

**DETERMINATION OF PCDD/PCDF LEVELS**

**Prepared for:  
ESS Laboratory  
Attn: Jena Paola  
185 Frances Avenue  
Cranston, RI 02910-2211**



This report contains 19 pages.

The results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

**Project: Chemical Analysis**

**Client Project Number: 0606383**

**REPORT OF LABORATORY ANALYSIS**

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**REPORT OF: CHEMICAL ANALYSES**

**PROJECT:** PCDD/PCDF ANALYSES

**DATE:** July 11, 2006

**ISSUED TO:** ESS Laboratory  
Attn: Jena Paola  
185 Frances Avenue  
Cranston, RI 02910-2211

**REPORT NO:** 06-1034314

**INTRODUCTION**

This report presents the results from the analyses performed on five samples submitted by a representative of ESS Laboratory. The samples were analyzed for the presence or absence of polychlorodibenzo-p-dioxins (PCDDs) and polychlorodibenzofurans (PCDFs) using a modified version of USEPA Method 8290.

**SAMPLE IDENTIFICATION**

<u>Client ID</u>	<u>Sample Type</u>	<u>Date Received</u>	<u>PACE ID</u>
0606383-01	Solid	06/24/06	1034314001
0606383-03	Solid	06/24/06	1034314002
0606383-05	Solid	06/24/06	1034314003
0606383-07	Solid	06/24/06	1034314004
0606383-10	Solid	06/24/06	1034314005

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**DATE:** July 11, 2006

**PAGE:** 2

**REPORT NO:** 06-1034314

**RESULTS**

The results are included in the following:

- Appendix A – Chain of Custody Documentation
- Appendix B – PCDD/PCDF Results

**DISCUSSION**

The recoveries of the isotopically-labeled PCDD/PCDF internal standards in the sample extracts ranged from 52-130%. All of the labeled standard recoveries obtained for the samples were within the 40-135% target range specified in Method 8290. Also, since the quantification of the native 2,3,7,8-substituted congeners was based on isotope dilution, the data were automatically corrected for variation in recovery and accurate values were obtained.

In some cases, interfering substances impacted the determinations of PCDD or PCDF congeners. The affected values were flagged "I" where incorrect isotope ratios were obtained, or "E" where polychlorinated diphenyl ethers were present.

A laboratory method blank was prepared and analyzed with each sample batch as part of our routine quality control procedures. The results show two of the blanks to contain trace levels of selected PCDDs and PCDFs. These levels were below the calibration range of the method. Sample levels similar to the corresponding blank level were flagged "B" on the results tables and may be, at least partially, attributed to the background. It should be noted that levels less than ten times the background are not generally considered to be statistically different from the background.

A laboratory spike sample was also prepared with each sample batch using clean sand that had been fortified with native standard materials. The results show that the spiked native compounds were recovered at 81-111%. These results indicate a high degree of accuracy for these determinations.

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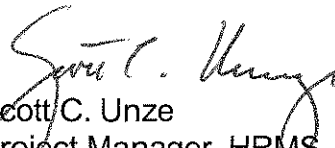
**PAGE: 3**

**REPORT NO: 06-1034314**

**REMARKS**

The sample extracts will be retained for a period of 15 days from the date of this report and then discarded unless other arrangements are made. The raw mass spectral data will be archived on magnetic tape for a period of not less than one year. Questions regarding the data contained in this report may be directed to the author at the number provided below.

**Pace Analytical Services, Inc.**



Scott C. Unze  
Project Manager, HRMS  
(612) 607-6383

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**TABLE 1. 2,3,7,8-TCDD Equivalency Factors (TEFs) for the Polychlorinated Dibenzo-p-dioxins and Dibenzofurans**

Number	Compound(s)	TEF
1	2,3,7,8-TCDD	1.00
2	1,2,3,7,8-PeCDD	0.50
3	1,2,3,6,7,8-HxCDD	0.1
4	1,2,3,7,8,9-HxCDD	0.1
5	1,2,3,4,7,8-HxCDD	0.1
6	1,2,3,4,6,7,8-HpCDD	0.01
7	OCDD	0.001
8	* Total - TCDD	0.0
9	* Total - PeCDD	0.0
10	* Total - HxCDD	0.0
11	* Total - HpCDD	0.0
12	2,3,7,8-TCDF	0.10
13	1,2,3,7,8-PeCDF	0.05
14	2,3,4,7,8-PeCDF	0.5
15	1,2,3,6,7,8-HxCDF	0.1
16	1,2,3,7,8,9-HxCDF	0.1
17	1,2,3,4,7,8-HxCDF	0.1
18	2,3,4,6,7,8-HxCDF	0.1
19	1,2,3,4,6,7,8-HpCDF	0.01
20	1,2,3,4,7,8,9-HpCDF	0.01
21	OCDF	0.001
22	* Total - TCDF	0.0
23	* Total - PeCDF	0.0
24	* Total - HxCDF	0.0
25	* Total - HpCDF	0.0

\*Excluding the 2,3,7,8-substituted congeners.

Reference: International Toxic Equivalence

## REPORT OF LABORATORY ANALYSIS

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## APPENDIX A

### **REPORT OF LABORATORY ANALYSIS**

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# CHAIN OF CUSTODY

**ESS Laboratory**  
 Division of Thielsch Engineering, Inc.  
 185 Frances Avenue, Cranston, RI 02910-2211  
 Tel: (401) 461-7181 Fax (401) 461-4486  
 www.esslaboratory.com

Turn Time:  Standard Other \_\_\_\_\_  
 If faster than 5 days, prior approval by laboratory is required # \_\_\_\_\_  
 State where samples were collected from:  
 MA RI CT NH NJ NY ME Other \_\_\_\_\_  
 Is this project for any of the following: USACE Other \_\_\_\_\_  
 MA-MCP Navy

Reporting Limits: \_\_\_\_\_  
 Electronic Deliverable: Yes  No \_\_\_\_\_  
 Format: Excel Access PDF Other \_\_\_\_\_

ESS LAB PROJECT ID: 0606383

Project Name (20 Char. or less): \_\_\_\_\_  
 Address: \_\_\_\_\_ City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ PO#: \_\_\_\_\_  
 Telephone #: \_\_\_\_\_ Fax #: \_\_\_\_\_ Email Address: \_\_\_\_\_

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Pres Code	Type of Containers	Number of Containers	Type of Containers	Write Required Analysis
	6-22-06	1635	S			0606383-01	1	G	1	G	
		1700	X	X		-03	1	G	1	G	
		1735	X	X		-05	1	G	1	G	
		1810	X	X		-07	1	G	1	G	
	6-22-06	1845	X	X		0606383-10	1	G	1	G	

Container Type: P-Poly (G-Glass S-Sterile V-VOA Matrix: S-Sol D-Sludge W-W-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Filters  
 Cooler Present Yes \_\_\_ No \_\_\_ Internal Use Only  
 Seals Intact Yes \_\_\_ No \_\_\_ NA: \_\_\_ | Pickup  
 Cooler Temp: 4.8

Preservation Code: I-NP-2-HCl, 3-H<sub>2</sub>SO<sub>4</sub>, 4-HNO<sub>3</sub>, 5-NaOH, 6-MeOH, 7-Asorbic Acid, 8-ZnAct, 9- \_\_\_\_\_  
 Sampled by: \_\_\_\_\_  
 Comments: \_\_\_\_\_

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
<i>J. Davis</i>	6/23/06 1800	<i>J. Richardson</i>	6/24/06 8:25

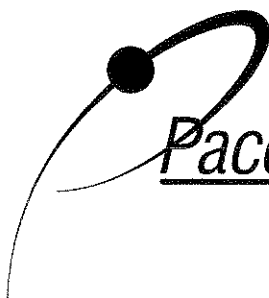
\*By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VII A  
 Please fax all changes to Chain of Custody in writing.  
 1 (White) Lab Copy 2 (Yellow) Client Receipt  
 10/26/04 A

## APPENDIX B

### **REPORT OF LABORATORY ANALYSIS**

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Method 8290 Blank Analysis Results

Client - ESS Laboratory

Lab Sample ID	BLANK-10057	Matrix	Solid
Filename	F60630A_04	Dilution	NA
Total Amount Extracted	10.2 g	Extracted	06/28/2006
ICAL Date	05/31/2006	Analyzed	06/30/2006 11:34
CCal Filename(s)	F60630A_01 & F60630A_13	Injected By	CVS

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.200	2,3,7,8-TCDF-13C	2.00	76
Total TCDF	ND	----	0.200	2,3,7,8-TCDD-13C	2.00	76
				1,2,3,7,8-PeCDF-13C	2.00	73
2,3,7,8-TCDD	ND	----	0.200	2,3,4,7,8-PeCDF-13C	2.00	79
Total TCDD	ND	----	0.200	1,2,3,7,8-PeCDD-13C	2.00	103
				1,2,3,4,7,8-HxCDF-13C	2.00	75
1,2,3,7,8-PeCDF	ND	----	0.980	1,2,3,6,7,8-HxCDF-13C	2.00	70
2,3,4,7,8-PeCDF	ND	----	0.980	2,3,4,6,7,8-HxCDF-13C	2.00	79
Total PeCDF	ND	----	0.980	1,2,3,7,8,9-HxCDF-13C	2.00	75
				1,2,3,4,7,8-HxCDD-13C	2.00	78
1,2,3,7,8-PeCDD	ND	----	0.980	1,2,3,6,7,8-HxCDD-13C	2.00	76
Total PeCDD	ND	----	0.980	1,2,3,4,6,7,8-HpCDF-13C	2.00	70
				1,2,3,4,7,8,9-HpCDF-13C	2.00	59
1,2,3,4,7,8-HxCDF	ND	----	0.980	1,2,3,4,6,7,8-HpCDD-13C	2.00	79
1,2,3,6,7,8-HxCDF	ND	----	0.980	OCDD-13C	4.00	61
2,3,4,6,7,8-HxCDF	ND	----	0.980			
1,2,3,7,8,9-HxCDF	ND	----	0.980	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.980	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.980	2,3,7,8-TCDD-37Cl4	0.20	78
1,2,3,6,7,8-HxCDD	ND	----	0.980			
1,2,3,7,8,9-HxCDD	ND	----	0.980			
Total HxCDD	ND	----	0.980			
1,2,3,4,6,7,8-HpCDF	ND	----	0.980	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.980	Equivalence: 0.0056 ng/Kg		
Total HpCDF	ND	----	0.980	(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.980			
Total HpCDD	ND	----	0.980			
OCDF	ND	----	2.000			
OCDD	5.6	----	2.000 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
EMPC = Estimated Maximum Possible Concentration  
LRL = Lower Reporting Limit  
J = Concentration detected is below the calibration range  
P = Recovery outside of target range  
A = Detection Limit based on signal-to-noise measurement

I = Interference  
E = PCDE Interference  
ND = Not Detected  
NA = Not Applicable  
NC = Not Calculated  
\* = See Discussion

Report No.....1034312

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### Method 8290 Blank Analysis Results

Client - ESS Laboratory

Lab Sample ID	BLANK-10081	Matrix	Solid
Filename	P60701B_05	Dilution	NA
Total Amount Extracted	10.4 g	Extracted	06/29/2006
ICAL Date	05/20/2006	Analyzed	07/01/2006 18:50
CCal Filename(s)	P60701B_02 & P60701B_18	Injected By	BAL

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.200 A	2,3,7,8-TCDF-13C	2.00	71
Total TCDF	ND	----	0.190	2,3,7,8-TCDD-13C	2.00	65
				1,2,3,7,8-PeCDF-13C	2.00	53
2,3,7,8-TCDD	ND	----	0.240 A	2,3,4,7,8-PeCDF-13C	2.00	56
Total TCDD	ND	----	0.190	1,2,3,7,8-PeCDD-13C	2.00	66
				1,2,3,4,7,8-HxCDF-13C	2.00	76
1,2,3,7,8-PeCDF	ND	----	0.970	1,2,3,6,7,8-HxCDF-13C	2.00	69
2,3,4,7,8-PeCDF	ND	----	0.970	2,3,4,6,7,8-HxCDF-13C	2.00	64
Total PeCDF	ND	----	0.970	1,2,3,7,8,9-HxCDF-13C	2.00	68
				1,2,3,4,7,8-HxCDD-13C	2.00	76
1,2,3,7,8-PeCDD	ND	----	0.970	1,2,3,6,7,8-HxCDD-13C	2.00	73
Total PeCDD	ND	----	0.970	1,2,3,4,6,7,8-HpCDF-13C	2.00	68
				1,2,3,4,7,8,9-HpCDF-13C	2.00	66
1,2,3,4,7,8-HxCDF	ND	----	0.970	1,2,3,4,6,7,8-HpCDD-13C	2.00	85
1,2,3,6,7,8-HxCDF	ND	----	0.970	OCDD-13C	4.00	67
2,3,4,6,7,8-HxCDF	ND	----	0.970			
1,2,3,7,8,9-HxCDF	ND	----	0.970	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.970	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.970	2,3,7,8-TCDD-37Cl4	0.20	76
1,2,3,6,7,8-HxCDD	ND	----	0.970			
1,2,3,7,8,9-HxCDD	ND	----	0.970			
Total HxCDD	ND	----	0.970			
1,2,3,4,6,7,8-HpCDF	ND	----	0.970	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.970	Equivalence: 0.00 ng/Kg		
Total HpCDF	ND	----	0.970	(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.970			
Total HpCDD	ND	----	0.970			
OCDF	ND	----	1.900			
OCDD	ND	----	1.900			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
EMPC = Estimated Maximum Possible Concentration  
LRL = Lower Reporting Limit  
J = Concentration detected is below the calibration range  
P = Recovery outside of target range  
A = Detection Limit based on signal-to-noise measurement

I = Interference  
E = PCDE Interference  
ND = Not Detected  
NA = Not Applicable  
NC = Not Calculated  
\* = See Discussion

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### Method 8290 Blank Analysis Results

Client - ESS Laboratory

Lab Sample ID	BLANK-10086	Matrix	Solid
Filename	U60703A_05	Dilution	NA
Total Amount Extracted	20.2 g	Extracted	06/30/2006
ICAL Date	07/01/2006	Analyzed	07/03/2006 19:08
CCal Filename(s)	U60703A_02 & U60703A_18	Injected By	BAL

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.10	----	0.099 J	2,3,7,8-TCDF-13C	2.00	80
Total TCDF	0.10	----	0.099 J	2,3,7,8-TCDD-13C	2.00	74
				1,2,3,7,8-PeCDF-13C	2.00	72
2,3,7,8-TCDD	ND	----	0.099	2,3,4,7,8-PeCDF-13C	2.00	77
Total TCDD	0.11	----	0.099 J	1,2,3,7,8-PeCDD-13C	2.00	87
				1,2,3,4,7,8-HxCDF-13C	2.00	82
1,2,3,7,8-PeCDF	ND	----	0.490	1,2,3,6,7,8-HxCDF-13C	2.00	75
2,3,4,7,8-PeCDF	ND	----	0.490	2,3,4,6,7,8-HxCDF-13C	2.00	76
Total PeCDF	ND	----	0.490	1,2,3,7,8,9-HxCDF-13C	2.00	76
				1,2,3,4,7,8-HxCDD-13C	2.00	79
1,2,3,7,8-PeCDD	ND	----	0.490	1,2,3,6,7,8-HxCDD-13C	2.00	66
Total PeCDD	ND	----	0.490	1,2,3,4,6,7,8-HpCDF-13C	2.00	72
				1,2,3,4,7,8,9-HpCDF-13C	2.00	65
1,2,3,4,7,8-HxCDF	ND	----	0.490	1,2,3,4,6,7,8-HpCDD-13C	2.00	78
1,2,3,6,7,8-HxCDF	ND	----	0.490	OCDD-13C	4.00	75
2,3,4,6,7,8-HxCDF	ND	----	0.490			
1,2,3,7,8,9-HxCDF	ND	----	0.490	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.490	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.490	2,3,7,8-TCDD-37Cl4	0.20	78
1,2,3,6,7,8-HxCDD	ND	----	0.490			
1,2,3,7,8,9-HxCDD	ND	----	0.490			
Total HxCDD	ND	----	0.490			
1,2,3,4,6,7,8-HpCDF	ND	----	0.490	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.490	Equivalence: 0.011 ng/Kg		
Total HpCDF	ND	----	0.490	(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.490			
Total HpCDD	ND	----	0.490			
OCDF	ND	----	0.990			
OCDD	1.30	----	0.990 J			

Conc = Concentration (Totals include 2,3,7,8-substituted isomers).  
EMPC = Estimated Maximum Possible Concentration  
LRL = Lower Reporting Limit  
J = Concentration detected is below the calibration range  
P = Recovery outside of target range  
A = Detection Limit based on signal-to-noise measurement

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NC = Not Calculated  
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**Method 8290 Analysis Results**

Client - ESS Laboratory

Client's Sample ID	0606383-01		
Lab Sample ID	1034314001		
Filename	P60702A_12		
Injected By	BAL		
Total Amount Extracted	19.4 g	Matrix	Solid
% Moisture	59.6	Dilution	NA
Dry Weight Extracted	7.82 g	Collected	06/22/2006
ICAL Date	05/20/2006	Received	06/24/2006
CCal Filename(s)	P60701B_18 & P60702A_17	Extracted	06/28/2006
Method Blank ID	BLANK-10057	Analyzed	07/02/2006 13:32

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	-----	8.0	0.26	E	2,3,7,8-TCDF-13C	2.00	78
Total TCDF	320.00	-----	0.26		2,3,7,8-TCDD-13C	2.00	79
					1,2,3,7,8-PeCDF-13C	2.00	62
2,3,7,8-TCDD	0.72	-----	0.26	J	2,3,4,7,8-PeCDF-13C	2.00	73
Total TCDD	17.00	-----	0.26		1,2,3,7,8-PeCDD-13C	2.00	89
					1,2,3,4,7,8-HxCDF-13C	2.00	87
1,2,3,7,8-PeCDF	5.50	-----	1.30	J	1,2,3,6,7,8-HxCDF-13C	2.00	72
2,3,4,7,8-PeCDF	95.00	-----	1.30		2,3,4,6,7,8-HxCDF-13C	2.00	74
Total PeCDF	1100.00	-----	1.30		1,2,3,7,8,9-HxCDF-13C	2.00	77
					1,2,3,4,7,8-HxCDD-13C	2.00	90
1,2,3,7,8-PeCDD	2.40	-----	1.30	J	1,2,3,6,7,8-HxCDD-13C	2.00	71
Total PeCDD	29.00	-----	1.30		1,2,3,4,6,7,8-HpCDF-13C	2.00	73
					1,2,3,4,7,8,9-HpCDF-13C	2.00	73
1,2,3,4,7,8-HxCDF	12.00	-----	1.30		1,2,3,4,6,7,8-HpCDD-13C	2.00	95
1,2,3,6,7,8-HxCDF	16.00	-----	1.30		OCDD-13C	4.00	72
2,3,4,6,7,8-HxCDF	12.00	-----	1.30				
1,2,3,7,8,9-HxCDF	7.00	-----	1.30		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	490.00	-----	1.30		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.30	-----	1.30	J	2,3,7,8-TCDD-37Cl4	0.20	94
1,2,3,6,7,8-HxCDD	5.40	-----	1.30	J			
1,2,3,7,8,9-HxCDD	2.80	-----	1.30	J			
Total HxCDD	50.00	-----	1.30				
1,2,3,4,6,7,8-HpCDF	29.00	-----	1.30		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	4.50	-----	1.30	J	Equivalence: 56 ng/Kg		
Total HpCDF	66.00	-----	1.30		(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	29.00	-----	1.30				
Total HpCDD	58.00	-----	1.30				
OCDF	17.00	-----	2.60				
OCDD	170.00	-----	2.60				

Results reported on a dry weight basis  
 Conc = Concentration (Totals include 2,3,7,8-substituted isomers)  
 EMPC = Estimated Maximum Possible Concentration  
 A = Detection Limit based on signal-to-noise measurement  
 J = Concentration detected is below the calibration range  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of target range  
 Nn = Value obtained from additional analysis

LRL = Lower Reporting Limit  
 I = Interference  
 E = PCDE Interference  
 S = Saturated signal  
 ND = Not Detected  
 NA = Not Applicable  
 NC = Not Calculated  
 \* = See Discussion

Report No.....1034312

**REPORT OF LABORATORY ANALYSIS**

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**Method 8290 Analysis Results**

Client - ESS Laboratory

Client's Sample ID	0606383-03			
Lab Sample ID	1034314002			
Filename	P60702A_14			
Injected By	BAL			
Total Amount Extracted	16.2 g	Matrix	Solid	
% Moisture	65.3	Dilution	10	
Dry Weight Extracted	5.63 g	Collected	06/22/2006	
ICAL Date	05/20/2006	Received	06/24/2006	
CCal Filename(s)	P60701B_18 & P60702A_17	Extracted	06/29/2006	
Method Blank ID	BLANK-10081	Analyzed	07/02/2006 15:08	

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	27.0	----	4.3 A	2,3,7,8-TCDF-13C	2.00	78
Total TCDF	4500.0	----	3.6	2,3,7,8-TCDD-13C	2.00	77
				1,2,3,7,8-PeCDF-13C	2.00	61
2,3,7,8-TCDD	6.8	----	4.5 A	2,3,4,7,8-PeCDF-13C	2.00	71
Total TCDD	150.0	----	3.6	1,2,3,7,8-PeCDD-13C	2.00	90
				1,2,3,4,7,8-HxCDF-13C	2.00	87
1,2,3,7,8-PeCDF	41.0	----	18.0	1,2,3,6,7,8-HxCDF-13C	2.00	70
2,3,4,7,8-PeCDF	1300.0	----	18.0	2,3,4,6,7,8-HxCDF-13C	2.00	74
Total PeCDF	14000.0	----	18.0	1,2,3,7,8,9-HxCDF-13C	2.00	79
				1,2,3,4,7,8-HxCDD-13C	2.00	88
1,2,3,7,8-PeCDD	18.0	----	18.0	1,2,3,6,7,8-HxCDD-13C	2.00	64
Total PeCDD	200.0	----	18.0	1,2,3,4,6,7,8-HpCDF-13C	2.00	74
				1,2,3,4,7,8,9-HpCDF-13C	2.00	73
1,2,3,4,7,8-HxCDF	68.0	----	18.0	1,2,3,4,6,7,8-HpCDD-13C	2.00	92
1,2,3,6,7,8-HxCDF	160.0	----	18.0	OCDD-13C	4.00	66
2,3,4,6,7,8-HxCDF	150.0	----	18.0			
1,2,3,7,8,9-HxCDF	62.0	----	18.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	5500.0	----	18.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	18.0	2,3,7,8-TCDD-37Cl4	0.20	91
1,2,3,6,7,8-HxCDD	28.0	----	18.0			
1,2,3,7,8,9-HxCDD	ND	----	18.0			
Total HxCDD	310.0	----	18.0			
1,2,3,4,6,7,8-HpCDF	160.0	----	18.0	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	25.0	----	18.0	Equivalence: 700 ng/Kg		
Total HpCDF	420.0	----	18.0	(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	110.0	----	18.0			
Total HpCDD	240.0	----	18.0			
OCDF	44.0	----	36.0			
OCDD	500.0	----	36.0			

Results reported on a dry weight basis  
 Conc = Concentration (Totals include 2,3,7,8-substituted isomers)  
 EMPC = Estimated Maximum Possible Concentration  
 A = Detection Limit based on signal-to-noise measurement  
 J = Concentration detected is below the calibration range  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of target range  
 Nn = Value obtained from additional analysis

LRL = Lower Reporting Limit  
 I = Interference  
 E = PCDE Interference  
 S = Saturated signal  
 ND = Not Detected  
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Report No.....1034312

**REPORT OF LABORATORY ANALYSIS**

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## Method 8290 Analysis Results

Client - ESS Laboratory

Client's Sample ID	0606383-05		
Lab Sample ID	1034314003		
Filename	P60702A_15		
Injected By	BAL		
Total Amount Extracted	23.4 g	Matrix	Solid
% Moisture	79.5	Dilution	10
Dry Weight Extracted	4.79 g	Collected	06/22/2006
ICAL Date	05/20/2006	Received	06/24/2006
CCal Filename(s)	P60701B_18 & P60702A_17	Extracted	06/29/2006
Method Blank ID	BLANK-10081	Analyzed	07/02/2006 15:56

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	-----	75	4.2 E	2,3,7,8-TCDF-13C	2.00	69
Total TCDF	3000.0	-----	4.2	2,3,7,8-TCDD-13C	2.00	68
				1,2,3,7,8-PeCDF-13C	2.00	52
2,3,7,8-TCDD	8.1	-----	6.1 A	2,3,4,7,8-PeCDF-13C	2.00	59
Total TCDD	130.0	-----	4.2	1,2,3,7,8-PeCDD-13C	2.00	75
				1,2,3,4,7,8-HxCDF-13C	2.00	83
1,2,3,7,8-PeCDF	35.0	-----	21.0	1,2,3,6,7,8-HxCDF-13C	2.00	67
2,3,4,7,8-PeCDF	910.0	-----	21.0	2,3,4,6,7,8-HxCDF-13C	2.00	67
Total PeCDF	9800.0	-----	21.0	1,2,3,7,8,9-HxCDF-13C	2.00	71
				1,2,3,4,7,8-HxCDD-13C	2.00	84
1,2,3,7,8-PeCDD	29.0	-----	21.0	1,2,3,6,7,8-HxCDD-13C	2.00	59
Total PeCDD	240.0	-----	21.0	1,2,3,4,6,7,8-HpCDF-13C	2.00	67
				1,2,3,4,7,8,9-HpCDF-13C	2.00	63
1,2,3,4,7,8-HxCDF	130.0	-----	21.0	1,2,3,4,6,7,8-HpCDD-13C	2.00	78
1,2,3,6,7,8-HxCDF	150.0	-----	21.0	OCDD-13C	4.00	57
2,3,4,6,7,8-HxCDF	180.0	-----	21.0			
1,2,3,7,8,9-HxCDF	75.0	-----	21.0	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	4800.0	-----	21.0	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	-----	21.0	2,3,7,8-TCDD-37Cl4	0.20	69
1,2,3,6,7,8-HxCDD	37.0	-----	21.0			
1,2,3,7,8,9-HxCDD	22.0	-----	21.0			
Total HxCDD	450.0	-----	21.0			
1,2,3,4,6,7,8-HpCDF	230.0	-----	21.0	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	36.0	-----	21.0	Equivalence: 540 ng/Kg		
Total HpCDF	510.0	-----	21.0	(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	180.0	-----	21.0			
Total HpCDD	380.0	-----	21.0			
OCDF	130.0	-----	42.0			
OCDD	830.0	-----	42.0			

Results reported on a dry weight basis  
 Conc = Concentration (Totals include 2,3,7,8-substituted isomers)  
 EMPC = Estimated Maximum Possible Concentration  
 A = Detection Limit based on signal-to-noise measurement  
 J = Concentration detected is below the calibration range  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of target range  
 Nn = Value obtained from additional analysis

LRL = Lower Reporting Limit  
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 E = PCDE Interference  
 S = Saturated signal  
 ND = Not Detected  
 NA = Not Applicable  
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Report No.....1034312

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**Method 8290 Analysis Results**

Client - ESS Laboratory

Client's Sample ID	0606383-07		
Lab Sample ID	1034314004		
Filename	P60702A_13		
Injected By	BAL		
Total Amount Extracted	13.1 g	Matrix	Solid
% Moisture	45.8	Dilution	NA
Dry Weight Extracted	7.10 g	Collected	06/22/2006
ICAL Date	05/20/2006	Received	06/24/2006
CCal Filename(s)	P60701B_18 & P60702A_17	Extracted	06/29/2006
Method Blank ID	BLANK-10081	Analyzed	07/02/2006 14:20

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	1.6	----	0.280		2,3,7,8-TCDF-13C	2.00	86
Total TCDF	21.0	----	0.280		2,3,7,8-TCDD-13C	2.00	80
					1,2,3,7,8-PeCDF-13C	2.00	67
2,3,7,8-TCDD	ND	----	0.310	A	2,3,4,7,8-PeCDF-13C	2.00	74
Total TCDD	21.0	----	0.280		1,2,3,7,8-PeCDD-13C	2.00	96
					1,2,3,4,7,8-HxCDF-13C	2.00	94
1,2,3,7,8-PeCDF	ND	----	1.400		1,2,3,6,7,8-HxCDF-13C	2.00	71
2,3,4,7,8-PeCDF	1.7	----	1.400	J	2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	6.1	----	1.400	J	1,2,3,7,8,9-HxCDF-13C	2.00	81
					1,2,3,4,7,8-HxCDD-13C	2.00	93
1,2,3,7,8-PeCDD	ND	----	1.400		1,2,3,6,7,8-HxCDD-13C	2.00	72
Total PeCDD	22.0	----	1.400		1,2,3,4,6,7,8-HpCDF-13C	2.00	75
					1,2,3,4,7,8,9-HpCDF-13C	2.00	70
1,2,3,4,7,8-HxCDF	2.4	----	1.400	J	1,2,3,4,6,7,8-HpCDD-13C	2.00	90
1,2,3,6,7,8-HxCDF	ND	----	1.400		OCDD-13C	4.00	60
2,3,4,6,7,8-HxCDF	ND	----	1.400				
1,2,3,7,8,9-HxCDF	ND	----	1.400		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	5.4	----	1.400	J	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	1.400		2,3,7,8-TCDD-37Cl4	0.20	76
1,2,3,6,7,8-HxCDD	3.6	----	1.400	J			
1,2,3,7,8,9-HxCDD	1.7	----	1.400	J			
Total HxCDD	64.0	----	1.400				
1,2,3,4,6,7,8-HpCDF	5.9	----	1.400	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	1.400		Equivalence: 2.1 ng/Kg		
Total HpCDF	5.9	----	1.400	J	(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	20.0	----	1.400				
Total HpCDD	33.0	----	1.400				
OCDF	6.2	----	2.800	J			
OCDD	43.0	----	2.800				

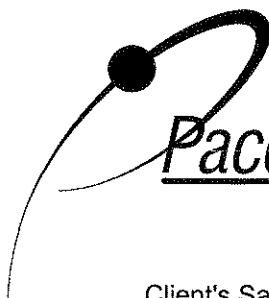
Results reported on a dry weight basis  
 Conc = Concentration (Totals include 2,3,7,8-substituted isomers)  
 EMPC = Estimated Maximum Possible Concentration  
 A = Detection Limit based on signal-to-noise measurement  
 J = Concentration detected is below the calibration range  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of target range  
 Nn = Value obtained from additional analysis

LRL = Lower Reporting Limit  
 I = Interference  
 E = PCDE Interference  
 S = Saturated signal  
 ND = Not Detected  
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Report No.....1034312

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## Method 8290 Analysis Results

Client - ESS Laboratory

Client's Sample ID	0606383-10		
Lab Sample ID	1034314005		
Filename	U60703B_09		
Injected By	BAL		
Total Amount Extracted	30.6 g	Matrix	Solid
% Moisture	66.8	Dilution	5
Dry Weight Extracted	10.1 g	Collected	06/22/2006
ICAL Date	07/01/2006	Received	06/24/2006
CCal Filename(s)	U60703A_18 & U60703B_18	Extracted	06/30/2006
Method Blank ID	BLANK-10086	Analyzed	07/04/2006 13:06

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	53	----	2.8	A	2,3,7,8-TCDF-13C	2.00	81
Total TCDF	6900	----	0.99		2,3,7,8-TCDD-13C	2.00	78
					1,2,3,7,8-PeCDF-13C	2.00	86
2,3,7,8-TCDD	18	----	3.1	A	2,3,4,7,8-PeCDF-13C	2.00	85
Total TCDD	500	----	0.99		1,2,3,7,8-PeCDD-13C	2.00	92
					1,2,3,4,7,8-HxCDF-13C	2.00	130
1,2,3,7,8-PeCDF	-----	240	11.0	EA	1,2,3,6,7,8-HxCDF-13C	2.00	102
2,3,4,7,8-PeCDF	2200	----	10.0	A	2,3,4,6,7,8-HxCDF-13C	2.00	104
Total PeCDF	12000	----	4.9		1,2,3,7,8,9-HxCDF-13C	2.00	92
					1,2,3,4,7,8-HxCDD-13C	2.00	104
1,2,3,7,8-PeCDD	63	----	5.9	A	1,2,3,6,7,8-HxCDD-13C	2.00	99
Total PeCDD	910	----	4.9		1,2,3,4,6,7,8-HpCDF-13C	2.00	88
					1,2,3,4,7,8,9-HpCDF-13C	2.00	83
1,2,3,4,7,8-HxCDF	310	----	6.5	A	1,2,3,4,6,7,8-HpCDD-13C	2.00	92
1,2,3,6,7,8-HxCDF	380	----	7.6	A	OCDD-13C	4.00	71
2,3,4,6,7,8-HxCDF	310	----	12.0	A			
1,2,3,7,8,9-HxCDF	180	----	4.9		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	12000	----	4.9		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	30	----	7.3	A	2,3,7,8-TCDD-37Cl4	0.20	84
1,2,3,6,7,8-HxCDD	83	----	5.1	A			
1,2,3,7,8,9-HxCDD	38	----	4.9				
Total HxCDD	1100	----	4.9				
1,2,3,4,6,7,8-HpCDF	440	----	6.5	A	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	79	----	4.9		Equivalence: 1300 ng/Kg		
Total HpCDF	1100	----	4.9		(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	320	----	4.9				
Total HpCDD	650	----	4.9				
OCDF	170	----	9.9				
OCDD	1900	----	14.0	A			

Results reported on a dry weight basis  
 Conc = Concentration (Totals include 2,3,7,8-substituted isomers)  
 EMPC = Estimated Maximum Possible Concentration  
 A = Detection Limit based on signal-to-noise measurement  
 J = Concentration detected is below the calibration range  
 B = Less than 10 times higher than method blank level  
 P = Recovery outside of target range  
 Nn = Value obtained from additional analysis

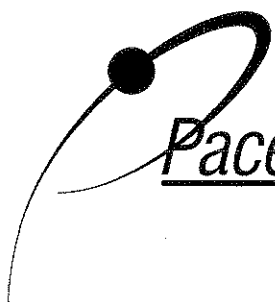
LRL = Lower Reporting Limit  
 I = Interference  
 E = PCDE Interference  
 S = Saturated signal  
 ND = Not Detected  
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Report No.....1034312

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## Method 8290 Laboratory Control Spike Results

Client - ESS Laboratory

Lab Sample ID	LCS-10058	Matrix	Solid
Filename	F60630A_02	Dilution	NA
Total Amount Extracted	10.0 g	Extracted	06/28/2006
ICAL Date	05/31/2006	Analyzed	06/30/2006 09:54
CCal Filename(s)	F60630A_01 & F60630A_13	Injected By	CVS
Method Blank ID	BLANK-10057		

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.17	86	2,3,7,8-TCDF-13C	2.00	70
				2,3,7,8-TCDD-13C	2.00	69
				1,2,3,7,8-PeCDF-13C	2.00	65
2,3,7,8-TCDD	0.20	0.18	90	2,3,4,7,8-PeCDF-13C	2.00	71
				1,2,3,7,8-PeCDD-13C	2.00	96
				1,2,3,4,7,8-HxCDF-13C	2.00	78
1,2,3,7,8-PeCDF	1.00	0.99	99	1,2,3,6,7,8-HxCDF-13C	2.00	73
2,3,4,7,8-PeCDF	1.00	0.91	91	2,3,4,6,7,8-HxCDF-13C	2.00	79
				1,2,3,7,8,9-HxCDF-13C	2.00	76
				1,2,3,4,7,8-HxCDD-13C	2.00	83
1,2,3,7,8-PeCDD	1.00	0.81	81	1,2,3,6,7,8-HxCDD-13C	2.00	76
				1,2,3,4,6,7,8-HpCDF-13C	2.00	72
				1,2,3,4,7,8,9-HpCDF-13C	2.00	61
1,2,3,4,7,8-HxCDF	1.00	0.87	87	1,2,3,4,6,7,8-HpCDD-13C	2.00	82
1,2,3,6,7,8-HxCDF	1.00	0.91	91	OCDD-13C	4.00	62
2,3,4,6,7,8-HxCDF	1.00	0.92	92			
1,2,3,7,8,9-HxCDF	1.00	0.91	91	1,2,3,4-TCDD-13C	2.00	NA
				1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.00	0.96	96	2,3,7,8-TCDD-37Cl4	0.20	68
1,2,3,6,7,8-HxCDD	1.00	1.00	100			
1,2,3,7,8,9-HxCDD	1.00	1.01	101			
1,2,3,4,6,7,8-HpCDF	1.00	1.00	100			
1,2,3,4,7,8,9-HpCDF	1.00	1.05	105			
1,2,3,4,6,7,8-HpCDD	1.00	0.84	84			
OCDF	2.00	1.71	86			
OCDD	2.00	1.77	88			

Qs = Quantity Spiked  
 Qm = Quantity Measured  
 Rec. = Recovery (Expressed as Percent)  
 P = Recovery outside of target range  
 X = Background subtracted value  
 Nn = Value obtained from additional analysis  
 NA = Not Applicable  
 \* = See Discussion

Report No.....1034312

## REPORT OF LABORATORY ANALYSIS

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**Method 8290 Laboratory Control Spike Results**

Client - ESS Laboratory

Lab Sample ID	LCS-10082	Matrix	Solid
Filename	P60701B_03	Dilution	NA
Total Amount Extracted	10.3 g	Extracted	06/29/2006
ICAL Date	05/20/2006	Analyzed	07/01/2006 17:16
CCal Filename(s)	P60701B_02 & P60701B_18	Injected By	BAL
Method Blank ID	BLANK-10081		

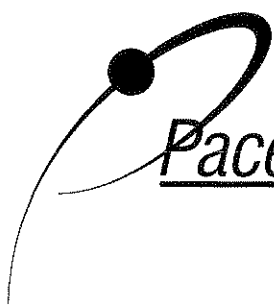
Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.18	89	2,3,7,8-TCDF-13C	2.00	83
				2,3,7,8-TCDD-13C	2.00	84
				1,2,3,7,8-PeCDF-13C	2.00	65
2,3,7,8-TCDD	0.20	0.20	100	2,3,4,7,8-PeCDF-13C	2.00	70
				1,2,3,7,8-PeCDD-13C	2.00	82
				1,2,3,4,7,8-HxCDF-13C	2.00	83
1,2,3,7,8-PeCDF	1.00	1.09	109	1,2,3,6,7,8-HxCDF-13C	2.00	74
2,3,4,7,8-PeCDF	1.00	1.03	103	2,3,4,6,7,8-HxCDF-13C	2.00	75
				1,2,3,7,8,9-HxCDF-13C	2.00	82
				1,2,3,4,7,8-HxCDD-13C	2.00	87
1,2,3,7,8-PeCDD	1.00	0.91	91	1,2,3,6,7,8-HxCDD-13C	2.00	86
				1,2,3,4,6,7,8-HpCDF-13C	2.00	86
				1,2,3,4,7,8,9-HpCDF-13C	2.00	79
1,2,3,4,7,8-HxCDF	1.00	0.97	97	1,2,3,4,6,7,8-HpCDD-13C	2.00	109
1,2,3,6,7,8-HxCDF	1.00	1.04	104	OCDD-13C	4.00	82
2,3,4,6,7,8-HxCDF	1.00	1.04	104			
1,2,3,7,8,9-HxCDF	1.00	1.04	104	1,2,3,4-TCDD-13C	2.00	NA
				1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.00	1.04	104	2,3,7,8-TCDD-37Cl4	0.20	99
1,2,3,6,7,8-HxCDD	1.00	1.04	104			
1,2,3,7,8,9-HxCDD	1.00	0.99	99			
1,2,3,4,6,7,8-HpCDF	1.00	1.06	106			
1,2,3,4,7,8,9-HpCDF	1.00	1.10	110			
1,2,3,4,6,7,8-HpCDD	1.00	0.93	93			
OCDF	2.00	1.75	87			
OCDD	2.00	1.81	91			

Qs = Quantity Spiked  
 Qm = Quantity Measured  
 Rec. = Recovery (Expressed as Percent)  
 P = Recovery outside of target range  
 X = Background subtracted value  
 Nn = Value obtained from additional analysis  
 NA = Not Applicable  
 \* = See Discussion

Report No.....1034312

**REPORT OF LABORATORY ANALYSIS**

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**Method 8290 Laboratory Control Spike Results**

Client - ESS Laboratory

Lab Sample ID	LCS-10087	Matrix	Solid
Filename	U60703A_03	Dilution	NA
Total Amount Extracted	20.2 g	Extracted	06/30/2006
ICAL Date	07/01/2006	Analyzed	07/03/2006 17:34
CCal Filename(s)	U60703A_02 & U60703A_18	Injected By	BAL
Method Blank ID	BLANK-10086		

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.18	92	2,3,7,8-TCDF-13C	2.00	81
				2,3,7,8-TCDD-13C	2.00	75
				1,2,3,7,8-PeCDF-13C	2.00	73
2,3,7,8-TCDD	0.20	0.19	93	2,3,4,7,8-PeCDF-13C	2.00	76
				1,2,3,7,8-PeCDD-13C	2.00	83
				1,2,3,4,7,8-HxCDF-13C	2.00	79
1,2,3,7,8-PeCDF	1.00	1.06	106	1,2,3,6,7,8-HxCDF-13C	2.00	72
2,3,4,7,8-PeCDF	1.00	1.02	102	2,3,4,6,7,8-HxCDF-13C	2.00	75
				1,2,3,7,8,9-HxCDF-13C	2.00	76
				1,2,3,4,7,8-HxCDD-13C	2.00	76
1,2,3,7,8-PeCDD	1.00	0.92	92	1,2,3,6,7,8-HxCDD-13C	2.00	66
				1,2,3,4,6,7,8-HpCDF-13C	2.00	70
				1,2,3,4,7,8,9-HpCDF-13C	2.00	64
1,2,3,4,7,8-HxCDF	1.00	0.94	94	1,2,3,4,6,7,8-HpCDD-13C	2.00	75
1,2,3,6,7,8-HxCDF	1.00	1.05	105	OCDD-13C	4.00	76
2,3,4,6,7,8-HxCDF	1.00	0.99	99			
1,2,3,7,8,9-HxCDF	1.00	0.95	95	1,2,3,4-TCDD-13C	2.00	NA
				1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.00	1.03	103	2,3,7,8-TCDD-37Cl4	0.20	77
1,2,3,6,7,8-HxCDD	1.00	1.11	111			
1,2,3,7,8,9-HxCDD	1.00	1.10	110			
1,2,3,4,6,7,8-HpCDF	1.00	1.09	109			
1,2,3,4,7,8,9-HpCDF	1.00	1.11	111			
1,2,3,4,6,7,8-HpCDD	1.00	0.94	94			
OCDF	2.00	1.81	91			
OCDD	2.00	1.79	89			

Qs = Quantity Spiked  
 Qm = Quantity Measured  
 Rec. = Recovery (Expressed as Percent)  
 P = Recovery outside of target range  
 X = Background subtracted value  
 Nn = Value obtained from additional analysis  
 NA = Not Applicable  
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Report No.....1034312

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**ESS Laboratory**  
 Division of Thielsch Engineering, Inc.  
 185 Frances Avenue, Cranston, RI 02910-2211  
 Tel. (401) 461-7181 Fax (401) 461-4486  
 www.esslaboratory.com

# CHAIN OF CUSTODY

Turn Time: Standard Other  
 If faster than 5 days, prior approval by laboratory is required #  
 State where samples were collected from:  
 MA RI CT NH NJ NY ME Other  
 Is this project for any of the following:  
 MA-MCP Navy USACE Other

Reporting Limits  
 Electronic Deliverable Yes  No   
 Format: Excel Access PDF Other

Project # \_\_\_\_\_ Project Name (25 Char. or less) Goshaw Site  
 Co. Name Mactec Address \_\_\_\_\_  
 Contact Person Chris Ricardi State \_\_\_\_\_ Zip \_\_\_\_\_ PO# \_\_\_\_\_  
 Telephone # 207 775 5401 Fax # \_\_\_\_\_ Email Address \_\_\_\_\_  
 Sample Identification (if Char. or test) \_\_\_\_\_ Pres Code \_\_\_\_\_

ESS LAB Sample #	Date	Collection Time	COMP	GRAB	MATRIX	Number of Containers	Type of Containers	8260 VPH	8021 VPH	8015 GRO	8100 DRO	8082 EPA	8082 EPA	8081 EPA	8270 PCB	8270 PCB	8270 PCB	8270 PCB	8270 PCB	RCRA5 SVOA	RCRA8 PP13	TAL23	TCLP-RCRA8 NRC7	MCP- METALS (13)	MCP- METALS (13) W/MS	VOA LL	VOA LL	PAH/ WEST/ TCB/ METALS/	TOC	PAH/ METALS				
1	6-27-06	1635		X	S	SEB2401	L																											
2	6-22-06	1650		X	S	SEB2403	S																											
3	6-22-06	1700		X	S	SEB2201	T																											
4	6-22-06	1710		X	S	SEB2203	S																											
5	6-22-06	1735		X	S	SEB2701	T																											
6	6-22-06	1746		X	S	SEB2703	S																											
7	6-22-06	1810		X	S	SEB2601	T																											
8	6-22-06	1820		X	S	SEB2602	S																											
9	6-22-06	1830		X	S	SEB2605	S																											
10	6-22-06	1845		X	S	SEB2501	T																											

Container Type: P-Poly G-Glass S-Sterile V-VOA Matrix: S-Soil SD-Solid D-Sludge W-Waste Water GW-Ground Water SW-Surface Water DW-Drinking Water O-Oil W-Wipes F-Films  
 Cooler Present  Yes  No  Internal Use Only  Pickup  Technicians \_\_\_\_\_  
 Seals Intact  Yes  No NA: \_\_\_\_\_  
 Cooler Temp: 4.2

Preservation Code: 1- NP, 2- HCl, 3- H<sub>2</sub>SO<sub>4</sub>, 4- HNO<sub>3</sub>, 5- NaOH, 6- MeOH, 7- Asorbic Acid, 8- ZnAc<sub>2</sub>, 9- \_\_\_\_\_  
 Sampled by: Brian Rubin / Tom Hasler  
 Comments: \_\_\_\_\_

Relinquished by: (Signature) <u>[Signature]</u>	Date/Time <u>6-23-06 11:58</u>	Relinquished by: (Signature) _____	Date/Time _____
Relinquished by: (Signature) _____	Date/Time _____	Relinquished by: (Signature) _____	Date/Time _____

\*By circling MA-MCP, client acknowledges samples were collected in accordance with MADEP CAM VII A  
 1 (White) Lab Copy 2 (Yellow) Client Receipt  
 Please fax all changes to Chain of Custody in writing.

# ESS Laboratory

Division of Thielsch Engineering, Inc.  
 185 Frances Avenue, Cranston, RI 02910-2211  
 Tel. (401) 461-7181 Fax (401) 461-4486  
 www.esslaboratory.com

# CHAIN OF CUSTODY

Reporting Limits \_\_\_\_\_  
 Electronic Deliverable \_\_\_\_\_  
 Format: Excel Access PDF Other  
 Yes No

ESS LAB PROJECT ID: **0606383**

Co. Name: **MACTEC**  
 Contract Person: **Chris Riccardi**  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_  
 Telephone #: **207 775 5401** Fax #: \_\_\_\_\_  
 Project Name (20 Char. or less): **Gov Wapn Site**

Address: \_\_\_\_\_ PO#: \_\_\_\_\_  
 Email Address: \_\_\_\_\_  
 Type of Containers: \_\_\_\_\_  
 Number of Containers: \_\_\_\_\_  
 Pres Code: \_\_\_\_\_

ESS LAB Sample#	Date	Collection Time	COMP	GRAB	MATRIX	Sample Identification (20 Char. or less)	Type of Containers	Number of Containers	8021 FOA	8015 GRD	8015 VPH	8100 TPH	8105 DRO	EPA EPA	W/PATHS 4 Dioxin	PCBs 8082 8081	PAHs 8270 8270	RCAAS RCAAS 8270	TCLP-RCAAS NBC7	MCP-METALS (13) W/MS	VOA LL	PAH/Metals	PAH - 2 x 16	Metals - 1 x 500-2
11	6-22-06	1853	X	X	S	SED2503	"	5													X	X	X	
12	6-23-06	1805	X	X	S	SED2503B	"	5													X	X	X	
11	6-23-06	1610	X	X	S	SED2503 MS	"	5													X	X	X	
11	6-23-06	1805	X	X	S	SED2503 MSD	"	5													X	X	X	
13	6-23-06	1030	X	X	S	SED2507	"	5													X	X	X	
14	6-23-06	1035	X	X	S	SED2507D	"	5													X	X	X	
13	6-23-06	1040	X	X	S	SED2507 MS	"	5													X	X	X	
13	6-23-06	1050	X	X	S	SED2507 MSD	"	5													X	X	X	
15	6-23-06	0950			AE	Rinse/Se Sed	"	6													X	X	X	
16	6-23-06				AE	Trip blank	"	2													X	X	X	

Container Type: P-Poly G-Glass S-Sterile V-VOA Matrix: S-Soil P-Pop W-W-Waste Water SW-Surface Water GW-Ground Water O-Oil W-Wipes F-Fillets  
 Cooler Present:  Yes No: \_\_\_\_\_  
 Seals Intact:  Yes No: NA: \_\_\_\_\_  
 Cooler Temp: **42**  
 Preservative Code: 1- NR, 2- HCl, 3- H2SO4, 4- HNO3, 5- NaOH, 6- MeOH, 7- Asorbic Acid, 8- ZnAc2, 9- \_\_\_\_\_  
 Sampled by: **Brian Roden / Tam Haskins**  
 Comments: \_\_\_\_\_  
 Relinquished by (Signature): **[Signature]** Date/Time: **6-23-06 11:58**  
 Relinquished by (Signature): \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Relinquished by (Signature): \_\_\_\_\_ Date/Time: \_\_\_\_\_