 2002
FROM:	Paula DiMattei/Westford	**FILE:**	SO032dioxin.doc
			06105-012-202
RE:	Data Validation Dioxin/Furan Analysis Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia, Illinois Triangle Lab Lot #56426	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for four sediment samples and analyzed for dioxins and furans using SW-846 method 8280A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on January 16, 2002 and were submitted to Triangle Laboratories (Triangle) in Durham, North Carolina for analysis. Triangle logged in the samples and reported the results under lot number 56426.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Dioxin/Furan Data Validation (Draft 4/93)", the quality control criteria specified in the Quality Assurance Project Plan (QAPP), and the quality control (QC) criteria specified in the analytical method. The functional guidelines were modified to accommodate the analytical method as necessary.

All the data are valid as reported and may be used for decision making purposes. Several selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
CBS-CSF-T6-1
CBS-CSF-T6-1-FD (field duplicate of CBS-CSF-T6-1)
CBS-CSF-T7-1
CBS-CSF-T13-1

ENSR

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with the chain of custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Internal standard recoveries
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. All samples requiring dioxin/furan analyses were analyzed and reported by Triangle. However, the laboratory analyzed the samples by SW-846 method 8280A instead of method 8290 as specified in the project specific QAPP.

Samples SP-012 and SP-012D were analyzed and reported as part of this sample set but these samples were not reviewed in the scope of this validation.

Holding Times and Sample Preservation

All samples were extracted and analyzed within the holding times specified in Section 6.3 of the analytical method and the project specific QAPP.

All cooler temperatures met the QC acceptance criteria of 4°C ± 2°C.

Method Blanks/Equipment Blanks

The following table summarizes the level of blank contamination detected in the method blank associated with the sediment samples. The presence of blank contamination indicates the possibility of false positive results in the associated samples. An action limit (AL) was set at 5x the maximum blank concentration and used to assess the samples.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)	Actions
Total TCDD	1.8	9.0	Qualify result (U) in all samples.
Total TCDF	0.05	0.25	Qualify result (U) in all samples.

Although the National Functional guidelines stipulate that sample results reported at concentrations less than the AL should be rejected (R) for blank contamination, professional judgment was used to consider these results to be non-detects (U). The positive total TCDD and total TCDF results in all sediment samples were considered to be non-detect (U) at the reported value due to method blank contamination.

Equipment blank samples were not collected with this set of samples; no validation action was taken on this basis.

MS/MSD Results

MS/MSD samples were not submitted with this sample set. No data validation actions were taken on this basis.

Field Duplicate Results

Samples CBS-CSF-T6-C1 and CBS-CSF-T6-1-FD were submitted as the field duplicate pair with this sample set. The following table displays the results and calculated relative percent differences (RPDs) for detected analytes. Qualifications to sample results were not made based upon field duplicate RPDs.

Compound	CBS-CSF-T6-1 (µg/Kg)	CBS-CSF-T6-1-FD (µg/Kg)	RPD (%)
1,2,3,4,6,7,8-HpCDD	0.09	0.06	40
OCDD	1.7	1.1	43
OCDF	0.18	0.23	24
Total TCDD	2.6	2.8	7.4
Total HpCDD	0.17	0.06	96
Total TCDF	0.07	0.07	0

LCS/LCSD Results

An LCS and LCSD were extracted and analyzed with this set of samples. The recoveries (%R) and precision (RPD) of all compounds were within the QC acceptance criteria (70-130%R; and 20%RPD).

Internal Standard Recoveries

Internal standard recoveries were acceptable for all field and quality control sample analyses. Cleanup standard recoveries were acceptable for all field and quality control sample analyses.

Sample Results

All sample percent solids were >50%.

The positive dioxin and furan isomer results in several samples were qualified as estimated (J) by the laboratory due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit. The positive homologue results in several samples were qualified as estimated (J) by the validator due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit.

The detection limits for the dioxins and furans did not meet the project quantitation limits defined in the project specific QAPP because the laboratory performed the analysis by SW-846 method 8280A rather than method 8290.

Estimated maximum possible concentrations (EMPCs) were reported for the following compounds and/or homologues in the samples listed below:

ENSR

CBS-CSF-T6-1: total TCDD, total TCDF

CBS-CSF-T6-1-FD: 1,2,3,4,6,7,8-HpCDD, total TCDD, total HpCDD, total TCDF

CBS-CSF-T7-1: total TCDD, total TCDF, total HpCDF

CBS-CSF-T13-1: total TCDD, total TCDF

The laboratory reported EMPC values for compounds that did not meet ion abundance ratio criteria. For the homologue results in which some peaks met ion abundance ratio criteria and some did not, the EMPC value reported represents the total concentration of peaks that met ion abundance criteria plus those that did not meet criteria. A conservative approach was taken and the value reported as the EMPC concentration was reported as estimated (J) since this result represents the maximum possible concentration present in the sample.

Solutia, Inc.

TLI Project: **56426** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T6-1** Analysis File: **VT41000**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	ND	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	0.09 J	0.04	ND
1,2,3,4,6,7,8,9-OCDD	1.7 J	0.07	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	ND	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	0.18 J	0.05	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.6 ~~Z-U-B~~ UJ-B-Z
Total PeCDD	ND	0.04	
Total HxCDD	ND	0.03	
Total HpCDD	0.17 J	0.04	
Total TCDF	~~ND~~	0.02	0.07 ~~Z-U-B~~ UJ-B-Z
Total PeCDF	ND	0.03	
Total HxCDF	ND	0.02	
Total HpCDF	ND	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56426** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T6-1-FD** Analysis File: **VT41100**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb) EMPC	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	ND	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	~~ND~~ 0.06 J-Z	0.03	ND
1,2,3,4,6,7,8,9-OCDD	1.1 J	0.05	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	ND	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	0.23 J	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.8 ~~Z-U-B~~ UJ-B-Z
Total PeCDD	ND	0.03	
Total HxCDD	ND	0.03	
Total HpCDD	~~ND~~	0.03	0.06 J-Z
Total TCDF	~~ND~~	0.02	0.07 ~~Z-U-B~~ UJ-B-Z
Total PeCDF	ND	0.03	
Total HxCDF	ND	0.02	
Total HpCDF	0.05 J	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56426** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T7-1** Analysis File: **VT41200**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	0.08 J	0.03	ND
1,2,3,4,6,7,8,9-OCDD	0.66 J	0.06	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	ND	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	0.14 J	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.4 ~~Z-U-B~~ UJ-B-Z
Total PeCDD	ND	0.03	
Total HxCDD	ND	0.02	
Total HpCDD	0.08 J	0.03	
Total TCDF	~~ND~~	0.02	0.07 ~~Z-U-B~~ UJ-B-Z
Total PeCDF	ND	0.03	
Total HxCDF	ND	0.02	
Total HpCDF	~~ND~~	0.02	0.07 J- Z

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56426** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T13-1** Analysis File: **VT41300**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDD	0.14J	0.05	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	ND	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	ND	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.2 ~~2.9~~ ug-B2
Total PeCDD	ND	0.03	
Total HxCDD	ND	0.02	
Total HpCDD	ND	0.03	
Total TCDF	~~ND~~	0.02	0.07 ~~2.0~~ ug-B2
Total PeCDF	ND	0.02	
Total HxCDF	ND	0.02	
Total HpCDF	ND	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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MEMORANDUM

TO:	Lisa Bradley/Westford	**DATE:**	April 25, 2002
FROM:	Paula DiMattei/Westford	**FILE:**	SO026dioxin.doc
			06105-012-202
RE:	Data Validation Dioxin/Furan Analysis Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia, Illinois Triangle Lab Lot #56472	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for four sediment samples and analyzed for dioxins and furans using SW-846 method 8280A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on January 23, 2001 and s were submitted to Triangle Laboratories (Triangle) in Durham, North Carolina for analysis. Triangle logged in the samples and reported the results under lot number 56472.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Dioxin/Furan Data Validation (Draft 4/93)", the quality control criteria specified in the Quality Assurance Project Plan (QAPP), and the quality control (QC) criteria specified in the analytical method. The functional guidelines were modified to accommodate the analytical method as necessary.

All the data are valid as reported and may be used for decision making purposes. Several selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
CBS-CSF-T8-1
CBS-CSF-T9-1
CBS-CSF-T9-1-FD (field duplicate of CBS-CSF-T9-1)
CBS-CSF-T12-1

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with the chain of custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Internal standard recoveries
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. All samples requiring dioxin/furan analyses were analyzed and reported by Triangle. However, the laboratory analyzed the samples by SW-846 method 8280A instead of 8290 as specified in the project specific QAPP.

Holding Times and Sample Preservation

All samples were extracted and analyzed within the holding times specified in Section 6.3 of the analytical method and the project specific QAPP.

All cooler temperatures met the QC acceptance criteria of 4ºC ± 2ºC.

Method Blanks/Equipment Blanks

The following table summarizes the level of blank contamination detected in the method blank associated with the sediment samples. The presence of blank contamination indicates the possibility of false positive results in the associated samples. An action limit (AL) was set at 5x for all, except OCDF, which were set at 10x the maximum blank concentration and used to assess the samples.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)	Actions
Total TCDD	1.8	9.0	Qualify result (U) in all samples.
Total TCDF	0.05	0.25	Qualify result (U) in all samples.
OCDF	0.06	0.6	Qualify result (U) in all samples.

Although the National Functional guidelines stipulate that sample results reported at concentrations less than the AL should be rejected (R) for blank contamination, professional judgment was used to consider these results to be non-detects (U). The positive total TCDD, total TCDF, and OCDF results in all sediment samples were considered to be non-detect (U) at the reported value due to method blank contamination.

Equipment blank samples were not collected with this set of samples; no validation action was taken on this basis.

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MS/MSD Results

MS/MSD samples were not submitted with this sample set. No data validation actions were taken on this basis.

Field Duplicate Results

Samples CBS-CSF-T9-C1 and CBS-CSF-T9-1-FD were submitted as the field duplicate pair with this sample set. The following table displays the results and calculated relative percent differences (RPDs) for detected analytes. Qualifications to sample results were not made based upon field duplicate RPDs.

Compound	CBS-CSF-T9-1 (µg/Kg)	CBS-CSF-T9-1-FD (µg/Kg)	RPD (%)
1,2,3,4,6,7,8-HpCDD	0.07	0.08	13
OCDD	0.69	0.83	18
1,2,3,4,6,7,8-HpCDF	0.04	0.05	22
OCDF	0.28	0.31	10
Total TCDD	2.2	2.2	0
Total HpCDD	0.15	0.18	18
Total TCDF	0.06	0.06	0
Total HxCDF	0.01	0.02	66
Total HpCDF	0.14	0.18	25

LCS/LCSD Results

An LCS and LCSD were extracted and analyzed with this set of samples. The recoveries (%R) and precision (RPD) of all compounds were within the QC acceptance criteria (70-130%R; and 20%RPD).

Internal Standard Recoveries

Internal standard recoveries were acceptable for all field and quality control sample analyses. Cleanup standard recoveries were acceptable for all field and quality control sample analyses.

Sample Results

All sample percent solids were >50%.

The positive dioxin and furan isomer results in several samples were qualified as estimated (J) by the laboratory due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit. The positive homologue results in several samples were qualified as estimated (J) by the validator due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit.

The detection limits for the dioxins and furans did not meet the project quantitation limits defined in the project specific QAPP because the laboratory performed the analysis by SW-846 method 8280A rather than method 8290.

Estimated maximum possible concentrations (EMPCs) were reported for the following compounds and/or homologues in the samples listed below:

CBS-CSF-T8-1: OCDF, total TCDD, total TCDF

CBS-CSF-T9-1: OCDF, total TCDD, total TCDF

CBS-CSF-T9-1-FD: 1,2,3,4,6,7,8-HpCDD, total TCDD, total HpCDD, total TCDF

CBS-CSF-T12-1: total TCDD, total TCDF

The laboratory reported EMPC values for compounds that did not meet ion abundance ratio criteria. For the homologue results in which some peaks met ion abundance ratio criteria and some did not, the EMPC value reported represents the total concentration of peaks that met ion abundance criteria plus those that did not meet criteria. A conservative approach was taken and the value reported as the EMPC concentration was reported as estimated (J) since this result represents the maximum possible concentration present in the sample.

TLI Project: **56472** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T8-1** Analysis File: **VT43000**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.03	ND
1,2,3,7,8-PeCDD	ND	0.05	ND
1,2,3,4,7,8-HxCDD	ND	0.04	ND
1,2,3,6,7,8-HxCDD	ND	0.05	ND
1,2,3,7,8,9-HxCDD	ND	0.05	ND
1,2,3,4,6,7,8-HpCDD	ND	0.05	ND
1,2,3,4,6,7,8,9-OCDD	0.31	0.1	ND
2,3,7,8-TCDF	ND	0.03	ND
1,2,3,7,8-PeCDF	ND	0.04	ND
2,3,4,7,8-PeCDF	ND	0.04	ND
1,2,3,4,7,8-HxCDF	ND	0.03	ND
1,2,3,6,7,8-HxCDF	ND	0.03	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	ND	0.04	ND
1,2,3,4,7,8,9-HpCDF	ND	0.04	ND
1,2,3,4,6,7,8,9-OCDF	~~ND~~ 0.09	0.07	0.06

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)
Total TCDD	~~ND~~	0.03
Total PeCDD	ND	0.05
Total HxCDD	ND	0.04
Total HpCDD	ND	0.05
Total TCDF	~~ND~~	0.03
Total PeCDF	ND	0.04
Total HxCDF	ND	0.03
Total HpCDF	ND	0.04

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56472** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T9-1** Analysis File: **ZV72900**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.01	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	ND	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	0.07 J	0.01	ND
1,2,3,4,6,7,8,9-OCDD	0.69 J	0.02	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.01	ND
1,2,3,4,7,8-HxCDF	ND	0.006	ND
1,2,3,6,7,8-HxCDF	ND	0.006	ND
2,3,4,6,7,8-HxCDF	ND	0.006	ND
1,2,3,7,8,9-HxCDF	ND	0.006	ND
1,2,3,4,6,7,8-HpCDF	0.04 J	0.008	ND
1,2,3,4,7,8,9-HpCDF	ND	0.008	ND
1,2,3,4,6,7,8,9-OCDF	~~ND~~ 0.28	0.02	0.06

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.2
Total PeCDD	ND	0.01	
Total HxCDD	ND	0.01	
Total HpCDD	0.15 J	0.01	
Total TCDF	~~ND~~	0.01	0.06
Total PeCDF	ND	0.01	
Total HxCDF	0.01 J	0.006	
Total HpCDF	0.14 J	0.008	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56472** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T9-1-FD** Analysis File: **ZV73000**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.01	ND
1,2,3,7,8-PeCDD	ND	0.01	ND
1,2,3,4,7,8-HxCDD	ND	0.01	ND
1,2,3,6,7,8-HxCDD	ND	0.01	ND
1,2,3,7,8,9-HxCDD	ND	0.01	ND
1,2,3,4,6,7,8-HpCDD	~~ND~~ 0.08 J Z	0.01	ND
1,2,3,4,6,7,8,9-OCDD	0.83 J	0.02	ND
2,3,7,8-TCDF	ND	0.009	ND
1,2,3,7,8-PeCDF	ND	0.01	ND
2,3,4,7,8-PeCDF	ND	0.01	ND
1,2,3,4,7,8-HxCDF	ND	0.006	ND
1,2,3,6,7,8-HxCDF	ND	0.006	ND
2,3,4,6,7,8-HxCDF	ND	0.006	ND
1,2,3,7,8,9-HxCDF	ND	0.006	ND
1,2,3,4,6,7,8-HpCDF	0.05 J	0.008	ND
1,2,3,4,7,8,9-HpCDF	ND	0.009	ND
1,2,3,4,6,7,8,9-OCDF	0.31 UB	0.01	0.06

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.01	2.2 ~~Z~~ UJ B Z
Total PeCDD	ND	0.01	
Total HxCDD	ND	0.01	
Total HpCDD	~~0.10~~	0.01	0.18 J Z
Total TCDF	~~ND~~	0.009	0.06 ~~Z~~ UJ B Z
Total PeCDF	ND	0.01	
Total HxCDF	0.02 J	0.006	
Total HpCDF	0.18 J	0.008	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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Solutia, Inc.

TLI Project: **56472** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T12-1** Analysis File: **VT43100**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.03	ND
1,2,3,7,8-PeCDD	ND	0.05	ND
1,2,3,4,7,8-HxCDD	ND	0.04	ND
1,2,3,6,7,8-HxCDD	ND	0.04	ND
1,2,3,7,8,9-HxCDD	ND	0.04	ND
1,2,3,4,6,7,8-HpCDD	0.11 J	0.05	ND
1,2,3,4,6,7,8,9-OCDD	0.87 J	0.10	ND
2,3,7,8-TCDF	ND	0.03	ND
1,2,3,7,8-PeCDF	ND	0.04	ND
2,3,4,7,8-PeCDF	ND	0.04	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	0.06 J	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.04	ND
1,2,3,4,6,7,8,9-OCDF	0.19 ~~J~~ UB	0.07	0.06

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.03	2.4 ~~Z-D-B~~ UJ-B-Z
Total PeCDD	ND	0.05	
Total HxCDD	ND	0.04	
Total HpCDD	0.11 J	0.05	
Total TCDF	~~ND~~	0.03	0.08 ~~Z-J-B~~ UJ-B-Z
Total PeCDF	ND	0.04	
Total HxCDF	ND	0.02	
Total HpCDF	0.14 J	0.03	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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ENSR

MEMORANDUM

TO:	Lisa Bradley/Westford	**DATE:**	April 23, 2002
FROM:	Paula DiMattei/Westford	**FILE:**	SO003andSO002dioxin.doc
			06105-012-202
RE:	Data Validation Dioxin/Furan Analysis Solutia Inc., Creek Bottom Sediment Removal Action Sauget and Cahokia, Illinois Triangle Lab Lot #56496 and 56588	**CC:**	D. McGrath/Westford

SUMMARY

Limited validation was performed on the data for three sediment samples analyzed for dioxins and furans using SW-846 Method 8280A. The samples were collected at the Sauget Area 1 site in Sauget and Cahokia, IL on January 25, 2002 and February 6, 2002 and were submitted to Triangle Laboratories (Triangle) in Durham, North Carolina for analysis. Triangle logged in the samples and reported the results under lot numbers 56496 and 56588.

The sample results were assessed according to the "USEPA Contract Laboratory Program National Functional Guidelines for Dioxin/Furan Data Validation (Draft 4/93)", the quality control criteria specified in the Quality Assurance Project Plan (QAPP), and the quality control (QC) criteria specified in the analytical method. The functional guidelines were modified to accommodate the analytical method as necessary.

All the data are valid as reported and may be used for decision making purposes. Several selected data points were qualified as estimated (J/UJ) due to nonconformances of certain QC criteria (see discussion below).

SAMPLES

The samples included in this review are listed below:

Sample Identifications
CBS-CSF-T10-1
CBS-CSF-T11-1
CBS-CSF-T16-1

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REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with the chain of custody (COC) requests
- Holding times and sample preservation
- Method blanks/equipment blanks
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Field duplicate results
- Laboratory control sample/laboratory control sample duplicate (LCS/LCSD) results
- Internal standard recoveries
- Sample results

DISCUSSION

Agreement of Analyses Conducted with COC Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the chain-of-custody (COC). All samples requiring dioxin/furan analyses were analyzed and reported by Triangle. However, the laboratory analyzed the samples by SW-846 method 8280A instead of 8290 as specified in the project specific QAPP.

Sample SP-013 was analyzed and reported as part of this sample set but this sample was not reviewed in the scope of this validation.

Holding Times and Sample Preservation

All samples were extracted and analyzed within the holding times specified in Section 6.3 of the analytical method and the project specific QAPP.

All cooler temperatures met the QC acceptance criteria of 4°C ± 2°C.

Method Blanks/Equipment Blanks

The following table summarizes the level of blank contamination detected in the method blank associated with the sediment samples. The presence of blank contamination indicates the possibility of false positive results in the associated samples. An action limit (AL) was set at 5x the maximum blank concentration and used to assess the samples.

Compound	Maximum Concentration (µg/Kg)	Action Level (µg/Kg)	Actions
Lot # 56496			
Total TCDD	1.9	9.5	Qualify result (U) in all samples.
Total TCDF	0.05	0.25	Qualify result (U) in all samples.
Lot # 56588			
Total TCDD	1.8	9.0	Qualify result (U) in sample.
Total TCDF	0.03	0.15	Qualify result (U) in sample.

Although the National Functional guidelines stipulate that sample results reported at concentrations less than the AL should be rejected (R) for blank contamination, professional judgment was used to consider these results to be non-detects (U). The positive total TCDD and total TCDF results in all sediment samples were considered to be non-detect (U) at the reported value due to method blank contamination.

Equipment blank samples were not collected with this set of samples; no validation action was taken on this basis.

MS/MSD Results

Sample CBS-CSF-T11-1 was submitted for MS/MSD analyses with this sample set. The recoveries (%R) and precision (RPD) of all spiked target compounds were within the QC acceptance criteria (70-130%R; and 20%RPD).

Field Duplicate Results

A field duplicate pair was not submitted with this sample set. No data validation actions were taken on this basis.

LCS/LCSD Results

An LCS and LCSD were extracted and analyzed with this set of samples. The %R and RPD of all compounds were within the QC acceptance criteria (70-130%R; and 20%RPD).

Internal Standard Recoveries

Internal standard recoveries were acceptable for all field and quality control sample analyses. Cleanup standard recoveries were acceptable for all field and quality control sample analyses.

Sample Results

All sample percent solids were >50%.

The positive dioxin and furan isomer results in several samples were qualified as estimated (J) by the laboratory due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit. The positive homologue results in several samples were qualified as estimated (J) by the validator due to quantitation of the results at concentrations less than the lowest calibration standard but greater than the detection limit.

The detection limits for the dioxins and furans did not meet the project quantitation limits defined in the project specific QAPP because the laboratory performed the analysis by SW-846 method 8280A rather than method 8290.

Estimated maximum possible concentrations (EMPCs) were reported for the following compounds and/or homologues in the samples listed below:

CBS-CSF-T10-1: total TCDD, total TCDF

CBS-CSF-T11-1: total TCDD, total TCDF, total HpCDF

CBS-CSF-T16-1: total TCDD, total TCDF

The laboratory reported EMPC values for compounds that did not meet ion abundance ratio criteria. For the homologue results in which some peaks met ion abundance ratio criteria and some did not, the EMPC value reported represents the total concentration of peaks that met ion abundance criteria plus those that did not meet criteria. A conservative approach was taken and the value reported as the EMPC concentration was reported as estimated (J) since this result represents the maximum possible concentration present in the sample.

Solutia, Inc.

TLI Project: **56496** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T10-1** Analysis File: **VT45900**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.03	ND
1,2,3,4,7,8-HxCDD	ND	0.02	ND
1,2,3,6,7,8-HxCDD	ND	0.02	ND
1,2,3,7,8,9-HxCDD	ND	0.02	ND
1,2,3,4,6,7,8-HpCDD	0.06 J	0.03	ND
1,2,3,4,6,7,8,9-OCDD	0.37 J	0.05	ND
2,3,7,8-TCDF	ND	0.01	ND
1,2,3,7,8-PeCDF	ND	0.02	ND
2,3,4,7,8-PeCDF	ND	0.02	ND
1,2,3,4,7,8-HxCDF	ND	0.01	ND
1,2,3,6,7,8-HxCDF	ND	0.01	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	ND	0.02	ND
1,2,3,4,7,8,9-HpCDF	ND	0.02	ND
1,2,3,4,6,7,8,9-OCDF	0.10 J	0.04	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.5 Z-48 LCJ-8-2
Total PeCDD	ND	0.03	
Total HxCDD	ND	0.02	
Total HpCDD	0.13 J	0.03	
Total TCDF	~~ND~~	0.01	0.07 Z-48 LCJ-8-2
Total PeCDF	ND	0.02	
Total HxCDF	ND	0.01	
Total HpCDF	0.05 J	0.02	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: **56496** Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: **CBS-CSF-T11-1** Analysis File: **VT46000**
Client Project: **Sauget Area 1 - Site M** Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.03	ND
1,2,3,6,7,8-HxCDD	ND	0.03	ND
1,2,3,7,8,9-HxCDD	ND	0.03	ND
1,2,3,4,6,7,8-HpCDD	0.08 J	0.04	ND
1,2,3,4,6,7,8,9-OCDD	1.1 J	0.07	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.02	ND
1,2,3,7,8,9-HxCDF	ND	0.02	ND
1,2,3,4,6,7,8-HpCDF	ND	0.03	ND
1,2,3,4,7,8,9-HpCDF	ND	0.03	ND
1,2,3,4,6,7,8,9-OCDF	0.15 J	0.05	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.7 ~~Z-UB~~ UJ-B-Z
Total PeCDD	ND	0.04	
Total HxCDD	ND	0.03	
Total HpCDD	0.16 J	0.04	
Total TCDF	~~ND~~	0.02	0.08 ~~Z-UB~~ UJ-B-Z
Total PeCDF	ND	0.03	
Total HxCDF	ND	0.02	
Total HpCDF	~~ND~~	0.03	0.07 ~~Z~~ J-Z

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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TLI Project: 56588 — Method 8280-A PCDD/PCDF Analysis (b)
Client Sample: CBS-CSF-T16-1 — Analysis File: VT53300
Client Project: Sauget Area 1 - Site M — Matrix: SEDIMENT

PCDD/PCDF SUMMARY REPORT

Specific Analytes	Conc. (ppb)	DL (ppb)	Blank (ppb)
2,3,7,8-TCDD	ND	0.02	ND
1,2,3,7,8-PeCDD	ND	0.04	ND
1,2,3,4,7,8-HxCDD	ND	0.04	ND
1,2,3,6,7,8-HxCDD	ND	0.04	ND
1,2,3,7,8,9-HxCDD	ND	0.04	ND
1,2,3,4,6,7,8-HpCDD	ND	0.05	ND
1,2,3,4,6,7,8,9-OCDD	2.2 J	0.09	ND
2,3,7,8-TCDF	ND	0.02	ND
1,2,3,7,8-PeCDF	ND	0.03	ND
2,3,4,7,8-PeCDF	ND	0.03	ND
1,2,3,4,7,8-HxCDF	ND	0.02	ND
1,2,3,6,7,8-HxCDF	ND	0.02	ND
2,3,4,6,7,8-HxCDF	ND	0.03	ND
1,2,3,7,8,9-HxCDF	ND	0.03	ND
1,2,3,4,6,7,8-HpCDF	ND	0.04	ND
1,2,3,4,7,8,9-HpCDF	ND	0.04	ND
1,2,3,4,6,7,8,9-OCDF	ND	0.07	ND

Definitions:

Conc. - The concentration of the specific analyte in the units shown.

DL - The detection limit of the specific analyte in the units shown.

Blank - The concentration of the method blank.

ND - (Non-Detect) The concentration of the analyte is less than the detection limit.

Total Analytes	Conc. (ppb)	DL (ppb)	EMPC
Total TCDD	~~ND~~	0.02	2.4 ~~2-4B~~ UJ-B-2
Total PeCDD	ND	0.04	
Total HxCDD	ND	0.04	
Total HpCDD	ND	0.05	
Total TCDF	~~ND~~	0.02	0.05 ~~2-4B~~ UJ-B-2
Total PeCDF	ND	0.03	
Total HxCDF	ND	0.02	
Total HpCDF	ND	0.04	

Note - This Summary Report does not include Estimated Maximum Possible Concentrations (EMPCs). Any EMPC calculated for this sample is reported on the next page.

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