

Fraction: Tray # 96

# BATCH LIST

Analysis Type: DIOXINS (8290)		Batch ID: DXWG6796	
		Blank: WG6796-101 BLK BAKED NA2S04	
		Reference or Spike: WG6796-102 SPM	
		10G 8SREF SPIKED WITH 20UL DX012B-AUT/02 #34/10	
		Matrix Spike: WG6796-103 MS L	
Matrix: Solids		46.5g L4974-1 spiked with 20uL DX012B-AUT/02 #34/10	
Method ID: DX-S-8290/Ver.2		Matrix Spike Duplicate: WG6796-104 MSD L	
Analyst: Jas Hundal		46.5g L4974-1 spiked with 20uL DX012B-AUT/02 #34/10	
Date Due: 15-Sep-02		Samples: (4184)	
Date Started: 10-Sep-02		L4974-1L 46.5g Re-combine	
Date Finished:		L4974-2L 25.0g	
		L4974-3L 24.5g	
Surrogate:		L4974-4L 36.0g	
DX013A-SUR/06 #25/10, 20uL		L4974-5L 35.5g	
		L4974-6L 34.0g	
		L4974-7L 23.5g	
		FIELD DUPLICATE	
Recovery:			
DX005A-REC/18 #27 DS, 20uL		20uL	
Calibration:		SAR: WG6796-105 SAR 30 #34/10	
DX018C-CAL/		20uL DX013A-SUR/06 + 20UL DX012B-AUT/02 +	
		20UL DX005A-REC/18 FV=20UL	

Comments:

10g dry weight -- use weights as above  
 % moisture required  
 USE LARGE SOXHLET GLASSWARE AND USE EXTRA NA2S04 TO DRY THE LARGE SAMPLE SIZE  
 -SOXHLET IN 600ML 80:20 TOLUENE/ACETONE

ALSO - DON'T FORGET TO PRE-SOXHLET YOUR GLASSWARE

Clean up c/c EI : combine with existing extract. EA 25-Sept-02  
 (c/c #106 was used)

Re-inject L4974-2 due to poor c/o EA 23-NOV-02  
 Reinject L4974-3 c/o to 26 Nov 02

QA/QC SPECIFICATIONS (State If different from AXYS Criteria)	PASS		Checked By	QA/QC SPECIFICATIONS (State If different from AXYS Criteria)	PASS		Checked By
	Y	N			Y	N	
BLANK:							
REFERENCES				SURROGATE RECs			
DUPLICATES				DETECTION LIMITS			

0046

# DIOXIN/FURAN SAMPLE ANALYSIS RECORD

Method #s: Pulp: DX-P-01/Ver.4 Sludge: DX-SL-01/Ver.4, DX-SL-8290 / Ver. 2 Filter/Pufs: DX-F-01/Ver.2  
 Sediment: DX-S-01/Ver.4, DX-S-8290/Ver.2 Wood Chips: DX-WC-01/Ver.4 Black Liquor: DX-L-01/Ver.2

Level: DC \_\_\_\_\_ MDT \_\_\_\_\_ HR \_\_\_\_\_ LR \_\_\_\_\_ Due Date: 15 SEPT. 02  
 Sample ID: WG 6796 - 10 BLK Date: 10 SEPT. 02 Analyst: JAS HINDAL BATCH #: DXWG 6796  
 Blank: WG 6796 - 10 BLK Rec'd: \_\_\_\_\_ Back-up: \_\_\_\_\_ g Stored In: \_\_\_\_\_  
 Original Labelling: POWDER Na<sub>2</sub>SO<sub>4</sub> LAB 2

Sample Type and Description: PROCEDURAL BLANK

Sample Pre-Treatment at Axy's: \_\_\_\_\_ Date: \_\_\_\_\_ Homogenizer: \_\_\_\_\_  
 at other: \_\_\_\_\_ Specifics: \_\_\_\_\_

**AUTHENTIC STANDARD**

	name	volume	date	time	analyst
Sample Weight:	Wet <u>78.67</u> g	Moisture: <u>0%</u>		Tare: <u>0.95</u> g	
		Dry <u>78.67</u> g		Dry + Tare: <u>0.95</u> g	
				Wet + Tare: <u>0.95</u> g	
				Dry/Wet Ratio: <u>0</u>	

**SURROGATE STANDARD ID** DX013A-SUR106 20uL 11 SEPT. 02 14:30 JAH

	name	quantity	date	time	analyst
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**Extraction:**  
 Start: 11 SEPT. 02 17:45 JAH End: 12 SEPT. 02 9:00 JAH  
 date time analyst date time analyst

**Cleanup:**  
 Base/Acid Wash: 1 B 1 W 2 A 1 W 12 SEPT. 02 JAH  
 Chromatography: Cu rxn: 1 meq. 2 \_\_\_\_\_

Procedure No.

( ) Ag/A/B Silica Gel	(Batch # <u>170</u> )	date	analyst
( ) Florisil	(Batch # <u>47B</u> )	<u>12 SEPT. 02</u>	<u>JAH</u>
( ) Carbon/celite	(Batch # <u>106</u> )	<u>13 SEPT. 02</u>	<u>JH</u>
( ) Alumina	(Batch # <u>226</u> )	<u>14 SEPT. 02</u>	<u>JAH</u>

**RECOVERY STANDARD ID** DX005A-REC18 20uL 14 SEPT. 02 3:00 JAH

	name	quantity	date	time	analyst
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Final microvial volume: 20uL

Additional Work	Reason:	GC Data	Requested	Completed in	Run on Instr.
Action:		File:	by/date:	lab by/date	by/date
<u>Clean up c/c EI; combine with existing extract</u>	<u>Low TCDP rec</u>	<u>3-243</u>	<u>EA 25-sept-02</u>	<u>WN 16 Oct 02</u>	
<u>reject 225</u>	<u>closing cal ver fails</u>	<u>3-328</u>	<u>KC 20-Oct.02</u>		<u>#3 XX 23 Nov 02</u>
<u>Reject 225</u>	<u>Wrong cal run</u>	<u>3-334</u>	<u>R 25/10/02</u>		

**Comments**  
-went dry on the retwrap after carbon celite when retwrap spiked to ~48°C.  
Carbon-Celite #107 11 Oct 02; Florisil #48A 15 Oct 02; Alumina #228 16 Oct 02 WJH  
Recombined c/c EI into existing μ-vial. 16 Oct 02 WJH

# DIOXIN/FURAN SAMPLE ANALYSIS RECORD

Method #s: Pulp: DX-P-01/Ver.4 Sludge: DX-SL-01/Ver.4, DX-SL-8290/Ver.2 Filter/Puffs: DX-F-01/Ver.2  
Sediment: DX-S-01/Ver.4 DX-S-8290/Ver.2 Wood Chips: DX-WC-01/Ver.4 Black Liquor: DX-L-01/Ver.2

Level: DC \_\_\_\_\_ MDT \_\_\_\_\_ HR \_\_\_\_\_ LR \_\_\_\_\_ Due Date: 15-SEPT-02  
 Sample ID: L4974-1 L Date: 10-SEPT-02 Analyst: JAS HINDAL BATCH #: DXWG 6796  
 Blank: WG6796-10 BLK Rec'd: 15-Aug-02 Back-up: 7509 g Stored In: \_\_\_\_\_  
 Original Labelling: SS-21

Sample Type and Description: Solid Sediment - Black, tar-like, mushy matter

Sample Pre-Treatment at Axys:  Date: 30-Aug-02 Homogenizer: QD  
 at other: \_\_\_\_\_ Specifics: Homo, jar transfer

### AUTHENTIC STANDARD

	name	volume	date	time	analyst
Sample Weight:	Wet <u>48.10</u> g	Moisture: <u>79.1%</u>		Tare: <u>0.96</u> g	
				Dry + Tare: <u>1.35</u> g	
		Dry <u>10.03</u> g		Wet + Tare: <u>2.83</u> g	
				Dry/Wet Ratio: <u>0.39/1.87 = 0.21</u>	

SURROGATE STANDARD ID	name	quantity	date	time	analyst
<u>DX03A-Sur106</u>		<u>20 uL</u>	<u>11-SEPT-02</u>	<u>14:34</u>	<u>AA</u>

### Extraction:

Start: 11-SEPT-02 17:45 AA End: 12-SEPT-02 9:00 AA  
 date time analyst date time analyst

### Cleanup:

Base/Acid Wash: 3 B 3 W 10 A 1 W 12-SEPT-02 A.A.

Chromatography: Cu rxn: 1 meg. 2

### Procedure No.

(3x) Ag/AB Silica Gel	(Batch # <u>170</u> )	<u>12-SEPT-02</u>	<u>AA</u>
( ) Florisil	(Batch # <u>47B</u> )	<u>13-SEPT-02</u>	<u>JH</u>
( ) Carbon/celite	(Batch # <u>106</u> )	<u>13-SEPT-02</u>	<u>JH</u>
( ) Alumina	(Batch # <u>226</u> )	<u>14-SEPT-02</u>	<u>AA</u>

RECOVERY STANDARD ID	name	quantity	date	time	analyst
<u>DX005A-REC/18</u>		<u>20 uL</u>	<u>14-SEPT-02</u>	<u>2:45</u>	<u>A.A.</u>

Final microvial volume: 20 uL

Additional Work Action:	Reason:	GC Data File:	Requested by/date:	Completed in lab by/date:	Run on Instr. by/date:
<u>Clean up c/c EI; combine with existing extract</u>	<u>low TCDF sur rec</u>	<u>3-243</u>	<u>EA 25-SEP-02</u>	<u>WH 16-OCT-02</u>	
<u>Reinject 225</u>	<u>closing cal ver failed</u>	<u>3-328</u>	<u>KC Oct.20'02</u>		<u>#3 xx 23-Nov-02</u>
<u>Reinject 225</u>	<u>wrong C/N Lin</u>	<u>3-344</u>	<u>AK 25/10/02</u>		

### Comments

Biobead column # 79 - used large biobead columns to double the amount of silica powder used.  
16-SEP-02 MBR. - couldn't blow samples to dryness after silica columns.



# DIOXIN/FURAN SAMPLE ANALYSIS RECORD

Method #s: Pulp: DX-P-01/Ver.4 Sludge: DX-SL-01/Ver.4, DX-SL-8290 / Ver. 2 Filter/Pufs: DX-F-01/Ver.2  
 Sediment: DX-S-01/Ver.4, DX-S-8290/Ver.2 Wood Chips: DX-WC-01/Ver.4 Black Liquor: DX-L-01/Ver.2

Level: DC \_\_\_\_\_ MDT \_\_\_\_\_ HR \_\_\_\_\_ LR \_\_\_\_\_ Due Date: 15-SEPT-02  
 Sample ID: L4974-2L Date: 10-SEPT-02 Analyst: JAS HUNDAL BATCH #: DXWG 6796  
 Blank: WG6796-10 BLK Rec'd: 15 Aug 02 Back-up: 7100g g Stored In: \_\_\_\_\_  
 Original Labelling: SS-22

Sample Type and Description: Sediment - Black/brown, thick, tar-like matter.

Sample Pre-Treatment at Axys:  Date: 30 Aug 02 Homogenizer: RD  
 at other: \_\_\_\_\_ Specifics: Homo, Jar transfer

**AUTHENTIC STANDARD**

	name	volume	date	time	analyst
Sample Weight:	Wet <u>25.69</u> g	Moisture: <u>59.4%</u>		Tare: <u>0.96</u> g	
		Dry <u>10.45</u> g		Dry + Tare: <u>1.68</u> g	
				Wet + Tare: <u>2.73</u> g	
				Dry/Wet Ratio: <u>0.72/1.77 = 0.40</u>	

SURROGATE STANDARD ID	name	quantity	date	time	analyst
<u>DX03A-Sur106</u>		<u>20ul</u>	<u>11-SEPT-02</u>	<u>14:36</u>	<u>JA</u>

Extraction :  
 Start: 11-SEPT-02 17:45 JA End: 12 Sept 02 9:00 JA  
 date time analyst date time analyst

Cleanup:  
 Base/Acid Wash: 3 B 3 W 6 A 1 W 12 Sept 02 JA  
 Chromatography: Cu rxn: 1 meg. 2 \_\_\_\_\_  
 Procedure No.

( ) Ag/AB Silica Gel	(Batch # <u>170</u> )	<u>12 Sept 02</u>	<u>JA</u>
( ) Florisil	(Batch # <u>473</u> )	<u>13 Sept 02</u>	<u>JA</u>
( ) Carbon/celite	(Batch # <u>106</u> )	<u>13 Sept 02</u>	<u>JA</u>
( ) Alumina	(Batch # <u>226</u> )	<u>14 Sept 02</u>	<u>JA</u>

RECOVERY STANDARD ID	name	quantity	date	time	analyst
<u>DX005A-REC/18</u>		<u>20ul</u>	<u>14 Sept 02</u>	<u>2:45</u>	<u>JA</u>

Final microvial volume: 20ul

Additional Work	Reason:	GC Data	Requested	Completed in	Run on Instr.
Action:		File:	by/date:	lab by/date	by/date
<u>Clean up c/c El &amp; combine with existing extract</u>	<u>low TCDF sur rec</u>	<u>3-243</u>	<u>EA 25-Sept-02</u>	<u>LJN 16 Oct 02</u>	
<u>reinject 225</u>	<u>closing calver failed</u>	<u>3-328</u>	<u>KC Oct. 20 '02</u>		<u>#3 XX73 Nov 02</u>
<u>Re-inject 225</u>	<u>poss c/o</u>	<u>3-33A</u>	<u>EA 28-Nov-02</u>		<u>#3AL 24 Nov 02</u>

**Comments**

El: Carbon-Celite #167 11 Oct 02; Florisil #48A 15 Oct 02; Alumina #228 16 Oct 02. LJN  
Recombined c/c El with original microvial. 16 Oct 02 LJN  
Recaluma AgNO<sub>3</sub>/AR/Silica 17 Oct 02 LJN

0050

# DIOXIN/FURAN SAMPLE ANALYSIS RECORD

Method #s: Pulp: DX-P-01/Ver.4 Sludge: DX-SL-01/Ver.4, DX-SL-8290 / Ver. 2 Filter/Pufs: DX-F-01/Ver.2  
 Sediment: DX-S-01/Ver.4, DX-S-8290/Ver.2 Wood Chips: DX-WC-01/Ver.4 Black Liquor: DX-L-01/Ver.2

Level: DC \_\_\_\_\_ MDT \_\_\_\_\_ HR \_\_\_\_\_ LR \_\_\_\_\_ Due Date: 15-SEPT-02  
 Sample ID: L4974-3L Date: 10-SEPT-02 Analyst: JAS HUNDAL BATCH #: DXWG 6796  
 Blank: WG6796-10/BLK Rec'd: 15-Aug-02 Back-up: 7/50 g Stored In: \_\_\_\_\_  
 Original Labelling: 55-23

Sample Type and Description: sediment - Black/brown, far-like appearance. Mushy matter.

Sample Pre-Treatment at Axys:  Date: 4.5 sep. 02 Homogenizer: EP  
 at other: \_\_\_\_\_ Specifics: Homo

**AUTHENTIC STANDARD**

	name	volume	date	time	analyst
Sample Weight:	Wet <u>25.53</u> g	Moisture: <u>54.7%</u>		Tare: <u>0.96</u> g	
		Dry <u>11.56</u> g		Dry + Tare: <u>1.83</u> g	
		<u>11.57 g</u> EA 28 Nov 02		Wet + Tare: <u>2.88</u> g	
				Dry/Wet Ratio: <u>0.87/1.92 = 0.45</u>	

SURROGATE STANDARD ID	<u>DX013A-SW406</u>	<u>20 uL</u>	<u>11-SEPT-02</u>	<u>14:37</u>	<u>JA</u>
	name	quantity	date	time	analyst

Extraction: Start: 11-SEPT-02 17:45 JA End: 12-SEPT-02 9:00 JA  
 date time analyst date time analyst

Cleanup: Base/Acid Wash: 3 B 3 W 6 A 1 W 12-SEPT-02 JA  
 Chromatography: Cu rxn: 1 meg. 2  
 Procedure No.

(2x) Ag/AB Silica Gel	(Batch # <u>170</u> )	<u>12-SEPT-02</u>	<u>JA</u>
( ) Florisil	(Batch # <u>47B</u> )	<u>13-SEPT-02</u>	<u>JA</u>
( ) Carbon/celite	(Batch # <u>106</u> )	<u>13-SEPT-02</u>	<u>JA</u>
( ) Alumina	(Batch # <u>226</u> )	<u>14-SEPT-02</u>	<u>JA</u>
		date	analyst

RECOVERY STANDARD ID	<u>DX005A-REC/18</u>	<u>20 uL</u>	<u>14-SEPT-02</u>	<u>3:00</u>	<u>JA</u>
	name	quantity	date	time	analyst

Final microvial volume: 20 uL

Additional Work	Reason:	GC Data	Requested	Completed in	Run on Instr.
Action:		File:	by/date:	lab by/date	by/date
<u>Clean up c/c EI &amp; combine with existing extract</u>	<u>Low PDF sur rec</u>	<u>3-243</u>	<u>EA 25-SEPT-02</u>	<u>WIN 16-OCT-02</u>	
<u>reinject 225</u>	<u>closing cal ver failed</u>	<u>3-328</u>	<u>EC Oct 20 02</u>		<u>#3 XX 23 NOV 02</u>
<u>Reinject 225</u>	<u>WRONG cwn Run</u>	<u>3-341</u>	<u>FR 25/10/02</u>		<u>#3</u>
<u>Reinject 225</u>	<u>pos c/o</u>	<u>3-340</u>	<u>to 26 nov 02</u>		<u>#3 KC NOV 27 02</u>

El: Carbon-Celite #107; Florisil #48A; Alumina #228 16-OCT-02 WIN  
Recombined c/c EI with original microvial 16-OCT-02 WIN  
Recolumn Ag/NO3/AB/Silica 17-OCT-02 WIN



# DIOXIN/FURAN SAMPLE ANALYSIS RECORD

Method #s: Pulp: DX-P-01/Ver.4 Sludge: DX-SL-01/Ver.4, DX-SL-8290/Ver.2 Filter/Pufs: DX-F-01/Ver.2  
 Sediment: DX-S-01/Ver.4, DX-S-8290/Ver.2 Wood Chips: DX-WC-01/Ver.4 Black Liquor: DX-L-01/Ver.2

Level: DC \_\_\_\_\_ MDT \_\_\_\_\_ HR \_\_\_\_\_ LR \_\_\_\_\_ Due Date: 15-SEPT-02  
 Sample ID: L4974-5L Date: 10-SEPT-02 Analyst: JAS HINDAL BATCH #: DXWG 6796  
 Blank: WG6796-10BLK Rec'd: 15-AUG-02 Back-up: 7150g g Stored In: \_\_\_\_\_  
 Original Labeling: SS-25

Sample Type and Description: Sediment: Black/brown, tar-like, mushy matter

Sample Pre-Treatment at Axys:  Date: 30-AUG-02 Homogenizer: QD  
 at other: \_\_\_\_\_ Specifics: Homo & Jar transfer

**AUTHENTIC STANDARD**

	name	volume	date	time	analyst
Sample Weight:	Wet <u>36.68</u> g	Moisture: <u>70.4%</u>		Tare: <u>0.95</u> g	
		Dry <u>10.87</u> g		Dry + Tare: <u>1.35</u> g	
				Wet + Tare: <u>2.30</u> g	
				Dry/Wet Ratio: <u>0.40/1.35 = 0.29</u>	

SURROGATE STANDARD ID	<u>DX03A-SUR106</u>	<u>20uL</u>	<u>11-SEPT-02</u>	<u>14139</u>	<u>JH</u>
	name	quantity	date	time	analyst

Extraction :  
 Start: 11-SEPT-02 17:45 JH End: 12-SEPT-02 9:00 JH  
 date time analyst date time analyst

Cleanup:  
 Base/Acid Wash: 4 B 3 W 9 A 1 W 12-SEPT-02 JH  
 Chromatography: Cu rxn: 1 meg. 2  
 Procedure No.

(2x) Ag/AB Silica Gel	(Batch # <u>170</u> )	<u>12-SEPT-02</u>	<u>JH</u>
( ) Florisil	(Batch # <u>47B</u> )	<u>13-SEPT-02</u>	<u>JH</u>
( ) Carbon/celite	(Batch # <u>106</u> )	<u>13-SEPT-02</u>	<u>JH</u>
( ) Alumina	(Batch # <u>226</u> )	<u>14-SEPT-02</u>	<u>JH</u>
		date	analyst

RECOVERY STANDARD ID	<u>DX005A-REC/18</u>	<u>20uL</u>	<u>14-SEPT-02</u>	<u>3:21</u>	<u>JH</u>
	name	quantity	date	time	analyst

Final microvial volume: 20uL

Additional Work	Reason:	GC Data	Requested	Completed in	Run on Instr.
Action:		File:	by/date:	lab by/date	by/date
<u>Clean up c/c El: combine with existing extract</u>	<u>Low TCDF sur rec</u>	<u>3-243</u>	<u>EA 25-SEPT-02</u>	<u>WIN 16-SEPT-02</u>	
<u>reject 225</u>	<u>closing cal ver failed</u>	<u>3-328</u>	<u>KC OCT 20 02</u>		<u>#3 xx23N/A/02</u>
<u>Reject 225</u>	<u>WRONG CAL RUN</u>	<u>3-334</u>	<u>HR 25/10/02</u>		

**Comments**

El: Carbon-Celite #107 11-SEPT-02; Florisil #48A 15-SEPT-02; Alumina #228 16-SEPT-02 WIN  
Recombined c/c El with original microvial 16-SEPT-02 WIN  
Recolumn AgNO3/AB/Silica. 17-SEPT-02 WIN



# DIOXIN/FURAN SAMPLE ANALYSIS RECORD

Method #: Pulp: DX-P-01/Ver.4 Sludge: DX-SL-01/Ver.4, DX-SL-8290/Ver.2 Filter/Pufs: DX-F-01/Ver.2  
 Sediment: DX-S-01/Ver.4, DX-S-8290/Ver.2 Wood Chips: DX-WC-01/Ver.4 Black Liquor: DX-L-01/Ver.2

Level: DC \_\_\_\_\_ MDT \_\_\_\_\_ HR \_\_\_\_\_ LR \_\_\_\_\_ Due Date: 15 SEPT 02  
 Sample ID: L4794-7L Date: 10 SEPT 02 Analyst: JAS HUNDAK BATCH #: DXWG 6796  
 Blank: WG 6796-10 BLK Rec'd: 15 Aug 02 Back-up: 7150g g Stored In: \_\_\_\_\_  
 Original Labelling: D4P

Sample Type and Description: Sediment: Black/brown, tar-like appearance. Mushy matter.

Sample Pre-Treatment at Axys: Y Date: 30 Aug 02 Homogenizer: QD  
 at other: \_\_\_\_\_ Specifics: HOMO

**AUTHENTIC STANDARD**

	name	volume	date	time	analyst
Sample Weight:	Wet <u>24.02</u> g	Moisture: <u>56.1%</u>		Tare: <u>0.95</u> g	
	Dry <u>10.55</u> g			Dry + Tare: <u>7.85</u> g	
				Wet + Tare: <u>3.00</u> g	
				Dry/Wet Ratio: <u>0.90/2.05 = 0.43</u>	

SURROGATE STANDARD ID	name	quantity	date	time	analyst
<u>DX03A-SUR106</u>	<u>20 mL</u>	<u>11 SEPT 02</u>	<u>14:41</u>	<u>AA</u>	

Extraction: Start: 11 SEPT 02 17:45 analyst AA End: 12 SEPT 02 9:00 analyst AA

Cleanup: Base/Acid Wash: 3 B 3 W 6 A 1 W 12 SEPT 02 AA  
 Chromatography: Cu rxn: 1 mag- 2  
 Procedure No.

( ) Ag/AB Silica Gel	(Batch # <u>170</u> )	<u>12 SEPT 02</u>	<u>JH</u>
( ) Florisil	(Batch # <u>47B</u> )	<u>13 SEPT 02</u>	<u>AA</u>
( ) Carbon/celite	(Batch # <u>106</u> )	<u>13 SEPT 02</u>	<u>AA</u>
( ) Alumina	(Batch # <u>226</u> )	<u>14 SEPT 02</u>	<u>AA</u>

RECOVERY STANDARD ID	name	quantity	date	time	analyst
<u>DX005A-REC/18</u>	<u>20 µl</u>	<u>14 SEPT 02</u>	<u>3:18</u>	<u>AA</u>	

Additional Work	Reason:	GC Data	Requested	Completed in	Run on Instr.
Action:		File:	by/date:	lab by/date	by/date
<u>Cleanup c/c EI combine with existing extract</u>	<u>Low TCDF sur rec</u>	<u>3-243</u>	<u>EA 25-Sept-02</u>	<u>WN 16 Oct 02</u>	
<u>reject 225</u>	<u>losing cal ver failed</u>	<u>3-328</u>	<u>KCOA 20 02</u>		<u>Nov 13 xx 23 02</u>
<u>Reject 225</u>	<u>WRONG CPL RUP</u>	<u>3-334</u>	<u>AR 25 10 02</u>		

Comments  
EI: Carbon-Celite #107 11 Oct 02; Florisil #48A 15 Oct 02; Alumina #228 16 Oct 02 WN  
Recombined c/c EI with original µ-vial 16 Oct 02 WN  
Recolumn AgNO<sub>3</sub>/AB/Silica 17 Oct 02 WN

# SAMPLE DATA



Form 1A  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-1 L
Matrix:	SOLID	Sample Size:	10.0 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	27-Oct-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	16-Nov-2002	Time:	14:56:10
GC Column ID:	DB-5	Sample Datafile:	DX22_418 S:9
Extract Volume (µL):	20	Blank Data Filename:	DX22_418 S:6
Injection Volume (µL):	1.0	Cal. Ver. Data Filename:	DX22_418 S:2
Dilution Factor:	N/A	% Solid:	79
Concentration Units:	pg/g (dry weight basis)		

COMPOUND	DATA FLAGS <sup>1</sup>	CONC'N FOUND	EDL	ION ABUND. RATIO <sup>2</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
2,3,7,8-TCDD		8.28	0.10	0.80	26:23	1.70E+03	1.07	3.72E+06
1,2,3,7,8-PeCDD <sup>3</sup>		32.1	0.10	0.64	36:08	2.50E+03	0.99	1.39E+07
1,2,3,4,7,8-HxCDD		40.4	0.66	1.27	42:05	1.90E+02	0.96	1.80E+07
1,2,3,6,7,8-HxCDD		252	0.66	1.26	42:13	1.20E+03	1.09	1.28E+08
1,2,3,7,8,9-HxCDD		145	0.66	1.23	42:38	4.70E+02	1.03	6.95E+07
1,2,3,4,6,7,8-HpCDD	OLR						1.20	
OCDD	OLR						1.06	
2,3,7,8-TCDF		86.8	2.69	0.77	25:22	4.00E+01	1.12	6.20E+07
1,2,3,7,8-PeCDF		17.9	0.65	1.51	33:34	7.10E+01	1.16	1.25E+07
2,3,4,7,8-PeCDF		49.5	0.65	1.54	35:19	2.20E+02	1.17	3.47E+07
1,2,3,4,7,8-HxCDF		130	3.76	1.25	40:41	5.60E+01	1.27	9.72E+07
1,2,3,6,7,8-HxCDF		54.5	3.76	1.18	40:52	2.50E+01	1.39	4.46E+07
1,2,3,7,8,9-HxCDF	U		3.76				1.11	
2,3,4,6,7,8-HxCDF		40.8	3.76	1.19	41:49	1.80E+01	1.26	3.03E+07
1,2,3,4,6,7,8-HpCDF	OLR						1.45	
1,2,3,4,7,8,9-HpCDF		98.2		1.03	47:05	3.00E+02	1.23	5.73E+07
OCDF	OLR						1.40	
Total Tetra-Dioxins		442	0.10					
Total Penta-Dioxins		351	0.10					
Total Hexa-Dioxins		1670	0.66					
Total Hepta-Dioxins	OLR							
Total Tetra-Furans		848	2.69					
Total Penta-Furans		1240	0.65					
Total Hexa-Furans		1800	3.76					
Total Hepta-Furans	OLR							

(1) EMPC: peak detected but did not meet confirmation criteria; J: concentration less than LMCL.; U: not detected.  
 (2) Limits for RRTs and ion abundance ratios are specified in Sections 7.8.4.1 and 7.8.4.2, respectively, Method 8290.  
 (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

— 0055

mw

Form 2  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-1 L
Matrix:	SOLID	Sample Size:	10.0 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	27-Oct-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	16-Nov-2002	Time:	14:56:10
		GC Column ID:	DB-5
Extract Volume (µL):	20	Sample Datafile:	DX22_418 S:9
Injection Volume (µL):	1.0	Blank Data Filename:	DX22_418 S:6
Dilution Factor:	N/A	Cal. Ver. Data Filename:	DX22_418 S:2
Concentration Units:	pg absolute	% Solid:	79

LABELLED COMPOUND	SPIKE CONC.	CONC. FOUND	% R <sup>1</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
13C-2,3,7,8-TCDD	1000	452	45.2	26:32	1.50E+04	1.05	4.19E+07
13C-1,2,3,7,8-PeCDD <sup>3</sup>	1000	660	66.0	36:07	2.00E+04	0.75	4.39E+07
13C-1,2,3,6,7,8-HxCDD	2500	1520	61.0	42:12	9.40E+03	0.93	1.16E+08
13C-1,2,3,4,6,7,8-HpCDD	2500	1330	53.1	46:40	1.40E+03	0.96	1.04E+08
13C-OCDD	5000	2750	54.9	50:18	2.00E+03	0.76	1.71E+08
13C-2,3,7,8-TCDF	1000	486	48.6	25:19	3.40E+04	1.47	6.33E+07
13C-1,2,3,7,8-PeCDF	1000	550	55.0	33:33	5.90E+03	1.23	5.98E+07
13C-1,2,3,4,7,8-HxCDF	2500	1400	55.9	40:40	1.70E+03	1.29	1.47E+08
13C-1,2,3,4,6,7,8-HpCDF	2500	1260	50.5	45:17	1.60E+03	1.15	1.18E+08

(1) Limits for percent recovery (R) are specified in Section 8.4, Method 8290.

(2) Limits for RRTs are specified in Section 7.8.4.1 Method 8290.

(3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

- 0056



Form 1A  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-1 LW
Matrix:	SOLID	Sample Size:	10.0 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	14-Dec-2002	Time:	13:46:04
GC Column ID:	DB-5	Sample Datafile:	DX22_469 S:8
Extract Volume (µL):	400	Blank Data Filename:	DX22_469 S:6
Injection Volume (µL):	1.0	Cal. Ver. Data Filename:	DX22_469 S:2
Dilution Factor:	20		
Concentration Units:	pg/g (dry weight basis)		

COMPOUND	DATA FLAGS <sup>1</sup>	CONC'N FOUND	EDL	ION ABUND. RATIO <sup>2</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
2,3,7,8-TCDD								
1,2,3,7,8-PeCDD <sup>3</sup>								
1,2,3,4,7,8-HxCDD								
1,2,3,6,7,8-HxCDD								
1,2,3,7,8,9-HxCDD								
1,2,3,4,6,7,8-HpCDD	D	5100	10.6	1.05	46:42	1.40E+03	1.10	3.17E+07
OCDD	D	55200	1.23	0.89	50:17	1.10E+05	0.97	2.25E+08
2,3,7,8-TCDF								
1,2,3,7,8-PeCDF								
2,3,4,7,8-PeCDF								
1,2,3,4,7,8-HxCDF								
1,2,3,6,7,8-HxCDF								
1,2,3,7,8,9-HxCDF								
2,3,4,6,7,8-HxCDF								
1,2,3,4,6,7,8-HpCDF	D	1270	3.50	1.03	45:19	3.30E+03	1.30	9.87E+06
1,2,3,4,7,8,9-HpCDF								
OCDF	D	2820	0.41	0.89	50:22	1.90E+04	1.16	1.37E+07
Total Tetra-Dioxins								
Total Penta-Dioxins								
Total Hexa-Dioxins								
Total Hepta-Dioxins	D	9940	10.6					
Total Tetra-Furans								
Total Penta-Furans								
Total Hexa-Furans								
Total Hepta-Furans	D	4280	3.50					

(1) EMPC: peak detected but did not meet confirmation criteria; J: concentration less than LMCL.; U: not detected.  
 (2) Limits for RRTs and ion abundance ratios are specified in Sections 7.8.4.1 and 7.8.4.2, respectively, Method 8290.  
 (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

- 0057

Form 2  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-1 LW
Matrix:	SOLID	Sample Size:	10.0 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	14-Dec-2002	Time:	13:46:04
		GC Column ID:	DB-5
Extract Volume (µL):	400	Sample Datafile:	DX22_469 S:8
Injection Volume (µL):	1.0	Blank Data Filename:	DX22_469 S:6
Dilution Factor:	20	Cal. Ver. Data Filename:	DX22_469 S:2
Concentration Units:	pg absolute		

LABELLED COMPOUND	SPIKE CONC.	CONC. FOUND	% R <sup>1</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
13C-2,3,7,8-TCDD							
13C-1,2,3,7,8-PeCDD <sup>3</sup>							
13C-1,2,3,6,7,8-HxCDD							
13C-1,2,3,4,6,7,8-HpCDD	2500	1160	46.5	46:41	8.00E+02	0.90	1.41E+06
13C-OCDD	5000	2000	40.0	50:16	1.70E+03	0.78	2.10E+06
13C-2,3,7,8-TCDF							
13C-1,2,3,7,8-PeCDF							
13C-1,2,3,4,7,8-HxCDF							
13C-1,2,3,4,6,7,8-HpCDF	2500	1130	45.3	45:17	5.70E+02	0.97	1.49E+06

- (1) Limits for percent recovery (R) are specified in Section 8.4, Method 8290.
- (2) Limits for RRTs are specified in Section 7.8.4.1 Method 8290.
- (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

— 0058

Form 1B  
CONFIRMATION OF 2,3,7,8-TCDF CONCENTRATION

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-1 Li2	
Matrix:	SOLID	Sample Size:	10.0 g (dry)	
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	23-Nov-2002	
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS	
Analysis Date:	25-Nov-2002	Time: 15:26:59	GC Column ID:	DB-225
Extract Volume (µL):	20	Sample Datafile:	DB23_340 S:10	
Injection Volume (µL):	2.0	Blank Data Filename:	DB23_340 S: 6	
Dilution Factor:	N/A	Cal. Ver. Data Filename:	DB23_340 S:2	
Concentration Units:	pg/g (dry weight basis)			

COMPOUND	DATA FLAGS	CONC'N FOUND	EDL	ION ABUND. RATIO	RET'N. TIME	S/N	MEAN RRF	AREA RESPONSE
2,3,7,8-TCDF		49.1	0.17	0.77	15:51	6.50E+02	0.90	3.27E+07

- (1) Limits for RRTs and ion abundance ratios are specified in Sections 7.8.4.1 and 7.8.4.2, respectively, Method 8290.
- (2) Alternate ions used for native and labelled P5CDD for confirmation and quantitation.
- (3) EMPC: peak detected but did not meet confirmation criteria; J: concentration less than LMCL.

- 0059



Form 1A  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-2 Li
Matrix:	SOLID	Sample Size:	10.5 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	05-Dec-2002	Time:	12:15:52
		GC Column ID:	DB-5
Extract Volume (µL):	20	Sample Datafile:	DX22_451 S:6
Injection Volume (µL):	1.0	Blank Data Filename:	DX22_418 S:6
Dilution Factor:	N/A	Cal. Ver. Data Filename:	DX22_451 S:2
Concentration Units:	pg/g (dry weight basis)	% Solid:	41

COMPOUND	DATA FLAGS <sup>1</sup>	CONC'N FOUND	EDL	ION ABUND. RATIO <sup>2</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
2,3,7,8-TCDD	J EMPC	0.20	0.10	0.95	26:23	3.20E+01	0.97	1.09E+05
1,2,3,7,8-PeCDD <sup>3</sup>	J	0.93	0.10	0.62	36:00	1.50E+02	0.93	4.01E+05
1,2,3,4,7,8-HxCDD	J	1.72	0.10	1.35	42:01	4.30E+01	0.87	6.75E+05
1,2,3,6,7,8-HxCDD		6.66	0.10	1.23	42:08	1.80E+02	1.00	3.01E+06
1,2,3,7,8,9-HxCDD	J	6.49	0.10	1.30	42:33	1.30E+02	0.97	2.83E+06
1,2,3,4,6,7,8-HpCDD		225	0.20	1.04	46:38	2.80E+03	1.10	8.54E+07
OCDD	OLR						0.97	
2,3,7,8-TCDF		3.06	0.36	0.83	25:14	1.90E+01	1.03	2.20E+06
1,2,3,7,8-PeCDF	J	0.85	0.10	1.57	33:25	3.30E+01	1.07	5.82E+05
2,3,4,7,8-PeCDF	J	1.54	0.10	1.62	35:13	5.70E+01	1.05	1.03E+06
1,2,3,4,7,8-HxCDF	J	3.17	0.18	1.22	40:36	5.20E+01	1.15	1.91E+06
1,2,3,6,7,8-HxCDF	J	1.30	0.18	1.27	40:47	2.30E+01	1.24	8.38E+05
1,2,3,7,8,9-HxCDF	J	0.30	0.18	1.39	42:48	4.10E+00	0.98	1.55E+05
2,3,4,6,7,8-HxCDF	J	1.21	0.18	1.18	41:45	1.90E+01	1.10	6.96E+05
1,2,3,4,6,7,8-HpCDF		21.2	0.10	1.05	45:15	1.20E+03	1.30	1.10E+07
1,2,3,4,7,8,9-HpCDF	J	1.56	0.10	1.01	47:04	6.90E+01	1.10	6.86E+05
OCDF		40.2	0.10	0.89	50:20	1.80E+04	1.16	1.38E+07
Total Tetra-Dioxins		364	0.10					
Total Penta-Dioxins		72.0	0.10					
Total Hexa-Dioxins		94.2	0.10					
Total Hepta-Dioxins		471	0.20					
Total Tetra-Furans		155	0.36					
Total Penta-Furans		40.2	0.10					
Total Hexa-Furans		30.5	0.18					
Total Hepta-Furans		58.0	0.10					

- (1) EMPC: peak detected but did not meet confirmation criteria; J: concentration less than LMCL; U: not detected.  
 (2) Limits for RRTs and ion abundance ratios are specified in Sections 7.8.4.1 and 7.8.4.2, respectively, Method 8290.  
 (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

— 0060

Form 2  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-2 Li
Matrix:	SOLID	Sample Size:	10.5 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	05-Dec-2002	Time:	12:15:52
		GC Column ID:	DB-5
Extract Volume (µL):	20	Sample Datafile:	DX22_451 S:6
Injection Volume (µL):	1.0	Blank Data Filename:	DX22_418 S:6
Dilution Factor:	N/A	Cal. Ver. Data Filename:	DX22_451 S:2
Concentration Units:	pg absolute	% Solid:	41

LABELLED COMPOUND	SPIKE CONC.	CONC. FOUND	% R <sup>1</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
13C-2,3,7,8-TCDD	1000	555	55.5	26:23	1.70E+04	1.06	5.35E+07
13C-1,2,3,7,8-PeCDD <sup>3</sup>	1000	732	73.2	35:59	1.70E+04	0.66	4.41E+07
13C-1,2,3,6,7,8-HxCDD	2500	1860	74.5	42:07	7.70E+04	0.92	1.08E+08
13C-1,2,3,4,6,7,8-HpCDD	2500	1460	58.5	46:38	3.50E+03	0.90	8.29E+07
13C-OCDD	5000	2900	58.0	50:14	1.30E+05	0.78	1.42E+08
13C-2,3,7,8-TCDF	1000	539	53.9	25:12	3.30E+04	1.37	6.70E+07
13C-1,2,3,7,8-PeCDF	1000	634	63.4	33:24	3.70E+04	1.07	6.12E+07
13C-1,2,3,4,7,8-HxCDF	2500	1640	65.8	40:35	2.90E+03	1.20	1.25E+08
13C-1,2,3,4,6,7,8-HpCDF	2500	1550	62.0	45:14	1.80E+04	0.97	9.50E+07

- (1) Limits for percent recovery (R) are specified in Section 8.4, Method 8290.
- (2) Limits for RRTs are specified in Section 7.8.4.1 Method 8290.
- (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

— 0061

Form 1A  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-2 LW
Matrix:	SOLID	Sample Size:	10.5 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	12-Dec-2002	Time:	3:18:45
		GC Column ID:	DB-5
Extract Volume (µL):	50	Sample Datafile:	DX22_464 S:8
Injection Volume (µL):	1.0	Blank Data Filename:	DX22_418 S:6
Dilution Factor:	2.5	Cal. Ver. Data Filename:	DX22_464 S:2
Concentration Units:	pg/g (dry weight basis)		

COMPOUND	DATA FLAGS <sup>1</sup>	CONC'N FOUND	EDL	ION ABUND. RATIO <sup>2</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
2,3,7,8-TCDD								
1,2,3,7,8-PeCDD <sup>3</sup>								
1,2,3,4,7,8-HxCDD								
1,2,3,6,7,8-HxCDD								
1,2,3,7,8,9-HxCDD								
1,2,3,4,6,7,8-HpCDD								
OCDD	D	1920	0.10	0.89	50:15	1.50E+05	0.97	1.17E+08
2,3,7,8-TCDF								
1,2,3,7,8-PeCDF								
2,3,4,7,8-PeCDF								
1,2,3,4,7,8-HxCDF								
1,2,3,6,7,8-HxCDF								
1,2,3,7,8,9-HxCDF								
2,3,4,6,7,8-HxCDF								
1,2,3,4,6,7,8-HpCDF								
1,2,3,4,7,8,9-HpCDF								
OCDF								
Total Tetra-Dioxins								
Total Penta-Dioxins								
Total Hexa-Dioxins								
Total Hepta-Dioxins								
Total Tetra-Furans								
Total Penta-Furans								
Total Hexa-Furans								
Total Hepta-Furans								

(1) EMPC: peak detected but did not meet confirmation criteria; J: concentration less than LMCL.; U: not detected.  
 (2) Limits for RRTs and ion abundance ratios are specified in Sections 7.8.4.1 and 7.8.4.2, respectively, Method 8290.  
 (3) Alternate ions used for native and labeled PSCDD for confirmation and quantitation.

- 0062

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Form 2  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-2 LW
Matrix:	SOLID	Sample Size:	10.5 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	12-Dec-2002	Time:	3:18:45
GC Column ID:	DB-5	Sample Datafile:	DX22_464 S:8
Extract Volume (µL):	50	Blank Data Filename:	DX22_418 S:6
Injection Volume (µL):	1.0	Cal. Ver. Data Filename:	DX22_464 S:2
Dilution Factor:	2.5		
Concentration Units:	pg absolute		

	SPIKE CONC.	CONC. FOUND	% R <sup>1</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
<b>LABELED COMPOUND</b>							
13C-2,3,7,8-TCDD							
13C-1,2,3,7,8-PeCDD <sup>3</sup>							
13C-1,2,3,6,7,8-HxCDD							
13C-1,2,3,4,6,7,8-HpCDD							
13C-OCDD	5000	2500	50.0	50:14	1.40E+04	0.78	3.00E+07
13C-2,3,7,8-TCDF							
13C-1,2,3,7,8-PeCDF							
13C-1,2,3,4,7,8-HxCDF							
13C-1,2,3,4,6,7,8-HpCDF							

- (1) Limits for percent recovery (R) are specified in Section 8.4, Method 8290.
- (2) Limits for RRTs are specified in Section 7.8.4.1 Method 8290.
- (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

— 0063



**ONGOING  
PRECISION  
AND  
RECOVERY**



Form 1A  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-3 Li
Matrix:	SOLID	Sample Size:	11.6 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	05-Dec-2002	Time:	14:05:27
		GC Column ID:	DB-5
Extract Volume (µL):	20	Sample Datafile:	DX22_451 S:8
Injection Volume (µL):	1.0	Blank Data Filename:	DX22_418 S:6
Dilution Factor:	N/A	Cal. Ver. Data Filename:	DX22_451 S:2
Concentration Units:	pg/g (dry weight basis)	% Solid:	45

COMPOUND	DATA FLAGS <sup>1</sup>	CONC'N FOUND	EDL	ION ABUND. RATIO <sup>2</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
2,3,7,8-TCDD	U		1.11				0.97	
1,2,3,7,8-PeCDD <sup>3</sup>	J	0.84	0.16	0.53	36:01	2.50E+01	0.93	5.80E+04
1,2,3,4,7,8-HxCDD	J	1.80	0.34	1.37	42:01	1.50E+01	0.87	1.20E+05
1,2,3,6,7,8-HxCDD		7.61	0.34	1.27	42:09	6.30E+01	1.00	5.83E+05
1,2,3,7,8,9-HxCDD		6.74	0.34	1.15	42:34	3.30E+01	0.97	4.98E+05
1,2,3,4,6,7,8-HpCDD		207	0.35	1.05	46:39	1.50E+03	1.10	1.38E+07
OCDD	OLR						0.97	
2,3,7,8-TCDF		4.28	0.83	0.80	25:15	9.00E+00	1.03	4.99E+05
1,2,3,7,8-PeCDF	J	1.07	0.26	1.53	33:27	9.50E+00	1.07	1.22E+05
2,3,4,7,8-PeCDF	J	2.18	0.26	1.76	35:14	2.00E+01	1.05	2.44E+05
1,2,3,4,7,8-HxCDF	J	5.23	0.30	1.25	40:37	4.00E+01	1.15	5.44E+05
1,2,3,6,7,8-HxCDF	J	1.98	0.30	1.27	40:47	1.80E+01	1.24	2.21E+05
1,2,3,7,8,9-HxCDF	J	0.41	0.30	1.12	42:49	2.70E+00	0.98	3.56E+04
2,3,4,6,7,8-HxCDF	J EMPC	1.96	0.30	0.96	41:46	1.30E+01	1.10	1.95E+05
1,2,3,4,6,7,8-HpCDF		35.4	0.17	0.97	45:15	4.90E+02	1.30	3.49E+06
1,2,3,4,7,8,9-HpCDF	J	2.19	0.17	0.90	47:05	2.00E+01	1.10	1.83E+05
OCDF		66.2	0.09	0.84	50:20	3.10E+03	1.16	3.93E+06
Total Tetra-Dioxins		286	1.11					
Total Penta-Dioxins		35.7	0.16					
Total Hexa-Dioxins		76.3	0.34					
Total Hepta-Dioxins		434	0.35					
Total Tetra-Furans		123	0.83					
Total Penta-Furans		46.7	0.26					
Total Hexa-Furans		44.4	0.30					
Total Hepta-Furans		94.1	0.17					

(1) EMPC: peak detected but did not meet confirmation criteria; J: concentration less than LMCL; U: not detected.  
 (2) Limits for RRTs and ion abundance ratios are specified in Sections 7.8.4.1 and 7.8.4.2, respectively, Method 8290.  
 (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

— 0065



Form 2  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-3 Li
Matrix:	SOLID	Sample Size:	11.6 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	05-Dec-2002	Time:	14:05:27
		GC Column ID:	DB-5
Extract Volume (µL):	20	Sample Datafile:	DX22_451 S:8
Injection Volume (µL):	1.0	Blank Data Filename:	DX22_418 S:6
Dilution Factor:	N/A	Cal. Ver. Data Filename:	DX22_451 S:2
Concentration Units:	pg absolute	% Solid:	45

LABELLED COMPOUND	SPIKE CONC.	CONC. FOUND	% R <sup>1</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
13C-2,3,7,8-TCDD	1000	491	49.1	26:26	2.30E+03	1.06	7.65E+06
13C-1,2,3,7,8-PeCDD <sup>3</sup>	1000	659	65.9	36:01	2.50E+03	0.66	6.42E+06
13C-1,2,3,6,7,8-HxCDD	2500	1700	68.0	42:08	1.20E+04	0.92	1.65E+07
13C-1,2,3,4,6,7,8-HpCDD	2500	1380	55.4	46:38	1.80E+03	0.90	1.32E+07
13C-OCDD	5000	2690	53.8	50:14	1.60E+04	0.78	2.22E+07
13C-2,3,7,8-TCDF	1000	487	48.7	25:13	3.40E+03	1.37	9.79E+06
13C-1,2,3,7,8-PeCDF	1000	592	59.2	33:26	4.50E+03	1.07	9.24E+06
13C-1,2,3,4,7,8-HxCDF	2500	1530	61.1	40:36	2.80E+03	1.20	1.95E+07
13C-1,2,3,4,6,7,8-HpCDF	2500	1590	63.6	45:14	7.30E+03	0.97	1.64E+07

(1) Limits for percent recovery (R) are specified in Section 8.4, Method 8290.

(2) Limits for RRTs are specified in Section 7.8.4.1 Method 8290.

(3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

— 0066

Form 1A  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-3 LW
Matrix:	SOLID	Sample Size:	11.6 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	05-Dec-2002	Time:	15:00:13
GC Column ID:	DB-5	Sample Datafile:	DX22_451 S:9
Extract Volume (µL):	50	Blank Data Filename:	DX22_418 S:6
Injection Volume (µL):	1.0	Cal. Ver. Data Filename:	DX22_451 S:2
Dilution Factor:	2.5		
Concentration Units:	pg/g (dry weight basis)		

COMPOUND	DATA FLAGS <sup>1</sup>	CONC'N FOUND	EDL	ION ABUND. RATIO <sup>2</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
2,3,7,8-TCDD								
1,2,3,7,8-PeCDD <sup>3</sup>								
1,2,3,4,7,8-HxCDD								
1,2,3,6,7,8-HxCDD								
1,2,3,7,8,9-HxCDD								
1,2,3,4,6,7,8-HpCDD								
OCDD	D	1790	0.32	0.89	50:16	1.50E+04	0.97	4.63E+07
2,3,7,8-TCDF								
1,2,3,7,8-PeCDF								
2,3,4,7,8-PeCDF								
1,2,3,4,7,8-HxCDF								
1,2,3,6,7,8-HxCDF								
1,2,3,7,8,9-HxCDF								
2,3,4,6,7,8-HxCDF								
1,2,3,4,6,7,8-HpCDF								
1,2,3,4,7,8,9-HpCDF								
OCDF								
Total Tetra-Dioxins								
Total Penta-Dioxins								
Total Hexa-Dioxins								
Total Hepta-Dioxins								
Total Tetra-Furans								
Total Penta-Furans								
Total Hexa-Furans								
Total Hepta-Furans								

(1) EMPC: peak detected but did not meet confirmation criteria; J: concentration less than LMCL.; U: not detected.  
 (2) Limits for RRTs and ion abundance ratios are specified in Sections 7.8.4.1 and 7.8.4.2, respectively, Method 8290.  
 (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

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Form 2  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-3 LW
Matrix:	SOLID	Sample Size:	11.6 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	05-Dec-2002	Time:	15:00:13
		GC Column ID:	DB-5
Extract Volume (µL):	50	Sample Datafile:	DX22_451 S:9
Injection Volume (µL):	1.0	Blank Data Filename:	DX22_418 S:6
Dilution Factor:	2.5	Cal. Ver. Data Filename:	DX22_451 S:2
Concentration Units:	pg absolute		

	SPIKE CONC.	CONC. FOUND	% R <sup>1</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
<b>LABELED COMPOUND</b>							
13C-2,3,7,8-TCDD							
13C-1,2,3,7,8-PeCDD <sup>3</sup>							
13C-1,2,3,6,7,8-HxCDD							
13C-1,2,3,4,6,7,8-HpCDD							
13C-OCDD	5000	2780	55.7	50:15	5.90E+03	0.78	1.16E+07
13C-2,3,7,8-TCDF							
13C-1,2,3,7,8-PeCDF							
13C-1,2,3,4,7,8-HxCDF							
13C-1,2,3,4,6,7,8-HpCDF							

(1) Limits for percent recovery (R) are specified in Section 8.4, Method 8290.  
 (2) Limits for RRTs are specified in Section 7.8.4.1 Method 8290.  
 (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

— 0068

Form 1B  
CONFIRMATION OF 2,3,7,8-TCDF CONCENTRATION

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-3 Li2
Matrix:	SOLID	Sample Size:	11.6 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	23-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	25-Nov-2002	Time:	16:02:38
GC Column ID:	DB-225	Sample Datafile:	DB23_340 S:11
Extract Volume (µL):	20	Blank Data Filename:	DB23_340 S: 6
Injection Volume (µL):	2.0	Cal. Ver. Data Filename:	DB23_340 S:2
Dilution Factor:	N/A		
Concentration Units:	pg/g (dry weight basis)		

COMPOUND	DATA FLAGS	CONC'N FOUND	EDL	ION ABUND. RATIO	RET'N. TIME	S/N	MEAN RRF	AREA RESPONSE
2,3,7,8-TCDF		2.33	0.11	0.80	15:50	4.40E+01	0.90	1.85E+06

- (1) Limits for RRTs and ion abundance ratios are specified in Sections 7.8.4.1 and 7.8.4.2, respectively, Method 8290.
- (2) Alternate ions used for native and labelled P5CDD for confirmation and quantitation.
- (3) EMPC: peak detected but did not meet confirmation criteria; J: concentration less than LMCL.

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Form 1A  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-4 Li
Matrix:	SOLID	Sample Size:	16.9 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	27-Oct-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	27-Nov-2002	Time:	14:35:29
GC Column ID:	DB-5	Sample Datafile:	DX22_435A S:6
Extract Volume (µL):	20	Blank Data Filename:	DX22_418 S:6
Injection Volume (µL):	2.0	Cal. Ver. Data Filename:	DX22_435A S:2
Dilution Factor:	N/A		
Concentration Units:	pg/g (dry weight basis)	% Solid:	55

COMPOUND	DATA FLAGS <sup>1</sup>	CONC'N FOUND	EDL	ION ABUND. RATIO <sup>2</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
2,3,7,8-TCDD	J EMPC	0.40	0.18	0.65	26:28	2.70E+00	1.07	1.45E+05
1,2,3,7,8-PeCDD <sup>3</sup>	J	1.41	0.06	0.69	36:03	1.30E+02	0.99	4.54E+05
1,2,3,4,7,8-HxCDD	J	1.86	0.20	1.24	42:03	4.30E+01	0.96	6.06E+05
1,2,3,6,7,8-HxCDD		10.3	0.20	1.30	42:10	2.70E+02	1.09	3.82E+06
1,2,3,7,8,9-HxCDD		6.95	0.20	1.30	42:36	1.20E+02	1.03	2.44E+06
1,2,3,4,6,7,8-HpCDD		225	0.22	1.04	46:41	1.80E+03	1.20	7.20E+07
OCDD	OLR						1.06	
2,3,7,8-TCDF		5.50	0.61	0.78	25:17	1.50E+01	1.12	3.38E+06
1,2,3,7,8-PeCDF	J	1.37	0.09	1.45	33:29	3.00E+01	1.16	7.60E+05
2,3,4,7,8-PeCDF	J	3.32	0.09	1.35	35:15	7.10E+01	1.17	1.85E+06
1,2,3,4,7,8-HxCDF		11.1	0.10	1.25	40:38	3.60E+02	1.27	5.91E+06
1,2,3,6,7,8-HxCDF	J	3.28	0.10	1.26	40:49	1.20E+02	1.39	1.90E+06
1,2,3,7,8,9-HxCDF	J	0.24	0.10	1.40	42:50	8.40E+00	1.11	1.12E+05
2,3,4,6,7,8-HxCDF	J	2.60	0.10	1.18	41:47	8.40E+01	1.26	1.37E+06
1,2,3,4,6,7,8-HpCDF		60.3	0.09	1.04	45:17	1.70E+03	1.45	2.92E+07
1,2,3,4,7,8,9-HpCDF		4.86	0.09	0.99	47:06	1.10E+02	1.23	2.00E+06
OCDF		130	0.06	0.90	50:22	1.30E+04	1.40	3.81E+07
Total Tetra-Dioxins		541	0.18					
Total Penta-Dioxins		70.1	0.06					
Total Hexa-Dioxins		85.8	0.20					
Total Hepta-Dioxins		453	0.22					
Total Tetra-Furans		218	0.61					
Total Penta-Furans		73.4	0.09					
Total Hexa-Furans		84.8	0.10					
Total Hepta-Furans		181	0.09					

(1) EMPC: peak detected but did not meet confirmation criteria; J: concentration less than LMCL.; U: not detected.  
 (2) Limits for RRTs and ion abundance ratios are specified in Sections 7.8.4.1 and 7.8.4.2, respectively, Method 8290.  
 (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

0070

Form 2  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-4 Li
Matrix:	SOLID	Sample Size:	16.9 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	27-Oct-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	27-Nov-2002	Time:	14:35:29
GC Column ID:	DB-5	Sample Datafile:	DX22_435A S:6
Extract Volume (µL):	20	Blank Data Filename:	DX22_418 S:6
Injection Volume (µL):	2.0	Cal. Ver. Data Filename:	DX22_435A S:2
Dilution Factor:	N/A	% Solid:	55
Concentration Units:	pg absolute		

LABELLED COMPOUND	SPIKE CONC.	CONC. FOUND	% R <sup>1</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
13C-2,3,7,8-TCDD	1000	462	46.2	26:26	5.90E+03	1.05	1.98E+07
13C-1,2,3,7,8-PeCDD <sup>3</sup>	1000	624	62.4	36:02	6.30E+03	0.75	1.92E+07
13C-1,2,3,6,7,8-HxCDD	2500	1640	65.6	42:10	3.00E+04	0.93	5.02E+07
13C-1,2,3,4,6,7,8-HpCDD	2500	1250	49.8	46:40	4.70E+03	0.96	3.94E+07
13C-OCDD	5000	2480	49.6	50:16	6.00E+03	0.76	6.21E+07
13C-2,3,7,8-TCDF	1000	534	53.4	25:14	1.10E+04	1.47	3.23E+07
13C-1,2,3,7,8-PeCDF	1000	558	55.8	33:28	1.10E+04	1.23	2.81E+07
13C-1,2,3,4,7,8-HxCDF	2500	1450	58.2	40:37	1.80E+03	1.29	6.16E+07
13C-1,2,3,4,6,7,8-HpCDF	2500	1310	52.3	45:16	2.90E+03	1.15	4.93E+07

(1) Limits for percent recovery (R) are specified in Section 8.4, Method 8290.

(2) Limits for RRTs are specified in Section 7.8.4.1 Method 8290.

(3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

- 0071

MW

Form 1A  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-4 LW
Matrix:	SOLID	Sample Size:	16.9 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	03-Dec-2002	Time:	5:15:25
GC Column ID:	DB-5	Sample Datafile:	DX22_446 S:9
Extract Volume (µL):	50	Blank Data Filename:	DX22_418 S:6
Injection Volume (µL):	2.0	Cal. Ver. Data Filename:	DX22_446 S:2
Dilution Factor:	2.5		
Concentration Units:	pg/g (dry weight basis)		

COMPOUND	DATA FLAGS <sup>1</sup>	CONC'N FOUND	EDL	ION ABUND. RATIO <sup>2</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
2,3,7,8-TCDD								
1,2,3,7,8-PeCDD <sup>3</sup>								
1,2,3,4,7,8-HxCDD								
1,2,3,6,7,8-HxCDD								
1,2,3,7,8,9-HxCDD								
1,2,3,4,6,7,8-HpCDD								
OCDD	D	2130	0.10	0.89	50:17	7.50E+04	0.97	1.83E+08
2,3,7,8-TCDF								
1,2,3,7,8-PeCDF								
2,3,4,7,8-PeCDF								
1,2,3,4,7,8-HxCDF								
1,2,3,6,7,8-HxCDF								
1,2,3,7,8,9-HxCDF								
2,3,4,6,7,8-HxCDF								
1,2,3,4,6,7,8-HpCDF								
1,2,3,4,7,8,9-HpCDF								
OCDF								
Total Tetra-Dioxins								
Total Penta-Dioxins								
Total Hexa-Dioxins								
Total Hepta-Dioxins								
Total Tetra-Furans								
Total Penta-Furans								
Total Hexa-Furans								
Total Hepta-Furans								

(1) EMPC: peak detected but did not meet confirmation criteria; J: concentration less than LMCL; U: not detected.  
 (2) Limits for RRTs and ion abundance ratios are specified in Sections 7.8.4.1 and 7.8.4.2, respectively, Method 8290.  
 (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

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Form 2  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-4 LW
Matrix:	SOLID	Sample Size:	16.9 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	03-Dec-2002	Time:	5:15:25
		GC Column ID:	DB-5
Extract Volume (µL):	50	Sample Datafile:	DX22_446 S:9
Injection Volume (µL):	2.0	Blank Data Filename:	DX22_418 S:6
Dilution Factor:	2.5	Cal. Ver. Data Filename:	DX22_446 S:2
Concentration Units:	pg absolute		

	SPIKE CONC.	CONC. FOUND	% R <sup>1</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
<b>LABELED COMPOUND</b>							
13C-2,3,7,8-TCDD							
13C-1,2,3,7,8-PeCDD <sup>3</sup>							
13C-1,2,3,6,7,8-HxCDD							
13C-1,2,3,4,6,7,8-HpCDD							
13C-OCDD	5000	2440	48.9	50:16	2.50E+04	0.78	2.62E+07
13C-2,3,7,8-TCDF							
13C-1,2,3,7,8-PeCDF							
13C-1,2,3,4,7,8-HxCDF							
13C-1,2,3,4,6,7,8-HpCDF							

- (1) Limits for percent recovery (R) are specified in Section 8.4, Method 8290.
- (2) Limits for RRTs are specified in Section 7.8.4.1 Method 8290.
- (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

- 0073





Form 1A  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-5 Li
Matrix:	SOLID	Sample Size:	10.9 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	27-Oct-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	27-Nov-2002	Time:	15:30:16
GC Column ID:	DB-5	Sample Datafile:	DX22_435A S:7
Extract Volume (µL):	20	Blank Data Filename:	DX22_418 S:6
Injection Volume (µL):	2.0	Cal. Ver. Data Filename:	DX22_435A S:2
Dilution Factor:	N/A	% Solid:	70
Concentration Units:	pg/g (dry weight basis)		

COMPOUND	DATA FLAGS <sup>1</sup>	CONC'N FOUND	EDL	ION ABUND. RATIO <sup>2</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
2,3,7,8-TCDD	J	1.13	0.18	0.77	26:28	8.60E+00	1.07	2.57E+05
1,2,3,7,8-PeCDD <sup>3</sup>	J	3.92	0.09	0.58	36:04	2.10E+02	0.99	8.96E+05
1,2,3,4,7,8-HxCDD	J	4.84	0.30	1.25	42:03	6.50E+01	0.96	9.62E+05
1,2,3,6,7,8-HxCDD		24.8	0.30	1.25	42:10	3.40E+02	1.09	5.61E+06
1,2,3,7,8,9-HxCDD		17.2	0.30	1.31	42:36	1.70E+02	1.03	3.69E+06
1,2,3,4,6,7,8-HpCDD OCDD	OLR	427	0.30	1.03	46:40	3.30E+03	1.20	8.92E+07
							1.06	
2,3,7,8-TCDF		19.8	0.90	0.73	25:17	3.10E+01	1.12	6.64E+06
1,2,3,7,8-PeCDF	J	4.38	0.25	1.34	33:29	1.20E+02	1.16	1.56E+06
2,3,4,7,8-PeCDF		10.2	0.25	1.54	35:16	3.00E+02	1.17	3.66E+06
1,2,3,4,7,8-HxCDF		27.8	0.24	1.23	40:38	6.00E+02	1.27	9.56E+06
1,2,3,6,7,8-HxCDF		11.1	0.24	1.23	40:49	2.50E+02	1.39	4.18E+06
1,2,3,7,8,9-HxCDF	J	0.49	0.24	1.35	42:50	8.90E+00	1.11	1.48E+05
2,3,4,6,7,8-HxCDF		8.37	0.24	1.29	41:47	1.80E+02	1.26	2.85E+06
1,2,3,4,6,7,8-HpCDF		178	0.24	1.04	45:16	2.00E+03	1.45	5.62E+07
1,2,3,4,7,8,9-HpCDF OCDF		11.6	0.24	1.05	47:06	1.00E+02	1.23	3.11E+06
		296	0.09	0.89	50:22	1.20E+04	1.40	6.54E+07
Total Tetra-Dioxins		642	0.18					
Total Penta-Dioxins		112	0.09					
Total Hexa-Dioxins		202	0.30					
Total Hepta-Dioxins		854	0.30					
Total Tetra-Furans		365	0.90					
Total Penta-Furans		262	0.25					
Total Hexa-Furans		261	0.24					
Total Hepta-Furans		474	0.24					

(1) EMPC: peak detected but did not meet confirmation criteria; J: concentration less than LMCL; U: not detected.  
 (2) Limits for RRTs and ion abundance ratios are specified in Sections 7.8.4.1 and 7.8.4.2, respectively, Method 8290.  
 (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

0075

Form 2  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-5 Li
Matrix:	SOLID	Sample Size:	10.9 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	27-Oct-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	27-Nov-2002	Time:	15:30:16
GC Column ID:	DB-5	Sample Datafile:	DX22_435A S:7
Extract Volume (µL):	20	Blank Data Filename:	DX22_418 S:6
Injection Volume (µL):	2.0	Cal. Ver. Data Filename:	DX22_435A S:2
Dilution Factor:	N/A	% Solid:	70
Concentration Units:	pg absolute		

LABELED COMPOUND	SPIKE CONC.	CONC. FOUND	% R <sup>1</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
13C-2,3,7,8-TCDD	1000	437	43.7	26:27	5.80E+03	1.05	1.95E+07
13C-1,2,3,7,8-PeCDD <sup>3</sup>	1000	667	66.7	36:03	6.00E+03	0.75	2.14E+07
13C-1,2,3,6,7,8-HxCDD	2500	1630	65.1	42:10	2.40E+04	0.93	4.77E+07
13C-1,2,3,4,6,7,8-HpCDD	2500	1320	53.0	46:40	2.80E+03	0.96	4.01E+07
13C-OCDD	5000	3030	60.7	50:16	1.70E+03	0.76	7.28E+07
13C-2,3,7,8-TCDF	1000	438	43.8	25:14	7.10E+03	1.47	2.74E+07
13C-1,2,3,7,8-PeCDF	1000	539	53.9	33:28	1.20E+04	1.23	2.82E+07
13C-1,2,3,4,7,8-HxCDF	2500	1530	61.3	40:37	3.50E+03	1.29	6.22E+07
13C-1,2,3,4,6,7,8-HpCDF	2500	1390	55.5	45:16	2.20E+03	1.15	5.02E+07

- (1) Limits for percent recovery (R) are specified in Section 8.4, Method 8290.
- (2) Limits for RRTs are specified in Section 7.8.4.1 Method 8290.
- (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

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Form 1A  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-5 LW
Matrix:	SOLID	Sample Size:	10.9 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	03-Dec-2002	Time:	6:10:15
GC Column ID:	DB-5	Sample Datafile:	DX22_446 S:10
Extract Volume (µL):	50	Blank Data Filename:	DX22_418 S:6
Injection Volume (µL):	2.0	Cal. Ver. Data Filename:	DX22_446 S:2
Dilution Factor:	2.5		
Concentration Units:	pg/g (dry weight basis)		

COMPOUND	DATA FLAGS <sup>1</sup>	CONC'N FOUND	EDL	ION ABUND. RATIO <sup>2</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
2,3,7,8-TCDD								
1,2,3,7,8-PeCDD <sup>3</sup>								
1,2,3,4,7,8-HxCDD								
1,2,3,6,7,8-HxCDD								
1,2,3,7,8,9-HxCDD								
1,2,3,4,6,7,8-HpCDD								
OCDD	D	4110	0.11	0.89	50:17	1.10E+05	0.97	3.13E+08
2,3,7,8-TCDF								
1,2,3,7,8-PeCDF								
2,3,4,7,8-PeCDF								
1,2,3,4,7,8-HxCDF								
1,2,3,6,7,8-HxCDF								
1,2,3,7,8,9-HxCDF								
2,3,4,6,7,8-HxCDF								
1,2,3,4,6,7,8-HpCDF								
1,2,3,4,7,8,9-HpCDF								
OCDF								
Total Tetra-Dioxins								
Total Penta-Dioxins								
Total Hexa-Dioxins								
Total Hepta-Dioxins								
Total Tetra-Furans								
Total Penta-Furans								
Total Hexa-Furans								
Total Hepta-Furans								

(1) EMPC: peak detected but did not meet confirmation criteria; J: concentration less than LMCL; U: not detected.  
 (2) Limits for RRTs and ion abundance ratios are specified in Sections 7.8.4.1 and 7.8.4.2, respectively, Method 8290.  
 (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

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Form 2  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-5 LW
Matrix:	SOLID	Sample Size:	10.9 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	03-Dec-2002	Time:	6:10:15
		GC Column ID:	DB-5
Extract Volume (µL):	50	Sample Datafile:	DX22_446 S:10
Injection Volume (µL):	2.0	Blank Data Filename:	DX22_418 S:6
Dilution Factor:	2.5	Cal. Ver. Data Filename:	DX22_446 S:2
Concentration Units:	pg absolute		

	SPIKE CONC.	CONC. FOUND	% R <sup>1</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
<b>LABELED COMPOUND</b>							
13C-2,3,7,8-TCDD							
13C-1,2,3,7,8-PeCDD <sup>3</sup>							
13C-1,2,3,6,7,8-HxCDD							
13C-1,2,3,4,6,7,8-HpCDD							
13C-OCDD	5000	2910	58.2	50:16	3.20E+04	0.78	3.63E+07
13C-2,3,7,8-TCDF							
13C-1,2,3,7,8-PeCDF							
13C-1,2,3,4,7,8-HxCDF							
13C-1,2,3,4,6,7,8-HpCDF							

- (1) Limits for percent recovery (R) are specified in Section 8.4, Method 8290.
- (2) Limits for RRTs are specified in Section 7.8.4.1 Method 8290.
- (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

- 0078



Form 1A  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-7 Li
Matrix:	SOLID	Sample Size:	10.6 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	05-Dec-2002	Time:	13:10:40
GC Column ID:	DB-5	Sample Datafile:	DX22_451 S:7
Extract Volume (µL):	20	Blank Data Filename:	DX22_418 S:6
Injection Volume (µL):	1.0	Cal. Ver. Data Filename:	DX22_451 S:2
Dilution Factor:	N/A	% Solid:	44
Concentration Units:	pg/g (dry weight basis)		

COMPOUND	DATA FLAGS <sup>1</sup>	CONC'N FOUND	EDL	ION ABUND. RATIO <sup>2</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
2,3,7,8-TCDD	U		0.12				0.97	
1,2,3,7,8-PeCDD <sup>3</sup>	J EMPC	0.82	0.10	0.75	36:01	1.60E+02	0.93	3.68E+05
1,2,3,4,7,8-HxCDD	J	1.36	0.14	1.33	42:00	3.20E+01	0.87	5.48E+05
1,2,3,6,7,8-HxCDD		6.15	0.14	1.22	42:08	1.50E+02	1.00	2.87E+06
1,2,3,7,8,9-HxCDD	J	5.66	0.14	1.28	42:33	9.50E+01	0.97	2.54E+06
1,2,3,4,6,7,8-HpCDD		164	0.18	1.03	46:38	3.10E+03	1.10	6.38E+07
OCDD		1380	0.10	0.89	50:15	1.00E+05	0.97	3.97E+08
2,3,7,8-TCDF		3.24	0.46	0.79	25:14	8.40E+00	1.03	2.20E+06
1,2,3,7,8-PeCDF	J	0.92	0.10	1.63	33:25	2.70E+01	1.07	6.09E+05
2,3,4,7,8-PeCDF	J	1.67	0.10	1.37	35:12	5.00E+01	1.05	1.09E+06
1,2,3,4,7,8-HxCDF	J	3.59	0.19	1.22	40:36	6.90E+01	1.15	2.24E+06
1,2,3,6,7,8-HxCDF	J	1.49	0.19	1.31	40:47	3.00E+01	1.24	9.97E+05
1,2,3,7,8,9-HxCDF	J	0.32	0.19	1.05	42:47	4.90E+00	0.98	1.66E+05
2,3,4,6,7,8-HxCDF	J	1.26	0.19	1.37	41:44	2.40E+01	1.10	7.51E+05
1,2,3,4,6,7,8-HpCDF		24.9	0.10	1.01	45:15	1.20E+03	1.30	1.36E+07
1,2,3,4,7,8,9-HpCDF	J	1.56	0.10	0.94	47:04	5.70E+01	1.10	7.21E+05
OCDF		46.0	0.10	0.90	50:20	6.50E+03	1.16	1.58E+07
Total Tetra-Dioxins		284	0.12					
Total Penta-Dioxins		55.7	0.10					
Total Hexa-Dioxins		67.1	0.14					
Total Hepta-Dioxins		330	0.18					
Total Tetra-Furans		114	0.46					
Total Penta-Furans		56.4	0.10					
Total Hexa-Furans		34.3	0.19					
Total Hepta-Furans		67.1	0.10					

(1) EMPC: peak detected but did not meet confirmation criteria; J: concentration less than LMCL; U: not detected.  
 (2) Limits for RRTs and ion abundance ratios are specified in Sections 7.8.4.1 and 7.8.4.2, respectively, Method 8290.  
 (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

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Form 2  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	L4974-7 Li
Matrix:	SOLID	Sample Size:	10.6 g (dry)
Sample Receipt Date:	15-Aug-2002	Initial Calibration Date:	29-Nov-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	05-Dec-2002	Time:	13:10:40
		GC Column ID:	DB-5
Extract Volume (µL):	20	Sample Datafile:	DX22_451 S:7
Injection Volume (µL):	1.0	Blank Data Filename:	DX22_418 S:6
Dilution Factor:	N/A	Cal. Ver. Data Filename:	DX22_451 S:2
Concentration Units:	pg absolute	% Solid:	44

LABELED COMPOUND	SPIKE CONC.	CONC. FOUND	% R <sup>1</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
13C-2,3,7,8-TCDD	1000	564	56.4	26:23	2.30E+04	1.06	5.02E+07
13C-1,2,3,7,8-PeCDD <sup>3</sup>	1000	816	81.6	35:59	1.70E+04	0.66	4.54E+07
13C-1,2,3,6,7,8-HxCDD	2500	1990	79.4	42:08	7.60E+04	0.92	1.10E+08
13C-1,2,3,4,6,7,8-HpCDD	2500	1550	61.9	46:38	6.00E+03	0.90	8.41E+07
13C-OCDD	5000	2990	59.8	50:14	1.20E+05	0.78	1.41E+08
13C-2,3,7,8-TCDF	1000	544	54.4	25:11	2.90E+04	1.37	6.25E+07
13C-1,2,3,7,8-PeCDF	1000	660	66.0	33:24	2.50E+04	1.07	5.88E+07
13C-1,2,3,4,7,8-HxCDF	2500	1760	70.3	40:35	7.70E+03	1.20	1.28E+08
13C-1,2,3,4,6,7,8-HpCDF	2500	1690	67.6	45:14	3.00E+03	0.97	9.93E+07

(1) Limits for percent recovery (R) are specified in Section 8.4, Method 8290.

(2) Limits for RRTs are specified in Section 7.8.4.1 Method 8290.

(3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

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**LAB BLANKS**



Form 1A  
PCDD/PCDF ANALYSIS REPORT

Lab Name: AXYS ANALYTICAL SERVICES

Contract No.:	4184	Lab Sample ID:	WG6796-101
Matrix:	N/A	Sample Size:	10.0 g
Sample Receipt Date:	N/A	Initial Calibration Date:	27-Oct-2002
Extraction Date:	11-Sep-2002	Instrument ID:	HR GC/MS
Analysis Date:	16-Nov-2002	Time:	12:11:36
GC Column ID:	DB-5	Sample Datafile:	DX22_418 S:6
Extract Volume (µL):	20	Blank Data Filename:	DX22_418 S:6
Injection Volume (µL):	1.0	Cal. Ver. Data Filename:	DX22_418 S:2
Dilution Factor:	N/A		
Concentration Units:	pg/g		

COMPOUND	DATA FLAGS <sup>1</sup>	CONC'N FOUND	EDL	ION ABUND. RATIO <sup>2</sup>	RET'N. TIME <sup>2</sup>	S/N	MEAN RRF	AREA RESPONSE
2,3,7,8-TCDD	U		0.10				1.07	
1,2,3,7,8-PeCDD <sup>3</sup>	U		0.10				0.99	
1,2,3,4,7,8-HxCDD	U		0.10				0.96	
1,2,3,6,7,8-HxCDD	U		0.10				1.09	
1,2,3,7,8,9-HxCDD	U		0.10				1.03	
1,2,3,4,6,7,8-HpCDD	J EMPC	0.14	0.10	1.27	46:41	3.80E+01	1.20	8.26E+04
OCDD	J EMPC	0.84	0.10	1.05	50:17	7.10E+01	1.06	3.68E+05
2,3,7,8-TCDF	U		0.10				1.12	
1,2,3,7,8-PeCDF	U		0.10				1.16	
2,3,4,7,8-PeCDF	U		0.10				1.17	
1,2,3,4,7,8-HxCDF	U		0.10				1.27	
1,2,3,6,7,8-HxCDF	U		0.10				1.39	
1,2,3,7,8,9-HxCDF	U		0.10				1.11	
2,3,4,6,7,8-HxCDF	U		0.10				1.26	
1,2,3,4,6,7,8-HpCDF	U		0.10				1.45	
1,2,3,4,7,8,9-HpCDF	U		0.10				1.23	
OCDF	U		0.10				1.40	
Total Tetra-Dioxins	U		0.10					
Total Penta-Dioxins	U		0.10					
Total Hexa-Dioxins	U		0.10					
Total Hepta-Dioxins	U		0.10					
Total Tetra-Furans	U		0.10					
Total Penta-Furans	U		0.10					
Total Hexa-Furans	U		0.10					
Total Hepta-Furans	U		0.10					

(1) EMPC: peak detected but did not meet confirmation criteria; J: concentration less than LMCL; U: not detected.  
 (2) Limits for RRTs and ion abundance ratios are specified in Sections 7.8.4.1 and 7.8.4.2, respectively, Method 8290.  
 (3) Alternate ions used for native and labeled P5CDD for confirmation and quantitation.

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