

DISPERSION MODELLING RESULTS FOR SENSITIVE RECEPTORS - SPECIES INCLUDED IN AIR QUALITY REGULATIONS

PROCESS CONTRIBUTION

Receptor Number	Process Contribution from Dispersion Modelling (µg/m <sup>3</sup> )														
	PM10		SO2			Total NOx			CO		Lead		Benzene		
	Annual Average	90th %ile Daily Means	Annual Average	99.9th %ile 15-Min Means	Hourly Means	Annual Average	Maximum Hourly Mean	99.9th %ile Hourly Means	Annual Average	Maximum 8-Hour Running Mean	Annual Average	Maximum Hourly Mean	Annual Average	Maximum Hourly Mean	
Residential Areas	1	3.5	11.1	5.3	150	111	1.2	36	28	8.1	447	1.1E-03	6.5E-02	1.2E-01	5.9
	2	4.3	12.7	6.9	175	136	1.6	40	29	8.1	590	1.3E-03	8.6E-02	1.5E-01	8.1
	3	5.0	16.8	7.0	164	140	1.6	36	31	11.4	778	1.8E-03	1.0E-01	1.6E-01	12.1
	4	4.3	14.6	3.9	97	77	1.8	33	29	15.2	894	3.4E-03	1.3E-01	7.2E-02	6.6
	5	1.7	6.1	2.8	100	73	0.7	31	20	5.7	411	7.9E-04	6.1E-02	2.0E-01	19.0
	6	1.8	7.0	4.5	111	76	1.1	32	20	8.3	404	1.1E-03	5.3E-02	4.4E-02	6.0
	7	2.0	7.4	2.7	94	59	1.0	33	19	10.1	473	1.8E-03	8.1E-02	5.4E-02	5.9
	8	1.2	4.8	2.1	87	55	0.8	31	20	9.9	502	1.0E-03	5.9E-02	3.4E-02	3.9
	9	6.0	12.9	13.9	135	115	4.0	62	55	28.4	554	2.2E-03	8.5E-02	4.9E-01	14.2
	10	2.0	7.4	2.9	101	73	0.9	45	28	7.2	440	8.3E-04	5.5E-02	5.9E-02	5.1
	11	1.7	5.3	3.4	98	63	0.9	48	28	6.9	467	7.2E-04	4.7E-02	4.3E-02	5.1
	12	2.0	5.7	5.5	107	67	1.5	39	25	10.4	494	8.7E-04	5.0E-02	1.6E-01	15.1
	13	2.4	5.9	7.0	138	83	2.3	37	23	21.5	325	1.6E-03	4.7E-02	9.0E-02	9.7
	14	2.3	7.3	2.7	105	63	1.1	33	20	13.3	374	2.7E-03	8.3E-02	4.7E-02	6.3
15	0.6	2.1	1.7	70	46	0.5	36	17	5.7	362	4.5E-04	3.2E-02	1.6E-01	14.2	
16	1.2	4.5	2.0	98	57	0.7	34	22	7.8	268	1.2E-03	6.3E-02	2.0E-02	1.5	
17	5.8	13.5	12.7	125	107	2.9	63	53	12.1	545	1.2E-03	6.6E-02	2.9E-01	19.0	
18	2.0	6.0	3.4	105	66	1.0	49	27	6.9	579	7.7E-04	5.0E-02	1.1E-01	7.1	
19	2.5	6.5	6.6	105	71	1.7	43	26	10.8	489	9.2E-04	5.5E-02	1.6E-01	12.1	
20	1.5	5.5	2.4	98	64	0.8	41	25	6.6	403	7.2E-04	5.0E-02	7.2E-02	6.6	
21	3.6	9.5	3.8	112	67	1.4	31	21	16.7	426	4.0E-03	8.5E-02	5.6E-02	3.6	
22	1.5	5.6	1.7	91	52	0.5	49	22	5.6	304	1.5E-03	8.8E-02	4.3E-02	4.2	
23	0.4	1.5	0.9	75	34	0.3	27	14	3.8	289	3.5E-04	2.6E-02	3.1E-02	3.4	
Humber SPA	24	7.3	23.4	5.8	142	114	1.4	39	24	5.8	492	2.6E-03	1.4E-01	1.8E-01	15.1
	25	7.0	22.9	4.5	113	93	1.6	31	22	7.7	684	3.4E-03	1.1E-01	3.5E-01	13.6
Commercial Areas	26	7.1	21.4	3.8	94	75	2.0	43	36	11.7	936	6.5E-03	1.2E-01	6.3E-02	6.7
	27	5.7	16.9	9.6	233	148	2.0	40	31	8.9	603	1.6E-03	9.9E-02	2.4E-01	14.2

TABLE 4.1.A3.7

DISPERSION MODELLING RESULTS FOR SENSITIVE RECEPTORS - OTHER METALS  
PROCESS CONTRIBUTION

Receptor Number	Cadmium			Chromium			Copper			Manganese			Mercury			Zinc				
	Annual Average	Maximum Hourly	Mean	Annual Average	Maximum Hourly	Mean	Annual Average	Maximum Hourly	Mean	Annual Average	Maximum Hourly	Mean	Annual Average	Maximum Hourly	Mean	Annual Average	Maximum Hourly	Mean		
Residential Areas  SSSIs  Humber SPA Commercial Areas NETCEN Station	1	1.1E-05	9.9E-04	3.6E-05	3.1E-03	8.0E-05	4.9E-03	8.9E-04	8.0E-02	6.6E-06	6.0E-04	6.0E-05	6.0E-04	6.0E-05	5.6E-03	5.6E-03	5.6E-03	5.6E-03		
	2	1.1E-05	1.1E-03	4.4E-05	3.8E-03	8.8E-05	5.2E-03	1.1E-03	9.0E-02	6.5E-06	6.5E-06	6.5E-06	6.5E-06	6.5E-06	6.5E-06	6.5E-06	6.5E-06	6.5E-06	6.5E-06	
	3	1.5E-05	1.4E-03	5.1E-05	4.8E-03	1.2E-04	6.3E-03	1.2E-03	1.2E-01	9.2E-06	8.6E-04	8.5E-05	8.6E-04	8.5E-05	8.0E-03	8.0E-03	8.0E-03	8.0E-03	8.0E-03	
	4	2.0E-05	1.5E-03	9.9E-05	5.5E-03	1.6E-04	6.4E-03	2.4E-03	1.4E-01	1.2E-05	8.9E-04	1.1E-04	8.2E-03	4.7E-03	4.7E-03	4.7E-03	4.7E-03	4.7E-03	4.7E-03	4.7E-03
	5	7.5E-06	8.5E-04	2.4E-05	12.9E-03	5.6E-05	4.4E-03	5.8E-04	7.0E-02	4.6E-06	5.2E-04	4.2E-05	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03
	6	1.1E-05	9.5E-04	2.9E-05	12.6E-03	7.8E-05	4.5E-03	7.2E-04	6.0E-02	6.7E-06	5.8E-04	6.2E-05	5.8E-04	6.2E-05	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03	5.3E-03
	7	1.3E-05	1.1E-03	5.5E-05	3.4E-03	1.1E-04	5.1E-03	1.3E-03	8.0E-02	8.1E-06	6.7E-04	7.5E-05	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03
	8	1.3E-05	9.6E-04	3.0E-05	2.5E-03	8.7E-05	4.2E-03	7.3E-04	6.0E-02	8.0E-06	5.9E-04	7.4E-05	5.4E-03	5.4E-03	5.4E-03	5.4E-03	5.4E-03	5.4E-03	5.4E-03	5.4E-03
	9	3.8E-05	1.2E-03	5.6E-05	3.7E-03	12.1E-04	6.0E-03	1.4E-03	9.0E-02	2.3E-05	7.6E-04	2.1E-04	7.0E-03	7.0E-03	7.0E-03	7.0E-03	7.0E-03	7.0E-03	7.0E-03	7.0E-03
	10	9.5E-06	1.1E-03	2.8E-05	2.4E-03	6.1E-05	4.5E-03	5.5E-04	6.0E-02	5.8E-06	6.9E-04	5.3E-05	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03	6.4E-03
	11	9.1E-06	8.9E-04	2.2E-05	2.4E-03	6.1E-05	4.5E-03	5.5E-04	6.0E-02	5.5E-06	5.4E-04	5.1E-05	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03	5.0E-03
	12	1.4E-05	1.1E-03	2.3E-05	2.5E-03	8.3E-05	4.9E-03	5.6E-04	6.0E-02	1.7E-05	5.7E-04	1.6E-04	5.2E-03	5.2E-03	5.2E-03	5.2E-03	5.2E-03	5.2E-03	5.2E-03	5.2E-03
	13	2.9E-05	9.3E-04	4.3E-05	2.4E-03	1.6E-04	4.1E-03	1.1E-03	6.0E-02	1.7E-05	5.7E-04	1.6E-04	5.2E-03	5.2E-03	5.2E-03	5.2E-03	5.2E-03	5.2E-03	5.2E-03	5.2E-03
	14	1.8E-05	1.0E-03	9.4E-05	4.0E-03	1.7E-04	4.9E-03	2.3E-03	1.0E-01	1.1E-05	6.3E-04	9.9E-05	5.8E-03	5.8E-03	5.8E-03	5.8E-03	5.8E-03	5.8E-03	5.8E-03	5.8E-03
	15	7.5E-06	6.4E-04	1.2E-05	1.6E-03	4.4E-05	3.6E-03	2.9E-04	4.0E-02	4.6E-06	3.9E-04	4.2E-05	3.6E-03	3.6E-03	3.6E-03	3.6E-03	3.6E-03	3.6E-03	3.6E-03	3.6E-03
	16	1.0E-05	7.8E-04	4.3E-05	3.2E-03	8.9E-05	4.5E-03	1.1E-03	8.0E-02	6.3E-06	4.7E-04	5.8E-05	4.4E-03	4.4E-03	4.4E-03	4.4E-03	4.4E-03	4.4E-03	4.4E-03	4.4E-03
	17	1.6E-05	1.1E-03	3.8E-05	3.4E-03	1.0E-04	5.3E-03	9.3E-04	8.0E-02	9.8E-06	8.8E-04	9.0E-05	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03
	18	9.2E-06	1.1E-03	2.6E-05	2.5E-03	6.3E-05	5.2E-03	6.1E-04	6.0E-02	5.6E-06	6.7E-04	5.1E-05	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03
	19	1.4E-05	1.1E-03	2.4E-05	2.7E-03	8.7E-05	4.9E-03	6.0E-04	7.0E-02	8.8E-06	6.7E-04	8.1E-05	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03	6.2E-03
	20	8.7E-06	9.9E-04	2.4E-05	2.2E-03	5.9E-05	5.6E-03	5.8E-04	5.0E-02	5.3E-06	6.1E-04	4.9E-05	5.6E-03	5.6E-03	5.6E-03	5.6E-03	5.6E-03	5.6E-03	5.6E-03	5.6E-03
	21	2.2E-05	1.2E-03	1.7E-04	4.0E-03	2.7E-04	5.3E-03	4.2E-03	1.0E-01	1.4E-05	7.4E-04	1.2E-04	6.8E-03	6.8E-03	6.8E-03	6.8E-03	6.8E-03	6.8E-03	6.8E-03	6.8E-03
	22	7.5E-06	1.2E-03	6.9E-05	4.4E-03	1.0E-04	5.6E-03	1.7E-03	1.1E-01	4.6E-06	7.5E-04	4.2E-05	6.9E-03	6.9E-03	6.9E-03	6.9E-03	6.9E-03	6.9E-03	6.9E-03	6.9E-03
	23	5.1E-06	5.4E-04	9.8E-06	1.2E-03	3.2E-05	3.0E-03	2.4E-04	3.0E-02	3.1E-06	3.3E-04	2.9E-05	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03	3.0E-03
	24	7.7E-06	1.2E-03	8.0E-05	5.9E-03	1.1E-04	5.9E-03	2.0E-03	1.5E-01	4.7E-06	7.0E-04	4.3E-05	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03	6.5E-03
	25	1.0E-05	1.4E-03	9.7E-05	6.8E-03	1.4E-04	6.8E-03	2.4E-03	1.7E-01	6.2E-06	8.3E-04	5.7E-05	7.8E-03	7.8E-03	7.8E-03	7.8E-03	7.8E-03	7.8E-03	7.8E-03	7.8E-03
	26	1.5E-05	1.8E-04	7.2E-05	2.5E-04	7.2E-03	4.5E-03	1.8E-01	9.4E-06	9.3E-04	8.7E-05	8.6E-03	8.6E-03	8.6E-03	8.6E-03	8.6E-03	8.6E-03	8.6E-03	8.6E-03	8.6E-03
	27	1.2E-05	1.3E-03	5.9E-05	4.1E-03	1.0E-04	6.6E-03	1.4E-03	1.0E-01	7.2E-06	8.1E-04	6.6E-05	7.4E-03	7.4E-03	7.4E-03	7.4E-03	7.4E-03	7.4E-03	7.4E-03	7.4E-03

DISPERSION MODELLING RESULTS FOR SENSITIVE RECEPTORS - OTHER SPECIES

PROCESS CONTRIBUTION

Receptor Number	Dioxin		Total Particulates			Hydrogen Fluoride			Carbon Dioxide			Hydrogen Sulphide	
	Annual Average	Maximum Hourly Mean	Annual Average	95th %ile Daily Means	Annual Average	Maximum Daily Means	Annual Average	Maximum Hourly Mean	Annual Average	Maximum Daily Means	Annual Average	Maximum Daily Means	
1	6.8E-010	6.8E-008	6.4	27	7.2E-004	0.020	1478	71280	0.15	2.4			
2	6.8E-010	6.7E-008	8.0	37	7.9E-004	0.020	1821	66718	0.21	4.1			
3	9.6E-010	9.0E-008	10.4	54	9.9E-004	0.028	2426	68474	0.44	4.9			
4	1.3E-009	9.8E-008	7.5	31	1.3E-003	0.038	2087	67365	0.18	3.3			
5	4.8E-010	5.4E-008	3.2	17	5.3E-004	0.011	892	58717	0.08	1.9			
6	7.0E-010	6.0E-008	3.5	20	7.0E-004	0.023	1423	56001	0.10	1.8			
7	8.5E-010	7.0E-008	3.5	17	8.5E-004	0.024	1164	51011	0.09	1.6			
8	8.3E-010	6.1E-008	2.2	12	8.4E-004	0.016	955	47474	0.07	1.0			
9	2.4E-009	7.9E-008	13.3	33	2.4E-003	0.027	4738	57195	0.50	2.7			
10	6.0E-010	7.2E-008	3.5	19	6.6E-004	0.012	960	65699	0.07	1.3			
11	5.8E-010	5.6E-008	3.1	13	6.2E-004	0.015	1110	53425	0.08	0.9			
12	8.7E-010	6.8E-008	3.8	14	9.2E-004	0.016	1738	48612	0.11	1.0			
13	1.8E-009	5.9E-008	4.9	14	1.8E-003	0.016	2509	48633	0.16	1.0			
14	1.1E-009	6.6E-008	3.8	18	1.1E-003	0.016	1123	48619	0.08	0.9			
15	4.8E-010	4.1E-008	1.2	6	5.1E-004	0.008	629	37483	0.04	0.4			
16	6.6E-010	4.9E-008	2.0	11	6.2E-004	0.011	816	44160	0.05	0.7			
17	1.0E-009	7.1E-008	10.6	29	1.1E-003	0.028	3217	60016	0.22	1.9			
18	5.8E-010	7.0E-008	3.5	15	6.1E-004	0.014	1111	58472	0.08	1.1			
19	9.1E-010	7.0E-008	4.8	16	9.6E-004	0.017	1998	50650	0.13	1.1			
20	5.5E-010	6.9E-008	2.6	14	6.0E-004	0.011	813	62772	0.06	1.1			
21	1.4E-009	7.7E-008	5.6	18	1.3E-003	0.019	1644	49000	0.12	1.0			
22	4.7E-010	7.8E-008	2.4	14	4.6E-004	0.014	695	53531	0.05	0.8			
23	3.2E-010	3.4E-008	0.8	5	3.5E-004	0.006	355	30345	0.02	0.4			
24	4.9E-010	7.3E-008	13.5	62	4.9E-004	0.019	2108	95470	0.47	6.0			
25	6.5E-010	8.6E-008	12.1	48	6.4E-004	0.022	2229	80045	0.24	4.2			
26	9.8E-010	9.7E-008	10.9	39	9.9E-004	0.044	2205	75821	0.14	2.7			
27	7.5E-010	8.4E-008	11.1	55	8.0E-004	0.022	2154	72661	0.40	6.2			