

Gilsenan, Michael

From: Theodorellys, Penny
Sent: Monday, December 09, 2002 9:19 AM
To: Gilsenan, Michael; Radhakrishnan, Krish
Cc: Robert Fitzpatrick (E-mail)
Subject: FW: R02100403 Dioxin results

FYI

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

From: Benjamin M. Sallemi [<mailto:sallemi15@atc-enviro.com>] <<mailto:sallemi15@atc-enviro.com>>
Sent: Monday, December 09, 2002 9:03 AM
To: Penny Theodorellys
Cc: Krish Radhakrishnan
Subject: FW: R02100403 Dioxin results



R02100403 Cover
Letter.rtf



R02100403
Report.rtf



R02100403 TEQ
Report.xls

Penny,

I apologize for not getting this to you earlier, but I was out of the office frequently last week. Anyhow, the final "post" test dioxin wipe samples have arrived and are attached. I request for the final report be delivered electronically on Wednesday (12-11-02), with hardcopies including all appendices on Friday, the 13th. I hope that this is acceptable.

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

From: Usbeck, Fred [<mailto:FUsbeck@contactpsc.com>] <<mailto:FUsbeck@contactpsc.com>>
Sent: Tuesday, December 03, 2002 5:34 PM
To: sallemi15@atc-enviro.com
Subject: R02100403 Dioxin results

Ben,

Believe it or not, here are the results for the last group of dioxin wipes you are waiting for. Thanks so much for your patience!

Fred

<<R02100403 Cover Letter.rtf>> <<R02100403 Report.rtf>> <<R02100403 TEQ
Report.xls>>

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

December 03, 2002

Ben Sallemi
ATC Associates
104 East 25th Street
10th Floor
New York, NY 10010-2917

TEL (212) 353-8280
FAX (212) 353-8306

RE: 15-22906-0002

Order R02100403

Dear Ben Sallemi:

PSC Analytical Services received 18 samples on 10/11/2002 10:00:00 AM for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Fred Usbeck
Manager, CIH

4418 Pottsville Pike, Reading, PA 19605 610-921-8833 FAX 610-921-8407

Date: 03-Dec-02

CLIENT: ATC Associates
Project: 15-22906-0002

Lab Order: R02100403

Lab ID: R02100403-01
Client Sample 4S-D-F

Collection 10/9/2002

Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Lab ID: R02100403-02
Client Sample 4N-D-W

Collection 10/9/2002

Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Lab ID: R02100403-03
Client Sample 4N-D-H

Collection 10/9/2002

Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Lab ID: R02100403-04
Client Sample 4N-D-F

Collection 10/9/2002

Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Lab ID: R02100403-05
Client Sample 4N-D-Blank

Collection 10/9/2002

Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Qualifiers: BRL - Below Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Date: 03-Dec-02

CLIENT: ATC Associates
Project: 15-22906-0002

Lab Order: R02100403

Lab ID: R02100403-06
Client Sample: 3S-D-W

Collection: 10/9/2002
Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Lab ID: R02100403-07
Client Sample: 3S-D-H

Collection: 10/9/2002
Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Lab ID: R02100403-08
Client Sample: 3S-D-F

Collection: 10/9/2002
Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Lab ID: R02100403-09
Client Sample: 3N-D-W

Collection: 10/9/2002
Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Lab ID: R02100403-10
Client Sample: 3N-D-H

Collection: 10/9/2002
Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Qualifiers:
BRL - Below Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Date: 03-Dec-02

CLIENT: ATC Associates
Project: 15-22906-0002

Lab Order: R02100403

Lab ID: R02100403-11
Client Sample 3N-D-F

Collection 10/9/2002

Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Lab ID: R02100403-12
Client Sample 2S-D-W

Collection 10/9/2002

Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Lab ID: R02100403-13
Client Sample 2S-D-H

Collection 10/9/2002

Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Lab ID: R02100403-14
Client Sample 2S-D-F

Collection 10/9/2002

Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Lab ID: R02100403-15
Client Sample 2N-D-W

Collection 10/9/2002

Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Qualifiers:
BRL - Below Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

Date: 03-Dec-02

CLIENT: ATC Associates
Project: 15-22906-0002

Lab Order: R02100403

Lab ID: R02100403-16
Client Sample 2N-D-H

Collection 10/9/2002
Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Lab ID: R02100403-17
Client Sample 2N-D-F

Collection 10/9/2002
Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Lab ID: R02100403-18
Client Sample 2N-D-Blank

Collection 10/9/2002
Matrix: WIPE

Analyses	Result	Limit	Qual	Units	DF	Date Analyzed
DIOXINS AND FURANS		SW8290				Analyst: SUB
TCDD/TCDF	See Attached		H		1	11/21/2002

Qualifiers: BRL - Below Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
* - Value exceeds Maximum Contaminant Level

S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range

**PSC Analytical Services
Certificate of Analysis**

	R02100403	R02100403	R02100403
Client ID:	01A	01A	01A
Lab No.:	039106 02	039106 02	039106 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	2.6	0.26
2,3,7,8-Cl4DBD	0.52	"	<0.52	<0.52
1,2,3,7,8-Cl5DBF	0.62	"	<0.62	<0.031
2,3,4,7,8-Cl5DBF	0.41	"	<0.41	<0.20
1,2,3,7,8-Cl5DBD	0.48	"	<0.48	<0.24
1,2,3,4,7,8-Cl6DBF	0.57	"	<0.57	<0.057
1,2,3,6,7,8-Cl6DBF	0.53	"	<0.53	<0.053
2,3,4,6,7,8-Cl6DBF	0.62	"	<0.62	<0.062
1,2,3,7,8,9-Cl6DBF	0.68	"	<0.68	<0.068
1,2,3,4,7,8-Cl6DBD	0.39	"	<0.39	<0.039
1,2,3,6,7,8-Cl6DBD	0.36	"	<0.36	<0.036
1,2,3,7,8,9-Cl6DBD	0.35	"	<0.35	<0.035
1,2,3,4,6,7,8-Cl7DBF	7.4	"	<7.4	<0.074
1,2,3,4,7,8,9-Cl7DBF	8.5	"	<8.5	<0.085
1,2,3,4,6,7,8-Cl7DBD	0.64	"	1.7	0.017
1,2,3,4,6,7,8,9-Cl8DBF	0.42	"	1.5	0.0015
1,2,3,4,6,7,8,9-Cl8DBD	0.71	"	26	0.026
	TEF	pg	0.31	
	MAX TEF	"	<1.8	
ΣT4CDF	0.21	pg	10	8
ΣP5CDF	0.42	"	0.76	1
ΣH6CDF	0.57	"	<0.57	0
ΣH7CDF	7.9	"	<7.9	0
OCDF	0.42	"	1.5	1
ΣT4CDD	0.53	"	8.9	3
ΣP5CDD	0.48	"	<0.48	0
ΣH6CDD	0.36	"	<0.36	0
ΣH7CDD	0.64	"	3.2	2
OCDD	0.71	"	26	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			84	
2,3,7,8-T4CDD-13C12			76	
1,2,3,7,8-P5CDF-13C12			82	
1,2,3,7,8-P5CDD-13C12			85	
1,2,3,6,7,8-H6CDF-13C12			76	
1,2,3,6,7,8-H6CDD-13C12			75	
1,2,3,4,6,7,8-H7CDF-13C12			82	
1,2,3,4,6,7,8-H7CDD-13C12			93	
OCDD-13C12			75	

Certificate No:2J0576
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Revision No. 0

**PSC Analytical Services
Certificate of Analysis**

	R02100403	R02100403	R02100403
Client ID:	02A	02A	02A
Lab No.:	039107 02	039107 02	039107 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	0.30	pg	0.40	0.040
2,3,7,8-Cl4DBD	0.38	"	<0.38	<0.38
1,2,3,7,8-Cl5DBF	0.54	"	<0.54	<0.027
2,3,4,7,8-Cl5DBF	0.52	"	<0.52	<0.26
1,2,3,7,8-Cl5DBD	0.66	"	<0.66	<0.33
1,2,3,4,7,8-Cl6DBF	0.39	"	<0.39	<0.039
1,2,3,6,7,8-Cl6DBF	0.36	"	<0.36	<0.036
2,3,4,6,7,8-Cl6DBF	0.42	"	<0.42	<0.042
1,2,3,7,8,9-Cl6DBF	0.46	"	<0.46	<0.046
1,2,3,4,7,8-Cl6DBD	0.28	"	<0.28	<0.028
1,2,3,6,7,8-Cl6DBD	0.26	"	<0.26	<0.026
1,2,3,7,8,9-Cl6DBD	0.26	"	<0.26	<0.026
1,2,3,4,6,7,8-Cl7DBF	110	"	<110	<1.1
1,2,3,4,7,8,9-Cl7DBF	130	"	<130	<1.3
1,2,3,4,6,7,8-Cl7DBD	0.68	"	<0.68	<0.0068
1,2,3,4,6,7,8,9-Cl8DBF	1.3	"	<1.3	<0.0013
1,2,3,4,6,7,8,9-Cl8DBD	0.50	"	1.3	0.0013
	TEF	pg	0.042	
	MAX TEF	"	<3.7	
ΣT4CDF	0.30	pg	0.40	1
ΣP5CDF	0.54	"	<0.54	0
ΣH6CDF	0.39	"	<0.39	0
ΣH7CDF	120	"	<120	0
OCDF	1.3	"	<1.3	0
ΣT4CDD	0.38	"	<0.38	0
ΣP5CDD	0.66	"	<0.66	0
ΣH6CDD	0.26	"	<0.26	0
ΣH7CDD	0.68	"	<0.68	0
OCDD	0.50	"	1.3	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			94	
2,3,7,8-T4CDD-13C12			88	
1,2,3,7,8-P5CDF-13C12			91	
1,2,3,7,8-P5CDD-13C12			96	
1,2,3,6,7,8-H6CDF-13C12			81	
1,2,3,6,7,8-H6CDD-13C12			84	
1,2,3,4,6,7,8-H7CDF-13C12			79	
1,2,3,4,6,7,8-H7CDD-13C12			92	
OCDD-13C12			76	

**PSC Analytical Services
Certificate of Analysis**

	R02100403	R02100403	R02100403
Client ID:	03A	03A	03A
Lab No.:	039108 02	039108 02	039108 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	0.38	pg	1.2	0.12
2,3,7,8-Cl4DBD	0.48	"	<0.48	<0.48
1,2,3,7,8-Cl5DBF	0.52	"	<0.52	<0.026
2,3,4,7,8-Cl5DBF	0.50	"	<0.50	<0.25
1,2,3,7,8-Cl5DBD	0.54	"	<0.54	<0.27
1,2,3,4,7,8-Cl6DBF	0.47	"	<0.47	<0.047
1,2,3,6,7,8-Cl6DBF	0.44	"	<0.44	<0.044
2,3,4,6,7,8-Cl6DBF	0.52	"	<0.52	<0.052
1,2,3,7,8,9-Cl6DBF	0.56	"	<0.56	<0.056
1,2,3,4,7,8-Cl6DBD	0.77	"	<0.77	<0.077
1,2,3,6,7,8-Cl6DBD	0.71	"	<0.71	<0.071
1,2,3,7,8,9-Cl6DBD	0.69	"	<0.69	<0.069
1,2,3,4,6,7,8-Cl7DBF	36	"	<36	<0.36
1,2,3,4,7,8,9-Cl7DBF	41	"	<41	<0.41
1,2,3,4,6,7,8-Cl7DBD	0.60	"	<0.60	<0.0060
1,2,3,4,6,7,8,9-Cl8DBF	0.62	"	<0.62	<0.00062
1,2,3,4,6,7,8,9-Cl8DBD	7.6	"	<7.6	<0.0076
	TEF	pg	0.12	
	MAX TEF	"	<2.3	
ΣT4CDF	0.38	pg	1.2	1
ΣP5CDF	0.52	"	<0.52	0
ΣH6CDF	0.47	"	<0.47	0
ΣH7CDF	38	"	<38	0
OCDF	0.62	"	<0.62	0
ΣT4CDD	0.48	"	1.3	1
ΣP5CDD	0.54	"	<0.54	0
ΣH6CDD	0.71	"	<0.71	0
ΣH7CDD	0.52	"	<0.52	0
OCDD	7.6	"	<7.6	0
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			90	
2,3,7,8-T4CDD-13C12			86	
1,2,3,7,8-P5CDF-13C12			89	
1,2,3,7,8-P5CDD-13C12			91	
1,2,3,6,7,8-H6CDF-13C12			79	
1,2,3,6,7,8-H6CDD-13C12			82	
1,2,3,4,6,7,8-H7CDF-13C12			84	
1,2,3,4,6,7,8-H7CDD-13C12			91	
OCDD-13C12			79	

Certificate No:2J0576
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**PSC Analytical Services
Certificate of Analysis**

	R02100403	R02100403	R02100403
Client ID:	04A	04A	04A
Lab No.:	039109 02	039109 02	039109 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	0.56	pg	<0.56	
2,3,7,8-Cl4DBD	6.0	"	<6.0	
1,2,3,7,8-Cl5DBF	1.3	"	<1.3	
2,3,4,7,8-Cl5DBF	1.2	"	<1.2	
1,2,3,7,8-Cl5DBD	1.5	"	<1.5	
1,2,3,4,7,8-Cl6DBF	1.1	"	<1.1	
1,2,3,6,7,8-Cl6DBF	0.99	"	<0.99	
2,3,4,6,7,8-Cl6DBF	1.2	"	2.1	0.21
1,2,3,7,8,9-Cl6DBF	1.3	"	<1.3	<0.13
1,2,3,4,7,8-Cl6DBD	2.3	"	<2.3	<0.23
1,2,3,6,7,8-Cl6DBD	2.1	"	<2.1	<0.21
1,2,3,7,8,9-Cl6DBD	2.1	"	<2.1	<0.21
1,2,3,4,6,7,8-Cl7DBF	22	"	<22	<0.22
1,2,3,4,7,8,9-Cl7DBF	14	"	<14	<0.14
1,2,3,4,6,7,8-Cl7DBD	2.1	"	9.0	0.090
1,2,3,4,6,7,8,9-Cl8DBF	2.2	"	6.4	0.0064
1,2,3,4,6,7,8,9-Cl8DBD	5.7	"	78	0.078
	TEF	pg	0.38	
	MAX TEF	"	<9.2	
ΣT4CDF	0.56	pg	29	11
ΣP5CDF	1.3	"	4.8	1
ΣH6CDF	1.2	"	12	2
ΣH7CDF	9.5	"	<9.5	0
OCDF	2.2	"	6.4	1
ΣT4CDD	1.3	"	31	5
ΣP5CDD	1.5	"	6.7	2
ΣH6CDD	2.1	"	<2.1	0
ΣH7CDD	2.1	"	9.7	2
OCDD	5.7	"	78	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			88	
2,3,7,8-T4CDD-13C12			72	
1,2,3,7,8-P5CDF-13C12			66	
1,2,3,7,8-P5CDD-13C12			50	
1,2,3,6,7,8-H6CDF-13C12			78	
1,2,3,6,7,8-H6CDD-13C12			70	
1,2,3,4,6,7,8-H7CDF-13C12			78	
1,2,3,4,6,7,8-H7CDD-13C12			72	
OCDD-13C12			60	

**PSC Analytical Services
Certificate of Analysis**

	R02100403	R02100403	R02100403
Client ID:	05A	05A	05A
Lab No.:	039110 02	039110 02	039110 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	0.58	pg	<0.58	<0.058
2,3,7,8-Cl4DBD	0.34	"	0.38	0.38
1,2,3,7,8-Cl5DBF	0.51	"	0.56	0.028
2,3,4,7,8-Cl5DBF	0.49	"	<0.49	<0.24
1,2,3,7,8-Cl5DBD	0.46	"	<0.46	<0.23
1,2,3,4,7,8-Cl6DBF	0.72	"	<0.72	<0.072
1,2,3,6,7,8-Cl6DBF	0.30	"	<0.30	<0.030
2,3,4,6,7,8-Cl6DBF	0.45	"	<0.45	<0.045
1,2,3,7,8,9-Cl6DBF	0.62	"	<0.62	<0.062
1,2,3,4,7,8-Cl6DBD	0.60	"	<0.60	<0.060
1,2,3,6,7,8-Cl6DBD	0.55	"	<0.55	<0.055
1,2,3,7,8,9-Cl6DBD	0.54	"	<0.54	<0.054
1,2,3,4,6,7,8-Cl7DBF	1.8	"	<1.8	<0.018
1,2,3,4,7,8,9-Cl7DBF	1.2	"	<1.2	<0.012
1,2,3,4,6,7,8-Cl7DBD	0.74	"	<0.74	<0.0074
1,2,3,4,6,7,8,9-Cl8DBF	0.87	"	1.2	0.0012
1,2,3,4,6,7,8,9-Cl8DBD	3.1	"	<3.1	<0.0031
	TEF	pg	0.41	
	MAX TEF	"	<1.4	
ΣT4CDF	0.23	pg	<0.23	0
ΣP5CDF	0.51	"	0.56	1
ΣH6CDF	0.57	"	<0.57	0
ΣH7CDF	1.1	"	<1.1	0
OCDF	0.87	"	1.2	1
ΣT4CDD	0.34	"	0.38	1
ΣP5CDD	0.46	"	<0.46	0
ΣH6CDD	0.55	"	<0.55	0
ΣH7CDD	0.74	"	<0.74	0
OCDD	3.1	"	<3.1	0
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			94	
2,3,7,8-T4CDD-13C12			82	
1,2,3,7,8-P5CDF-13C12			80	
1,2,3,7,8-P5CDD-13C12			72	
1,2,3,6,7,8-H6CDF-13C12			58	
1,2,3,6,7,8-H6CDD-13C12			70	
1,2,3,4,6,7,8-H7CDF-13C12			48	
1,2,3,4,6,7,8-H7CDD-13C12			88	
OCDD-13C12			66	

**PSC Analytical Services
Certificate of Analysis**

	R02100403	R02100403	R02100403
Client ID:	06A	06A	06A
Lab No.:	039111 02	039111 02	039111 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	1.4	pg	<1.4	<0.14
2,3,7,8-Cl4DBD	0.94	"	<0.94	<0.94
1,2,3,7,8-Cl5DBF	1.5	"	<1.5	<0.073
2,3,4,7,8-Cl5DBF	1.4	"	<1.4	<0.70
1,2,3,7,8-Cl5DBD	1.4	"	<1.4	<0.68
1,2,3,4,7,8-Cl6DBF	2.5	"	<2.5	<0.25
1,2,3,6,7,8-Cl6DBF	2.3	"	<2.3	<0.23
2,3,4,6,7,8-Cl6DBF	2.7	"	<2.7	<0.27
1,2,3,7,8,9-Cl6DBF	3.0	"	<3.0	<0.30
1,2,3,4,7,8-Cl6DBD	3.9	"	<3.9	<0.39
1,2,3,6,7,8-Cl6DBD	3.6	"	<3.6	<0.36
1,2,3,7,8,9-Cl6DBD	3.5	"	<3.5	<0.35
1,2,3,4,6,7,8-Cl7DBF	96	"	<96	<0.96
1,2,3,4,7,8,9-Cl7DBF	110	"	<110	<1.1
1,2,3,4,6,7,8-Cl7DBD	3.7	"	<3.7	<0.037
1,2,3,4,6,7,8,9-Cl8DBF	3.0	"	<3.0	<0.0030
1,2,3,4,6,7,8,9-Cl8DBD	5.9	"	<5.9	<0.0060
	TEF	pg	0	
	MAX TEF	"	<6.8	
ΣT4CDF	0.76	pg	<0.76	0
ΣP5CDF	1.5	"	<1.5	0
ΣH6CDF	2.7	"	<2.7	0
ΣH7CDF	100	"	<100	0
OCDF	3.0	"	<3.0	0
ΣT4CDD	0.94	"	<0.94	0
ΣP5CDD	1.4	"	<1.4	0
ΣH6CDD	3.6	"	<3.6	0
ΣH7CDD	3.7	"	<3.7	0
OCDD	6.0	"	<6.0	0
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			108	
2,3,7,8-T4CDD-13C12			90	
1,2,3,7,8-P5CDF-13C12			70	
1,2,3,7,8-P5CDD-13C12			60	
1,2,3,6,7,8-H6CDF-13C12			66	
1,2,3,6,7,8-H6CDD-13C12			74	
1,2,3,4,6,7,8-H7CDF-13C12			48	
1,2,3,4,6,7,8-H7CDD-13C12			86	
OCDD-13C12			62	

**PSC Analytical Services
Certificate of Analysis**

	R02100403	R02100403	R02100403
Client ID:	07A	07A	07A
Lab No.:	039112 02	039112 02	039112 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	0.65	pg	0.95	0.095
2,3,7,8-Cl4DBD	0.54	"	<0.54	<0.54
1,2,3,7,8-Cl5DBF	0.41	"	<0.41	<0.020
2,3,4,7,8-Cl5DBF	0.39	"	<0.39	<0.19
1,2,3,7,8-Cl5DBD	0.89	"	<0.89	<0.44
1,2,3,4,7,8-Cl6DBF	0.51	"	<0.51	<0.051
1,2,3,6,7,8-Cl6DBF	0.47	"	<0.47	<0.047
2,3,4,6,7,8-Cl6DBF	0.55	"	<0.55	<0.055
1,2,3,7,8,9-Cl6DBF	0.60	"	<0.60	<0.060
1,2,3,4,7,8-Cl6DBD	0.85	"	<0.85	<0.085
1,2,3,6,7,8-Cl6DBD	0.79	"	<0.79	<0.079
1,2,3,7,8,9-Cl6DBD	0.77	"	<0.77	<0.077
1,2,3,4,6,7,8-Cl7DBF	13	"	<13	<0.13
1,2,3,4,7,8,9-Cl7DBF	15	"	<15	<0.15
1,2,3,4,6,7,8-Cl7DBD	0.69	"	1.3	0.013
1,2,3,4,6,7,8,9-Cl8DBF	6.7	"	<6.7	<0.0067
1,2,3,4,6,7,8,9-Cl8DBD	1.3	"	11	0.011
	TEF	pg	0.12	
	MAX TEF	"	<2.1	
ΣT4CDF	0.65	pg	0.95	1
ΣP5CDF	0.41	"	<0.41	0
ΣH6CDF	0.55	"	<0.55	0
ΣH7CDF	14	"	<14	0
OCDF	6.7	"	<6.7	0
ΣT4CDD	0.54	"	<0.54	0
ΣP5CDD	0.89	"	<0.89	0
ΣH6CDD	0.79	"	<0.79	0
ΣH7CDD	0.69	"	2.3	2
OCDD	1.3	"	11	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			92	
2,3,7,8-T4CDD-13C12			80	
1,2,3,7,8-P5CDF-13C12			80	
1,2,3,7,8-P5CDD-13C12			76	
1,2,3,6,7,8-H6CDF-13C12			76	
1,2,3,6,7,8-H6CDD-13C12			74	
1,2,3,4,6,7,8-H7CDF-13C12			90	
1,2,3,4,6,7,8-H7CDD-13C12			96	
OCDD-13C12			82	

**PSC Analytical Services
Certificate of Analysis**

	R02100403	R02100403	R02100403
Client ID:	08A	08A	08A
Lab No.:	039113 02	039113 02	039113 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	1.7	pg	<1.7	<0.17
2,3,7,8-Cl4DBD	0.57	"	<0.57	<0.57
1,2,3,7,8-Cl5DBF	0.74	"	<0.74	<0.037
2,3,4,7,8-Cl5DBF	0.71	"	<0.71	<0.36
1,2,3,7,8-Cl5DBD	0.66	"	<0.66	<0.33
1,2,3,4,7,8-Cl6DBF	1.0	"	<1.0	<0.10
1,2,3,6,7,8-Cl6DBF	0.97	"	<0.97	<0.097
2,3,4,6,7,8-Cl6DBF	1.1	"	<1.1	<0.11
1,2,3,7,8,9-Cl6DBF	1.2	"	<1.2	<0.12
1,2,3,4,7,8-Cl6DBD	0.82	"	<0.82	<0.082
1,2,3,6,7,8-Cl6DBD	0.76	"	<0.76	<0.076
1,2,3,7,8,9-Cl6DBD	0.74	"	<0.74	<0.074
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	0.85	"	2.0	0.020
1,2,3,4,6,7,8,9-Cl8DBF	0.72	"	1.6	0.0016
1,2,3,4,6,7,8,9-Cl8DBD	1.6	"	21	0.021
	TEF	pg	0.043	
	MAX TEF	"	<2.4	
ΣT4CDF	0.53	pg	1.6	2
ΣP5CDF	0.74	"	<0.74	0
ΣH6CDF	1.1	"	<1.1	0
ΣH7CDF	12	"	<12	0
OCDF	0.72	"	1.6	1
ΣT4CDD	0.57	"	2.3	2
ΣP5CDD	0.66	"	<0.66	0
ΣH6CDD	0.76	"	<0.76	0
ΣH7CDD	0.85	"	4.0	2
OCDD	1.6	"	21	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			96	
2,3,7,8-T4CDD-13C12			80	
1,2,3,7,8-P5CDF-13C12			84	
1,2,3,7,8-P5CDD-13C12			80	
1,2,3,6,7,8-H6CDF-13C12			58	
1,2,3,6,7,8-H6CDD-13C12			72	
1,2,3,4,6,7,8-H7CDF-13C12			54	
1,2,3,4,6,7,8-H7CDD-13C12			96	
OCDD-13C12			84	

**PSC Analytical Services
Certificate of Analysis**

	R02100403	R02100403	R02100403
Client ID:	09A	09A	09A
Lab No.:	039114 02	039114 02	039114 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	0.48	pg	1.6	0.16
2,3,7,8-Cl4DBD	0.79	"	<0.79	<0.79
1,2,3,7,8-Cl5DBF	0.78	"	<0.78	<0.039
2,3,4,7,8-Cl5DBF	0.60	"	<0.60	<0.30
1,2,3,7,8-Cl5DBD	0.81	"	<0.81	<0.40
1,2,3,4,7,8-Cl6DBF	0.84	"	<0.84	<0.084
1,2,3,6,7,8-Cl6DBF	0.78	"	<0.78	<0.078
2,3,4,6,7,8-Cl6DBF	0.92	"	<0.92	<0.092
1,2,3,7,8,9-Cl6DBF	0.99	"	<0.99	<0.099
1,2,3,4,7,8-Cl6DBD	0.66	"	<0.66	<0.066
1,2,3,6,7,8-Cl6DBD	0.61	"	<0.61	<0.061
1,2,3,7,8,9-Cl6DBD	0.60	"	<0.60	<0.060
1,2,3,4,6,7,8-Cl7DBF	56	"	<56	<0.56
1,2,3,4,7,8,9-Cl7DBF	2.4	"	<2.4	<0.024
1,2,3,4,6,7,8-Cl7DBD	0.72	"	<0.72	<0.0072
1,2,3,4,6,7,8,9-Cl8DBF	1.3	"	<1.3	<0.0013
1,2,3,4,6,7,8,9-Cl8DBD	3.3	"	<3.3	<0.0033
	TEF	pg	0.16	
	MAX TEF	"	<2.8	
ΣT4CDF	0.48	pg	1.6	1
ΣP5CDF	0.63	"	<0.63	0
ΣH6CDF	0.92	"	<0.92	0
ΣH7CDF	60	"	<60	0
OCDF	1.3	"	<1.3	0
ΣT4CDD	0.79	"	<0.79	0
ΣP5CDD	0.81	"	<0.81	0
ΣH6CDD	0.61	"	<0.61	0
ΣH7CDD	0.59	"	<0.59	0
OCDD	3.3	"	<3.3	0
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			96	
2,3,7,8-T4CDD-13C12			76	
1,2,3,7,8-P5CDF-13C12			84	
1,2,3,7,8-P5CDD-13C12			76	
1,2,3,6,7,8-H6CDF-13C12			52	
1,2,3,6,7,8-H6CDD-13C12			66	
1,2,3,4,6,7,8-H7CDF-13C12			44	
1,2,3,4,6,7,8-H7CDD-13C12			94	
OCDD-13C12			76	

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**PSC Analytical Services
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	R02100403	R02100403	R02100403
Client ID:	10A	10A	10A
Lab No.:	039115 02	039115 02	039115 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	1.1	"	<1.1	<1.1
1,2,3,7,8-Cl5DBF	1.7	"	<1.7	<0.083
2,3,4,7,8-Cl5DBF	1.6	"	<1.6	<0.80
1,2,3,7,8-Cl5DBD	1.5	"	<1.5	<0.76
1,2,3,4,7,8-Cl6DBF	1.3	"	<1.3	<0.13
1,2,3,6,7,8-Cl6DBF	1.2	"	<1.2	<0.12
2,3,4,6,7,8-Cl6DBF	1.4	"	<1.4	<0.14
1,2,3,7,8,9-Cl6DBF	1.6	"	<1.6	<0.16
1,2,3,4,7,8-Cl6DBD	2.3	"	<2.3	<0.23
1,2,3,6,7,8-Cl6DBD	2.2	"	<2.2	<0.22
1,2,3,7,8,9-Cl6DBD	2.1	"	<2.1	<0.21
1,2,3,4,6,7,8-Cl7DBF	130	"	<130	<1.3
1,2,3,4,7,8,9-Cl7DBF	160	"	<160	<1.6
1,2,3,4,6,7,8-Cl7DBD	6.4	"	<6.4	<0.064
1,2,3,4,6,7,8,9-Cl8DBF	4.3	"	<4.3	<0.0043
1,2,3,4,6,7,8,9-Cl8DBD	2.2	"	13	0.013
		pg	0.013	
TEF		"	<7.1	
MAX TEF				
ΣT4CDF	0.46	pg	2.0	2
ΣP5CDF	1.7	"	<1.7	0
ΣH6CDF	1.3	"	<1.3	0
ΣH7CDF	150	"	<150	0
OCDF	4.3	"	<4.3	0
ΣT4CDD	1.1	"	6.9	2
ΣP5CDD	1.5	"	<1.5	0
ΣH6CDD	2.2	"	<2.2	0
ΣH7CDD	6.4	"	<6.4	0
OCDD	2.2	"	13	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			94	
2,3,7,8-T4CDD-13C12			66	
1,2,3,7,8-P5CDF-13C12			64	
1,2,3,7,8-P5CDD-13C12			50	
1,2,3,6,7,8-H6CDF-13C12			102	
1,2,3,6,7,8-H6CDD-13C12			78	
1,2,3,4,6,7,8-H7CDF-13C12			100	
1,2,3,4,6,7,8-H7CDD-13C12			82	
OCDD-13C12			60	

**PSC Analytical Services
Certificate of Analysis**

	R02100403	R02100403	R02100403
Client ID:	11A	11A	11A
Lab No.:	039116 02	039116 02	039116 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	0.79	pg	2.6	0.26
2,3,7,8-Cl4DBD	1.4	"	<1.4	<1.4
1,2,3,7,8-Cl5DBF	0.78	"	<0.78	<0.039
2,3,4,7,8-Cl5DBF	0.48	"	<0.48	<0.24
1,2,3,7,8-Cl5DBD	1.9	"	<1.9	<0.95
1,2,3,4,7,8-Cl6DBF	2.1	"	<2.1	<0.21
1,2,3,6,7,8-Cl6DBF	1.9	"	<1.9	<0.19
2,3,4,6,7,8-Cl6DBF	2.3	"	<2.3	<0.23
1,2,3,7,8,9-Cl6DBF	2.5	"	<2.5	<0.25
1,2,3,4,7,8-Cl6DBD	1.7	"	<1.7	<0.17
1,2,3,6,7,8-Cl6DBD	1.6	"	<1.6	<0.16
1,2,3,7,8,9-Cl6DBD	1.5	"	<1.5	<0.15
1,2,3,4,6,7,8-Cl7DBF	170	"	<170	<1.7
1,2,3,4,7,8,9-Cl7DBF	200	"	<200	<2.0
1,2,3,4,6,7,8-Cl7DBD	2.1	"	5.8	0.058
1,2,3,4,6,7,8,9-Cl8DBF	6.7	"	<6.7	<0.0067
1,2,3,4,6,7,8,9-Cl8DBD	1.5	"	54	0.054
	TEF	pg	0.37	
	MAX TEF	"	<8.1	
ΣT4CDF	0.79	pg	3.9	2
ΣP5CDF	0.50	"	<0.50	0
ΣH6CDF	2.1	"	<2.1	0
ΣH7CDF	180	"	<180	0
OCDF	6.7	"	<6.7	0
ΣT4CDD	1.4	"	<1.4	0
ΣP5CDD	1.9	"	<1.9	0
ΣH6CDD	1.6	"	<1.6	0
ΣH7CDD	2.1	"	12	2
OCDD	1.5	"	54	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			96	
2,3,7,8-T4CDD-13C12			76	
1,2,3,7,8-P5CDF-13C12			74	
1,2,3,7,8-P5CDD-13C12			60	
1,2,3,6,7,8-H6CDF-13C12			44	
1,2,3,6,7,8-H6CDD-13C12			60	
1,2,3,4,6,7,8-H7CDF-13C12			36	
1,2,3,4,6,7,8-H7CDD-13C12			80	
OCDD-13C12			64	

**PSC Analytical Services
Certificate of Analysis**

	R02100403	R02100403	R02100403
Client ID:	12A	12A	12A
Lab No.:	039117 02	039117 02	039117 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	0.99	pg	2.2	0.22
2,3,7,8-Cl4DBD	1.3	"	<1.3	<1.3
1,2,3,7,8-Cl5DBF	0.99	"	<0.99	<0.049
2,3,4,7,8-Cl5DBF	0.95	"	<0.95	<0.48
1,2,3,7,8-Cl5DBD	2.5	"	<2.5	<1.2
1,2,3,4,7,8-Cl6DBF	2.2	"	<2.2	<0.22
1,2,3,6,7,8-Cl6DBF	2.1	"	<2.1	<0.21
2,3,4,6,7,8-Cl6DBF	2.4	"	<2.4	<0.24
1,2,3,7,8,9-Cl6DBF	2.6	"	<2.6	<0.26
1,2,3,4,7,8-Cl6DBD	1.9	"	<1.9	<0.19
1,2,3,6,7,8-Cl6DBD	1.8	"	<1.8	<0.18
1,2,3,7,8,9-Cl6DBD	1.7	"	<1.7	<0.17
1,2,3,4,6,7,8-Cl7DBF	250	"	<250	<2.5
1,2,3,4,7,8,9-Cl7DBF	290	"	<290	<2.9
1,2,3,4,6,7,8-Cl7DBD	3.5	"	<3.5	<0.035
1,2,3,4,6,7,8,9-Cl8DBF	3.7	"	20	0.020
1,2,3,4,6,7,8,9-Cl8DBD	3.9	"	7.3	0.0073
	TEF	pg	0.24	
	MAX TEF	"	<10	
ΣT4CDF	0.99	pg	2.2	1
ΣP5CDF	0.99	"	<0.99	0
ΣH6CDF	2.2	"	<2.2	0
ΣH7CDF	270	"	<270	0
OCDF	3.7	"	20	1
ΣT4CDD	1.7	"	5.8	2
ΣP5CDD	2.5	"	<2.5	0
ΣH6CDD	1.8	"	<1.8	0
ΣH7CDD	3.5	"	<3.5	0
OCDD	3.9	"	7.3	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			88	
2,3,7,8-T4CDD-13C12			70	
1,2,3,7,8-P5CDF-13C12			64	
1,2,3,7,8-P5CDD-13C12			52	
1,2,3,6,7,8-H6CDF-13C12			76	
1,2,3,6,7,8-H6CDD-13C12			78	
1,2,3,4,6,7,8-H7CDF-13C12			62	
1,2,3,4,6,7,8-H7CDD-13C12			84	
OCDD-13C12			58	

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	R02100403	R02100403	R02100403
Client ID:	13A	13A	13A
Lab No.:	039118 02	039118 02	039118 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	0.29	pg	1.8	0.18
2,3,7,8-Cl4DBD	0.30	"	0.72	0.72
1,2,3,7,8-Cl5DBF	0.55	"	0.71	0.035
2,3,4,7,8-Cl5DBF	0.55	"	<0.55	<0.27
1,2,3,7,8-Cl5DBD	0.54	"	<0.54	<0.27
1,2,3,4,7,8-Cl6DBF	0.28	"	0.44	0.044
1,2,3,6,7,8-Cl6DBF	0.26	"	<0.26	<0.026
2,3,4,6,7,8-Cl6DBF	0.31	"	<0.31	<0.031
1,2,3,7,8,9-Cl6DBF	0.37	"	<0.37	<0.037
1,2,3,4,7,8-Cl6DBD	0.59	"	<0.59	<0.059
1,2,3,6,7,8-Cl6DBD	0.55	"	<0.55	<0.055
1,2,3,7,8,9-Cl6DBD	0.54	"	<0.54	<0.054
1,2,3,4,6,7,8-Cl7DBF	13	"	<13	<0.13
1,2,3,4,7,8,9-Cl7DBF	14	"	<14	<0.14
1,2,3,4,6,7,8-Cl7DBD	0.43	"	0.68	0.0068
1,2,3,4,6,7,8,9-Cl8DBF	0.83	"	<0.83	<0.00083
1,2,3,4,6,7,8,9-Cl8DBD	0.42	"	4.1	0.0041
	TEF	pg	0.99	
	MAX TEF	"	<2.1	
ΣT4CDF	0.29	pg	2.9	3
ΣP5CDF	0.55	"	1.3	2
ΣH6CDF	0.31	"	0.44	1
ΣH7CDF	14	"	<14	0
OCDF	0.83	"	<0.83	0
ΣT4CDD	0.30	"	3.3	3
ΣP5CDD	0.54	"	2.4	3
ΣH6CDD	0.55	"	<0.55	0
ΣH7CDD	0.43	"	0.68	1
OCDD	0.42	"	4.1	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			102	
2,3,7,8-T4CDD-13C12			84	
1,2,3,7,8-P5CDF-13C12			89	
1,2,3,7,8-P5CDD-13C12			84	
1,2,3,6,7,8-H6CDF-13C12			91	
1,2,3,6,7,8-H6CDD-13C12			81	
1,2,3,4,6,7,8-H7CDF-13C12			101	
1,2,3,4,6,7,8-H7CDD-13C12			95	
OCDD-13C12			80	

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	R02100403	R02100403	R02100403
Client ID:	14A	14A	14A
Lab No.:	039119 02	039119 02	039119 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	0.34	pg	7.0	0.70
2,3,7,8-Cl4DBD	0.92	"	2.7	2.7
1,2,3,7,8-Cl5DBF	0.78	"	<0.78	<0.039
2,3,4,7,8-Cl5DBF	1.7	"	<1.7	<0.83
1,2,3,7,8-Cl5DBD	1.8	"	<1.8	<0.92
1,2,3,4,7,8-Cl6DBF	0.82	"	<0.82	<0.082
1,2,3,6,7,8-Cl6DBF	0.76	"	<0.76	<0.076
2,3,4,6,7,8-Cl6DBF	0.89	"	<0.89	<0.089
1,2,3,7,8,9-Cl6DBF	0.37	"	<0.37	<0.037
1,2,3,4,7,8-Cl6DBD	2.0	"	<2.0	<0.20
1,2,3,6,7,8-Cl6DBD	1.8	"	<1.8	<0.18
1,2,3,7,8,9-Cl6DBD	1.8	"	<1.8	<0.18
1,2,3,4,6,7,8-Cl7DBF	110	"	<110	<1.1
1,2,3,4,7,8,9-Cl7DBF	130	"	<130	<1.3
1,2,3,4,6,7,8-Cl7DBD	6.1	"	<6.1	<0.061
1,2,3,4,6,7,8,9-Cl8DBF	11	"	<11	<0.011
1,2,3,4,6,7,8,9-Cl8DBD	39	"	<39	<0.039
	TEF	pg	3.4	
	MAX TEF	"	<8.6	
ΣT4CDF	0.34	pg	24	9
ΣP5CDF	0.79	"	4.0	2
ΣH6CDF	0.89	"	<0.89	0
ΣH7CDF	120	"	<120	0
OCDF	11	"	<11	0
ΣT4CDD	0.92	"	22	5
ΣP5CDD	1.8	"	9.9	1
ΣH6CDD	1.8	"	39	1
ΣH7CDD	5.4	"	<5.4	0
OCDD	39	"	<39	0
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			86	
2,3,7,8-T4CDD-13C12			61	
1,2,3,7,8-P5CDF-13C12			47	
1,2,3,7,8-P5CDD-13C12			36	
1,2,3,6,7,8-H6CDF-13C12			91	
1,2,3,6,7,8-H6CDD-13C12			56	
1,2,3,4,6,7,8-H7CDF-13C12			66	
1,2,3,4,6,7,8-H7CDD-13C12			44	
OCDD-13C12			30	

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	R02100403	R02100403	R02100403
Client ID:	15A	15A	15A
Lab No.:	039120 02	039120 02	039120 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	0.38	pg	2.1	0.21
2,3,7,8-Cl4DBD	0.60	"	<0.60	<0.60
1,2,3,7,8-Cl5DBF	0.91	"	0.94	0.047
2,3,4,7,8-Cl5DBF	0.87	"	<0.87	<0.44
1,2,3,7,8-Cl5DBD	1.1	"	<1.1	<0.56
1,2,3,4,7,8-Cl6DBF	1.1	"	<1.1	<0.11
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	1.5	"	<1.5	<0.15
1,2,3,6,7,8-Cl6DBD	1.4	"	<1.4	<0.14
1,2,3,7,8,9-Cl6DBD	1.3	"	<1.3	<0.13
1,2,3,4,6,7,8-Cl7DBF	69	"	<69	<0.69
1,2,3,4,7,8,9-Cl7DBF	79	"	<79	<0.79
1,2,3,4,6,7,8-Cl7DBD	2.1	"	<2.1	<0.021
1,2,3,4,6,7,8,9-Cl8DBF	3.5	"	<3.5	<0.0035
1,2,3,4,6,7,8,9-Cl8DBD	5.6	"	<5.6	<0.0056
	TEF	pg	0.25	
	MAX TEF	"	<4.2	
ΣT4CDF	0.38	pg	3.2	3
ΣP5CDF	0.91	"	0.94	1
ΣH6CDF	1.2	"	<1.2	0
ΣH7CDF	74	"	<74	0
OCDF	3.5	"	<3.5	0
ΣT4CDD	0.6	"	3.9	2
ΣP5CDD	1.1	"	<1.1	0
ΣH6CDD	1.4	"	<1.4	0
ΣH7CDD	2.1	"	<2.1	0
OCDD	5.6	"	<5.6	0
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			91	
2,3,7,8-T4CDD-13C12			75	
1,2,3,7,8-P5CDF-13C12			63	
1,2,3,7,8-P5CDD-13C12			45	
1,2,3,6,7,8-H6CDF-13C12			103	
1,2,3,6,7,8-H6CDD-13C12			81	
1,2,3,4,6,7,8-H7CDF-13C12			82	
1,2,3,4,6,7,8-H7CDD-13C12			82	
OCDD-13C12			57	

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	R02100403	R02100403	R02100403
Client ID:	16A	16A	16A
Lab No.:	039121 02	039121 02	039121 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	3.4	pg	<3.4	<0.34
2,3,7,8-Cl4DBD	0.50	"	<0.50	<0.50
1,2,3,7,8-Cl5DBF	0.48	"	0.52	0.026
2,3,4,7,8-Cl5DBF	0.76	"	<0.76	<0.38
1,2,3,7,8-Cl5DBD	0.91	"	<0.91	<0.46
1,2,3,4,7,8-Cl6DBF	0.57	"	1.2	0.12
1,2,3,6,7,8-Cl6DBF	0.64	"	<0.64	<0.064
2,3,4,6,7,8-Cl6DBF	0.34	"	<0.34	<0.034
1,2,3,7,8,9-Cl6DBF	0.37	"	<0.37	<0.037
1,2,3,4,7,8-Cl6DBD	0.97	"	<0.97	<0.097
1,2,3,6,7,8-Cl6DBD	0.90	"	<0.90	<0.090
1,2,3,7,8,9-Cl6DBD	0.88	"	<0.88	<0.088
1,2,3,4,6,7,8-Cl7DBF	30	"	<30	<0.30
1,2,3,4,7,8,9-Cl7DBF	3.9	"	<3.9	<0.039
1,2,3,4,6,7,8-Cl7DBD	3.0	"	<3.0	<0.030
1,2,3,4,6,7,8,9-Cl8DBF	3.8	"	37	0.037
1,2,3,4,6,7,8,9-Cl8DBD	11	"	<11	<0.011
	TEF	pg	0.18	
	MAX TEF	"	<2.7	
ΣT4CDF	0.31	pg	9.5	6
ΣP5CDF	0.48	"	3.8	3
ΣH6CDF	0.62	"	1.2	1
ΣH7CDF	32	"	<32	0
OCDF	3.8	"	37	1
ΣT4CDD	0.49	"	12	5
ΣP5CDD	1.1	"	1.6	1
ΣH6CDD	0.90	"	<0.90	0
ΣH7CDD	1.6	"	2.5	1
OCDD	11	"	<11	0
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			98	
2,3,7,8-T4CDD-13C12			82	
1,2,3,7,8-P5CDF-13C12			73	
1,2,3,7,8-P5CDD-13C12			58	
1,2,3,6,7,8-H6CDF-13C12			119	
1,2,3,6,7,8-H6CDD-13C12			89	
1,2,3,4,6,7,8-H7CDF-13C12			96	
1,2,3,4,6,7,8-H7CDD-13C12			74	
OCDD-13C12			51	

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	R02100403	R02100403	R02100403
Client ID:	17A	17A	17A
Lab No.:	039122 02	039122 02	039122 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	2.2	pg	<2.2	<0.22
2,3,7,8-Cl4DBD	0.51	"	<0.51	<0.51
1,2,3,7,8-Cl5DBF	0.74	"	<0.74	<0.037
2,3,4,7,8-Cl5DBF	0.75	"	<0.75	<0.37
1,2,3,7,8-Cl5DBD	1.3	"	<1.3	<0.65
1,2,3,4,7,8-Cl6DBF	1.7	"	<1.7	<0.17
1,2,3,6,7,8-Cl6DBF	1.6	"	<1.6	<0.16
2,3,4,6,7,8-Cl6DBF	1.9	"	<1.9	<0.19
1,2,3,7,8,9-Cl6DBF	2.1	"	<2.1	<0.21
1,2,3,4,7,8-Cl6DBD	1.6	"	<1.6	<0.16
1,2,3,6,7,8-Cl6DBD	1.5	"	<1.5	<0.15
1,2,3,7,8,9-Cl6DBD	1.4	"	<1.4	<0.14
1,2,3,4,6,7,8-Cl7DBF	2.7	"	<2.7	<0.027
1,2,3,4,7,8,9-Cl7DBF	2.9	"	<2.9	<0.029
1,2,3,4,6,7,8-Cl7DBD	1.6	"	4.3	0.043
1,2,3,4,6,7,8,9-Cl8DBF	3.2	"	<3.2	<0.0033
1,2,3,4,6,7,8,9-Cl8DBD	5.8	"	36	0.036
	TEF	pg	0.079	
	MAX TEF	"	<3.1	
ΣT4CDF	0.36	pg	4.7	4
ΣP5CDF	0.77	"	<0.77	0
ΣH6CDF	1.9	"	<1.9	0
ΣH7CDF	100	"	<100	0
OCDF	3.2	"	<3.2	0
ΣT4CDD	0.51	"	1.8	1
ΣP5CDD	1.3	"	<1.3	0
ΣH6CDD	1.5	"	<1.5	0
ΣH7CDD	1.6	"	4.3	1
OCDD	5.8	"	36	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			90	
2,3,7,8-T4CDD-13C12			77	
1,2,3,7,8-P5CDF-13C12			69	
1,2,3,7,8-P5CDD-13C12			53	
1,2,3,6,7,8-H6CDF-13C12			49	
1,2,3,6,7,8-H6CDD-13C12			52	
1,2,3,4,6,7,8-H7CDF-13C12			36	
1,2,3,4,6,7,8-H7CDD-13C12			59	
OCDD-13C12			50	

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	R02100403	R02100403	R02100403
Client ID:	18A	18A	18A
Lab No.:	039123 02	039123 02	039123 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	0.45	pg	1.3	0.13
2,3,7,8-Cl4DBD	0.55	"	0.91	0.91
1,2,3,7,8-Cl5DBF	0.56	"	1.2	0.058
2,3,4,7,8-Cl5DBF	0.54	"	0.92	0.46
1,2,3,7,8-Cl5DBD	0.74	"	<0.74	<0.37
1,2,3,4,7,8-Cl6DBF	0.57	"	<0.57	<0.057
1,2,3,6,7,8-Cl6DBF	0.53	"	0.71	0.071
2,3,4,6,7,8-Cl6DBF	0.62	"	1.1	0.11
1,2,3,7,8,9-Cl6DBF	0.67	"	<0.67	<0.067
1,2,3,4,7,8-Cl6DBD	1.7	"	<1.7	<0.17
1,2,3,6,7,8-Cl6DBD	1.5	"	<1.5	<0.15
1,2,3,7,8,9-Cl6DBD	1.4	"	<1.4	<0.14
1,2,3,4,6,7,8-Cl7DBF	67	"	<67	<0.67
1,2,3,4,7,8,9-Cl7DBF	77	"	<77	<0.77
1,2,3,4,6,7,8-Cl7DBD	1.2	"	<1.2	<0.012
1,2,3,4,6,7,8,9-Cl8DBF	12	"	<12	<0.012
1,2,3,4,6,7,8,9-Cl8DBD	1.2	"	3.4	0.0034
	TEF	pg	1.7	
	MAX TEF	"	<4.2	
ΣT4CDF	0.45	pg	1.3	1
ΣP5CDF	0.56	"	2.1	2
ΣH6CDF	0.62	"	1.8	2
ΣH7CDF	72	"	<72	0
OCDF	12	"	<12	0
ΣT4CDD	0.55	"	0.91	1
ΣP5CDD	0.74	"	<0.74	0
ΣH6CDD	0.80	"	<0.80	0
ΣH7CDD	1.2	"	<1.2	0
OCDD	1.2	"	3.4	1
Surrogate Recoveries		%		
2,3,7,8-T4CDF-13C12			85	
2,3,7,8-T4CDD-13C12			70	
1,2,3,7,8-P5CDF-13C12			67	
1,2,3,7,8-P5CDD-13C12			59	
1,2,3,6,7,8-H6CDF-13C12			99	
1,2,3,6,7,8-H6CDD-13C12			79	
1,2,3,4,6,7,8-H7CDF-13C12			98	
1,2,3,4,6,7,8-H7CDD-13C12			84	
OCDD-13C12			69	