

## Appendix D Concentrations of PCDDs and PCDFs in New Zealand air

This appendix reports the concentrations of PCDDs and PCDFs in air samples collected as part of the Organochlorines Programme. Results from field quality control samples are also provided.

Congener-specific concentrations for all 2,3,7,8- PCDDs and PCDFs are reported, along with total concentrations for non-2,3,7,8-PCDDs and PCDFs for each homologur group. Total TEQ levels were calculated both excluding LOD values and including half LOD values using the International TEF scheme (Kutz *et al.*, 1990).

PCDD and PCDF data are reported in the following tables:

Table D1	Concentrations in Baring Head air
Table D2	Concentrations in Nelson Lakes National Park air
Table D3	Concentrations in Te Wera air
Table D4	Concentrations in Culverden air
Table D5	Concentrations in Hamilton air
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**Table D1 Concentrations of PCDDs and PCDFs in Baring Head air (fg m<sup>-3</sup>)**

Congener	AR-06-1 (03/05/96 to 23/05/96)	AR-06-4 (27/11/96 to 17/12/96)	AR-06-5 (04/02/97 to 06/03/97)	AR-06-6 (06/05/97 to 27/05/97)	Number of positives	Minimum	Maximum	Median	Mean <sup>3,4</sup>	Mean of <sup>13</sup> C surrogate standard recoveries, %, (n=4)
2,3,7,8 TCDD	< 5	< 2	< 1	< 0.9	0	< 0.9	< 5	< 2	-	100
Non 2,3,7,8 TCDD	< 5	5.91	< 2	< 1	1	< 1	5.91	< 4	-	
1,2,3,7,8 PeCDD	< 6	< 2	< 2	< 0.7	0	< 0.7	< 6	< 2	-	75
Non 2,3,7,8 PeCDD	< 6	< 4	< 3	< 0.9	0	< 0.9	< 6	< 4	-	
1,2,3,4,7,8 HxCDD	< 6	< 3	< 2	< 0.8	0	< 0.8	< 6	< 3	-	95
1,2,3,6,7,8 HxCDD	< 5	< 2	< 2	< 0.7	0	< 0.7	< 5	< 2	-	93
1,2,3,7,8,9 HxCDD	< 5	< 3	< 2	< 0.8	0	< 0.8	< 5	< 3	-	
Non 2,3,7,8 HxCDD	< 6	< 3	< 2	< 1	0	< 1	< 6	< 3	-	
1,2,3,4,6,7,8 HpCDD	33.4	13.1	5.39	3.76	4	3.76	33.4	9.25	13.9	88
Non 2,3,7,8 HpCDD	26.6	7.60	4.29	3.33	4	3.33	26.6	5.95	10.5	
OCDD	174	76.8	39.9	26.0	4	26.0	174	58.4	79.2	89
2,3,7,8 TCDF	< 4	< 1	< 1	< 2	0	< 1	< 4	< 2	-	103
Non 2,3,7,8 TCDF	< 3	21.9	8.94	8.45	3	< 3	21.9	8.70	10.2	
1,2,3,7,8 PeCDF	< 3	< 2	< 1	< 0.5	0	< 0.5	< 3	< 2	-	101
2,3,4,7,8 PeCDF	< 3	< 2	< 1	< 0.6	0	< 0.6	< 3	< 2	-	92
Non 2,3,7,8 PeCDF	< 3	< 3	< 2	< 1	0	< 1	< 3	< 3	-	
1,2,3,4,7,8 HxCDF	< 4	< 2	< 1	< 0.8	0	< 0.8	< 4	< 2	-	89
1,2,3,6,7,8 HxCDF	< 4	< 1	< 1	< 0.6	0	< 0.6	< 4	< 1	-	90
2,3,4,6,7,8 HxCDF	< 5	< 2	< 1	< 0.7	0	< 0.7	< 5	< 2	-	93
1,2,3,7,8,9 HxCDF	< 8	< 2	< 1	< 0.5	0	< 0.5	< 8	< 2	-	69
Non 2,3,7,8 HxCDF	< 4	< 2	< 2	< 0.8	0	< 0.8	< 4	< 2	-	
1,2,3,4,6,7,8 HpCDF	< 8	< 4	< 3	< 2	0	< 2	< 8	< 4	-	84
1,2,3,4,7,8,9 HpCDF	< 10	< 2	< 2	< 0.5	0	< 0.5	< 10	< 2	-	74
Non 2,3,7,8 HpCDF	< 8	< 2	< 2	< 1	0	< 1	< 8	< 2	-	
OCDF	< 20	< 4	< 3	< 3	0	< 3	< 20	< 4	-	
Sum of PCDD/Fs (inc) <sup>1</sup>	300	149	77.0	51.9		51.9	300	113	144	
Sum of PCDD/Fs (exc) <sup>2</sup>	234	125	58.5	41.5		41.5	234	91.8	115	
Total I-TEQ (inc) <sup>1</sup>	7.48	3.09	1.95	1.21		1.21	7.48	2.52	3.43	
Total I-TEQ (exc) <sup>2</sup>	0.51	0.21	0.094	0.064		0.064	0.51	0.15	0.22	

1 = Including half LOD values.

2 = Excluding LOD values.

3 = Mean value reported only if a PCDD or PCDF congener detected on more than 66% of occasions (minimum of 3 positive determinations).

4 = For any individual congener, calculation of the mean includes half LOD values.

**Table D2 Concentrations of PCDDs and PCDFs in Nelson Lakes National Park air (fg m<sup>-3</sup>)**

Congener	AR-07-1 (22/03/96 to 11/04/96)	AR-07-2 (24/05/96 to 13/06/96)	AR-07-3 (09/10/96 to 29/10/96)	AR-07-5 (03/01/97 to 23/01/97)	Number of positives	Minimum	Maximum <sup>3</sup>	Median <sup>4</sup>	Mean <sup>5</sup>	Mean of <sup>13</sup> C surrogate standard recoveries, %, (n=4)
2,3,7,8 TCDD	< 1	< 1	< 1	< 0.4	0	< 0.4	< 1	< 1	-	87
Non 2,3,7,8 TCDD	3.53	< 1	< 2	< 1	1	< 1	3.53	< 2	-	
1,2,3,7,8 PeCDD	< 2	< 1	< 1	< 0.5	0	< 0.5	< 2	< 1	-	70
Non 2,3,7,8 PeCDD	< 2	< 1	< 2	< 1	0	< 1	< 2	< 2	-	
1,2,3,4,7,8 HxCDD	< 1	< 1	< 1	< 0.8	0	< 0.8	< 1	< 1	-	82
1,2,3,6,7,8 HxCDD	< 1	< 1	< 1	< 0.9	0	< 0.9	< 1	< 1	-	77
1,2,3,7,8,9 HxCDD	< 1	< 1	< 1	< 0.8	0	< 0.8	< 1	< 1	-	
Non 2,3,7,8 HxCDD	< 1	< 3	< 2	< 1	0	< 1	< 3	< 2	-	
1,2,3,4,6,7,8 HpCDD	< 6	< 8	< 3	3.44	1	< 3	3.44	< 7	-	74
Non 2,3,7,8 HpCDD	< 4	< 6	< 3	4.17	1	< 3	4.17	< 5	-	
OCDD	< 50	< 40	< 20	22.3	1	< 20	22.3	< 50	-	77
2,3,7,8 TCDF	< 1	< 1	< 1	< 0.5	0	< 0.5	< 1	< 1	-	80
Non 2,3,7,8 TCDF	6.28	7.78	< 1	< 0.5	2	< 0.5	7.78	3.39	-	
1,2,3,7,8 PeCDF	< 1	< 1	< 1	< 0.3	0	< 0.3	< 1	< 1	-	80
2,3,4,7,8 PeCDF	< 1	< 1	< 1	< 0.4	0	< 0.4	< 1	< 1	-	71
Non 2,3,7,8 PeCDF	< 2	< 2	< 1	< 0.7	0	< 0.7	< 2	< 2	-	
1,2,3,4,7,8 HxCDF	< 1	< 1	< 1	< 0.6	0	< 0.6	< 1	< 1	-	72
1,2,3,6,7,8 HxCDF	< 1	< 1	< 1	< 0.5	0	< 0.5	< 1	< 1	-	74
2,3,4,6,7,8 HxCDF	< 1	< 1	< 1	< 0.7	0	< 0.7	< 1	< 1	-	75
1,2,3,7,8,9 HxCDF	< 1	< 2	< 1	< 0.5	0	< 0.5	< 2	< 1	-	65
Non 2,3,7,8 HxCDF	< 2	< 1	< 1	< 1	0	< 1	< 2	< 1	-	
1,2,3,4,6,7,8 HpCDF	< 2	< 2	< 3	< 2	0	< 2	< 3	< 2	-	67
1,2,3,4,7,8,9 HpCDF	< 2	< 3	< 2	< 1	0	< 1	< 3	< 2	-	65
Non 2,3,7,8 HpCDF	< 2	< 2	< 2	< 1	0	< 1	< 2	< 2	-	
OCDF	< 6	< 5	< 3	< 2	0	< 2	< 6	< 4	-	
Sum of PCDD/Fs (inc) <sup>1</sup>	55.8	51.3	28.5	39.0		28.5	55.8	45.2	43.7	
Sum of PCDD/Fs (exc) <sup>2</sup>	9.81	7.78	0	29.9		0	29.9	8.80	11.9	
Total I-TEQ (inc) <sup>1</sup>	1.75	1.56	1.48	0.77		0.77	1.75	1.52	1.39	
Total I-TEQ (exc) <sup>2</sup>	0	0	0	0.057		0	0.057	0	0.014	

1 = Including half LOD values.

2 = Excluding LOD values.

3 = Excludes any LOD which is greater than a maximum measured value.

4 = For any individual congener calculation of the median includes half LOD values.

5 = Mean value reported only if a PCDD or PCDF congener detected on more than 66% of occasions (minimum of 3 positive determinations).

**Table D3 Concentrations of PCDDs and PCDFs in Te Wera air (fg m<sup>-3</sup>)**

Congener	AR-04-1 (26/04/96 to 16/05/96)	AR-04-2 (26/06/96 to 15/07/96)	AR-04-3 (16/08/96 to 06/09/96)	AR-04-5 (20/02/97 to 13/03/97)	AR-04-6 (25/03/97 to 09/04/97)	Number of positives	Minimum	Maximum <sup>3</sup>	Median	Mean <sup>4,5</sup>	Mean of <sup>13</sup> C surrogate standard recoveries, %, (n=5)
2,3,7,8 TCDD	1.93	< 3	< 2	< 0.8	< 1	1	< 0.8	1.93	< 2	-	88
Non 2,3,7,8 TCDD	33.3	31.9	< 3	< 1	21.6	3	< 1	33.3	21.6	-	
1,2,3,7,8 PeCDD	7.64	4.11	3.35	< 1	< 2	3	< 1	7.64	3.35	-	68
Non 2,3,7,8 PeCDD	64.4	36.4	20.7	< 2	18.6	4	< 2	64.4	20.7	28.2	
1,2,3,4,7,8 HxCDD	8.57	2.50	< 2	< 0.9	< 2	2	< 0.9	8.57	< 2	-	88
1,2,3,6,7,8 HxCDD	15.6	2.16	< 3	< 1	< 2	2	< 1	15.6	< 3	-	86
1,2,3,7,8,9 HxCDD	13.0	< 6	< 2	< 0.9	< 2	1	< 0.9	13.0	< 2	-	
Non 2,3,7,8 HxCDD	108	24.0	30.3	11.0	15.9	5	11.0	108	24.0	37.8	
1,2,3,4,6,7,8 HpCDD	284	16.7	15.4	12.0	9.41	5	9.41	284	15.4	67.5	79
Non 2,3,7,8 HpCDD	192	15.1	14.8	19.5	14.4	5	14.4	192	15.1	51.2	
OCDD	693	54.9	43.5	36.0	25.0		25.0	693	43.5	170	84
2,3,7,8 TCDF	8.30	11.2	7.90	< 0.7	5.41	4	< 0.7	11.2	7.90	6.63	82
Non 2,3,7,8 TCDF	219	284	150	13.3	151	5	13.3	284	151	163	
1,2,3,7,8 PeCDF	10.6	10.8	8.78	< 0.7	4.12	4	< 0.7	10.8	8.78	6.93	87
2,3,4,7,8 PeCDF	20.8	19.9	17.5	< 1	7.55	4	< 1	20.8	17.5	13.3	73
Non 2,3,7,8 PeCDF	204	192	126	5.88	89.7	5	5.88	204	126	124	
1,2,3,4,7,8 HxCDF	19.8	15.8	13.7	< 2	5.70	4	< 2	19.8	13.7	11.2	79
1,2,3,6,7,8 HxCDF	17.7	12.9	13.3	< 1	4.58	4	< 1	17.7	12.9	9.80	82
2,3,4,6,7,8 HxCDF	20.4	14.1	14.4	< 1	5.07	4	< 1	20.4	14.1	10.9	84
1,2,3,7,8,9 HxCDF	< 1	< 2	< 1	< 1	< 1	0	< 1	< 2	< 1	-	66
Non 2,3,7,8 HxCDF	146	110	88.1	12.0	43.7	5	12.0	146	88.1	80.0	
1,2,3,4,6,7,8 HpCDF	100	54.9	56.4	14.9	19.8	5	14.9	100	54.9	49.2	74
1,2,3,4,7,8,9 HpCDF	5.67	< 2	< 3	< 2	< 2	1	< 2	5.67	< 2	-	67
Non 2,3,7,8 HpCDF	19.7	8.08	9.81	< 2	3.82	4	< 2	19.7	8.08	8.48	
OCDF	11.8	< 5	< 9	< 4	< 5	1	< 4	11.8	< 5	-	
Sum of PCDD/Fs (inc) <sup>1</sup>	2230	930	646	136	454		136	2230	646	879	
Sum of PCDD/Fs (exc) <sup>2</sup>	2230	921	634	125	445		125	2230	634	871	
Total I-TEQ (inc) <sup>1</sup>	31.7	21.1	18.0	1.66	7.74		1.66	31.7	18.0	16.0	
Total I-TEQ (exc) <sup>2</sup>	31.6	19.2	16.6	0.31	6.37		0.31	31.6	16.6	14.8	

1 = Including half LOD values.

2 = Excluding LOD values.

3 = Excludes any LOD which is greater than a maximum measured value.

4 = Mean value reported only if a PCDD or PCDF congener detected on more than 66% of occasions (minimum of 4 positive determinations).

5 = For any individual congener, calculation of the mean includes half LOD values.

**Table D4 Concentrations of PCDDs and PCDFs in Culverden air (fg m<sup>-3</sup>)**

Congener	AR-10-1 (15/03/96 to 04/04/96)	AR-10-2 (20/05/96 to 10/06/96)	AR-10-3 (18/07/96 to 09/08/96)	AR-10-4 (12/09/96 to 02/10/96)	AR-10-5 (18/12/96 to 07/01/97)	AR-10-6 (13/02/97 to 05/03/97)	Number of positives	Minimum	Maximum <sup>3</sup>	Median <sup>4</sup>	Mean <sup>5,6</sup>	Mean of <sup>13</sup> C surrogate standard recoveries, %, (n=6)
2,3,7,8 TCDD	< 1	< 2	< 1	< 1	< 0.6	< 0.6	0	< 0.6	< 2	< 1	-	95
Non 2,3,7,8 TCDD	3.16	< 2	< 3	< 3	< 1	< 1	1	< 1	3.16	< 3	-	
1,2,3,7,8 PeCDD	< 2	< 2	4.57	< 3	< 1	< 0.7	1	< 0.7	4.57	< 2	-	80
Non 2,3,7,8 PeCDD	< 3	35.2	44.5	< 5	< 2	< 1	2	< 1	44.5	< 4	-	
1,2,3,4,7,8 HxCDD	< 1	< 2	7.10	< 4	< 0.9	< 0.6	1	< 0.6	7.10	< 2	-	89
1,2,3,6,7,8 HxCDD	< 1	< 4	9.38	< 3	< 1	< 0.6	1	< 0.6	9.38	< 2	-	88
1,2,3,7,8,9 HxCDD	< 1	< 6	8.08	< 3	< 1	< 0.4	1	< 0.4	8.08	< 2	-	
Non 2,3,7,8 HxCDD	< 6	63.0	110	36.9	4.47	< 1	4	< 1	110	20.7	36.3	
1,2,3,4,6,7,8 HpCDD	< 10	76.0	194	36.7	12.4	3.78	5	< 10	194	24.6	54.6	83
Non 2,3,7,8 HpCDD	< 9	81.7	180	33.0	12.5	3.82	5	< 9	180	22.8	52.6	
OCDD	< 80	256	809	146	67.4	49.1	5	< 80	809	107	228	88
2,3,7,8 TCDF	< 1	< 3	< 1	4.17	< 0.9	< 0.6	1	< 0.6	4.17	< 1	-	90
Non 2,3,7,8 TCDF	11.2	18.2	38.9	73.0	< 0.9	< 0.7	4	< 0.7	73.0	14.7	23.7	
1,2,3,7,8 PeCDF	< 1	< 1	< 1	< 2	< 0.4	< 0.5	0	< 0.4	< 2	< 1	-	92
2,3,4,7,8 PeCDF	< 1	< 3	< 2	< 2	< 0.6	< 0.4	0	< 0.4	< 3	< 2	-	80
Non 2,3,7,8 PeCDF	6.09	28.4	35.6	26.2	3.90	3.38	6	3.38	35.6	16.1	17.3	
1,2,3,4,7,8 HxCDF	< 1	< 4	2.92	< 2	< 1	< 0.8	1	< 0.8	2.92	< 2	-	80
1,2,3,6,7,8 HxCDF	< 1	< 3	3.31	< 2	< 0.8	< 0.5	1	< 0.5	3.31	< 2	-	83
2,3,4,6,7,8 HxCDF	< 1	< 3	3.25	< 2	< 0.9	< 0.7	1	< 0.7	3.25	< 2	-	83
1,2,3,7,8,9 HxCDF	< 1	< 2	< 2	< 4	< 0.9	< 0.6	0	< 0.6	< 4	< 2	-	71
Non 2,3,7,8 HxCDF	< 3	24.0	25.2	11.3	1.99	< 1	4	< 1	25.2	6.65	10.7	
1,2,3,4,6,7,8 HpCDF	< 4	26.2	23.3	< 8	2.35	< 3	3	< 3	26.2	3.18	-	76
1,2,3,4,7,8,9 HpCDF	< 1	< 2	< 3	< 5	< 0.8	< 0.8	0	< 0.8	< 5	< 2	-	76
Non 2,3,7,8 HpCDF	< 3	7.80	12.0	< 4	< 2	< 2	2	< 2	12.0	< 4	-	
OCDF	< 5	13.4	16.9	< 9	< 4	< 4	2	< 4	16.9	< 7	-	
Sum of PCDD/Fs (inc) <sup>1</sup>	89.0	649	1530	398	115	70.8		70.8	1530	257	475	
Sum of PCDD/Fs (exc) <sup>2</sup>	20.4	630	1530	367	105	60.1		20.4	1530	236	452	
Total I-TEQ (inc) <sup>1</sup>	1.80	4.93	9.88	3.80	1.30	0.94		0.94	9.88	2.80	3.77	
Total I-TEQ (exc) <sup>2</sup>	0	1.29	8.69	0.93	0.22	0.087		0	8.69	0.57	1.87	

1 = Including half LOD values.

2 = Excluding LOD values.

3 = Excludes any LOD which is greater than a maximum measured value.

4 = For any individual congener calculation of the median includes half LOD values.

5 = Mean value reported only if a PCDD or PCDF congener detected on more than 66% of occasions (minimum of 4 positive determinations).

6 = For any individual congener, calculation of the mean includes half LOD values.

**Table D5 Concentrations of PCDDs and PCDFs in Hamilton air (fg m<sup>-3</sup>)**

Congener	AR-03-2/AR-03-2 CS (n=2) <sup>3</sup> (31/05/96 to 20/06/96)	AR-03-3 (19/07/96 to 08/08/96)	AR-03-4/AR-03-4 CS (n=2) <sup>3</sup> (17/09/96 to 10/10/96)	AR-03-5 (15/11/96 to 05/12/96)	AR-03-6 (20/01/97 to 10/02/97)	AR-03-7 (14/03/97 to 03/04/97)	Number of positives	Minimum	Maximum	Median <sup>4</sup>	Mean <sup>5,6</sup>	Mean of <sup>13</sup> C surrogate standard recoveries, %, (n=8)
2,3,7,8 TCDD	21.2	< 3	< 1	0.92	< 0.8	< 0.8	2	< 0.8	21.2	0.71	-	114
Non 2,3,7,8 TCDD	316	80.7	38.7	26.0	24.4	37.3	6	24.4	316	38.0	87.1	
1,2,3,7,8 PeCDD	74.3	11.1	< 3	2.82	1.99	5.40	5	< 3	74.3	4.11	16.2	98
Non 2,3,7,8 PeCDD	817	141	52.5	61.4	41.8	78.2	6	41.8	817	69.8	199	
1,2,3,4,7,8 HxCDD	74.2	11.3	< 2	2.56	1.98	3.78	5	< 2	74.2	3.17	15.8	105
1,2,3,6,7,8 HxCDD	137	16.4	< 6	33.2	4.56	14.1	5	< 6	137	15.3	34.6	95
1,2,3,7,8,9 HxCDD	132	16.5	< 4	8.34	5.55	11.2	5	< 4	132	9.77	29.3	
Non 2,3,7,8 HxCDD	1280	172	60.9	173	86.2	163	6	60.9	1280	168	323	
1,2,3,4,6,7,8 HpCDD	1790	299	86.9	340	102	129	6	86.9	1790	214	458	92
Non 2,3,7,8 HpCDD	1800	325	97.4	278	142	221	6	97.4	1800	250	477	
OCDD	6170	1110	343	798	354	420	6	343	6170	609	1530	99
2,3,7,8 TCDF	168	48.5	9.59	3.26	2.35	3.56	6	2.35	168	6.58	39.1	97
Non 2,3,7,8 TCDF	2780	504	118	136	54.3	109	6	54.3	2780	127	617	
1,2,3,7,8 PeCDF	97.2	14.7	< 4	3.20	1.90	3.22	5	< 4	97.2	3.21	20.4	113
2,3,4,7,8 PeCDF	134	22.9	< 6	4.86	3.48	4.55	5	< 6	134	4.71	28.8	108
Non 2,3,7,8 PeCDF	1520	208	92.8	184	57.8	91.9	6	57.8	1520	138	359	
1,2,3,4,7,8 HxCDF	94.3	16.8	< 6	13.1	5.43	5.89	5	< 6	94.3	9.50	23.1	89
1,2,3,6,7,8 HxCDF	74.9	15.9	< 6	16.4	6.58	8.28	5	< 6	74.9	12.1	20.8	88
2,3,4,6,7,8 HxCDF	71.7	14.9	< 6	9.77	7.97	7.90	5	< 6	71.7	8.87	19.2	101
1,2,3,7,8,9 HxCDF	5.67	< 1	< 1	< 0.8	< 1	< 1	1	< 0.8	5.67	< 1	-	83
Non 2,3,7,8 HxCDF	638	91.3	92.1	496	87.2	107	6	87.2	638	99.6	252	
1,2,3,4,6,7,8 HpCDF	291	76.0	71.4	234	84.2	98.9	6	71.4	291	91.6	143	86
1,2,3,4,7,8,9 HpCDF	28.9	< 5	< 3	5.95	< 2	< 3	2	< 2	28.9	< 4	-	89
Non 2,3,7,8 HpCDF	180	26.7	18.1	138	19.0	27.4	6	18.1	180	27.1	68.1	
OCDF	225	29.1	11.5	40.2	24.5	32.5	6	11.5	225	30.8	60.4	
Sum of PCDD/Fs (inc) <sup>1</sup>	18900	3260	1110	3010	1120	1590		1110	18900	2300	4830	
Sum of PCDD/Fs (exc) <sup>2</sup>	18900	3250	1090	3010	1120	1580		1090	18900	2300	4830	
Total I-TEQ (inc) <sup>1</sup>	234	38.2	6.99	20.3	8.97	13.8		6.99	234	17.1	53.6	
Total I-TEQ (exc) <sup>2</sup>	234	36.7	2.89	20.2	8.51	13.3		2.89	234	16.8	52.5	

1 = Including half LOD values.

2 = Excluding LOD values.

3 = Mean of primary and collocated samples.

4 = For any individual congener calculation of the median includes half LOD values.

5 = Mean value reported only if a PCDD or PCDF congener detected on more than 66% of occasions (minimum of 4 positive determinations).

6 = For any individual congener, calculation of the mean includes half LOD values.

**Table D6 Concentrations of PCDDs and PCDFs in Masterton air (fg m<sup>-3</sup>)**

Congener	AR-05-1 (21/03/96 to 11/04/96)	AR-05-3 (13/08/96 to 02/09/96)	AR-05-4 (11/10/96 to 21/11/96)	AR-05-5 (23/12/96 to 22/01/97)	AR-05-6 (14/03/97 to 15/04/97)	Number of positives	Minimum	Maximum	Median	Mean <sup>3,4</sup>	Mean of <sup>13</sup> C surrogate standard recoveries, % (n=5)
2,3,7,8 TCDD	2.94	20.0	4.68	0.92	2.61	5	0.92	20.0	2.94	6.23	97
Non 2,3,7,8 TCDD	89.8	200	179	46.9	88.6	5	46.9	200	89.8	121	
1,2,3,7,8 PeCDD	13.6	43.4	11.2	1.63	10.9	5	1.63	43.4	11.2	16.1	92
Non 2,3,7,8 PeCDD	285	432	183	44.3	209	5	44.3	432	209	231	
1,2,3,4,7,8 HxCDD	12.1	24.4	7.02	0.93	6.32	5	0.93	24.4	7.02	10.2	89
1,2,3,6,7,8 HxCDD	17.7	46.6	11.7	1.96	11.7	5	1.96	46.6	11.7	17.9	88
1,2,3,7,8,9 HxCDD	17.1	46.3	13.6	1.59	10.8	5	1.59	46.3	13.6	17.9	
Non 2,3,7,8 HxCDD	300	480	172	33.8	159	5	33.8	480	172	229	
1,2,3,4,6,7,8 HpCDD	229	456	137	24.5	114	5	24.5	456	137	192	87
Non 2,3,7,8 HpCDD	255	398	132	23.3	129	5	23.3	398	132	187	
OCDD	693	1720	476	105	505	5	105	1720	505	700	94
2,3,7,8 TCDF	27.9	139	28.7	5.62	38.1	5	5.62	139	28.7	47.9	82
Non 2,3,7,8 TCDF	477	2540	878	149	359	5	149	2540	477	881	
1,2,3,7,8 PeCDF	22.4	82.8	16.0	3.44	23.9	5	3.44	82.8	22.4	29.7	99
2,3,4,7,8 PeCDF	32.8	117	24.3	4.72	30.8	5	4.72	117	30.8	41.9	86
Non 2,3,7,8 PeCDF	372	1090	308	69.3	404	5	69.3	1090	372	449	
1,2,3,4,7,8 HxCDF	23.3	66.7	14.9	3.76	30.2	5	3.76	66.7	23.3	27.8	89
1,2,3,6,7,8 HxCDF	16.1	63.7	15.3	2.86	26.3	5	2.86	63.7	16.1	24.9	80
2,3,4,6,7,8 HxCDF	17.2	55.0	14.2	2.72	25.5	5	2.72	55.0	17.2	22.9	93
1,2,3,7,8,9 HxCDF	< 1	5.53	< 2	< 0.6	2.42	2	< 0.6	5.53	< 2	-	80
Non 2,3,7,8 HxCDF	137	467	126	30.8	201	5	30.8	467	137	192	
1,2,3,4,6,7,8 HpCDF	53.9	212	44.5	12.6	94.4	5	12.6	212	53.9	83.5	82
1,2,3,4,7,8,9 HpCDF	3.95	16.3	4.30	< 1	9.28	4	< 1	16.3	4.30	6.87	85
Non 2,3,7,8 HpCDF	21.9	93.2	21.1	7.13	42.1	5	7.13	93.2	21.9	37.1	
OCDF	16.6	92.3	23.1	6.25	70.5	5	6.25	92.3	23.1	41.8	
Sum of PCDD/Fs (inc) <sup>1</sup>	3140	8900	2850	584	2600		584	8900	2850	3610	
Sum of PCDD/Fs (exc) <sup>2</sup>	3140	8900	2850	583	2600		583	8900	2850	3610	
Total I-TEQ (inc) <sup>1</sup>	44.0	158	36.2	6.73	42.5		6.73	158	42.5	57.5	
Total I-TEQ (exc) <sup>2</sup>	44.0	158	36.1	6.69	42.5		6.69	158	42.5	57.5	

1 = Including half LOD values.

2 = Excluding LOD values.

3 = Mean value reported only if a PCDD or PCDF congener detected on more than 66% of occasions (minimum of 4 positive determinations).

4 = For any individual congener, calculation of the mean includes half LOD values.

**Table D7 Concentrations of PCDDs and PCDFs in Greymouth air (fg m<sup>-3</sup>)**

Congener	AR-08-1 (21/06/96 to 12/07/96)	AR-08-2 (15/07/96 to 05/08/96)	AR-08-3 (12/08/96 to 02/09/96)	AR-08-4 (04/02/97 to 28/02/97)	AR-08-5 (04/03/97 to 24/03/97)	Number of positives	Minimum	Maximum	Median	Mean <sup>3,4</sup>	Mean of <sup>13</sup> C surrogate standard recoveries, % (n=5)
2,3,7,8 TCDD	4.02	4.33	10.3	1.79	1.40	5	1.40	10.3	4.02	4.37	108
Non 2,3,7,8 TCDD	60.7	258	779	58.8	45.0	5	45.0	779	60.7	240	
1,2,3,7,8 PeCDD	9.91	33.4	93.8	3.95	4.03	5	3.95	93.8	9.91	29.0	91
Non 2,3,7,8 PeCDD	130	598	1700	54.5	53.4	5	53.4	1700	130	507	
1,2,3,4,7,8 HxCDD	7.01	40.7	118	1.95	2.78	5	1.95	118	7.01	34.1	107
1,2,3,6,7,8 HxCDD	12.5	49.6	167	4.66	5.37	5	4.66	167	12.5	47.8	89
1,2,3,7,8,9 HxCDD	12.1	46.3	130	3.13	3.95	5	3.13	130	12.1	39.1	
Non 2,3,7,8 HxCDD	114	660	1830	35.1	51.9	5	35.1	1830	114	538	
1,2,3,4,6,7,8 HpCDD	164	701	2380	56.7	141	5	56.7	2380	164	689	90
Non 2,3,7,8 HpCDD	149	1310	3430	65.4	177	5	65.4	3430	177	1030	
OCDD	1380	2910	8400	417	1510	5	417	8400	1510	2920	101
2,3,7,8 TCDF	32.1	60.4	134	9.11	13.3	5	9.11	134	32.1	49.8	96
Non 2,3,7,8 TCDF	665	910	2210	138	199	5	138	2210	665	824	
1,2,3,7,8 PeCDF	25.0	24.7	85.6	5.00	6.98	5	5.00	85.6	24.7	29.5	106
2,3,4,7,8 PeCDF	35.8	39.2	125	7.54	10.7	5	7.54	125	35.8	43.6	101
Non 2,3,7,8 PeCDF	431	571	1550	129	167	5	129	1550	431	570	
1,2,3,4,7,8 HxCDF	28.1	30.5	147	7.63	8.89	5	7.63	147	28.1	44.4	86
1,2,3,6,7,8 HxCDF	23.3	29.4	127	5.67	7.98	5	5.67	127	23.3	38.7	83
2,3,4,6,7,8 HxCDF	19.0	26.0	141	5.61	7.24	5	5.61	141	19.0	39.8	94
1,2,3,7,8,9 HxCDF	1.37	< 2	12.8	< 1	< 0.9	2	< 0.9	12.8	< 2	-	80
Non 2,3,7,8 HxCDF	182	227	1040	87.9	88.5	5	87.9	1040	182	325	
1,2,3,4,6,7,8 HpCDF	75.4	120	718	32.8	38.0	5	32.8	718	75.4	197	84
1,2,3,4,7,8,9 HpCDF	6.55	8.88	77.2	< 2	2.63	4	< 2	77.2	6.55	19.3	87
Non 2,3,7,8 HpCDF	49.0	55.1	263	22.7	31.0	5	22.7	263	49.0	84.2	
OCDF	74.8	58.0	481	25.6	44.2	5	25.6	481	58.0	137	
Sum of PCDD/Fs (inc) <sup>1</sup>	3690	8770	26100	1180	2620		1180	26100	3690	8470	
Sum of PCDD/Fs (exc) <sup>2</sup>	3690	8770	26100	1180	2620		1180	26100	3690	8470	
Total I-TEQ (inc) <sup>1</sup>	45.6	81.5	262	13.0	17.5		13.0	262	45.6	83.9	
Total I-TEQ (exc) <sup>2</sup>	45.6	81.4	262	12.9	17.4		12.9	262	45.6	83.9	

1 = Including half LOD values.

2 = Excluding LOD values.

3 = Mean value reported only if a PCDD or PCDF congener detected on more than 66% of occasions (minimum of 4 positive determinations).

4 = For any individual congener, calculation of the mean includes half LOD values.

**Table D8 Concentrations of PCDDs and PCDFs in Christchurch air (fg m<sup>-3</sup>)**

Congener	AR-09-1 (19/06/96 to 09/07/96)	AR-09-2 (14/08/96 to 04/09/96)	AR-09-3 (09/10/96 to 01/11/96)	AR-09-4 (13/11/96 to 04/12/96)	AR-09-5 (22/01/97 to 12/02/97)	AR-09-6 (10/03/97 to 25/03/97)	Number of positives	Minimum	Maximum	Median	Mean <sup>3,4</sup>	Mean of <sup>13</sup> C surrogate standard recoveries, %, (n=6)
2,3,7,8 TCDD	24.2	16.6	2.06	0.92	0.69	2.12	6	0.69	24.2	2.09	7.76	107
Non 2,3,7,8 TCDD	369	166	82.0	22.0	21.9	48.4	6	21.9	369	65.2	118	
1,2,3,7,8 PeCDD	75.4	52.1	9.21	1.70	2.13	11.3	6	1.70	75.4	10.3	25.3	97
Non 2,3,7,8 PeCDD	632	528	119	26.8	26.4	144	6	26.4	632	132	246	
1,2,3,4,7,8 HxCDD	64.7	43.4	7.03	1.20	1.35	9.84	6	1.20	64.7	8.44	21.3	96
1,2,3,6,7,8 HxCDD	109	73.4	15.7	2.15	4.05	17.1	6	2.15	109	16.4	36.9	93
1,2,3,7,8,9 HxCDD	122	80.1	15.0	2.27	3.60	19.1	6	2.27	122	17.1	40.3	
Non 2,3,7,8 HxCDD	1100	722	172	28.2	41.6	165	6	28.2	1100	169	371	
1,2,3,4,6,7,8 HpCDD	1350	916	226	39.7	73.3	332	6	39.7	1350	279	490	96
Non 2,3,7,8 HpCDD	1330	787	198	38.0	61.6	264	6	38.0	1330	231	446	
OCDD	5250	3430	652	216	377	1940	6	216	5250	1300	1980	109
2,3,7,8 TCDF	180	124	11.1	7.25	2.69	31.7	6	2.69	180	21.4	59.5	86
Non 2,3,7,8 TCDF	4030	2150	327	175	81.4	286	6	81.4	4030	307	1170	
1,2,3,7,8 PeCDF	105	68.6	8.46	3.33	1.31	15.8	6	1.31	105	12.1	33.8	116
2,3,4,7,8 PeCDF	142	91.3	12.1	5.94	2.56	21.6	6	2.56	142	16.9	45.9	101
Non 2,3,7,8 PeCDF	1430	938	129	60.8	30.7	288	6	30.7	1430	209	479	
1,2,3,4,7,8 HxCDF	108	55.6	10.6	4.12	2.40	18.8	6	2.40	108	14.7	33.3	94
1,2,3,6,7,8 HxCDF	77.4	52.1	9.24	3.10	1.77	17.2	6	1.77	77.4	13.2	26.8	90
2,3,4,6,7,8 HxCDF	60.7	42.7	9.28	3.23	1.76	17.6	6	1.76	60.7	13.4	22.5	104
1,2,3,7,8,9 HxCDF	5.21	3.88	< 2	< 0.6	< 0.6	< 2	2	< 0.6	5.21	< 2	-	83
Non 2,3,7,8 HxCDF	543	375	87.0	32.0	22.4	155	6	22.4	543	121	202	
1,2,3,4,6,7,8 HpCDF	210	185	45.5	18.3	13.3	74.6	6	13.3	210	60.1	91.1	87
1,2,3,4,7,8,9 HpCDF	22.2	17.1	4.58	1.53	< 1	7.70	5	< 1	22.2	6.14	8.94	88
Non 2,3,7,8 HpCDF	136	110	24.9	9.32	8.77	58.9	6	8.77	136	41.9	58.0	
OCDF	193	119	41.2	11.2	10.2	109	6	10.2	193	75.1	80.6	
Sum of PCDD/Fs (inc) <sup>1</sup>	17700	11100	2220	714	794	4060		714	17700	3140	6100	
Sum of PCDD/Fs (exc) <sup>2</sup>	17700	11100	2220	714	793	4050		714	17700	3140	6100	
Total I-TEQ (inc) <sup>1</sup>	232	154	24.5	8.09	6.15	38.8		6.15	232	31.7	77.3	
Total I-TEQ (exc) <sup>2</sup>	232	154	24.4	8.06	6.11	38.7		6.11	232	31.6	77.2	

1 = Including half LOD values.

2 = Excluding LOD values.

3 = Mean value reported only if a PCDD or PCDF congener detected on more than 66% of occasions (minimum of 4 positive determinations).

4 = For any individual congener, calculation of the mean includes half LOD values.

**Table D9 Concentrations of PCDDs and PCDFs in Auckland City air (fg m<sup>-3</sup>)**

Congener	AR-01-2 (17/07/96 to 06/08/96)	AR-01-3 (11/11/96 to 02/12/96)	AR-01-4 (07/01/97 to 28/01/97)	AR-01-5 (06/03/97 to 26/03/97)	Number of positives	Minimum	Maximum <sup>3</sup>	Median <sup>4</sup>	Mean <sup>5,6</sup>	Mean of <sup>13</sup> C surrogate standard recoveries, %, (n=4)
2,3,7,8 TCDD	< 2	1.04	0.72	< 0.6	2	< 0.6	1.04	0.86	-	110
Non 2,3,7,8 TCDD	106	11.0	20.5	24.7	4	11.0	106	22.6	40.6	
1,2,3,7,8 PeCDD	10.7	< 4	3.54	3.58	3	< 4	10.7	3.56	4.96	92
Non 2,3,7,8 PeCDD	222	50.2	107	52.0	4	50.2	222	79.5	108	
1,2,3,4,7,8 HxCDD	11.3	< 5	5.19	3.18	3	< 5	11.3	4.19	5.54	93
1,2,3,6,7,8 HxCDD	27.0	9.74	24.4	10.8	4	9.74	27.0	17.6	18.0	88
1,2,3,7,8,9 HxCDD	19.1	7.84	11.5	5.27	4	5.27	19.1	9.67	10.9	
Non 2,3,7,8 HxCDD	238	105	336	88.3	4	88.3	336	172	192	
1,2,3,4,6,7,8 HpCDD	430	187	329	162	4	162	430	258	277	86
Non 2,3,7,8 HpCDD	390	235	461	180	4	180	461	313	317	
OCDD	1580	1130	1390	696	4	696	1580	1260	1200	95
2,3,7,8 TCDF	51.2	7.58	10.4	6.69	4	6.69	51.2	8.99	19.0	103
Non 2,3,7,8 TCDF	495	108	126	71.7	4	71.7	495	117	200	
1,2,3,7,8 PeCDF	14.8	< 6	9.02	5.35	3	< 6	14.8	7.19	8.04	110
2,3,4,7,8 PeCDF	23.1	8.82	18.2	8.47	4	8.47	23.1	13.5	14.6	100
Non 2,3,7,8 PeCDF	211	100	398	127	4	100	398	169	209	
1,2,3,4,7,8 HxCDF	14.7	7.72	22.7	8.24	4	7.72	22.7	11.5	13.3	84
1,2,3,6,7,8 HxCDF	13.0	10.8	39.7	11.3	4	10.8	39.7	12.2	18.7	83
2,3,4,6,7,8 HxCDF	11.9	8.95	33.3	11.2	4	8.95	33.3	11.6	16.3	96
1,2,3,7,8,9 HxCDF	< 2	< 3	< 0.7	< 1	0	< 0.7	< 3	< 2	-	76
Non 2,3,7,8 HxCDF	136	184	895	202	4	136	895	193	354	
1,2,3,4,6,7,8 HpCDF	127	181	608	178	4	127	608	180	274	79
1,2,3,4,7,8,9 HpCDF	< 4	< 6	6.60	4.48	2	< 4	6.60	3.74	-	77
Non 2,3,7,8 HpCDF	84.4	63.4	177	104	4	63.4	177	94.2	107	
OCDF	55.2	76.4	107	92.6	4	55.2	107	84.5	82.8	
Sum of PCDD/Fs (inc) <sup>1</sup>	4280	2510	5140	2060		2060	5140	3400	3500	
Sum of PCDD/Fs (exc) <sup>2</sup>	4270	2490	5140	2060		2060	5140	3380	3500	
Total I-TEQ (inc) <sup>1</sup>	40.8	17.2	37.7	16.5		16.5	40.8	27.5	28.1	
Total I-TEQ (exc) <sup>2</sup>	39.7	15.6	37.7	16.2		15.6	39.7	27.0	27.3	

1 = Including half LOD values.

2 = Excluding LOD values.

3 = Excludes any LOD which is greater than a maximum measured value.

4 = For any individual congener calculation of the median includes half LOD values.

5 = Mean value reported only if a PCDD or PCDF congener detected on more than 66% of occasions (minimum of 3 positive determinations).

6 = For any individual congener, calculation of the mean includes half LOD values.

**Table D10 Concentrations of PCDDs and PCDFs in Auckland South air (fg m<sup>-3</sup>)**

Congener	AR-02-1 (15/03/96 to 04/04/96)	AR-02-2/AR-02-2 CS (n=2) <sup>3</sup> (26/06/96 to 16/07/96)	AR-02-3 (12/08/96 to 03/09/96)	AR-02-4/AR-02-4 CS (n=2) <sup>3</sup> (16/10/96 to 05/11/96)	AR-02-5/AR-02-5 CS (n=2) <sup>3</sup> (06/12/96 to 26/12/96)	Number of positives	Minimum	Maximum	Median	Mean <sup>4</sup>	Mean of <sup>13</sup> C surrogate standard recoveries, % (n=8)
2,3,7,8 TCDD	37.6	14.7	5.96	2.64	1.90	5	1.90	37.6	5.96	12.6	102
Non 2,3,7,8 TCDD	3280	288	256	213	392	5	213	3280	288	886	
1,2,3,7,8 PeCDD	132	49.0	37.1	14.7	10.2	5	10.2	132	37.1	48.6	98
Non 2,3,7,8 PeCDD	4230	721	519	364	493	5	364	4230	519	1270	
1,2,3,4,7,8 HxCDD	55.3	45.3	34.9	14.0	8.09	5	8.09	55.3	34.9	31.5	92
1,2,3,6,7,8 HxCDD	99.9	91.4	76.4	33.3	21.8	5	21.8	99.9	76.4	64.6	91
1,2,3,7,8,9 HxCDD	87.8	79.5	54.6	29.5	17.0	5	17.0	87.8	54.6	53.7	
Non 2,3,7,8 HxCDD	2050	932	691	414	436	5	414	2050	691	905	
1,2,3,4,6,7,8 HpCDD	576	1060	921	397	200	5	200	1060	576	631	90
Non 2,3,7,8 HpCDD	611	1120	939	424	265	5	265	1120	611	672	
OCDD	1030	3960	3850	1540	551	5	551	3960	1540	2190	95
2,3,7,8 TCDF	320	101	109	22.7	13.4	5	13.4	320	101	113	84
Non 2,3,7,8 TCDF	11500	2000	1010	629	605	5	605	11500	1010	3150	
1,2,3,7,8 PeCDF	412	72.6	59.5	24.7	12.0	5	12.0	412	59.5	116	94
2,3,4,7,8 PeCDF	1610	97.6	87.8	41.8	23.2	5	23.2	1610	87.8	372	83
Non 2,3,7,8 PeCDF	30100	1250	691	523	359	5	359	30100	691	6580	
1,2,3,4,7,8 HxCDF	652	72.5	91.2	56.3	28.2	5	28.2	652	72.5	180	78
1,2,3,6,7,8 HxCDF	428	66.2	91.4	49.9	32.2	5	32.2	428	66.2	134	76
2,3,4,6,7,8 HxCDF	419	58.3	89.5	41.9	33.0	5	33.0	419	58.3	128	88
1,2,3,7,8,9 HxCDF	53.5	4.03	< 7	< 4	< 3	2	< 3	53.5	< 7	-	81
Non 2,3,7,8 HxCDF	4740	642	607	566	384	5	384	4740	607	1390	
1,2,3,4,6,7,8 HpCDF	1680	252	815	344	281	5	252	1680	344	674	78
1,2,3,4,7,8,9 HpCDF	227	24.8	54.4	24.8	13.5	5	13.5	227	24.8	68.9	87
Non 2,3,7,8 HpCDF	1060	160	400	167	80.9	5	80.9	1060	167	374	
OCDF	644	165	738	254	120	5	120	738	254	384	
Sum of PCDD/Fs (inc) <sup>1</sup>	66000	13400	12200	6190	4380		4380	66000	12200	20400	
Sum of PCDD/Fs (exc) <sup>2</sup>	66000	13400	12200	6190	4380		4380	66000	12200	20400	
Total I-TEQ (inc) <sup>1</sup>	1170	161	149	66.5	40.3		40.3	1170	149	317	
Total I-TEQ (exc) <sup>2</sup>	1170	161	149	66.3	40.2		40.2	1170	149	317	

1 = Including half LOD values.

2 = Excluding LOD values.

3 = Mean of primary and collocated samples.

4 = Mean value reported only if a PCDD or PCDF congener detected on more than 66% of occasions (minimum of 4 positive determinations).

**Table D11 Comparative PCDD and PCDF concentrations in primary and collocated samples (fg m<sup>-3</sup>)**

Congener	Hamilton; AR-03-2 (31/05/96 to 20/06/96)			Hamilton; AR-03-2 CS (31/05/96 to 20/06/96)			Hamilton; AR-03-4 (17/09/96 to 10/10/96)			Hamilton; AR-03-4 CS (17/09/96 to 10/10/96)			Auckland South; AR-02-2 (26/06/96 to 16/07/96)			Auckland South; AR-02-2 CS (26/06/96 to 16/07/96)			Auckland South; AR-02-4 (16/10/96 to 05/11/96)			Auckland South; AR-02-4 CS (16/10/96 to 05/11/96)			Auckland South; AR-02-5 (06/12/96 to 26/12/96)			Auckland South; AR-02-5 CS (06/12/96 to 26/12/96)		
	Primary	Collocated	%D <sup>3</sup>	Primary	Collocated	%D	Primary	Collocated	%D	Primary	Collocated	%D	Primary	Collocated	%D	Primary	Collocated	%D	Primary	Collocated	%D	Primary	Collocated	%D	Primary	Collocated	%D			
2,3,7,8 TCDD	23.8	18.6	24.5	< 1	< 1	-	15.1	14.2	6.1	2.73	2.55	6.8	1.77	2.03	13.7															
Non 2,3,7,8 TCDD	273	358	26.9	35.8	41.5	14.7	337	238	34.4	252	174	36.6	535	249	73.0															
1,2,3,7,8 PeCDD	81.1	67.5	18.3	< 3	< 2	-	48.6	49.4	1.6	14.8	14.6	1.4	10.5	9.86	6.3															
Non 2,3,7,8 PeCDD	892	741	18.5	46.5	58.5	22.9	709	732	3.2	347	381	9.3	494	492	0.41															
1,2,3,4,7,8 HxCDD	83.2	65.1	24.4	< 2	< 2	-	45.7	44.9	1.8	13.8	14.2	2.9	8.38	7.79	7.3															
1,2,3,6,7,8 HxCDD	145	128	12.5	< 5	< 6	-	90.1	92.7	2.8	32.6	34.0	4.2	20.8	22.7	8.7															
1,2,3,7,8,9 HxCDD	144	120	18.2	< 4	< 4	-	79.1	79.9	1.0	29.3	29.7	1.4	19.4	14.5	28.9															
Non 2,3,7,8 HxCDD	1380	1180	15.6	53.3	68.5	25.0	890	974	9.0	406	422	3.9	429	443	3.2															
1,2,3,4,6,7,8 HpCDD	1920	1660	14.5	81.2	92.5	13.0	1030	1090	5.7	402	391	2.8	195	205	5.0															
Non 2,3,7,8 HpCDD	1960	1640	17.8	84.8	110	25.9	1090	1150	5.4	424	423	0.24	240	289	18.5															
OCDD	6510	5830	11.0	344	341	0.88	4100	3820	7.1	1500	1570	4.6	483	619	24.7															
2,3,7,8 TCDF	182	153	17.3	10.3	8.87	14.9	106	95.2	10.7	22.3	23.1	3.5	13.6	13.1	3.7															
Non 2,3,7,8 TCDF	2980	2580	14.4	111	125	11.9	1990	2010	1.0	700	557	22.8	748	461	47.5															
1,2,3,7,8 PeCDF	102	92.4	9.9	< 4	< 3	-	72.2	73.0	1.1	22.8	26.6	15.4	12.0	12.0	0															
2,3,4,7,8 PeCDF	147	121	19.4	< 6	< 5	-	97.6	97.6	0	41.2	42.4	2.9	23.1	23.3	0.86															
Non 2,3,7,8 PeCDF	1590	1450	9.2	75.5	110	37.2	1260	1230	2.4	516	529	2.5	325	393	18.9															
1,2,3,4,7,8 HxCDF	105	83.5	22.8	< 6	< 6	-	76.4	68.5	10.9	59.8	52.7	12.6	26.7	29.7	10.6															
1,2,3,6,7,8 HxCDF	81.3	68.5	17.1	< 4	< 8	-	64.8	67.5	4.1	47.5	52.3	9.6	26.7	37.6	33.9															
2,3,4,6,7,8 HxCDF	79.5	63.9	21.8	< 5	< 6	-	57.2	59.3	3.6	40.6	43.1	6.0	30.4	35.6	15.8															
1,2,3,7,8,9 HxCDF	6.07	5.27	14.1	< 1	< 1	-	3.66	4.40	18.4	< 4	< 3	-	< 3	< 2	-															
Non 2,3,7,8 HxCDF	705	571	21.0	44.2	140	104	617	667	7.8	556	575	3.4	314	454	36.5															
1,2,3,4,6,7,8 HpCDF	340	242	33.7	32.7	110	108	245	259	5.6	350	338	3.5	236	325	31.7															
1,2,3,4,7,8,9 HpCDF	32.8	24.9	27.4	< 3	< 2	-	22.9	26.7	15.3	26.3	23.3	12.1	12.2	14.8	19.3															
Non 2,3,7,8 HpCDF	210	149	34.0	12.1	24.0	65.9	160	159	0.63	173	161	7.2	75.6	86.1	13.0															
OCDF	266	183	37.0	< 10	17.9	-	163	167	2.4	259	249	3.9	109	130	17.6															
Sum of PCDD/Fs (inc) <sup>1</sup>	20200	17600	13.8	958	1270	28.0	13400	13300	0.75	6240	6130	1.8	4390	4370	0.46															
Sum of PCDD/Fs (exc) <sup>2</sup>	20200	17600	13.8	931	1250	29.3	13400	13300	0.75	6240	6130	1.8	4390	4370	0.46															
Total I-TEQ (inc) <sup>1</sup>	255	212	18.4	6.73	7.25	7.4	161	160	0.62	66.2	66.8	0.90	38.9	41.6	6.7															
Total I-TEQ (exc) <sup>2</sup>	255	212	18.4	2.51	3.27	26.3	161	160	0.62	66.0	66.6	0.90	38.8	41.5	6.7															

1 = Including half LOD values.

2 = Excluding LOD values.

3 = % Difference as calculated from Equation 1 (refer Section 5.6.1).

**Table D12 Comparative PCDD and PCDF concentrations in split QC sample analyses (fg m<sup>-3</sup>)**

Congenor	Hamilton; AR-03-2 CS (31/05/96 to 20/06/96)			Hamilton; AR-03-3 (19/07/96 to 08/08/96)			Hamilton; AR-03-4 CS (17/09/96 to 10/10/96)			Hamilton; AR-03-5 (15/11/96 to 05/12/96)			Auckland South; AR-02-2 CS (26/06/96 to 16/07/96)		
	Primary <sup>3</sup>	Split QC <sup>4,5</sup>	%D <sup>6</sup>	Primary	Split QC	%D	Primary	Split QC	%D	Primary	Split QC	%D	Primary	Split QC	%D
2,3,7,8 TCDD	18.6	20	7.3	< 3	2.2	-	< 1	< 2	-	0.92	< 2	-	14.2	5.9	82.6
Non 2,3,7,8 TCDD	358	330	8.1	80.7	54	40.0	41.5	33	22.8	26.0	20	26.1	238	170	31.0
1,2,3,7,8 PeCDD	67.5	54	22.2	11.1	4.1	92.1	< 2	< 3	-	2.82	< 3	-	49.4	31	45.8
Non 2,3,7,8 PeCDD	741	630	16.8	141	86	48.6	58.5	36	47.6	61.4	41	39.8	732	450	47.9
1,2,3,4,7,8 HxCDD	65.1	75	14.1	11.3	9.9	13.2	< 2	< 4	-	2.56	< 6	-	44.9	46	2.4
1,2,3,6,7,8 HxCDD	128	100	24.6	16.4	15	8.9	< 6	6.2	-	33.2	36	8.1	92.7	74	22.4
1,2,3,7,8,9 HxCDD	120	210	54.5	16.5	31	61.1	< 4	8.6	-	8.34	14	50.7	79.9	130	47.7
Non 2,3,7,8 HxCDD	1180	1330	11.6	172	200	12.6	68.5	86	22.4	173	190	11.4	974	880	10.1
1,2,3,4,6,7,8 HpCDD	1660	1400	17.0	299	190	44.6	92.5	67	32.0	340	280	19.4	1090	860	23.6
Non 2,3,7,8 HpCDD	1640	1400	15.8	325	220	38.5	110	83	28.0	278	230	18.9	1150	840	31.2
OCDD	5830	4700	21.5	1110	750	38.7	341	250	30.8	798	480	49.8	3820	3000	24.0
2,3,7,8 TCDF	153	430	95.0	48.5	48	1.0	8.87	16	59.6	3.26	< 10	-	95.2	150	44.7
Non 2,3,7,8 TCDF	2580	2200	15.9	504	300	50.7	125	110	12.8	136	85	46.2	2010	710	95.6
1,2,3,7,8 PeCDF	92.4	61	40.9	14.7	8.6	52.4	< 3	< 3	-	3.20	< 4	-	73.0	31	80.8
2,3,4,7,8 PeCDF	121	120	0.8	22.9	18	24.0	< 5	4.7	6.2	4.86	< 5	-	97.6	65	40.1
Non 2,3,7,8 PeCDF	1450	1220	17.3	208	160	24.0	110	91	18.6	184	190	3.2	1230	690	55.7
1,2,3,4,7,8 HxCDF	83.5	170	68.2	16.8	31	59.4	< 6	13	-	13.1	21	46.3	68.5	120	54.6
1,2,3,6,7,8 HxCDF	68.5	67	2.2	15.9	10	41.8	< 8	6.3	-	16.4	19	14.7	67.5	52	25.9
2,3,4,6,7,8 HxCDF	63.9	70	9.1	14.9	15	0.7	< 6	6	-	9.77	12	20.5	59.3	54	9.4
1,2,3,7,8,9 HxCDF	5.27	< 4	-	< 1	< 1	-	< 1	< 0.7	-	< 0.8	< 0.9	-	4.40	< 4	-
Non 2,3,7,8 HxCDF	571	580	2.1	91.3	100	13.6	140	120	17.3	496	470	5.6	667	520	24.0
1,2,3,4,6,7,8 HpCDF	242	200	19.0	76.0	42	57.4	110	61	57.2	234	180	26.1	259	190	30.7
1,2,3,4,7,8,9 HpCDF	24.9	27	8.1	< 5	6.4	-	< 2	< 3	-	5.95	11	59.6	26.7	24	10.7
Non 2,3,7,8 HpCDF	149	170	14.9	26.7	38	33.6	24.0	36	39.7	138	190	31.2	159	170	4.3
OCDF	183	150	19.8	29.1	25	15.2	17.9	22	20.6	40.2	29	32.4	167	130	24.9
Sum of PCDD/Fs (inc) <sup>1</sup>	17600	15700	11.3	3260	2370	31.7	1270	1060	17.9	3010	2520	17.9	13300	9400	34.3
Sum of PCDD/Fs (exc) <sup>2</sup>	17600	15700	11.3	3250	2370	31.4	1250	1050	17.0	3010	2530	17.3	13300	9400	34.4
Total I-TEQ (inc) <sup>1</sup>	212	240	12.4	38.2	35.1	8.4	7.25	12.5	52.9	20.3	19.0	6.6	160	130	20.7
Total I-TEQ (exc) <sup>2</sup>	212	240	12.4	36.7	35.1	4.5	3.27	10.4	104.2	20.2	15.0	29.5	160	130	20.7

1 = Including half LOD values.

2 = Excluding LOD values.

3 = Analysed by primary laboratory.

4 = Analysed by independent cross-check laboratory.

5 = Split QC analyses (all samples) not congenor-specific for 2,3,7,8 TCDF, 2,3,4,7,8 PeCDF, 1,2,3,4,7,8 HxCDF or 1,2,3,7,8,9 HxCDD.

6 = % Difference as calculated from Equation 1 (refer Section 5.6.1).

**Table D13 Concentrations of PCDDs and PCDFs in field and equipment rinsate blanks (fg m<sup>-3</sup>)<sup>1</sup>**

Congener	Field blank; AR-07-3 FB (Nelson Lakes National Park: Reference)	Field blank; AR-04-1 FB (Te Wera: Rural)	Field blank; AR-03-2 FB (Hamilton: Urban)	Field blank; AR-05-3 FB (Masteron: Urban)	Field blank; AR-09-2 FB (Christchurch: Urban)	Field blank; AR-02-1 FB (Auckland South: Industrial)	Equipment rinsate blank; AR-10-5 RB (Culverden: Rural)	Equipment rinsate blank; AR-01-1 RB (Auckland City: Urban)	Equipment rinsate blank; AR-01-2 RB (Auckland City: Urban)	Mean of <sup>13</sup> C surrogate standard recoveries, %, (n=9)
2,3,7,8 TCDD	< 2	< 0.9	< 1	< 0.5	< 0.4	< 1	< 0.4	< 1	< 1	98
Non 2,3,7,8 TCDD	< 2	< 0.9	< 1	< 0.6	< 0.4	< 1	< 0.4	< 1	< 1	
1,2,3,7,8 PeCDD	< 2	< 1	< 1	< 0.5	< 0.4	< 2	< 0.4	< 2	< 1	82
Non 2,3,7,8 PeCDD	< 2	< 1	< 1	< 0.7	< 0.5	< 2	< 0.7	< 2	< 1	
1,2,3,4,7,8 HxCDD	< 2	< 1	< 1	< 0.8	< 0.6	< 1	< 0.8	< 1	< 1	92
1,2,3,6,7,8 HxCDD	< 2	< 1	< 1	< 0.7	< 0.6	< 1	< 0.4	< 1	< 1	89
1,2,3,7,8,9 HxCDD	< 2	< 1	< 1	< 0.6	< 0.6	< 1	< 0.4	< 1	< 1	
Non 2,3,7,8 HxCDD	< 2	< 1	< 2	< 0.8	< 0.7	< 1	< 0.8	< 1	< 1	
1,2,3,4,6,7,8 HpCDD	< 5	< 3	< 10	< 2	< 3	< 6	< 1	< 2	< 5	85
Non 2,3,7,8 HpCDD	< 5	< 3	< 8	< 2	< 2	< 4	< 1	< 2	< 4	
OCDD	< 20	< 20	< 50	< 20	< 20	< 30	< 4	< 10	< 30	88
2,3,7,8 TCDF	< 1	< 0.5	< 1	< 0.4	< 0.3	< 1	< 0.2	< 1	< 1	95
Non 2,3,7,8 TCDF	< 1	< 0.5	< 1	< 0.4	< 0.3	< 1	< 0.2	< 1	< 1	
1,2,3,7,8 PeCDF	< 1	< 0.6	< 1	< 0.4	< 0.2	< 1	< 0.3	< 1	< 1	97
2,3,4,7,8 PeCDF	< 1	< 0.7	< 1	< 0.4	< 0.3	< 1	< 0.2	< 1	< 1	85
Non 2,3,7,8 PeCDF	< 1	< 0.6	< 1	< 0.5	< 0.3	< 1	< 0.3	< 1	< 1	
1,2,3,4,7,8 HxCDF	< 1	< 0.9	< 1	< 0.6	< 0.4	< 1	< 0.3	< 1	< 1	83
1,2,3,6,7,8 HxCDF	< 1	< 0.6	< 1	< 0.4	< 0.3	< 1	< 0.3	< 1	< 1	86
2,3,4,6,7,8 HxCDF	< 2	< 0.9	< 1	< 0.6	< 0.4	< 1	< 0.6	< 1	< 1	87
1,2,3,7,8,9 HxCDF	< 3	< 1	< 1	< 0.9	< 0.5	< 1	< 0.4	< 2	< 1	69
Non 2,3,7,8 HxCDF	< 1	< 1	< 1	< 0.6	< 0.4	< 1	< 0.6	< 1	< 1	
1,2,3,4,6,7,8 HpCDF	< 6	< 1	< 1	< 1	< 1	< 4	< 0.9	< 2	< 1	76
1,2,3,4,7,8,9 HpCDF	< 5	< 2	< 1	< 1	< 0.7	< 1	< 0.6	< 2	< 2	72
Non 2,3,7,8 HpCDF	< 6	< 1	< 1	< 1	< 0.7	< 3	< 0.4	< 2	< 2	
OCDF	< 5	< 4	< 2	< 2	< 1	< 4	< 1	< 4	< 4	
Sum of PCDD/Fs (inc) <sup>2</sup>	40.5	24.6	46.0	19.7	18.0	36.0	8.30	22.5	33.0	
Sum of PCDD/Fs (exc) <sup>3</sup>	0	0	0	0	0	0	0	0	0	
Total I-TEQ (inc) <sup>2</sup>	2.57	1.28	1.51	0.77	0.60	1.75	0.54	1.76	1.48	
Total I-TEQ (exc) <sup>3</sup>	0	0	0	0	0	0	0	0	0	

1 = Results reported using the volume of the associated primary air sample collected.

2 = Including half LOD values.

3 = Excluding LOD values.