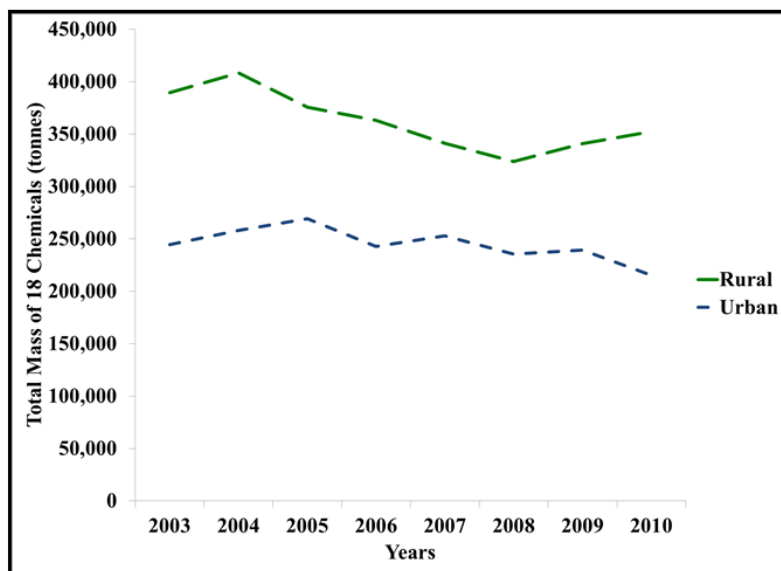


Supplementary Materials: Industrial Developmental Toxicants and Congenital Heart Disease in Urban and Rural Alberta, Canada

S1A



S1B

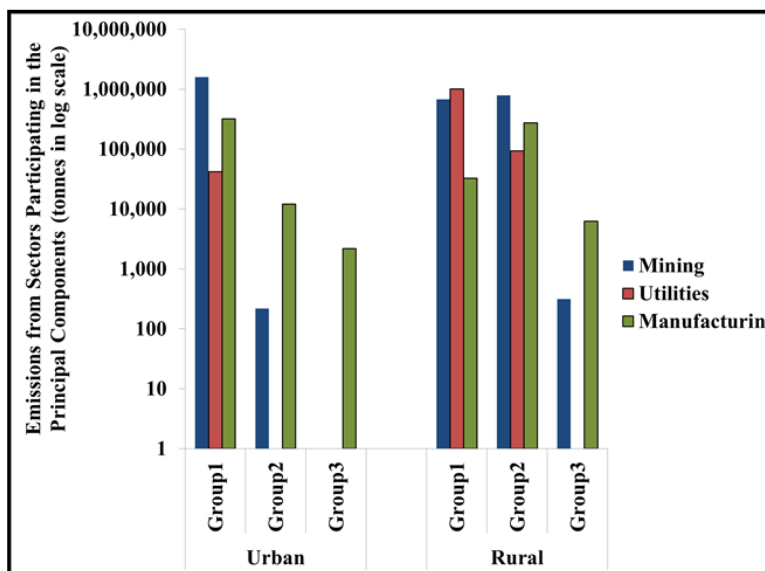


Figure S1. (A) Shows the proportion and trends of 18 chemicals in tonnes for urban and rural postal codes. The rural postal codes had the highest proportion of emissions released to air for the period 2003-2010. (B) Shows the distribution of the three groups of emissions derived from principal component analysis and the 3 main sectors (mining, manufacturing and utilities) which emitted the chemicals in urban and rural postal codes.

Table S1. Regional Decile Distribution of the Sum of All Inverse Distance Weighted (IDW) Emissions and Congenital Heart Disease (CHD).

Region	Decile	Postal Code Count (%)	Median (tonnes)	IQR (tonnes)	Min (tonnes)	Max (tonnes)	CHD Count (%)	Average CHD by Postal Code (95% CI)	Variance of CHD by Postal Code
Urban	1	5142 (10)	0.003	0.017	0.00	0.03	201 (10)	0.04 (0.03, 0.04)	0.05
	2	5308 (10)	0.07	0.04	0.03	0.11	217 (11)	0.04 (0.04, 0.05)	0.05
	3	5352 (10)	0.15	0.05	0.11	0.19	185 (9)	0.03 (0.03, 0.04)	0.04
	4	5367 (10)	0.24	0.06	0.19	0.32	142 (7)	0.03 (0.02, 0.03)	0.03
	5	5377 (10)	0.44	0.14	0.32	0.59	183 (9)	0.03 (0.03, 0.04)	0.04
	6	5397 (10)	0.77	0.19	0.59	0.97	129 (7)	0.02 (0.02, 0.03)	0.03
	7	5410 (10)	1.28	0.39	0.96	1.72	159 (8)	0.03 (0.02, 0.03)	0.03
	8	5399 (10)	2.55	1.15	1.72	3.86	215 (11)	0.04 (0.03, 0.05)	0.04
	9	5400 (10)	6.98	4.1	3.86	10.50	221 (11)	0.04 (0.04, 0.05)	0.05
	10	5409 (10)	17	6.86	10.5	116	315 (16)	0.06 (0.05, 0.07)	0.07
Total		53,561					1,967	0.04 (0.04, 0.04)	0.04
Rural	1	282 (42)	0.00	0.01	0.00	0.03	182 (41)	0.65 (0.56, 0.75)	1.95
	2	116 (17)	0.07	0.03	0.03	0.11	75 (17)	0.65 (0.51, 0.81)	3.47
	3	72 (11)	0.14	0.04	0.11	0.19	33 (7)	0.46 (0.32, 0.64)	1.09
	4	57 (8)	0.24	0.07	0.19	0.32	55 (12)	0.96 (0.73, 1.26)	4.64
	5	47 (7)	0.46	0.12	0.33	0.59	21 (5)	0.45 (0.28, 0.68)	0.64
	6	27 (4)	0.74	0.21	0.61	0.95	15 (3)	0.56 (0.31, 0.92)	0.72
	7	14 (2)	1.26	0.27	0.99	1.71	4 (1)	0.29 (0.08, 0.73)	0.37
	8	25 (4)	3.08	1.42	1.81	3.74	12 (3)	0.48 (0.25, 0.84)	1.43
	9	24 (4)	6.4	1.57	4.02	10.30	29 (7)	1.21 (0.81, 1.74)	4.43
	10	15 (2)	34.9	72	10.8	518	20 (5)	1.33 (0.81, 2.1)	5.67
Total		679					446	0.66 (0.59, 0.72)	2.33

Table S2. Regional Decile Distribution of Group1 Inverse Distance Weighted (IDW) Emissions and Congenital Heart Disease.

Region	Decile	Postal Code Count (%)	Median (tonnes)	IQR (tonnes)	Min (tonnes)	Max (tonnes)	CHD Count (%)	Average CHD by Postal Code (95% CI)	Variance of CHD by Postal Code
Urban	1	5142 (10)	0.002	0.17	0.00	0.03	201 (10)	0.04 (0.03, 0.04)	0.05
	2	5308 (10)	0.07	0.04	0.01	0.11	217 (11)	0.04 (0.04, 0.05)	0.05
	3	5352 (10)	0.15	0.05	0.07	0.19	185 (9)	0.03 (0.03, 0.04)	0.04
	4	5367 (10)	0.24	0.06	0.18	0.32	142 (7)	0.03 (0.02, 0.04)	0.03
	5	5377 (10)	0.44	0.14	0.29	0.59	183 (9)	0.03 (0.03, 0.04)	0.04
	6	5397 (10)	0.75	0.18	0.48	0.96	129 (7)	0.02 (0.02, 0.03)	0.03
	7	5410 (10)	1.22	0.37	0.79	1.72	159 (8)	0.03 (0.02, 0.03)	0.03
	8	5399 (10)	2.44	1.19	1.46	3.86	215 (11)	0.04 (0.03, 0.05)	0.04
	9	5400 (10)	6.9	4.06	3.33	10.5	221 (11)	0.04 (0.04, 0.05)	0.05
	10	5410 (10)	17	6.87	9.23	116	317 (16)	0.06 (0.05, 0.07)	0.07
Total		53,561					1,967	0.04 (0.04, 0.04)	0.04
Rural	1	282 (42)	0.00	0.01	0.00	0.03	182 (41)	0.65 (0.56, 0.75)	1.95
	2	116 (17)	0.07	0.03	0.03	0.11	75 (17)	0.65 (0.51, 0.81)	3.45
	3	72 (11)	0.14	0.04	0.11	0.19	33 (7)	0.46 (0.32, 0.64)	1.09
	4	57 (8)	0.24	0.07	0.18	0.32	55 (12)	0.96 (0.73, 1.26)	4.64
	5	47 (7)	0.46	0.12	0.32	0.58	21 (5)	0.45 (0.28, 0.68)	0.64
	6	27 (4)	0.74	0.19	0.61	0.95	15 (3)	0.56 (0.31, 0.92)	0.72
	7	14 (2)	1.24	0.25	0.98	1.71	4 (1)	0.29 (0.08, 0.73)	0.37
	8	25 (4)	3.08	1.46	1.81	3.74	12 (3)	0.48 (0.25, 0.84)	1.43
	9	24 (4)	6.4	1.61	3.8	10	29 (7)	1.21 (0.81, 1.74)	4.43
	10	15 (2)	35	72	9.4	500	20 (5)	1.33 (0.81, 2.06)	5.67
Total		679					446	0.66 (0.59, 0.72)	2.33

Table S3. Regional Tertile Distribution of Group 2 and 3 Inverse Distance Weighted (IDW) Emissions and Congenital Heart Disease (CHD).

Region	Tertiles	Postal Code Count (%)	Median (kg)	IQR (kg)	Min (kg)	Max (kg)	CHD Count (%)	Average CHD by Postal Code (95% CI)	Variance of CHD by Postal Code
Group 2 Emissions									
Urban	1	17,466 (33)	0.00	0.00	0.00	0.006	592 (30)	0.03 (0.03, 0.04)	0.04
	2	18,033 (34)	3.3	9.4	0.006	23	589 (30)	0.03 (0.03, 0.04)	0.04
	3	18,062 (34)	80	72	23	2,461	786 (40)	0.04 (0.04, 0.05)	0.05
Total		53,561					1,967	0.04 (0.04, 0.04)	0.04
Rural	1	614 (90)	0.00	0.00	0.00	0.003	390 (87)	0.64 (0.57, 0.70)	2.3
	2	47 (7)	2.3	4.6	0.006	23	34 (8)	0.72 (0.50, 1.0)	1.6
	3	18 (3)	171	472	38	17,340	22 (5)	1.2 (0.77, 1.9)	6.7
Total		679					446	0.66 (0.59, 0.72)	2.33
Group 3 Emissions									
Urban	1	17,437 (33)	0.00	0.00	0.00	0.00004	664 (34)	0.04 (0.04,0.04)	0.04
	2	18,056 (34)	0.002	0.058	0.00004	0.091	504 (26)	0.03 (0.03,0.03)	0.03
	3	18,068 (34)	0.349	0.576	0.091	3.9	799 (41)	0.04 (0.04, 0.05)	0.05
Total		53,561					1,967	0.04 (0.04, 0.04)	0.04
Rural	1	643 (95)	0.00	0.00	0.00	0.00004	414 (93)	0.64 (0.58,0.71)	2.2
	2	24 (4)	0.004	0.033	0.0002	0.064	10 (2)	0.42 (0.2,0.77)	1.5
	3	12 (2)	0.874	1.74	0.1	12	22 (5)	1.83 (1.1,2.8)	9.2
Total		679					446	0.66 (0.59,0.72)	2.33