

Gilsenan, Michael

From: Theodorellys, Penny
Sent: Wednesday, November 13, 2002 10:43 AM
To: 'nace.charles@epa.gov'; Robert Fitzpatrick (E-mail)
Cc: Radhakrishnan, Krish; Gilsenan, Michael
Subject: FW: R02100400

-----Original Message-----

From: Benjamin M. Sallemi [mailto:sallemi15@atc-enviro.com]
 Sent: Tuesday, November 12, 2002 8:59 AM
 To: Penny Theodorellys
 Subject: FW: R02100400

Penny,



R02100400 prelim
report.xls

ATC is in receipt of some of the "ost" test wipe samples for dioxin analysis. Once the remaining become available, I shall forward them to your attention. In addition, PSC has long since disposed of the PAH wipe extractions.

-----Original Message-----

From: Usbeck, Fred [mailto:FUsbeck@contactpsc.com]
 Sent: Monday, November 11, 2002 6:05 PM
 To: sallemi15@atc-enviro.com
 Subject: R02100400

Ben,
 Attached are preliminary results for the above work order. These are the first 20 of the "post" tests. Note that the last three samples are "pending". They are awaiting confirmations.

Also, regarding your PAH wipe samples, these were disposed of long ago (extracts are only good for a few days). Tell me what you're looking for and maybe we can get it from the data already generated.

Thanks! Fred

<<R02100400 prelim report.xls>>

Fred Usbeck, CIH
 PSC Analytical Services
 4418 Pottsville Pike
 Reading, PA 19605
 fusbeck@contactpsc.com
 (610) 921-8833 ext. 224

Certificate of Analysis

Certificate No.: 2J0573

CLIENT INFORMATION

Attention: Fred Usbeck
Client Name: PHILIP ANALYTICAL SERVICES-PA
Address: 4418,Pottville Pike
 Reading, Pensylvanie
 19605-1286
Fax Number: 610-921-9667
Phone Number: 1-800-345-4026

LABORATORY INFORMATION

Contact: Martin Dea
Project: AN022771
Date Received: 2002/10/16
Date Reported: 2002/11/08
Date Revised:
Revision Number: 0
No. of pages: 25

Project: SW 8290
Project Desc: PO#10295-R02100400
Sampled by: PHILIP ANALYTICAL SERVICES-PA

PRÉLIMINAIRE

Approved by: _____
 Martin Dea, Chemist
 Project manager

Verified by: _____
 Éric Fortin, Chemist
 Inorganic Manager

Verified by: _____
 Stephan Obarewicz, Chemist
 High Resolution Manager

file # =R02100400 prelim report
 Revision No. 0

Certificate of Analysis

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 Inorganic Manager

Verified by: _____
 Stephan Obarewicz, Chemist
 1 Resolution Manager

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PSC Services Analytiques

All work recorded herein has been done in accordance with normal professional standards using accepted testing methodologies, quality assurance and quality control procedures except where otherwise agreed to by the client and testing company in writing. Any and all use of these test results shall be limited to the actual cost of the pertinent analysis done.

There is no other warranty expressed or implied . Your samples will be retained at

PSC Analytical Services for a period of six weeks from date of reception or as per contract.

This report may not be reproduced except in its entirety, without the written authorization of PSC Analytical Services. Reference material results are under control

statistically unless otherwise specified (RM).

The enclosed guidelines and criterias are provided for information purposes only.

In case of disparity between the guidelines and criterias provided and the official version, these are the valid one.

Organic analyses are not corrected for extraction recovery standards except for PCDD/F and PCB's (congeners).

Batch and run dates for subcontracted analyses are reported only when available;

if not, the date of reception of the certificate by fax is reported.

Methods used by PSC Analytical Services are based upon those found in 'Standard Methods for the Examination of Water and Wastewater', Nineteenth Edition. Other methods are based on the principles of MENV or EPA methodologies.

See the confirmation analysis report in the appendix at the end of this report for the list of the methods used, and the list of parameters analyzed by subcontracting laboratories.

Please contact your project manager for additionnals informations.

NOTES:

- = not analyzed

< = less than Reported Detection Limit (RDL 2.4

NA = Not Applicable

RDL = Reported Detection Limit

Solids data is based on dry weight (unless otherwise specified).

Comments:

**PSC Analytical Services
Certificate of Analysis**

	R02100400	R02100400	R02100400
Client ID:	01A	01A	01A
Lab No.:	039046 02	039046 02	039046 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	0.09	pg	1.6	0.16
2,3,7,8-Cl4DBD	0.19	"	1.1	1.1
1,2,3,7,8-Cl5DBF	0.21	"	1.2	0.062
2,3,4,7,8-Cl5DBF	0.21	"	1.1	0.57
1,2,3,7,8-Cl5DBD	0.14	"	0.89	0.44
1,2,3,4,7,8-Cl6DBF	0.59	"	1.9	0.19
1,2,3,6,7,8-Cl6DBF	2.2	"	<2.2	<0.22
2,3,4,6,7,8-Cl6DBF	0.67	"	6.3	0.63
1,2,3,7,8,9-Cl6DBF	0.74	"	5.8	0.58
1,2,3,4,7,8-Cl6DBD	1.3	"	<1.3	<0.13
1,2,3,6,7,8-Cl6DBD	0.25	"	1.8	0.18
1,2,3,7,8,9-Cl6DBD	0.25	"	2.6	0.26
1,2,3,4,6,7,8-Cl7DBF	4.8	"	<4.8	<0.048
1,2,3,4,7,8,9-Cl7DBF	0.7	"	6.4	0.064
1,2,3,4,6,7,8-Cl7DBD	2.5	"	<2.5	<0.025
1,2,3,4,6,7,8,9-Cl8DBF	0.27	"	5.7	0.0057
1,2,3,4,6,7,8,9-Cl8DBD	0.24	"	9.3	0.0093
	TEF	pg	4.2	
	MAX TEF	"	<4.7	
ΣT4CDF	0.09	pg	2.4	4
ΣP5CDF	0.21	"	2.3	2
ΣH6CDF	0.67	"	14	3
ΣH7CDF	0.68	"	6.4	1
OCDF	0.27	"	5.7	1
ΣT4CDD	0.19	"	1.1	1
ΣP5CDD	0.14	"	0.89	1
ΣH6CDD	0.25	"	4.5	2
ΣH7CDD	0.24	"	0.46	1
OCDD	0.24	"	9.3	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			92	
2,3,7,8-T4CDD-13C12			78	
1,2,3,7,8-P5CDF-13C12			73	
1,2,3,7,8-P5CDD-13C12			64	
1,2,3,6,7,8-H6CDF-13C12			25	
1,2,3,6,7,8-H6CDD-13C12			56	
1,2,3,4,6,7,8-H7CDF-13C12			22	
1,2,3,4,6,7,8-H7CDD-13C12			69	
OCDD-13C12			61	

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PSC Analytical Services
Certificate of Analysis

	R02100400	R02100400	R02100400
Client ID:	02A	02A	02A
Lab No.:	039047 02	039047 02	039047 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	0.33	pg	3.2	0.32
2,3,7,8-Cl4DBD	0.61	"	<0.61	<0.61
1,2,3,7,8-Cl5DBF	1.00	"	<1.00	<0.050
2,3,4,7,8-Cl5DBF	0.22	"	0.82	0.41
1,2,3,7,8-Cl5DBD	0.54	"	<0.54	<0.27
1,2,3,4,7,8-Cl6DBF	0.60	"	<0.60	<0.060
1,2,3,6,7,8-Cl6DBF	0.63	"	<0.63	<0.063
2,3,4,6,7,8-Cl6DBF	0.67	"	0.96	0.096
1,2,3,7,8,9-Cl6DBF	0.99	"	<0.99	<0.099
1,2,3,4,7,8-Cl6DBD	0.41	"	<0.41	<0.041
1,2,3,6,7,8-Cl6DBD	0.39	"	<0.39	<0.039
1,2,3,7,8,9-Cl6DBD	1.4	"	<1.4	<0.14
1,2,3,4,6,7,8-Cl7DBF	8.0	"	<8.0	<0.080
1,2,3,4,7,8,9-Cl7DBF	2.1	"	<2.1	<0.021
1,2,3,4,6,7,8-Cl7DBD	0.87	"	1.9	0.019
1,2,3,4,6,7,8,9-Cl8DBF	0.5	"	11	0.011
1,2,3,4,6,7,8,9-Cl8DBD	0.63	"	9.1	0.0092
	TEF	pg	0.87	
	MAX TEF	"	<2.3	
ΣT4CDF	0.33	pg	3.8	2
ΣP5CDF	0.22	"	0.82	1
ΣH6CDF	0.67	"	0.96	1
ΣH7CDF	1.6	"	<1.6	0
OCDF	0.5	"	11	1
ΣT4CDD	0.34	"	4.4	2
ΣP5CDD	0.93	"	2.6	1
ΣH6CDD	0.41	"	<0.41	0
ΣH7CDD	0.87	"	1.9	1
OCDD	0.63	"	9.1	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			98	
2,3,7,8-T4CDD-13C12			79	
1,2,3,7,8-P5CDF-13C12			74	
1,2,3,7,8-P5CDD-13C12			65	
1,2,3,6,7,8-H6CDF-13C12			76	
1,2,3,6,7,8-H6CDD-13C12			83	
1,2,3,4,6,7,8-H7CDF-13C12			48	
1,2,3,4,6,7,8-H7CDD-13C12			67	
OCDD-13C12			49	

**PSC Analytical Services
Certificate of Analysis**

	R02100400	R02100400	R02100400
Client ID:	03A	03A	03A
Lab No.:	039048 02	039048 02	039048 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	0.13	pg	5.4	0.54
2,3,7,8-Cl4DBD	0.18	"	1.8	1.8
1,2,3,7,8-Cl5DBF	0.13	"	1.5	0.074
2,3,4,7,8-Cl5DBF	0.12	"	1.7	0.84
1,2,3,7,8-Cl5DBD	0.27	"	0.44	0.22
1,2,3,4,7,8-Cl6DBF	0.15	"	<0.15	<0.015
1,2,3,6,7,8-Cl6DBF	1.5	"	<1.5	<0.15
2,3,4,6,7,8-Cl6DBF	0.17	"	2.2	0.22
1,2,3,7,8,9-Cl6DBF	0.19	"	0.32	0.032
1,2,3,4,7,8-Cl6DBD	0.19	"	<0.19	<0.019
1,2,3,6,7,8-Cl6DBD	0.58	"	<0.58	<0.058
1,2,3,7,8,9-Cl6DBD	0.13	"	0.95	0.095
1,2,3,4,6,7,8-Cl7DBF	11	"	<11	<0.11
1,2,3,4,7,8,9-Cl7DBF	13	"	<13	<0.13
1,2,3,4,6,7,8-Cl7DBD	0.16	"	3.2	0.032
1,2,3,4,6,7,8,9-Cl8DBF	0.78	"	<0.78	<0.00078
1,2,3,4,6,7,8,9-Cl8DBD	0.19	"	16	0.016
	TEF	pg	3.8	
	MAX TEF	"	<4.3	
ΣT4CDF	0.13	pg	13	7
ΣP5CDF	0.13	"	5.9	6
ΣH6CDF	0.17	"	2.5	2
ΣH7CDF	13	"	<13	0
OCDF	0.78	"	<0.78	0
ΣT4CDD	0.18	"	7.1	5
ΣP5CDD	0.27	"	9.3	8
ΣH6CDD	0.13	"	9.9	4
ΣH7CDD	0.16	"	7.2	2
OCDD	0.19	"	16	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			159	
2,3,7,8-T4CDD-13C12			133	
1,2,3,7,8-P5CDF-13C12			161	
1,2,3,7,8-P5CDD-13C12			166	
1,2,3,6,7,8-H6CDF-13C12			49	
1,2,3,6,7,8-H6CDD-13C12			75	
1,2,3,4,6,7,8-H7CDF-13C12			37	
1,2,3,4,6,7,8-H7CDD-13C12			95	
OCDD-13C12			77	

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Certificate of Analysis**

	R02100400	R02100400	R02100400
Client ID:	04A	04A	04A
Lab No.:	039049 02	039049 02	039049 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	0.21	pg	5.0	0.50
2,3,7,8-Cl4DBD	0.13	"	1.6	1.6
1,2,3,7,8-Cl5DBF	0.89	"	<0.89	<0.045
2,3,4,7,8-Cl5DBF	0.79	"	<0.79	<0.39
1,2,3,7,8-Cl5DBD	0.33	"	<0.33	<0.17
1,2,3,4,7,8-Cl6DBF	0.23	"	1.2	0.12
1,2,3,6,7,8-Cl6DBF	0.71	"	<0.71	<0.071
2,3,4,6,7,8-Cl6DBF	0.26	"	1.4	0.14
1,2,3,7,8,9-Cl6DBF	0.29	"	<0.29	<0.029
1,2,3,4,7,8-Cl6DBD	0.21	"	<0.21	<0.021
1,2,3,6,7,8-Cl6DBD	0.20	"	<0.20	<0.020
1,2,3,7,8,9-Cl6DBD	0.2	"	0.69	0.069
1,2,3,4,6,7,8-Cl7DBF	11	"	<11	<0.11
1,2,3,4,7,8,9-Cl7DBF	140	"	<140	<1.4
1,2,3,4,6,7,8-Cl7DBD	0.11	"	3.4	0.034
1,2,3,4,6,7,8,9-Cl8DBF	1.1	"	<1.1	<0.0011
1,2,3,4,6,7,8,9-Cl8DBD	0.2	"	24	0.024
	TEF	pg	2.5	
	MAX TEF	"	<4.7	
ΣT4CDF	0.21	pg	17	9
ΣP5CDF	0.15	"	3.1	5
ΣH6CDF	0.23	"	2.5	2
ΣH7CDF	140	"	<140	0
OCDF	1.1	"	<1.1	0
ΣT4CDD	0.13	"	8.6	9
ΣP5CDD	0.66	"	4.2	4
ΣH6CDD	0.21	"	1.6	2
ΣH7CDD	0.11	"	6.8	2
OCDD	0.2	"	24	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			71	
2,3,7,8-T4CDD-13C12			93	
1,2,3,7,8-P5CDF-13C12			112	
1,2,3,7,8-P5CDD-13C12			107	
1,2,3,6,7,8-H6CDF-13C12			30	
1,2,3,6,7,8-H6CDD-13C12			73	
1,2,3,4,6,7,8-H7CDF-13C12			13	
1,2,3,4,6,7,8-H7CDD-13C12			85	
OCDD-13C12			76	

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**PSC Analytical Services
Certificate of Analysis**

	R02100400	R02100400	R02100400
Client ID:	05A	05A	05A
Lab No.:	039050 02	039050 02	039050 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
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Dioxins and furans

2,3,7,8-Cl4DBF	0.33	pg	1.8	0.18
2,3,7,8-Cl4DBD	0.13	"	<0.13	<0.13
1,2,3,7,8-Cl5DBF	0.36	"	<0.36	<0.018
2,3,4,7,8-Cl5DBF	0.2	"	0.35	0.18
1,2,3,7,8-Cl5DBD	0.66	"	<0.66	<0.33
1,2,3,4,7,8-Cl6DBF	0.31	"	<0.31	<0.031
1,2,3,6,7,8-Cl6DBF	0.31	"	<0.31	<0.031
2,3,4,6,7,8-Cl6DBF	0.35	"	0.42	0.042
1,2,3,7,8,9-Cl6DBF	0.39	"	<0.39	<0.039
1,2,3,4,7,8-Cl6DBD	0.21	"	<0.21	<0.021
1,2,3,6,7,8-Cl6DBD	0.20	"	<0.20	<0.020
1,2,3,7,8,9-Cl6DBD	0.20	"	<0.20	<0.020
1,2,3,4,6,7,8-Cl7DBF	89	"	<89	<0.89
1,2,3,4,7,8,9-Cl7DBF	36	"	<36	<0.36
1,2,3,4,6,7,8-Cl7DBD	0.53	"	<0.53	<0.0053
1,2,3,4,6,7,8,9-Cl8DBF	5.6	"	<5.6	<0.0056
1,2,3,4,6,7,8,9-Cl8DBD	0.3	"	2.7	0.0027

TEF	pg	0.40
MAX TEF	"	<2.3

ΣT4CDF	0.33	pg	3.6	4
ΣP5CDF	0.21	"	0.35	1
ΣH6CDF	0.35	"	0.42	1
ΣH7CDF	99	"	<99	0
OCDF	5.6	"	<5.6	0
ΣT4CDD	0.13	"	0.90	2
ΣP5CDD	0.66	"	0.69	1
ΣH6CDD	0.21	"	<0.21	0
ΣH7CDD	0.19	"	<0.19	0
OCDD	0.3	"	2.7	1

Surrogate Recoveries

	%
2,3,7,8-T4CDF-13C12	134
2,3,7,8-T4CDD-13C12	129
1,2,3,7,8-P5CDF-13C12	120
1,2,3,7,8-P5CDD-13C12	114
1,2,3,6,7,8-H6CDF-13C12	50
1,2,3,6,7,8-H6CDD-13C12	91
1,2,3,4,6,7,8-H7CDF-13C12	29
1,2,3,4,6,7,8-H7CDD-13C12	98
OCDD-13C12	92

**PSC Analytical Services
Certificate of Analysis**

	R02100400	R02100400	R02100400
Client ID:	06A	06A	06A
Lab No.:	039051 02	039051 02	039051 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	0.13	pg	7.9	0.79
2,3,7,8-Cl4DBD	1.4	"	<1.4	<1.4
1,2,3,7,8-Cl5DBF	0.21	"	1.5	0.076
2,3,4,7,8-Cl5DBF	0.2	"	2.2	1.1
1,2,3,7,8-Cl5DBD	0.89	"	0.65	0.33
1,2,3,4,7,8-Cl6DBF	0.12	"	1.4	0.14
1,2,3,6,7,8-Cl6DBF	0.12	"	1.1	0.11
2,3,4,6,7,8-Cl6DBF	0.13	"	1.6	0.16
1,2,3,7,8,9-Cl6DBF	0.39	"	<0.39	<0.039
1,2,3,4,7,8-Cl6DBD	0.16	"	0.75	0.075
1,2,3,6,7,8-Cl6DBD	0.75	"	<0.75	<0.075
1,2,3,7,8,9-Cl6DBD	0.15	"	1.1	0.11
1,2,3,4,6,7,8-Cl7DBF	9.0	"	<9.0	<0.090
1,2,3,4,7,8,9-Cl7DBF	17	"	<17	<0.17
1,2,3,4,6,7,8-Cl7DBD	0.14	"	2.6	0.026
1,2,3,4,6,7,8,9-Cl8DBF	1.1	"	1.9	0.0019
1,2,3,4,6,7,8,9-Cl8DBD	0.47	"	11	0.011
	TEF	pg	2.9	
	MAX TEF	"	<4.7	
ΣT4CDF	0.13	pg	23	10
ΣP5CDF	0.21	"	12	7
ΣH6CDF	0.12	"	4.1	3
ΣH7CDF	25	"	<25	0
OCDF	1.1	"	1.9	1
ΣT4CDD	0.25	"	12	7
ΣP5CDD	0.89	"	12	4
ΣH6CDD	0.15	"	13	6
ΣH7CDD	0.14	"	2.6	1
OCDD	0.47	"	11	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			96	
2,3,7,8-T4CDD-13C12			88	
1,2,3,7,8-P5CDF-13C12			93	
1,2,3,7,8-P5CDD-13C12			98	
1,2,3,6,7,8-H6CDF-13C12			66	
1,2,3,6,7,8-H6CDD-13C12			88	
1,2,3,4,6,7,8-H7CDF-13C12			73	
1,2,3,4,6,7,8-H7CDD-13C12			86	
OCDD-13C12			77	

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**PSC Analytical Services
Certificate of Analysis**

	R02100400	R02100400	R02100400
Client ID:	07A	07A	07A
Lab No.:	039052 02	039052 02	039052 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	0.13	pg	2.1	0.21
2,3,7,8-Cl4DBD	0.48	"	<0.48	<0.48
1,2,3,7,8-Cl5DBF	0.26	"	0.69	0.035
2,3,4,7,8-Cl5DBF	0.25	"	0.55	0.28
1,2,3,7,8-Cl5DBD	1.2	"	<1.2	<0.61
1,2,3,4,7,8-Cl6DBF	0.66	"	<0.66	<0.066
1,2,3,6,7,8-Cl6DBF	0.28	"	0.82	0.082
2,3,4,6,7,8-Cl6DBF	0.32	"	0.70	0.070
1,2,3,7,8,9-Cl6DBF	0.36	"	<0.36	<0.036
1,2,3,4,7,8-Cl6DBD	0.18	"	<0.18	<0.018
1,2,3,6,7,8-Cl6DBD	0.17	"	<0.17	<0.017
1,2,3,7,8,9-Cl6DBD	0.42	"	<0.42	<0.042
1,2,3,4,6,7,8-Cl7DBF	22	"	<22	<0.22
1,2,3,4,7,8,9-Cl7DBF	19	"	<19	<0.19
1,2,3,4,6,7,8-Cl7DBD	0.31	"	1.3	0.013
1,2,3,4,6,7,8,9-Cl8DBF	0.25	"	6.3	0.0063
1,2,3,4,6,7,8,9-Cl8DBD	0.4	"	8.7	0.0087
	TEF	pg	0.70	
	MAX TEF	"	<2.4	
ΣT4CDF	0.13	pg	4.4	5
ΣP5CDF	0.26	"	1.8	3
ΣH6CDF	0.32	"	1.9	3
ΣH7CDF	20	"	<20	0
OCDF	0.25	"	6.3	1
ΣT4CDD	0.22	"	0.43	1
ΣP5CDD	1	"	1.3	2
ΣH6CDD	0.17	"	<0.17	0
ΣH7CDD	0.31	"	2.6	2
OCDD	0.4	"	8.7	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			108	
2,3,7,8-T4CDD-13C12			95	
1,2,3,7,8-P5CDF-13C12			105	
1,2,3,7,8-P5CDD-13C12			111	
1,2,3,6,7,8-H6CDF-13C12			70	
1,2,3,6,7,8-H6CDD-13C12			89	
1,2,3,4,6,7,8-H7CDF-13C12			60	
1,2,3,4,6,7,8-H7CDD-13C12			86	
OCDD-13C12			76	

**PSC Analytical Services
Certificate of Analysis**

	R02100400	R02100400	R02100400
Client ID:	08A	08A	08A
Lab No.:	039053 02	039053 02	039053 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	1.6	pg	<1.6	<0.16
2,3,7,8-Cl4DBD	0.36	"	<0.36	<0.36
1,2,3,7,8-Cl5DBF	0.32	"	0.65	0.033
2,3,4,7,8-Cl5DBF	0.31	"	<0.31	<0.16
1,2,3,7,8-Cl5DBD	0.41	"	<0.41	<0.20
1,2,3,4,7,8-Cl6DBF	0.55	"	<0.55	<0.055
1,2,3,6,7,8-Cl6DBF	0.55	"	<0.55	<0.055
2,3,4,6,7,8-Cl6DBF	0.63	"	<0.63	<0.063
1,2,3,7,8,9-Cl6DBF	0.70	"	<0.70	<0.070
1,2,3,4,7,8-Cl6DBD	0.45	"	<0.45	<0.045
1,2,3,6,7,8-Cl6DBD	0.43	"	<0.43	<0.043
1,2,3,7,8,9-Cl6DBD	0.42	"	<0.42	<0.042
1,2,3,4,6,7,8-Cl7DBF	16	"	<16	<0.16
1,2,3,4,7,8,9-Cl7DBF	18	"	<18	<0.18
1,2,3,4,6,7,8-Cl7DBD	1.3	"	<1.3	<0.013
1,2,3,4,6,7,8,9-Cl8DBF	1.1	"	<1.1	<0.0011
1,2,3,4,6,7,8,9-Cl8DBD	3.9	"	<3.9	<0.0039
	TEF	pg	0.033	
	MAX TEF	"	<1.6	
ΣT4CDF	0.27	pg	<0.27	0
ΣP5CDF	0.32	"	0.65	1
ΣH6CDF	0.63	"	<0.63	0
ΣH7CDF	17	"	<17	0
OCDF	1.1	"	<1.1	0
ΣT4CDD	0.36	"	<0.36	0
ΣP5CDD	0.41	"	0.63	1
ΣH6CDD	0.45	"	<0.45	0
ΣH7CDD	1.3	"	<1.3	0
OCDD	3.9	"	<3.9	0
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			86	
2,3,7,8-T4CDD-13C12			82	
1,2,3,7,8-P5CDF-13C12			71	
1,2,3,7,8-P5CDD-13C12			65	
1,2,3,6,7,8-H6CDF-13C12			48	
1,2,3,6,7,8-H6CDD-13C12			75	
1,2,3,4,6,7,8-H7CDF-13C12			47	
1,2,3,4,6,7,8-H7CDD-13C12			82	
OCDD-13C12			67	

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	R02100400	R02100400	R02100400
Client ID:	09A	09A	09A
Lab No.:	039054 02	039054 02	039054 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	0.32	pg	3.1	0.31
2,3,7,8-Cl4DBD	0.78	"	<0.78	<0.78
1,2,3,7,8-Cl5DBF	0.31	"	<0.31	<0.015
2,3,4,7,8-Cl5DBF	0.24	"	0.69	0.35
1,2,3,7,8-Cl5DBD	0.81	"	<0.81	<0.41
1,2,3,4,7,8-Cl6DBF	1.0	"	<1.0	<0.10
1,2,3,6,7,8-Cl6DBF	1.0	"	<1.0	<0.10
2,3,4,6,7,8-Cl6DBF	1.2	"	<1.2	<0.12
1,2,3,7,8,9-Cl6DBF	1.3	"	<1.3	<0.13
1,2,3,4,7,8-Cl6DBD	0.53	"	<0.53	<0.053
1,2,3,6,7,8-Cl6DBD	0.50	"	<0.50	<0.050
1,2,3,7,8,9-Cl6DBD	0.49	"	<0.49	<0.049
1,2,3,4,6,7,8-Cl7DBF	14	"	<14	<0.14
1,2,3,4,7,8,9-Cl7DBF	1.4	"	<1.4	<0.014
1,2,3,4,6,7,8-Cl7DBD	1	"	2.5	0.025
1,2,3,4,6,7,8,9-Cl8DBF	0.86	"	4.2	0.0042
1,2,3,4,6,7,8,9-Cl8DBD	1	"	30	0.030
	TEF	pg	0.71	
	MAX TEF	"	<2.7	
ΣT4CDF	0.32	pg	6.8	5
ΣP5CDF	0.31	"	1.3	2
ΣH6CDF	1.0	"	<1.0	0
ΣH7CDF	16	"	<16	0
OCDF	0.86	"	4.2	1
ΣT4CDD	0.53	"	0.70	1
ΣP5CDD	0.81	"	<0.81	0
ΣH6CDD	0.53	"	3.5	1
ΣH7CDD	1	"	5.5	2
OCDD	1	"	30	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			97	
2,3,7,8-T4CDD-13C12			77	
1,2,3,7,8-P5CDF-13C12			73	
1,2,3,7,8-P5CDD-13C12			64	
1,2,3,6,7,8-H6CDF-13C12			69	
1,2,3,6,7,8-H6CDD-13C12			80	
1,2,3,4,6,7,8-H7CDF-13C12			59	
1,2,3,4,6,7,8-H7CDD-13C12			76	
OCDD-13C12			52	

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	R02100400	R02100400	R02100400
Client ID:	10A	10A	10A
Lab No.:	039055 02	039055 02	039055 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	0.14	pg	1.7	0.17
2,3,7,8-Cl4DBD	0.47	"	<0.47	<0.47
1,2,3,7,8-Cl5DBF	0.14	"	0.72	0.036
2,3,4,7,8-Cl5DBF	0.14	"	1.1	0.55
1,2,3,7,8-Cl5DBD	0.54	"	<0.54	<0.27
1,2,3,4,7,8-Cl6DBF	0.21	"	2.0	0.20
1,2,3,6,7,8-Cl6DBF	1.9	"	<1.9	<0.19
2,3,4,6,7,8-Cl6DBF	0.24	"	2.4	0.24
1,2,3,7,8,9-Cl6DBF	2.3	"	<2.3	<0.23
1,2,3,4,7,8-Cl6DBD	0.31	"	1.3	0.13
1,2,3,6,7,8-Cl6DBD	0.29	"	1.4	0.14
1,2,3,7,8,9-Cl6DBD	0.28	"	2.0	0.20
1,2,3,4,6,7,8-Cl7DBF	6.2	"	<6.2	<0.062
1,2,3,4,7,8,9-Cl7DBF	3.3	"	<3.3	<0.033
1,2,3,4,6,7,8-Cl7DBD	0.34	"	1.9	0.019
1,2,3,4,6,7,8,9-Cl8DBF	0.98	"	4.2	0.0042
1,2,3,4,6,7,8,9-Cl8DBD	0.66	"	12	0.012
	TEF	pg	1.7	
	MAX TEF	"	<3.0	
ΣT4CDF	0.14	pg	2.5	2
ΣP5CDF	0.14	"	3.8	6
ΣH6CDF	0.24	"	7.3	5
ΣH7CDF	26	"	<26	0
OCDF	0.98	"	4.2	1
ΣT4CDD	0.13	"	1.7	3
ΣP5CDD	0.60	"	<0.60	0
ΣH6CDD	0.31	"	6.2	5
ΣH7CDD	0.34	"	3.8	2
OCDD	0.66	"	12	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			110	
2,3,7,8-T4CDD-13C12			85	
1,2,3,7,8-P5CDF-13C12			77	
1,2,3,7,8-P5CDD-13C12			60	
1,2,3,6,7,8-H6CDF-13C12			59	
1,2,3,6,7,8-H6CDD-13C12			80	
1,2,3,4,6,7,8-H7CDF-13C12			51	
1,2,3,4,6,7,8-H7CDD-13C12			90	
OCDD-13C12			73	

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**PSC Analytical Services
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	R02100400	R02100400	R02100400
Client ID:	11A	11A	11A
Lab No.:	039056 02	039056 02	039056 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	1.8	pg	2.6	0.26
2,3,7,8-Cl4DBD	1.3	"	<1.3	<1.3
1,2,3,7,8-Cl5DBF	2.0	"	<2.0	<0.098
2,3,4,7,8-Cl5DBF	1.9	"	<1.9	<0.95
1,2,3,7,8-Cl5DBD	2.2	"	<2.2	<1.1
1,2,3,4,7,8-Cl6DBF	1.0	"	<1.0	<0.10
1,2,3,6,7,8-Cl6DBF	1.0	"	<1.0	<0.10
2,3,4,6,7,8-Cl6DBF	1.2	"	<1.2	<0.12
1,2,3,7,8,9-Cl6DBF	1.3	"	<1.3	<0.13
1,2,3,4,7,8-Cl6DBD	2.1	"	<2.1	<0.21
1,2,3,6,7,8-Cl6DBD	2.0	"	<2.0	<0.20
1,2,3,7,8,9-Cl6DBD	2.0	"	<2.0	<0.20
1,2,3,4,6,7,8-Cl7DBF	1.8	"	<1.8	<0.018
1,2,3,4,7,8,9-Cl7DBF	4.8	"	<4.8	<0.048
1,2,3,4,6,7,8-Cl7DBD	2.7	"	<2.7	<0.027
1,2,3,4,6,7,8,9-Cl8DBF	2.8	"	<2.8	<0.0028
1,2,3,4,6,7,8,9-Cl8DBD	4.7	"	5.0	0.0050
	TEF	pg	0.27	
	MAX TEF	"	<4.9	
ΣT4CDF	1.8	pg	2.6	1
ΣP5CDF	2.0	"	<2.0	0
ΣH6CDF	1.2	"	<1.2	0
ΣH7CDF	2.0	"	<2.0	0
OCDF	2.8	"	<2.8	0
ΣT4CDD	1.3	"	<1.3	0
ΣP5CDD	2.2	"	<2.2	0
ΣH6CDD	2.1	"	<2.1	0
ΣH7CDD	2.7	"	<2.7	0
OCDD	4.7	"	5.0	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			91	
2,3,7,8-T4CDD-13C12			85	
1,2,3,7,8-P5CDF-13C12			58	
1,2,3,7,8-P5CDD-13C12			65	
1,2,3,6,7,8-H6CDF-13C12			89	
1,2,3,6,7,8-H6CDD-13C12			69	
1,2,3,4,6,7,8-H7CDF-13C12			61	
1,2,3,4,6,7,8-H7CDD-13C12			64	
OCDD-13C12			93	

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	R02100400	R02100400	R02100400
Client ID:	12A	12A	12A
Lab No.:	039057 02	039057 02	039057 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	1.2	pg	<1.2	<0.12
2,3,7,8-Cl4DBD	3.1	"	<3.1	<3.1
1,2,3,7,8-Cl5DBF	2.3	"	<2.3	<0.11
2,3,4,7,8-Cl5DBF	2.2	"	<2.2	<1.1
1,2,3,7,8-Cl5DBD	2.5	"	<2.5	<1.3
1,2,3,4,7,8-Cl6DBF	2.6	"	<2.6	<0.26
1,2,3,6,7,8-Cl6DBF	16	"	<16	<1.6
2,3,4,6,7,8-Cl6DBF	80	"	<80	<8.0
1,2,3,7,8,9-Cl6DBF	3.2	"	<3.2	<0.32
1,2,3,4,7,8-Cl6DBD	61	"	<61	<6.1
1,2,3,6,7,8-Cl6DBD	6.0	"	<6.0	<0.60
1,2,3,7,8,9-Cl6DBD	5.9	"	<5.9	<0.59
1,2,3,4,6,7,8-Cl7DBF	5.6	"	<5.6	<0.056
1,2,3,4,7,8,9-Cl7DBF	6.4	"	<6.4	<0.064
1,2,3,4,6,7,8-Cl7DBD	3.5	"	<3.5	<0.035
1,2,3,4,6,7,8,9-Cl8DBF	3.2	"	5.4	0.0054
1,2,3,4,6,7,8,9-Cl8DBD	3.0	"	<3.0	<0.030
	TEF	pg	0.0054	
	MAX TEF	"	<23	
ΣT4CDF	1.2	pg	<1.2	0
ΣP5CDF	2.3	"	<2.3	0
ΣH6CDF	2.6	"	<2.6	0
ΣH7CDF	6.2	"	<6.2	0
OCDF	3.2	"	5.4	1
ΣT4CDD	3.1	"	<3.1	0
ΣP5CDD	2.5	"	<2.5	0
ΣH6CDD	290	"	<290	0
ΣH7CDD	3.5	"	<3.5	0
OCDD	3.0	"	<3.0	0
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			76	
2,3,7,8-T4CDD-13C12			84	
1,2,3,7,8-P5CDF-13C12			51	
1,2,3,7,8-P5CDD-13C12			46	
1,2,3,6,7,8-H6CDF-13C12			68	
1,2,3,6,7,8-H6CDD-13C12			69	
1,2,3,4,6,7,8-H7CDF-13C12			60	
1,2,3,4,6,7,8-H7CDD-13C12			61	
OCDD-13C12			117	

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	R02100400	R02100400	R02100400
Client ID:	13A	13A	13A
Lab No.:	039058 02	039058 02	039058 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	1.3	pg	<1.3	<0.13
2,3,7,8-Cl4DBD	1.1	"	<1.1	<1.1
1,2,3,7,8-Cl5DBF	0.99	"	<0.99	<0.050
2,3,4,7,8-Cl5DBF	0.96	"	<0.96	<0.48
1,2,3,7,8-Cl5DBD	3.8	"	<3.8	<1.9
1,2,3,4,7,8-Cl6DBF	1.5	"	<1.5	<0.15
1,2,3,6,7,8-Cl6DBF	1.4	"	<1.4	<0.14
2,3,4,6,7,8-Cl6DBF	1.6	"	<1.6	<0.16
1,2,3,7,8,9-Cl6DBF	1.8	"	<1.8	<0.18
1,2,3,4,7,8-Cl6DBD	0.59	"	<0.59	<0.059
1,2,3,6,7,8-Cl6DBD	0.56	"	<0.56	<0.056
1,2,3,7,8,9-Cl6DBD	0.54	"	<0.54	<0.054
1,2,3,4,6,7,8-Cl7DBF	5.2	"	<5.2	<0.052
1,2,3,4,7,8,9-Cl7DBF	6.0	"	<6.0	<0.060
1,2,3,4,6,7,8-Cl7DBD	1.2	"	<1.2	<0.012
1,2,3,4,6,7,8,9-Cl8DBF	1.3	"	<1.3	<0.0013
1,2,3,4,6,7,8,9-Cl8DBD	0.85	"	4.5	0.0045
	TEF	pg	0.0045	
	MAX TEF	"	<4.6	
ΣT4CDF	1.3	pg	<1.3	0
ΣP5CDF	0.99	"	<0.99	0
ΣH6CDF	1.5	"	<1.5	0
ΣH7CDF	5.8	"	<5.8	0
OCDF	1.3	"	<1.3	0
ΣT4CDD	1.1	"	1.9	1
ΣP5CDD	3.8	"	<3.8	0
ΣH6CDD	0.56	"	<0.56	0
ΣH7CDD	1.2	"	<1.2	0
OCDD	0.85	"	4.5	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			80	
2,3,7,8-T4CDD-13C12			83	
1,2,3,7,8-P5CDF-13C12			69	
1,2,3,7,8-P5CDD-13C12			67	
1,2,3,6,7,8-H6CDF-13C12			77	
1,2,3,6,7,8-H6CDD-13C12			90	
1,2,3,4,6,7,8-H7CDF-13C12			88	
1,2,3,4,6,7,8-H7CDD-13C12			99	
OCDD-13C12			94	

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	R02100400	R02100400	R02100400
Client ID:	14A	14A	14A
Lab No.:	039059 02	039059 02	039059 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	1.1	pg	<1.1	<0.11
2,3,7,8-Cl4DBD	1.1	"	<1.1	<1.1
1,2,3,7,8-Cl5DBF	1.2	"	<1.2	<0.061
2,3,4,7,8-Cl5DBF	1.2	"	<1.2	<0.59
1,2,3,7,8-Cl5DBD	1.4	"	<1.4	<0.72
1,2,3,4,7,8-Cl6DBF	1.0	"	<1.0	<0.10
1,2,3,6,7,8-Cl6DBF	1.0	"	<1.0	<0.10
2,3,4,6,7,8-Cl6DBF	1.1	"	<1.1	<0.11
1,2,3,7,8,9-Cl6DBF	1.3	"	<1.3	<0.13
1,2,3,4,7,8-Cl6DBD	1.2	"	<1.2	<0.12
1,2,3,6,7,8-Cl6DBD	1.1	"	<1.1	<0.11
1,2,3,7,8,9-Cl6DBD	1.1	"	<1.1	<0.11
1,2,3,4,6,7,8-Cl7DBF	1.2	"	<1.2	<0.012
1,2,3,4,7,8,9-Cl7DBF	1.4	"	<1.4	<0.014
1,2,3,4,6,7,8-Cl7DBD	1.2	"	<1.2	<0.012
1,2,3,4,6,7,8,9-Cl8DBF	2.1	"	<2.1	<0.0021
1,2,3,4,6,7,8,9-Cl8DBD	4.3	"	<4.3	<0.0043
	TEF	pg	0	
	MAX TEF	"	<3.4	
ΣT4CDF	1.1	pg	<1.1	0
ΣP5CDF	1.2	"	<1.2	0
ΣH6CDF	1.0	"	<1.0	0
ΣH7CDF	1.4	"	<1.4	0
OCDF	2.1	"	<2.1	0
ΣT4CDD	1.1	"	<1.1	0
ΣP5CDD	1.4	"	<1.4	0
ΣH6CDD	1.1	"	<1.1	0
ΣH7CDD	1.2	"	<1.2	0
OCDD	4.3	"	<4.3	0
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			84	
2,3,7,8-T4CDD-13C12			85	
1,2,3,7,8-P5CDF-13C12			70	
1,2,3,7,8-P5CDD-13C12			79	
1,2,3,6,7,8-H6CDF-13C12			77	
1,2,3,6,7,8-H6CDD-13C12			90	
1,2,3,4,6,7,8-H7CDF-13C12			87	
1,2,3,4,6,7,8-H7CDD-13C12			98	
OCDD-13C12			87	

**PSC Analytical Services
Certificate of Analysis**

	R02100400	R02100400	R02100400
Client ID:	15A	15A	15A
Lab No.:	039060 02	039060 02	039060 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	1	pg	1.9	0.19
2,3,7,8-Cl4DBD	2.0	"	<2.0	<2.0
1,2,3,7,8-Cl5DBF	1.7	"	<1.7	<0.087
2,3,4,7,8-Cl5DBF	1.7	"	<1.7	<0.84
1,2,3,7,8-Cl5DBD	1.5	"	<1.5	<0.77
1,2,3,4,7,8-Cl6DBF	1.4	"	<1.4	<0.14
1,2,3,6,7,8-Cl6DBF	1.4	"	<1.4	<0.14
2,3,4,6,7,8-Cl6DBF	1.6	"	<1.6	<0.16
1,2,3,7,8,9-Cl6DBF	1.7	"	<1.7	<0.17
1,2,3,4,7,8-Cl6DBD	1.3	"	<1.3	<0.13
1,2,3,6,7,8-Cl6DBD	1.3	"	<1.3	<0.13
1,2,3,7,8,9-Cl6DBD	1.2	"	<1.2	<0.12
1,2,3,4,6,7,8-Cl7DBF	2.8	"	<2.8	<0.028
1,2,3,4,7,8,9-Cl7DBF	3.2	"	<3.2	<0.032
1,2,3,4,6,7,8-Cl7DBD	1.4	"	<1.4	<0.014
1,2,3,4,6,7,8,9-Cl8DBF	1.6	"	2.0	0.0020
1,2,3,4,6,7,8,9-Cl8DBD	1.9	"	11	0.011
	TEF	pg	0.21	
	MAX TEF	"	<4.9	
ΣT4CDF	1	pg	1.9	1
ΣP5CDF	1.7	"	<1.7	0
ΣH6CDF	1.6	"	<1.6	0
ΣH7CDF	3.1	"	<3.1	0
OCDF	1.6	"	2.0	1
ΣT4CDD	2.0	"	<2.0	0
ΣP5CDD	1.5	"	<1.5	0
ΣH6CDD	1.3	"	<1.3	0
ΣH7CDD	1.4	"	<1.4	0
OCDD	1.9	"	11	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			66	
2,3,7,8-T4CDD-13C12			79	
1,2,3,7,8-P5CDF-13C12			59	
1,2,3,7,8-P5CDD-13C12			67	
1,2,3,6,7,8-H6CDF-13C12			48	
1,2,3,6,7,8-H6CDD-13C12			65	
1,2,3,4,6,7,8-H7CDF-13C12			44	
1,2,3,4,6,7,8-H7CDD-13C12			81	
OCDD-13C12			182	

**PSC Analytical Services
Certificate of Analysis**

	R02100400	R02100400	R02100400
Client ID:	16A	16A	16A
Lab No.:	039061 02	039061 02	039061 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	12	pg	<12	<1.2
2,3,7,8-Cl4DBD	1.4	"	13	13
1,2,3,7,8-Cl5DBF	1.1	"	<1.1	<0.056
2,3,4,7,8-Cl5DBF	1.1	"	2.3	1.1
1,2,3,7,8-Cl5DBD	1.2	"	<1.2	<0.59
1,2,3,4,7,8-Cl6DBF	3.5	"	<3.5	<0.35
1,2,3,6,7,8-Cl6DBF	1.4	"	<1.4	<0.14
2,3,4,6,7,8-Cl6DBF	1.6	"	<1.6	<0.16
1,2,3,7,8,9-Cl6DBF	1.8	"	<1.8	<0.18
1,2,3,4,7,8-Cl6DBD	1.3	"	<1.3	<0.13
1,2,3,6,7,8-Cl6DBD	1.2	"	<1.2	<0.12
1,2,3,7,8,9-Cl6DBD	1.2	"	<1.2	<0.12
1,2,3,4,6,7,8-Cl7DBF	1.6	"	<1.6	<0.017
1,2,3,4,7,8,9-Cl7DBF	1.9	"	<1.9	<0.019
1,2,3,4,6,7,8-Cl7DBD	2	"	12	0.12
1,2,3,4,6,7,8,9-Cl8DBF	5.4	"	<5.4	<0.0054
1,2,3,4,6,7,8,9-Cl8DBD	1.7	"	110	0.11
		pg	15	
TEF		"	<18	
MAX TEF				
ΣT4CDF	0.82	pg	16	4
ΣP5CDF	1.1	"	11	4
ΣH6CDF	1.4	"	<1.4	0
ΣH7CDF	1.8	"	<1.8	0
OCDF	5.4	"	<5.4	0
ΣT4CDD	1.4	"	58	5
ΣP5CDD	1.2	"	21	3
ΣH6CDD	1.2	"	22	2
ΣH7CDD	2	"	25	2
OCDD	1.7	"	110	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			74	
2,3,7,8-T4CDD-13C12			40	
1,2,3,7,8-P5CDF-13C12			64	
1,2,3,7,8-P5CDD-13C12			68	
1,2,3,6,7,8-H6CDF-13C12			54	
1,2,3,6,7,8-H6CDD-13C12			70	
1,2,3,4,6,7,8-H7CDF-13C12			49	
1,2,3,4,6,7,8-H7CDD-13C12			78	
OCDD-13C12			105	

**PSC Analytical Services
Certificate of Analysis**

	R02100400	R02100400	R02100400
Client ID:	17A	17A	17A
Lab No.:	039062 02	039062 02	039062 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF	0.89	pg	<0.89	<0.089
2,3,7,8-Cl4DBD	1.5	"	<1.5	<1.5
1,2,3,7,8-Cl5DBF	1.2	"	<1.2	<0.060
2,3,4,7,8-Cl5DBF	1.2	"	<1.2	<0.58
1,2,3,7,8-Cl5DBD	1.9	"	<1.9	<0.96
1,2,3,4,7,8-Cl6DBF	1.1	"	<1.1	<0.11
1,2,3,6,7,8-Cl6DBF	1.1	"	<1.1	<0.11
2,3,4,6,7,8-Cl6DBF	1.3	"	<1.3	<0.13
1,2,3,7,8,9-Cl6DBF	1.4	"	<1.4	<0.14
1,2,3,4,7,8-Cl6DBD	2.5	"	<2.5	<0.25
1,2,3,6,7,8-Cl6DBD	2.4	"	<2.4	<0.24
1,2,3,7,8,9-Cl6DBD	2.3	"	<2.3	<0.23
1,2,3,4,6,7,8-Cl7DBF	2.7	"	<2.7	<0.027
1,2,3,4,7,8,9-Cl7DBF	3.1	"	<3.1	<0.031
1,2,3,4,6,7,8-Cl7DBD	1.4	"	<1.4	<0.014
1,2,3,4,6,7,8,9-Cl8DBF	3.4	"	<3.4	<0.0034
1,2,3,4,6,7,8,9-Cl8DBD	5.4	"	<5.4	<0.0054
	TEF	pg	0	
	MAX TEF	"	<4.5	
ΣT4CDF	0.89	pg	<0.89	0
ΣP5CDF	1.2	"	<1.2	0
ΣH6CDF	1.3	"	<1.3	0
ΣH7CDF	3.0	"	<3.0	0
OCDF	3.4	"	<3.4	0
ΣT4CDD	1.5	"	<1.5	0
ΣP5CDD	1.9	"	<1.9	0
ΣH6CDD	2.5	"	<2.5	0
ΣH7CDD	1.4	"	<1.4	0
OCDD	5.4	"	<5.4	0
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			69	
2,3,7,8-T4CDD-13C12			73	
1,2,3,7,8-P5CDF-13C12			49	
1,2,3,7,8-P5CDD-13C12			51	
1,2,3,6,7,8-H6CDF-13C12			75	
1,2,3,6,7,8-H6CDD-13C12			80	
1,2,3,4,6,7,8-H7CDF-13C12			57	
1,2,3,4,6,7,8-H7CDD-13C12			71	
OCDD-13C12			50	

**PSC Analytical Services
Certificate of Analysis**

	R02100400	R02100400	R02100400
Client ID:	18A	18A	18A
Lab No.:	039063 02	039063 02	039063 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF		pg	Pending	0
2,3,7,8-Cl4DBD		"	Pending	0
1,2,3,7,8-Cl5DBF		"	Pending	0
2,3,4,7,8-Cl5DBF		"	Pending	0
1,2,3,7,8-Cl5DBD		"	Pending	0
1,2,3,4,7,8-Cl6DBF		"	Pending	0
1,2,3,6,7,8-Cl6DBF		"	Pending	0
2,3,4,6,7,8-Cl6DBF		"	Pending	0
1,2,3,7,8,9-Cl6DBF		"	Pending	0
1,2,3,4,7,8-Cl6DBD		"	Pending	0
1,2,3,6,7,8-Cl6DBD		"	Pending	0
1,2,3,7,8,9-Cl6DBD		"	Pending	0
1,2,3,4,6,7,8-Cl7DBF		"	Pending	0
1,2,3,4,7,8,9-Cl7DBF		"	Pending	0
1,2,3,4,6,7,8-Cl7DBD		"	Pending	0
1,2,3,4,6,7,8,9-Cl8DBF		"	Pending	0
1,2,3,4,6,7,8,9-Cl8DBD		"	Pending	0
	TEF	pg	0	
	MAX TEF	"	0	
ΣT4CDF		pg	Pending	Pending
ΣP5CDF		"	Pending	Pending
ΣH6CDF		"	Pending	Pending
ΣH7CDF		"	Pending	Pending
OCDF		"	Pending	Pending
ΣT4CDD		"	Pending	Pending
ΣP5CDD		"	Pending	Pending
ΣH6CDD		"	Pending	Pending
ΣH7CDD		"	Pending	Pending
OCDD		"	Pending	Pending
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			Pending	
2,3,7,8-T4CDD-13C12			Pending	
1,2,3,7,8-P5CDF-13C12			Pending	
1,2,3,7,8-P5CDD-13C12			Pending	
1,2,3,6,7,8-H6CDF-13C12			Pending	
1,2,3,6,7,8-H6CDD-13C12			Pending	
1,2,3,4,6,7,8-H7CDF-13C12			Pending	
1,2,3,4,6,7,8-H7CDD-13C12			Pending	
OCDD-13C12			Pending	

**PSC Analytical Services
Certificate of Analysis**

	R02100400	R02100400	R02100400
Client ID:	19A	19A	19A
Lab No.:	039064 02	039064 02	039064 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF		pg	Pending	0
2,3,7,8-Cl4DBD		"	Pending	0
1,2,3,7,8-Cl5DBF		"	Pending	0
2,3,4,7,8-Cl5DBF		"	Pending	0
1,2,3,7,8-Cl5DBD		"	Pending	0
1,2,3,4,7,8-Cl6DBF		"	Pending	0
1,2,3,6,7,8-Cl6DBF		"	Pending	0
2,3,4,6,7,8-Cl6DBF		"	Pending	0
1,2,3,7,8,9-Cl6DBF		"	Pending	0
1,2,3,4,7,8-Cl6DBD		"	Pending	0
1,2,3,6,7,8-Cl6DBD		"	Pending	0
1,2,3,7,8,9-Cl6DBD		"	Pending	0
1,2,3,4,6,7,8-Cl7DBF		"	Pending	0
1,2,3,4,7,8,9-Cl7DBF		"	Pending	0
1,2,3,4,6,7,8-Cl7DBD		"	Pending	0
1,2,3,4,6,7,8,9-Cl8DBF		"	Pending	0
1,2,3,4,6,7,8,9-Cl8DBD		"	Pending	0
	TEF	pg	0	
	MAX TEF	"	0	
ΣT4CDF		pg	Pending	Pending
ΣP5CDF		"	Pending	Pending
ΣH6CDF		"	Pending	Pending
ΣH7CDF		"	Pending	Pending
OCDF		"	Pending	Pending
ΣT4CDD		"	Pending	Pending
ΣP5CDD		"	Pending	Pending
ΣH6CDD		"	Pending	Pending
ΣH7CDD		"	Pending	Pending
OCDD		"	Pending	Pending
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			Pending	
2,3,7,8-T4CDD-13C12			Pending	
1,2,3,7,8-P5CDF-13C12			Pending	
1,2,3,7,8-P5CDD-13C12			Pending	
1,2,3,6,7,8-H6CDF-13C12			Pending	
1,2,3,6,7,8-H6CDD-13C12			Pending	
1,2,3,4,6,7,8-H7CDF-13C12			Pending	
1,2,3,4,6,7,8-H7CDD-13C12			Pending	
OCDD-13C12			Pending	

**PSC Analytical Services
Certificate of Analysis**

	R02100400	R02100400	R02100400
Client ID:	20A	20A	20A
Lab No.:	039065 02	039065 02	039065 02
Date Sampled:	02/10/09	02/10/09	02/10/09
Matrix:			

Component	RDL	Units	TEF	# of Isomers
Dioxins and furans				
2,3,7,8-Cl4DBF		pg	Pending	0
2,3,7,8-Cl4DBD		"	Pending	0
1,2,3,7,8-Cl5DBF		"	Pending	0
2,3,4,7,8-Cl5DBF		"	Pending	0
1,2,3,7,8-Cl5DBD		"	Pending	0
1,2,3,4,7,8-Cl6DBF		"	Pending	0
1,2,3,6,7,8-Cl6DBF		"	Pending	0
2,3,4,6,7,8-Cl6DBF		"	Pending	0
1,2,3,7,8,9-Cl6DBF		"	Pending	0
1,2,3,4,7,8-Cl6DBD		"	Pending	0
1,2,3,6,7,8-Cl6DBD		"	Pending	0
1,2,3,7,8,9-Cl6DBD		"	Pending	0
1,2,3,4,6,7,8-Cl7DBF		"	Pending	0
1,2,3,4,7,8,9-Cl7DBF		"	Pending	0
1,2,3,4,6,7,8-Cl7DBD		"	Pending	0
1,2,3,4,6,7,8,9-Cl8DBF		"	Pending	0
1,2,3,4,6,7,8,9-Cl8DBD		"	Pending	0
	TEF	pg	0	
	MAX TEF	"	0	
ΣT4CDF		pg	Pending	Pending
ΣP5CDF		"	Pending	Pending
ΣH6CDF		"	Pending	Pending
ΣH7CDF		"	Pending	Pending
OCDF		"	Pending	Pending
ΣT4CDD		"	Pending	Pending
ΣP5CDD		"	Pending	Pending
ΣH6CDD		"	Pending	Pending
ΣH7CDD		"	Pending	Pending
OCDD		"	Pending	Pending
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			Pending	
2,3,7,8-T4CDD-13C12			Pending	
1,2,3,7,8-P5CDF-13C12			Pending	
1,2,3,7,8-P5CDD-13C12			Pending	
1,2,3,6,7,8-H6CDF-13C12			Pending	
1,2,3,6,7,8-H6CDD-13C12			Pending	
1,2,3,4,6,7,8-H7CDF-13C12			Pending	
1,2,3,4,6,7,8-H7CDD-13C12			Pending	
OCDD-13C12			Pending	

PSC Analytical Services
Laboratory Method Blanks

Component Batch Code:	RDL	Units	BLANK 1016JM01	TEF	# of Isomers	MR
2,3,7,8-Cl4DBF	0.11	pg	1.1	0.11		100%
2,3,7,8-Cl4DBD	0.22	"	0.53	0.53		118%
1,2,3,7,8-Cl5DBF	0.36	"	<0.36	<0.018		109%
2,3,4,7,8-Cl5DBF	0.40	"	<0.40	<0.20		92%
1,2,3,7,8-Cl5DBD	0.31	"	<0.31	<0.15		92%
1,2,3,4,7,8-Cl6DBF	0.45	"	0.58	0.058		90%
1,2,3,6,7,8-Cl6DBF	0.47	"	<0.47	<0.047		97%
2,3,4,6,7,8-Cl6DBF	0.50	"	1.0	<0.10		162%
1,2,3,7,8,9-Cl6DBF	0.76	"	<0.76	<0.076		162%
1,2,3,4,7,8-Cl6DBD	0.30	"	<0.30	<0.030		84%
1,2,3,6,7,8-Cl6DBD	0.28	"	<0.28	<0.028		92%
1,2,3,7,8,9-Cl6DBD	1.0	"	<1.0	<0.10		104%
1,2,3,4,6,7,8-Cl7DBF	2.5	"	<2.5	<0.025		101%
1,2,3,4,7,8,9-Cl7DBF	2.8	"	<2.8	<0.028		179%
1,2,3,4,6,7,8-Cl7DBD	1.6	"	<1.6	<0.016		97%
1,2,3,4,6,7,8,9-Cl8DBF	0.26	"	4.6	0.0046		75%
1,2,3,4,6,7,8,9-Cl8DBD	0.27	"	9.5	0.0095		95%

FET
FET MAX

0.82
<1.5

ΣT4CDF	0.11	pg	2.2		5	100%
ΣP5CDF	0.18	"	<0.18		0	101%
ΣH6CDF	0.38	"	1.6		2	128%
ΣH7CDF	1.7	"	0.26		1	140%
OCDF	0.26	"	4.6		1	75%
ΣT4CDD	0.14	"	0.53		1	118%
ΣP5CDD	0.45	"	<0.45		0	92%
ΣH6CDD	0.30	"	<0.30		0	93%
ΣH7CDD	0.47	"	<0.47		1	97%
OCDD	0.27	"	2.4		1	95%

Surrogate Recoveries

		%	
2,3,7,8-T4CDF-13C12			101
2,3,7,8-T4CDD-13C12			82
1,2,3,7,8-P5CDF-13C12			86
1,2,3,7,8-P5CDD-13C12			75
1,2,3,6,7,8-H6CDF-13C12			47
1,2,3,6,7,8-H6CDD-13C12			72
1,2,3,4,6,7,8-H7CDF-13C12			36
1,2,3,4,6,7,8-H7CDD-13C12			82
OCDD-13C12			75

**PSC Analytical Services
Laboratory Method Blanks**

Component	RDL	Units	BLANK	TEF	# of Isomers	MR
Batch Code:			1021NZ01			
2,3,7,8-Cl4DBF	0.85	pg	<0.85	<0.085		90%
2,3,7,8-Cl4DBD	0.89	"	<0.89	<0.89		98%
1,2,3,7,8-Cl5DBF	0.98	"	<0.98	<0.049		100%
2,3,4,7,8-Cl5DBF	0.94	"	<0.94	<0.47		92%
1,2,3,7,8-Cl5DBD	0.81	"	<0.81	<0.40		81%
1,2,3,4,7,8-Cl6DBF	0.75	"	<0.75	<0.075		87%
1,2,3,6,7,8-Cl6DBF	0.75	"	<0.75	<0.075		89%
2,3,4,6,7,8-Cl6DBF	0.85	"	<0.85	<0.085		77%
1,2,3,7,8,9-Cl6DBF	0.94	"	<0.94	<0.094		73%
1,2,3,4,7,8-Cl6DBD	1.3	"	<1.3	<0.13		84%
1,2,3,6,7,8-Cl6DBD	1.3	"	<1.3	<0.13		80%
1,2,3,7,8,9-Cl6DBD	1.2	"	<1.2	<0.12		82%
1,2,3,4,6,7,8-Cl7DBF	2.4	"	<2.4	<0.024		96%
1,2,3,4,7,8,9-Cl7DBF	2.8	"	<2.8	<0.028		89%
1,2,3,4,6,7,8-Cl7DBD	2.3	"	<2.3	<0.023		92%
1,2,3,4,6,7,8,9-Cl8DBF	1.2	"	1.6	0.0016		76%
1,2,3,4,6,7,8,9-Cl8DBD	3.4	"	5.5	0.0055		89%
FET				0.007		
FET MAX				<2.7		
ΣT4CDF	0.40	pg	<0.40		0	90%
ΣP5CDF	0.98	"	<0.98		0	96%
ΣH6CDF	0.75	"	<0.75		0	82%
ΣH7CDF	2.7	"	<2.7		0	93%
OCDF	1.2	"	1.6		1	76%
ΣT4CDD	0.89	"	<0.89		0	98%
ΣP5CDD	0.81	"	<0.81		0	81%
ΣH6CDD	1.3	"	<1.3		0	82%
ΣH7CDD	2.3	"	<2.3		0	92%
OCDD	3.4	"	5.5		1	89%
Surrogate Recoveries		%				
2,3,7,8-T4CDF-13C12			67			
2,3,7,8-T4CDD-13C12			65			
1,2,3,7,8-P5CDF-13C12			45			
1,2,3,7,8-P5CDD-13C12			44			
1,2,3,6,7,8-H6CDF-13C12			68			
1,2,3,6,7,8-H6CDD-13C12			77			
1,2,3,4,6,7,8-H7CDF-13C12			51			
1,2,3,4,6,7,8-H7CDD-13C12			65			
OCDD-13C12			131			

**PSC Analytical Services
Summary of Analysis Prep. Dates**

Batch Code:	1016JM01	1021NZ01
2,3,7,8-Cl4DBF etc.	039046 02	039056 02
	039047 02	039057 02
	039048 02	039058 02
	039049 02	039059 02
	039050 02	039060 02
	039051 02	039061 02
	039052 02	039062 02
	039053 02	
	039054 02	
	039055 02	
Date Analyzed:	10/30/2002	10/25/2002
Date Prepared:	10/16/2002	10/21/2002

Batch Code:	1016JM01	1021NZ01
ΣT4CDF etc.	039046 02	039056 02
	039047 02	039057 02
	039048 02	039058 02
	039049 02	039059 02
	039050 02	039060 02
	039051 02	039061 02
	039052 02	039062 02
	039053 02	
	039054 02	
	039055 02	
Date d'analyse:	10/30/2002	10/25/2002
Date de préparation:	10/16/2002	10/21/2002

2.4