

DETERMINATION OF PCDD/PCDF LEVELS

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



This report contains 25 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: 0606373

REPORT OF LABORATORY ANALYSIS

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REPORT OF: CHEMICAL ANALYSES

PROJECT: PCDD/PCDF ANALYSES

DATE: July 12, 2006

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

REPORT NO: 06-1034231

INTRODUCTION

This report presents the results from the analyses performed on ten 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>
0606373-01	Solid	06/23/06	1034231001
0606373-03	Solid	06/23/06	1034231002
0606373-05	Solid	06/23/06	1034231003
0606373-07	Solid	06/23/06	1034231004
0606373-09	Solid	06/23/06	1034231005
0606373-12	Solid	06/23/06	1034231006
0606373-14	Solid	06/23/06	1034231007
0606373-16	Solid	06/23/06	1034231008
0606373-18	Solid	06/23/06	1034231009
0606373-20	Solid	06/23/06	1034231010

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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 34-142%. With the exception of seven values, which were flagged "P" on the sample results tables; 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 the blanks, with the exception of a trace level of OCDD, to be free of PCDDs and PCDFs at the reporting limits. The OCDD was below the calibration range of the method. One sample contained a similar level to the corresponding blank and was flagged "B" on the results table. This value 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.

Laboratory and matrix spike samples were also prepared with the samples using clean sand or sample material that had been fortified with native standards. The results show that the spiked native compounds were recovered at 81-108% in the lab spikes and at 57-113% in the background subtracted matrix spikes. Relative percent differences in the matrix spikes ranged from 1.0-11%. These results indicate high degrees of accuracy and precision for these determinations.

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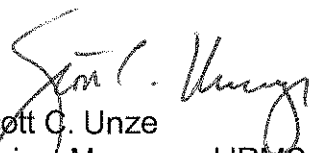
DISCUSSION (Cont.)

The responses obtained for several compounds in ending calibration standards F60629A_16 and F60708A_17 were outside the target range for this method. As specified in the method, the averages of the daily response factors for these compounds were used in the calculations for the samples from these run-shifts. It should be noted that the accuracy of the native congener determinations was not affected by these deviations.

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

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APPENDIX A

REPORT OF LABORATORY ANALYSIS

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ESS Laboratory Pace
 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

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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: 0606373

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
	6-21-06	1020	X	X	S	0606373-01	1	G	1		1034231/001
	6-21-06	1330	X	X		-03	1	X	1		002
	6-21-06	1402	X	X		-05	1	X	1		003
	6-21-06	1442	X	X		-07	1	X	1		004
	6-21-06	1522	X	X		-09	1	X	1		005
	6-22-06	0840	X	X		-13	1	X	1		006
		0915	X	X		-14	1	X	1		007
		0945	X	X		-16	1	X	1		008
		1015	X	X		-18	1	X	1		009
	6-22-06	1101	X	X	S	0606373-20	1	G	1		010

Project Name (30 Char. or less): _____
 Project # _____
 Address _____
 City _____ State _____ Zip _____ PO# _____
 Email Address _____

Container Type: P-Poly G-Glass S-Sterile V-VOA Matrix: (S-Soil) SD-Solid D-Sludge WW-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: _____
 Preservation Code: 1- NP; 2- HCl; 3- H₂SO₄; 4- HNO₃; 5- NaOH; 6- MeOH; 7- Asorbic Acid; 8- ZnAct; 9-
 Sampled by: _____
 Comments: _____

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
<i>B. Fleury</i>	6/21/06 9:15	<i>B. Fleury</i>	6/21/06 9:15
<i>[Signature]</i>		<i>[Signature]</i>	

APPENDIX B

REPORT OF LABORATORY ANALYSIS

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Method 8290 Blank Analysis Results

Client - ESS Laboratory

Lab Sample ID	BLANK-10052	Matrix	Solid
Filename	U60702A_03	Dilution	NA
Total Amount Extracted	10.2 g	Extracted	06/27/2006
ICAL Date	07/01/2006	Analyzed	07/02/2006 10:28
CCal Filename(s)	U60701A_23 & U60702A_14	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	2,3,7,8-TCDF-13C	2.00	68
Total TCDF	ND	----	0.200	2,3,7,8-TCDD-13C	2.00	63
				1,2,3,7,8-PeCDF-13C	2.00	68
2,3,7,8-TCDD	ND	----	0.200	2,3,4,7,8-PeCDF-13C	2.00	73
Total TCDD	ND	----	0.200	1,2,3,7,8-PeCDD-13C	2.00	79
				1,2,3,4,7,8-HxCDF-13C	2.00	84
1,2,3,7,8-PeCDF	ND	----	0.980	1,2,3,6,7,8-HxCDF-13C	2.00	74
2,3,4,7,8-PeCDF	ND	----	0.980	2,3,4,6,7,8-HxCDF-13C	2.00	77
Total PeCDF	ND	----	0.980	1,2,3,7,8,9-HxCDF-13C	2.00	77
				1,2,3,4,7,8-HxCDD-13C	2.00	80
1,2,3,7,8-PeCDD	ND	----	0.980	1,2,3,6,7,8-HxCDD-13C	2.00	63
Total PeCDD	ND	----	0.980	1,2,3,4,6,7,8-HpCDF-13C	2.00	68
				1,2,3,4,7,8,9-HpCDF-13C	2.00	61
1,2,3,4,7,8-HxCDF	ND	----	0.980	1,2,3,4,6,7,8-HpCDD-13C	2.00	73
1,2,3,6,7,8-HxCDF	ND	----	0.980	OCDD-13C	4.00	68
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	60
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: 0.00 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	ND	----	2.000			

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-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.....1034231

REPORT OF LABORATORY ANALYSIS

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Method 8290 Analysis Results

Client - ESS Laboratory

Client's Sample ID	0606373-01		
Lab Sample ID	1034231001		
Filename	F60629A_13		
Injected By	BAL		
Total Amount Extracted	20.9 g	Matrix	Solid
% Moisture	71.2	Dilution	10
Dry Weight Extracted	6.02 g	Collected	06/21/2006
ICAL Date	05/31/2006	Received	06/23/2006
CCal Filename(s)	F60629A_01 & F60629A_16	Extracted	06/27/2006
Method Blank ID	BLANK-10052	Analyzed	06/30/2006 00:11

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	76	----	27.0	A	2,3,7,8-TCDF-13C	2.00	66
Total TCDF	15000	----	3.3		2,3,7,8-TCDD-13C	2.00	70
					1,2,3,7,8-PeCDF-13C	2.00	60
2,3,7,8-TCDD	33	----	9.7	A	2,3,4,7,8-PeCDF-13C	2.00	68
Total TCDD	640	----	3.3		1,2,3,7,8-PeCDD-13C	2.00	84
					1,2,3,4,7,8-HxCDF-13C	2.00	89
1,2,3,7,8-PeCDF	230	----	20.0	AN2	1,2,3,6,7,8-HxCDF-13C	2.00	45
2,3,4,7,8-PeCDF	1600	----	32.0	A	2,3,4,6,7,8-HxCDF-13C	2.00	52
Total PeCDF	40000	----	17.0		1,2,3,7,8,9-HxCDF-13C	2.00	53
					1,2,3,4,7,8-HxCDD-13C	2.00	63
1,2,3,7,8-PeCDD	120	----	17.0		1,2,3,6,7,8-HxCDD-13C	2.00	49
Total PeCDD	1600	----	17.0		1,2,3,4,6,7,8-HpCDF-13C	2.00	50
					1,2,3,4,7,8,9-HpCDF-13C	2.00	39
1,2,3,4,7,8-HxCDF	320	----	17.0		1,2,3,4,6,7,8-HpCDD-13C	2.00	53
1,2,3,6,7,8-HxCDF	750	----	17.0		OCDD-13C	4.00	38
2,3,4,6,7,8-HxCDF	640	----	17.0				
1,2,3,7,8,9-HxCDF	420	----	17.0		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	25000	----	17.0		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	55	----	17.0		2,3,7,8-TCDD-37Cl4	0.20	75
1,2,3,6,7,8-HxCDD	150	----	17.0				
1,2,3,7,8,9-HxCDD	78	----	17.0				
Total HxCDD	2000	----	17.0				
1,2,3,4,6,7,8-HpCDF	710	----	17.0		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	170	----	17.0		Equivalence: 1100 ng/Kg		
Total HpCDF	2000	----	17.0		(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	430	----	17.0				
Total HpCDD	940	----	17.0				
OCDF	190	----	33.0				
OCDD	1600	----	33.0				

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
 NA = Not Applicable
 NC = Not Calculated
 * = See Discussion

Report No.....1034231

REPORT OF LABORATORY ANALYSIS

Method 8290 Analysis Results

Client - ESS Laboratory

Client's Sample ID	0606373-03		
Lab Sample ID	1034231002		
Filename	F60629A_09		
Injected By	BAL		
Total Amount Extracted	20.0 g	Matrix	Solid
% Moisture	28.7	Dilution	NA
Dry Weight Extracted	14.3 g	Collected	06/21/2006
ICAL Date	05/31/2006	Received	06/23/2006
CCal Filename(s)	F60629A_01 & F60629A_16	Extracted	06/27/2006
Method Blank ID	BLANK-10052	Analyzed	06/29/2006 20:52

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	4.70	----	0.54	A	2,3,7,8-TCDF-13C	2.00	80
Total TCDF	170.00	----	0.14		2,3,7,8-TCDD-13C	2.00	87
					1,2,3,7,8-PeCDF-13C	2.00	67
2,3,7,8-TCDD	0.62	----	0.53	JA	2,3,4,7,8-PeCDF-13C	2.00	78
Total TCDD	21.00	----	0.14		1,2,3,7,8-PeCDD-13C	2.00	103
					1,2,3,4,7,8-HxCDF-13C	2.00	84
1,2,3,7,8-PeCDF	-----	21	1.40	EA	1,2,3,6,7,8-HxCDF-13C	2.00	56
2,3,4,7,8-PeCDF	76.00	----	0.70		2,3,4,6,7,8-HxCDF-13C	2.00	62
Total PeCDF	590.00	----	0.70		1,2,3,7,8,9-HxCDF-13C	2.00	62
					1,2,3,4,7,8-HxCDD-13C	2.00	72
1,2,3,7,8-PeCDD	5.20	----	0.70		1,2,3,6,7,8-HxCDD-13C	2.00	58
Total PeCDD	55.00	----	0.70		1,2,3,4,6,7,8-HpCDF-13C	2.00	54
					1,2,3,4,7,8,9-HpCDF-13C	2.00	48
1,2,3,4,7,8-HxCDF	18.00	----	0.70		1,2,3,4,6,7,8-HpCDD-13C	2.00	70
1,2,3,6,7,8-HxCDF	14.00	----	0.70		OCDD-13C	4.00	35 P
2,3,4,6,7,8-HxCDF	13.00	----	0.70				
1,2,3,7,8,9-HxCDF	9.60	----	0.70		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	380.00	----	0.70		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	3.40	----	0.70	J	2,3,7,8-TCDD-37Cl4	0.20	91
1,2,3,6,7,8-HxCDD	12.00	----	0.70				
1,2,3,7,8,9-HxCDD	7.20	----	0.70				
Total HxCDD	130.00	----	0.70				
1,2,3,4,6,7,8-HpCDF	36.00	----	0.70		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	6.10	----	0.70		Equivalence: 51 ng/Kg		
Total HpCDF	94.00	----	0.70		(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	66.00	----	0.70				
Total HpCDD	130.00	----	0.70				
OCDF	37.00	----	1.40				
OCDD	540.00	----	1.40				

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.....1034231

REPORT OF LABORATORY ANALYSIS

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Method 8290 Analysis Results

Client - ESS Laboratory

Client's Sample ID	0606373-05		
Lab Sample ID	1034231003		
Filename	F60629A_14		
Injected By	BAL		
Total Amount Extracted	21.0 g	Matrix	Solid
% Moisture	73.5	Dilution	10
Dry Weight Extracted	5.58 g	Collected	06/21/2006
ICAL Date	05/31/2006	Received	06/23/2006
CCal Filename(s)	F60629A_01 & F60629A_16	Extracted	06/27/2006
Method Blank ID	BLANK-10052	Analyzed	06/30/2006 01:01

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	84	-----	16.0	A	2,3,7,8-TCDF-13C	2.00	82
Total TCDF	8800	-----	3.6		2,3,7,8-TCDD-13C	2.00	87
					1,2,3,7,8-PeCDF-13C	2.00	69
2,3,7,8-TCDD	22	-----	5.3	A	2,3,4,7,8-PeCDF-13C	2.00	84
Total TCDD	420	-----	3.6		1,2,3,7,8-PeCDD-13C	2.00	104
					1,2,3,4,7,8-HxCDF-13C	2.00	108 I
1,2,3,7,8-PeCDF	-----	740	18.0	E	1,2,3,6,7,8-HxCDF-13C	2.00	60
2,3,4,7,8-PeCDF	3100	-----	18.0		2,3,4,6,7,8-HxCDF-13C	2.00	70
Total PeCDF	24000	-----	18.0		1,2,3,7,8,9-HxCDF-13C	2.00	69
					1,2,3,4,7,8-HxCDD-13C	2.00	80
1,2,3,7,8-PeCDD	76	-----	18.0		1,2,3,6,7,8-HxCDD-13C	2.00	62
Total PeCDD	950	-----	18.0		1,2,3,4,6,7,8-HpCDF-13C	2.00	57
					1,2,3,4,7,8,9-HpCDF-13C	2.00	46
1,2,3,4,7,8-HxCDF	300	-----	18.0		1,2,3,4,6,7,8-HpCDD-13C	2.00	66
1,2,3,6,7,8-HxCDF	520	-----	18.0		OCDD-13C	4.00	39 P
2,3,4,6,7,8-HxCDF	420	-----	18.0				
1,2,3,7,8,9-HxCDF	200	-----	18.0		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	10000	-----	18.0		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	39	-----	18.0		2,3,7,8-TCDD-37Cl4	0.20	92
1,2,3,6,7,8-HxCDD	110	-----	18.0				
1,2,3,7,8,9-HxCDD	68	-----	18.0				
Total HxCDD	1400	-----	18.0				
1,2,3,4,6,7,8-HpCDF	640	-----	18.0		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	99	-----	18.0		Equivalence: 1800 ng/Kg		
Total HpCDF	1600	-----	18.0		(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	490	-----	18.0				
Total HpCDD	1000	-----	18.0				
OCDF	210	-----	36.0				
OCDD	2900	-----	36.0				

Results reported on a dry weight basis
 Conc = Concentration (Totals include 2,3,7,8-substituted isomers)
 EMPC = Estimated Maximum Possible Concentration
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 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

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Report No.....1034231

REPORT OF LABORATORY ANALYSIS

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Method 8290 Analysis Results

Client - ESS Laboratory

Client's Sample ID	0606373-07			
Lab Sample ID	1034231004			
Filename	F60629A_11			
Injected By	BAL			
Total Amount Extracted	20.9 g	Matrix	Solid	
% Moisture	74.0	Dilution	NA	
Dry Weight Extracted	5.42 g	Collected	06/21/2006	
ICAL Date	05/31/2006	Received	06/23/2006	
CCal Filename(s)	F60629A_01 & F60629A_16	Extracted	06/27/2006	
Method Blank ID	BLANK-10052	Analyzed	06/29/2006 22:32	

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	32	----	11.0	A	2,3,7,8-TCDF-13C	2.00	82
Total TCDF	3700	----	0.37		2,3,7,8-TCDD-13C	2.00	91
					1,2,3,7,8-PeCDF-13C	2.00	68
2,3,7,8-TCDD	12	----	2.0	A	2,3,4,7,8-PeCDF-13C	2.00	80
Total TCDD	270	----	0.37		1,2,3,7,8-PeCDD-13C	2.00	101
					1,2,3,4,7,8-HxCDF-13C	2.00	123
1,2,3,7,8-PeCDF	----	140	4.4	EA	1,2,3,6,7,8-HxCDF-13C	2.00	83
2,3,4,7,8-PeCDF	160	----	4.2	A	2,3,4,6,7,8-HxCDF-13C	2.00	84
Total PeCDF	14000	----	1.8		1,2,3,7,8,9-HxCDF-13C	2.00	90
					1,2,3,4,7,8-HxCDD-13C	2.00	96
1,2,3,7,8-PeCDD	41	----	1.8		1,2,3,6,7,8-HxCDD-13C	2.00	75
Total PeCDD	530	----	1.8		1,2,3,4,6,7,8-HpCDF-13C	2.00	56
					1,2,3,4,7,8,9-HpCDF-13C	2.00	43
1,2,3,4,7,8-HxCDF	210	----	2.9	A	1,2,3,4,6,7,8-HpCDD-13C	2.00	62
1,2,3,6,7,8-HxCDF	290	----	6.1	A	OCDD-13C	4.00	34 P
2,3,4,6,7,8-HxCDF	230	----	3.6	A			
1,2,3,7,8,9-HxCDF	140	----	3.1	A	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	8300	----	1.8		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	18	----	2.1	A	2,3,7,8-TCDD-37Cl4	0.20	115
1,2,3,6,7,8-HxCDD	70	----	2.4	A			
1,2,3,7,8,9-HxCDD	31	----	1.8				
Total HxCDD	900	----	1.8				
1,2,3,4,6,7,8-HpCDF	350	----	1.8		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	69	----	3.4	A	Equivalence: 220 ng/Kg		
Total HpCDF	870	----	1.8		(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	180	----	1.8				
Total HpCDD	400	----	1.8				
OCDF	170	----	3.7				
OCDD	840	----	3.7				

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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Report No.....1034231

REPORT OF LABORATORY ANALYSIS

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Method 8290 Analysis Results

Client - ESS Laboratory

Client's Sample ID	0606373-09		
Lab Sample ID	1034231005		
Filename	F60629A_12		
Injected By	BAL		
Total Amount Extracted	18.3 g	Matrix	Solid
% Moisture	25.0	Dilution	NA
Dry Weight Extracted	13.7 g	Collected	06/21/2006
ICAL Date	05/31/2006	Received	06/23/2006
CCal Filename(s)	F60629A_01 & F60629A_16	Extracted	06/27/2006
Method Blank ID	BLANK-10052	Analyzed	06/29/2006 23:22

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	6.00	----	0.61	A	2,3,7,8-TCDF-13C	2.00	86
Total TCDF	160.00	----	0.15		2,3,7,8-TCDD-13C	2.00	88
					1,2,3,7,8-PeCDF-13C	2.00	69
2,3,7,8-TCDD	0.52	----	0.38	JA	2,3,4,7,8-PeCDF-13C	2.00	82
Total TCDD	12.00	----	0.15		1,2,3,7,8-PeCDD-13C	2.00	106
					1,2,3,4,7,8-HxCDF-13C	2.00	84
1,2,3,7,8-PeCDF	----	120	1.00	EA	1,2,3,6,7,8-HxCDF-13C	2.00	57
2,3,4,7,8-PeCDF	28.00	----	0.73		2,3,4,6,7,8-HxCDF-13C	2.00	68
Total PeCDF	500.00	----	0.73		1,2,3,7,8,9-HxCDF-13C	2.00	69
					1,2,3,4,7,8-HxCDD-13C	2.00	76
1,2,3,7,8-PeCDD	2.20	----	0.73	J	1,2,3,6,7,8-HxCDD-13C	2.00	61
Total PeCDD	25.00	----	0.73		1,2,3,4,6,7,8-HpCDF-13C	2.00	56
					1,2,3,4,7,8,9-HpCDF-13C	2.00	42
1,2,3,4,7,8-HxCDF	11.00	----	0.73		1,2,3,4,6,7,8-HpCDD-13C	2.00	61
1,2,3,6,7,8-HxCDF	12.00	----	0.73		OCDD-13C	4.00	37 P
2,3,4,6,7,8-HxCDF	12.00	----	0.73				
1,2,3,7,8,9-HxCDF	5.30	----	0.73		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	320.00	----	0.73		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	1.80	----	0.73	J	2,3,7,8-TCDD-37Cl4	0.20	104
1,2,3,6,7,8-HxCDD	4.80	----	0.73				
1,2,3,7,8,9-HxCDD	2.80	----	0.73	J			
Total HxCDD	51.00	----	0.73				
1,2,3,4,6,7,8-HpCDF	40.00	----	0.73		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	5.10	----	0.73		Equivalence: 23 ng/Kg		
Total HpCDF	120.00	----	0.73		(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	74.00	----	0.73				
Total HpCDD	170.00	----	0.73				
OCDF	80.00	----	1.50				
OCDD	810.00	----	1.50				

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
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Report No.....1034231

REPORT OF LABORATORY ANALYSIS

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Method 8290 Analysis Results

Client - ESS Laboratory

Client's Sample ID	0606373-12		
Lab Sample ID	1034231006		
Filename	U60701A_21		
Injected By	BAL		
Total Amount Extracted	18.0 g	Matrix	Solid
% Moisture	53.9	Dilution	NA
Dry Weight Extracted	8.30 g	Collected	06/22/2006
ICAL Date	07/01/2006	Received	06/23/2006
CCal Filename(s)	U60701A_10 & U60701A_23	Extracted	06/28/2006
Method Blank ID	BLANK-10057	Analyzed	07/02/2006 06:23

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	9.3	----	8.0	A	2,3,7,8-TCDF-13C	2.00	98
Total TCDF	1400.0	----	0.24		2,3,7,8-TCDD-13C	2.00	88
					1,2,3,7,8-PeCDF-13C	2.00	69
2,3,7,8-TCDD	7.3	----	4.5	A	2,3,4,7,8-PeCDF-13C	2.00	73
Total TCDD	160.0	----	0.24		1,2,3,7,8-PeCDD-13C	2.00	76
					1,2,3,4,7,8-HxCDF-13C	2.00	142 P
1,2,3,7,8-PeCDF	----	170	8.4	EA	1,2,3,6,7,8-HxCDF-13C	2.00	116
2,3,4,7,8-PeCDF	140.0	----	7.3	A	2,3,4,6,7,8-HxCDF-13C	2.00	105
Total PeCDF	6900.0	----	1.2		1,2,3,7,8,9-HxCDF-13C	2.00	105
					1,2,3,4,7,8-HxCDD-13C	2.00	105
1,2,3,7,8-PeCDD	30.0	----	6.8	A	1,2,3,6,7,8-HxCDD-13C	2.00	97
Total PeCDD	390.0	----	1.2		1,2,3,4,6,7,8-HpCDF-13C	2.00	73
					1,2,3,4,7,8,9-HpCDF-13C	2.00	65
1,2,3,4,7,8-HxCDF	140.0	----	3.0	A	1,2,3,4,6,7,8-HpCDD-13C	2.00	77
1,2,3,6,7,8-HxCDF	140.0	----	4.1	A	OCDD-13C	4.00	57
2,3,4,6,7,8-HxCDF	120.0	----	4.7	A			
1,2,3,7,8,9-HxCDF	52.0	----	4.2	A	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	4600.0	----	1.2		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	15.0	----	5.6	A	2,3,7,8-TCDD-37Cl4	0.20	96
1,2,3,6,7,8-HxCDD	35.0	----	4.2	A			
1,2,3,7,8,9-HxCDD	16.0	----	4.0	A			
Total HxCDD	470.0	----	1.2				
1,2,3,4,6,7,8-HpCDF	200.0	----	3.4	A	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	41.0	----	5.0	A	Equivalence: 150 ng/Kg		
Total HpCDF	500.0	----	1.2		(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	90.0	----	2.9	A			
Total HpCDD	190.0	----	1.2				
OCDF	82.0	----	6.8	A			
OCDD	240.0	----	10.0	A			

Results reported on a dry weight basis

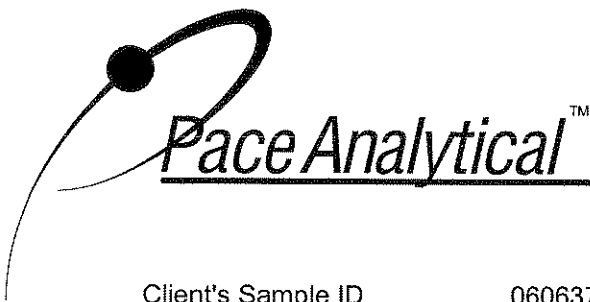
Conc = Concentration (Totals include 2,3,7,8-substituted isomers)
 EMPC = Estimated Maximum Possible Concentration
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 J = Concentration detected is below the calibration range
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 P = Recovery outside of target range
 Nn = Value obtained from additional analysis

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REPORT OF LABORATORY ANALYSIS

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Pace AnalyticalTM

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414

Tel: 612-607-1700
Fax: 612-607-6444

Method 8290 Analysis Results

Client - ESS Laboratory

Client's Sample ID	0606373-14		
Lab Sample ID	1034231007		
Filename	P60630A_09		
Injected By	BAL		
Total Amount Extracted	20.3 g	Matrix	Solid
% Moisture	27.7	Dilution	NA
Dry Weight Extracted	14.7 g	Collected	06/22/2006
ICAL Date	05/20/2006	Received	06/23/2006
CCal Filename(s)	P60630A_02 & P60630A_17	Extracted	06/28/2006
Method Blank ID	BLANK-10057	Analyzed	07/01/2006 01:23

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	-----	4.9	0.450	EA	2,3,7,8-TCDF-13C	2.00	89
Total TCDF	600.0	-----	0.140		2,3,7,8-TCDD-13C	2.00	89
					1,2,3,7,8-PeCDF-13C	2.00	67
2,3,7,8-TCDD	1.1	-----	0.170	A	2,3,4,7,8-PeCDF-13C	2.00	76
Total TCDD	23.0	-----	0.140		1,2,3,7,8-PeCDD-13C	2.00	98
					1,2,3,4,7,8-HxCDF-13C	2.00	97
1,2,3,7,8-PeCDF	8.1	-----	0.920	A	1,2,3,6,7,8-HxCDF-13C	2.00	81
2,3,4,7,8-PeCDF	190.0	-----	0.870	A	2,3,4,6,7,8-HxCDF-13C	2.00	80
Total PeCDF	2100.0	-----	0.680		1,2,3,7,8,9-HxCDF-13C	2.00	82
					1,2,3,4,7,8-HxCDD-13C	2.00	94
1,2,3,7,8-PeCDD	3.3	-----	0.680	J	1,2,3,6,7,8-HxCDD-13C	2.00	76
Total PeCDD	41.0	-----	0.680		1,2,3,4,6,7,8-HpCDF-13C	2.00	79
					1,2,3,4,7,8,9-HpCDF-13C	2.00	75
1,2,3,4,7,8-HxCDF	17.0	-----	0.680		1,2,3,4,6,7,8-HpCDD-13C	2.00	106
1,2,3,6,7,8-HxCDF	30.0	-----	0.680		OCDD-13C	4.00	80
2,3,4,6,7,8-HxCDF	75.0	-----	0.680				
1,2,3,7,8,9-HxCDF	13.0	-----	0.680		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	900.0	-----	0.680		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	2.2	-----	0.680	J	2,3,7,8-TCDD-37Cl4	0.20	95
1,2,3,6,7,8-HxCDD	5.7	-----	0.680				
1,2,3,7,8,9-HxCDD	3.3	-----	0.680	J			
Total HxCDD	70.0	-----	0.680				
1,2,3,4,6,7,8-HpCDF	35.0	-----	0.680		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	6.5	-----	0.680		Equivalence: 110 ng/Kg		
Total HpCDF	87.0	-----	0.680		(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	21.0	-----	0.680				
Total HpCDD	44.0	-----	0.680				
OCDF	8.0	-----	1.400				
OCDD	70.0	-----	1.400				

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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Method 8290 Analysis Results

Client - ESS Laboratory

Client's Sample ID	0606373-16		
Lab Sample ID	1034231008		
Filename	F60708A_05		
Injected By	BAL		
Total Amount Extracted	16.1 g	Matrix	Solid
% Moisture	17.0	Dilution	NA
Dry Weight Extracted	13.3 g	Collected	06/22/2006
ICAL Date	05/31/2006	Received	06/23/2006
CCal Filename(s)	F60708A_01 & F60708A_17	Extracted	06/28/2006
Method Blank ID	BLANK-10057	Analyzed	07/09/2006 00:09

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	ND	----	0.150	2,3,7,8-TCDF-13C	2.00	92
Total TCDF	ND	----	0.150	2,3,7,8-TCDD-13C	2.00	88
				1,2,3,7,8-PeCDF-13C	2.00	74
2,3,7,8-TCDD	ND	----	0.150	2,3,4,7,8-PeCDF-13C	2.00	85
Total TCDD	ND	----	0.150	1,2,3,7,8-PeCDD-13C	2.00	103
				1,2,3,4,7,8-HxCDF-13C	2.00	89
1,2,3,7,8-PeCDF	ND	----	0.750	1,2,3,6,7,8-HxCDF-13C	2.00	82
2,3,4,7,8-PeCDF	ND	----	0.750	2,3,4,6,7,8-HxCDF-13C	2.00	87
Total PeCDF	ND	----	0.750	1,2,3,7,8,9-HxCDF-13C	2.00	89
				1,2,3,4,7,8-HxCDD-13C	2.00	87
1,2,3,7,8-PeCDD	ND	----	0.750	1,2,3,6,7,8-HxCDD-13C	2.00	82
Total PeCDD	ND	----	0.750	1,2,3,4,6,7,8-HpCDF-13C	2.00	80
				1,2,3,4,7,8,9-HpCDF-13C	2.00	66
1,2,3,4,7,8-HxCDF	ND	----	0.750	1,2,3,4,6,7,8-HpCDD-13C	2.00	82
1,2,3,6,7,8-HxCDF	ND	----	0.750	OCDD-13C	4.00	64
2,3,4,6,7,8-HxCDF	ND	----	0.750			
1,2,3,7,8,9-HxCDF	ND	----	0.750	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	ND	----	0.750	1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.750	2,3,7,8-TCDD-37Cl4	0.20	95
1,2,3,6,7,8-HxCDD	ND	----	0.750			
1,2,3,7,8,9-HxCDD	ND	----	0.750			
Total HxCDD	ND	----	0.750			
1,2,3,4,6,7,8-HpCDF	ND	----	0.750	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.750	Equivalence: 0.0044 ng/Kg		
Total HpCDF	ND	----	0.750	(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	ND	----	0.750			
Total HpCDD	ND	----	0.750			
OCDF	ND	----	1.500			
OCDD	4.4	----	1.500	BJ		

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.....1034231

REPORT OF LABORATORY ANALYSIS

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Method 8290 Analysis Results

Client - ESS Laboratory

Client's Sample ID	0606373-18		
Lab Sample ID	1034231009		
Filename	P60630A_11		
Injected By	BAL		
Total Amount Extracted	20.2 g	Matrix	Solid
% Moisture	82.7	Dilution	NA
Dry Weight Extracted	3.50 g	Collected	06/22/2006
ICAL Date	05/20/2006	Received	06/23/2006
CCal Filename(s)	P60630A_02 & P60630A_17	Extracted	06/28/2006
Method Blank ID	BLANK-10057	Analyzed	07/01/2006 02:59

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	-----	52	1.80	EA	2,3,7,8-TCDF-13C	2.00	82
Total TCDF	1600.0	-----	0.57		2,3,7,8-TCDD-13C	2.00	77
					1,2,3,7,8-PeCDF-13C	2.00	63
2,3,7,8-TCDD	4.2	-----	0.74	A	2,3,4,7,8-PeCDF-13C	2.00	68
Total TCDD	89.0	-----	0.57		1,2,3,7,8-PeCDD-13C	2.00	86
					1,2,3,4,7,8-HxCDF-13C	2.00	92
1,2,3,7,8-PeCDF	32.0	-----	4.50	A	1,2,3,6,7,8-HxCDF-13C	2.00	70
2,3,4,7,8-PeCDF	430.0	-----	3.20	A	2,3,4,6,7,8-HxCDF-13C	2.00	72
Total PeCDF	5500.0	-----	2.90		1,2,3,7,8,9-HxCDF-13C	2.00	74
					1,2,3,4,7,8-HxCDD-13C	2.00	91
1,2,3,7,8-PeCDD	11.0	-----	2.90	J	1,2,3,6,7,8-HxCDD-13C	2.00	70
Total PeCDD	140.0	-----	2.90		1,2,3,4,6,7,8-HpCDF-13C	2.00	80
					1,2,3,4,7,8,9-HpCDF-13C	2.00	74
1,2,3,4,7,8-HxCDF	36.0	-----	5.00	A	1,2,3,4,6,7,8-HpCDD-13C	2.00	109
1,2,3,6,7,8-HxCDF	86.0	-----	3.00	A	OCDD-13C	4.00	76
2,3,4,6,7,8-HxCDF	80.0	-----	2.90				
1,2,3,7,8,9-HxCDF	30.0	-----	3.20	A	1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	2300.0	-----	2.90		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	9.5	-----	2.90	J	2,3,7,8-TCDD-37Cl4	0.20	83
1,2,3,6,7,8-HxCDD	25.0	-----	2.90				
1,2,3,7,8,9-HxCDD	17.0	-----	2.90				
Total HxCDD	300.0	-----	2.90				
1,2,3,4,6,7,8-HpCDF	140.0	-----	2.90		Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	18.0	-----	2.90		Equivalence: 260 ng/Kg		
Total HpCDF	330.0	-----	2.90		(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	280.0	-----	2.90				
Total HpCDD	630.0	-----	2.90				
OCDF	87.0	-----	5.70				
OCDD	1800.0	-----	5.70				

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.....1034231

REPORT OF LABORATORY ANALYSIS

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Method 8290 Analysis Results

Client - ESS Laboratory

Client's Sample ID	0606373-20		
Lab Sample ID	1034231010		
Filename	P60630A_12		
Injected By	BAL		
Total Amount Extracted	16.0 g	Matrix	Solid
% Moisture	12.3	Dilution	NA
Dry Weight Extracted	14.0 g	Collected	06/22/2006
ICAL Date	05/20/2006	Received	06/23/2006
CCal Filename(s)	P60630A_02 & P60630A_17	Extracted	06/28/2006
Method Blank ID	BLANK-10057	Analyzed	07/01/2006 03:47

Native Isomers	Conc ng/Kg	EMPC ng/Kg	LRL ng/Kg		Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.24	----	0.16	JA	2,3,7,8-TCDF-13C	2.00	84
Total TCDF	3.70	----	0.14		2,3,7,8-TCDD-13C	2.00	83
					1,2,3,7,8-PeCDF-13C	2.00	70
2,3,7,8-TCDD	ND	----	0.14		2,3,4,7,8-PeCDF-13C	2.00	76
Total TCDD	0.31	----	0.14	J	1,2,3,7,8-PeCDD-13C	2.00	98
					1,2,3,4,7,8-HxCDF-13C	2.00	97
1,2,3,7,8-PeCDF	ND	----	0.71		1,2,3,6,7,8-HxCDF-13C	2.00	78
2,3,4,7,8-PeCDF	0.73	----	0.71	J	2,3,4,6,7,8-HxCDF-13C	2.00	79
Total PeCDF	5.60	----	0.71		1,2,3,7,8,9-HxCDF-13C	2.00	82
					1,2,3,4,7,8-HxCDD-13C	2.00	98
1,2,3,7,8-PeCDD	ND	----	0.71		1,2,3,6,7,8-HxCDD-13C	2.00	73
Total PeCDD	ND	----	0.71		1,2,3,4,6,7,8-HpCDF-13C	2.00	78
					1,2,3,4,7,8,9-HpCDF-13C	2.00	76
1,2,3,4,7,8-HxCDF	ND	----	0.71		1,2,3,4,6,7,8-HpCDD-13C	2.00	110
1,2,3,6,7,8-HxCDF	ND	----	0.71		OCDD-13C	4.00	82
2,3,4,6,7,8-HxCDF	ND	----	0.71				
1,2,3,7,8,9-HxCDF	ND	----	0.71		1,2,3,4-TCDD-13C	2.00	NA
Total HxCDF	3.90	----	0.71		1,2,3,7,8,9-HxCDD-13C	2.00	NA
1,2,3,4,7,8-HxCDD	ND	----	0.71		2,3,7,8-TCDD-37Cl4	0.20	85
1,2,3,6,7,8-HxCDD	ND	----	0.71				
1,2,3,7,8,9-HxCDD	ND	----	0.71				
Total HxCDD	1.10	----	0.71	J			
1,2,3,4,6,7,8-HpCDF	2.00	----	0.71	J	Total 2,3,7,8-TCDD		
1,2,3,4,7,8,9-HpCDF	ND	----	0.71		Equivalence: 0.55 ng/Kg		
Total HpCDF	2.00	----	0.71	J	(Using ITE Factors)		
1,2,3,4,6,7,8-HpCDD	7.40	----	0.71				
Total HpCDD	13.00	----	0.71				
OCDF	3.10	----	1.40	J			
OCDD	64.00	----	1.40				

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.....1034231

REPORT OF LABORATORY ANALYSIS

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Method 8290 Spike Sample Results

Client - ESS Laboratory

Client's Sample ID	0606373-20	Matrix	Solid
Lab Sample ID	1034231010-MS	Dilution	NA
Filename	P60630A_14	Extracted	06/28/2006
Total Amount Extracted	16.2 g	Analyzed	07/01/2006 05:23
ICAL Date	05/20/2006	Injected By	BAL
CCal Filename(s)	P60630A_02 & P60630A_17		
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	0.18	92	2,3,7,8-TCDF-13C	2.00	73
				2,3,7,8-TCDD-13C	2.00	75
				1,2,3,7,8-PeCDF-13C	2.00	69
2,3,7,8-TCDD	0.20	0.19	97	2,3,4,7,8-PeCDF-13C	2.00	75
				1,2,3,7,8-PeCDD-13C	2.00	98
				1,2,3,4,7,8-HxCDF-13C	2.00	81
1,2,3,7,8-PeCDF	1.00	1.11	111	1,2,3,6,7,8-HxCDF-13C	2.00	65
2,3,4,7,8-PeCDF	1.00	1.06	106	2,3,4,6,7,8-HxCDF-13C	2.00	66
				1,2,3,7,8,9-HxCDF-13C	2.00	70
				1,2,3,4,7,8-HxCDD-13C	2.00	78
1,2,3,7,8-PeCDD	1.00	0.92	92	1,2,3,6,7,8-HxCDD-13C	2.00	65
				1,2,3,4,6,7,8-HpCDF-13C	2.00	65
				1,2,3,4,7,8,9-HpCDF-13C	2.00	59
1,2,3,4,7,8-HxCDF	1.00	1.00	100	1,2,3,4,6,7,8-HpCDD-13C	2.00	87
1,2,3,6,7,8-HxCDF	1.00	1.09	109	OCDD-13C	4.00	53
2,3,4,6,7,8-HxCDF	1.00	1.08	108			
1,2,3,7,8,9-HxCDF	1.00	1.07	107	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	1.06	106	2,3,7,8-TCDD-37Cl4	0.20	79
1,2,3,6,7,8-HxCDD	1.00	1.07	107			
1,2,3,7,8,9-HxCDD	1.00	1.14	114			
1,2,3,4,6,7,8-HpCDF	1.00	1.13	113			
1,2,3,4,7,8,9-HpCDF	1.00	1.12	112			
1,2,3,4,6,7,8-HpCDD	1.00	0.98	98			
OCDF	2.00	1.70	85			
OCDD	2.00	2.18	109			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
P = Recovery outside of target range of 40-135%
X = Background subtracted value
E = PCDE Interference
Nn = Value obtained from additional analysis
NA = Not Applicable
* = See Discussion

Report No.....1034231

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Method 8290 Spike Sample Results

Client - ESS Laboratory

Client's Sample ID	0606373-20	Matrix	Solid
Lab Sample ID	1034231010-MSD	Dilution	NA
Filename	P60630A_15	Extracted	06/28/2006
Total Amount Extracted	16.0 g	Analyzed	07/01/2006 06:11
ICAL Date	05/20/2006	Injected By	BAL
CCal Filename(s)	P60630A_02 & P60630A_17		
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	87	2,3,7,8-TCDF-13C	2.00	75
				2,3,7,8-TCDD-13C	2.00	78
				1,2,3,7,8-PeCDF-13C	2.00	64
2,3,7,8-TCDD	0.20	0.19	96	2,3,4,7,8-PeCDF-13C	2.00	76
				1,2,3,7,8-PeCDD-13C	2.00	101
				1,2,3,4,7,8-HxCDF-13C	2.00	81
1,2,3,7,8-PeCDF	1.00	1.04	104	1,2,3,6,7,8-HxCDF-13C	2.00	69
2,3,4,7,8-PeCDF	1.00	1.00	100	2,3,4,6,7,8-HxCDF-13C	2.00	69
				1,2,3,7,8,9-HxCDF-13C	2.00	74
				1,2,3,4,7,8-HxCDD-13C	2.00	86
1,2,3,7,8-PeCDD	1.00	0.86	86	1,2,3,6,7,8-HxCDD-13C	2.00	73
				1,2,3,4,6,7,8-HpCDF-13C	2.00	74
				1,2,3,4,7,8,9-HpCDF-13C	2.00	68
1,2,3,4,7,8-HxCDF	1.00	0.95	95	1,2,3,4,6,7,8-HpCDD-13C	2.00	92
1,2,3,6,7,8-HxCDF	1.00	1.05	105	OCDD-13C	4.00	68
2,3,4,6,7,8-HxCDF	1.00	1.02	102			
1,2,3,7,8,9-HxCDF	1.00	1.03	103	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	1.11	111	2,3,7,8-TCDD-37Cl4	0.20	81
1,2,3,6,7,8-HxCDD	1.00	0.98	98			
1,2,3,7,8,9-HxCDD	1.00	1.02	102			
1,2,3,4,6,7,8-HpCDF	1.00	1.08	108			
1,2,3,4,7,8,9-HpCDF	1.00	1.13	113			
1,2,3,4,6,7,8-HpCDD	1.00	0.94	94			
OCDF	2.00	1.79	90			
OCDD	2.00	2.05	102			

Qs = Quantity Spiked
Qm = Quantity Measured
Rec. = Recovery (Expressed as Percent)
P = Recovery outside of target range of 40-135%
X = Background subtracted value
E = PCDE Interference
Nn = Value obtained from additional analysis
NA = Not Applicable
* = See Discussion

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Pace Analytical Services, Inc.
 1700 Elm Street - Suite 200
 Minneapolis, MN 55414

Tel: 612-607-1700
 Fax: 612-607-6444

Method 8290 Spike Sample Results

Client - ESS Laboratory

Client Sample ID 0606373-20
 Lab Sample ID 1034231010
 MS ID 1034231010-MS
 MSD ID 1034231010-MSD

Sample Filename P60630A_12
 MS Filename P60630A_14
 MSD Filename P60630A_15

Dry Weights
 Sample Amount 14.0 g
 MS Amount 14.2 g
 MSD Amount 14.0 g

Analyte	Sample Conc. ng/Kg	MS/MSD Qs (ng)	MS Qm (ng)	MSD Qm (ng)	RPD	Background Subtracted		
						MS % Rec.	MSD % Rec.	
2,3,7,8-TCDF	0.244	0.20	0.18	0.17	4.9	90	86	5.0
2,3,7,8-TCDD	0.000	0.20	0.19	0.19	1.2	97	96	1.2
1,2,3,7,8-PeCDF	0.000	1.00	1.11	1.04	6.9	111	104	6.9
2,3,4,7,8-PeCDF	0.729	1.00	1.06	1.00	6.1	105	99	6.2
1,2,3,7,8-PeCDD	0.000	1.00	0.92	0.86	6.8	92	86	6.8
1,2,3,4,7,8-HxCDF	0.000	1.00	1.09	0.95	4.8	100	95	4.8
1,2,3,6,7,8-HxCDF	0.000	1.00	1.08	1.05	4.5	109	105	4.5
2,3,4,6,7,8-HxCDF	0.000	1.00	1.07	1.02	5.4	108	102	5.4
1,2,3,7,8,9-HxCDF	0.000	1.00	1.07	1.03	4.3	107	103	4.3
1,2,3,4,7,8-HxCDD	0.000	1.00	1.06	1.11	4.3	106	111	4.3
1,2,3,6,7,8-HxCDD	0.000	1.00	1.07	0.98	9.7	107	98	9.7
1,2,3,7,8,9-HxCDD	0.000	1.00	1.14	1.02	11.0	114	102	11.0
1,2,3,4,6,7,8-HpCDF	1.973	1.00	1.13	1.08	4.5	110	105	4.5
1,2,3,4,7,8,9-HpCDF	0.000	1.00	1.12	1.13	1.0	112	113	1.0
1,2,3,4,6,7,8-HpCDD	7.447	1.00	0.98	0.94	3.6	87	84	3.9
OCDF	3.148	2.00	1.70	1.79	5.2	83	87	5.4
OCDD	64.372	2.00	2.18	2.05	6.2	63	57	9.8

Definitions

MS = Matrix Spike
 MSD = Matrix Spike Duplicate
 Qm = Quantity Measured
 Qs = Quantity Spiked
 % Rec. = Percent Recovery
 RPD = Relative Percent Difference
 CDD = Chlorinated dibenzo-p-dioxin
 CDF = Chlorinated dibenzo-p-furan
 T = Tetra
 Pe = Penta
 Hx = Hexa
 Hp = Hepta
 O = Octa



Method 8290 Laboratory Control Spike Results

Client - ESS Laboratory

Lab Sample ID	LCS-10053	Matrix	Solid
Filename	U60629A_05	Dilution	NA
Total Amount Extracted	10.1 g	Extracted	06/27/2006
ICAL Date	02/13/2006	Analyzed	06/29/2006 12:56
CCal Filename(s)	U60629A_04 & U60629A_20	Injected By	SMT
Method Blank ID	BLANK-10052		

Native Isomers	Qs (ng)	Qm (ng)	% Rec.	Internal Standards	ng's Added	Percent Recovery
2,3,7,8-TCDF	0.20	0.21	105	2,3,7,8-TCDF-13C	2.00	61
				2,3,7,8-TCDD-13C	2.00	78
				1,2,3,7,8-PeCDF-13C	2.00	59
2,3,7,8-TCDD	0.20	0.17	85	2,3,4,7,8-PeCDF-13C	2.00	64
				1,2,3,7,8-PeCDD-13C	2.00	71
				1,2,3,4,7,8-HxCDF-13C	2.00	85
1,2,3,7,8-PeCDF	1.00	1.08	108	1,2,3,6,7,8-HxCDF-13C	2.00	70
2,3,4,7,8-PeCDF	1.00	1.02	102	2,3,4,6,7,8-HxCDF-13C	2.00	74
				1,2,3,7,8,9-HxCDF-13C	2.00	80
				1,2,3,4,7,8-HxCDD-13C	2.00	74
1,2,3,7,8-PeCDD	1.00	0.88	88	1,2,3,6,7,8-HxCDD-13C	2.00	72
				1,2,3,4,6,7,8-HpCDF-13C	2.00	71
				1,2,3,4,7,8,9-HpCDF-13C	2.00	64
1,2,3,4,7,8-HxCDF	1.00	0.86	86	1,2,3,4,6,7,8-HpCDD-13C	2.00	81
1,2,3,6,7,8-HxCDF	1.00	0.95	95	OCDD-13C	4.00	64
2,3,4,6,7,8-HxCDF	1.00	0.90	90			
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	1.07	107	2,3,7,8-TCDD-37Cl4	0.20	78
1,2,3,6,7,8-HxCDD	1.00	1.03	103			
1,2,3,7,8,9-HxCDD	1.00	1.06	106			
1,2,3,4,6,7,8-HpCDF	1.00	1.00	100			
1,2,3,4,7,8,9-HpCDF	1.00	0.99	99			
1,2,3,4,6,7,8-HpCDD	1.00	0.86	86			
OCDF	2.00	1.91	96			
OCDD	2.00	1.92	96			

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

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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)
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