

APPENDIX 12C: CLEA V1.06 MODEL RUNS FOR RESIDENTIAL LAND USE SCENARIO WITHOUT HOME GROWN PRODUCE SCENARIO

NOT PROTECTIVELY MARKED

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CLEA Software Version 1.06

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Report generated 08-Jun-11

Report title Tier 1 Generic Assessment Criteria for metals/metalloids and TPH



Created by AMEC

RESULTS



		Assessment Criterion (mg kg ⁻¹)			Ratio of ADE to HCV			Saturation Limit (mg kg ⁻¹)	50% rule?	
		oral	inhalation	combined	oral	inhalation	combined		Oral	Inhal
1	Arsenic	3.50E+01	8.50E+01	NR	1.00	0.41	NR	NR	No	No
2	Cadmium	2.41E+01	2.97E+01	1.77E+01	0.58	0.42	1.00	NR	Yes	Yes
3	Mercury, inorganic	2.62E+02	2.55E+03	2.38E+02	0.91	0.09	1.00	NR	No	No
4	Nickel	7.86E+02	1.27E+02	NR	0.09	1.00	NR	NR	Yes	Yes
5	Selenium	5.95E+02	NR	NR	1.00	NR	NR	NR	Yes	No
6	Chromium III	1.98E+04	6.37E+02	6.27E+02	0.03	0.97	1.00	NR	No	Yes
7	Copper	1.08E+04	1.04E+04	6.20E+03	0.40	0.60	1.00	NR	Yes	No
8	Zinc	4.05E+04	2.55E+07	4.04E+04	1.00	0.00	1.00	NR	Yes	No
9	Boron	1.08E+04	1.22E+05	1.03E+04	0.92	0.08	1.00	NR	Yes	No
10	Barium	1.34E+03	NR	NR	1.00	NR	NR	NR	Yes	No
11	Free cyanide	7.69E+02	3.81E+04	7.62E+02	0.98	0.02	1.00	NR	Yes	No
12	Phenol	9.17E+04	3.11E+02	3.10E+02	0.00	1.00	1.00	4.16E+04 (vap)	No	No
13	TPH Aliphatic C5-6	2.23E+05	2.98E+01	2.98E+01	0.00	1.00	1.00	3.04E+02 (sol)	Yes	Yes
14	TPH Aliphatic C6-8	2.23E+05	7.27E+01	7.27E+01	0.00	1.00	1.00	1.44E+02 (sol)	Yes	Yes
15	TPH Aliphatic C8-10	4.45E+03	1.89E+01	1.88E+01	0.00	1.00	1.00	7.77E+01 (vap)	Yes	Yes
16	TPH Aliphatic C10-12	4.45E+03	9.34E+01	9.29E+01	0.01	0.99	1.00	4.75E+01 (vap)	Yes	Yes
17	TPH Aliphatic C12-16	4.45E+03	7.82E+02	7.45E+02	0.09	0.91	1.00	2.37E+01 (sol)	Yes	Yes
18	TPH Aliphatic C16-35	4.53E+04	NR	NR	1.00	NR	NR	8.48E+00 (sol)	Yes	No
19	TPH Aliphatic C35-44	4.53E+04	NR	NR	1.00	NR	NR	8.48E+00 (sol)	Yes	No
20	TPH Aromatic C8-10	1.78E+03	3.33E+01	3.32E+01	0.01	0.99	1.00	6.13E+02 (vap)	Yes	Yes



		Soil Distribution				Media Concentrations													
		Sorbed	Dissolved	Vapour	Total	Soil	Soil gas	Indoor Dust	Outdoor dust at 0.8m	Outdoor dust at 1.6m	Indoor Vapour	Outdoor vapour at 0.8m	Outdoor vapour at 1.6m	Green vegetables	Root vegetables	Tuber vegetables	Herbaceous fruit	Shrub fruit	Tree fruit
		%	%	%	%	mg kg ⁻¹	mg m ⁻³	mg kg ⁻¹	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg kg ⁻¹ FW	mg kg ⁻¹ FW	mg kg ⁻¹ FW	mg kg ⁻¹ FW	mg kg ⁻¹ FW	mg kg ⁻¹ FW
1	Arsenic	99.9	0.1	0.0	100.0	3.50E+01	NR	1.75E+01	1.49E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	NA	NA	NA	NA
2	Cadmium	99.7	0.3	0.0	100.0	1.77E+01	NR	8.84E+00	7.52E-09	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	NA	NA	NA	NA
3	Mercury, inorganic	99.9	0.1	0.0	100.0	2.38E+02	NR	1.19E+02	1.01E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	NA	NA	NA	NA
4	Nickel	99.9	0.1	0.0	100.0	1.27E+02	NR	6.37E+01	5.42E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	NA	NA	NA	NA
5	Selenium	99.5	0.5	0.0	100.0	5.95E+02	NR	2.98E+02	2.53E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	NA	NA	NA	NA
6	Chromium III	100.0	0.0	0.0	100.0	6.27E+02	NR	3.14E+02	2.67E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	NA	NA	NA	NA
7	Copper	99.7	0.3	0.0	100.0	6.20E+03	NR	3.10E+03	2.64E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	NA	NA	NA	NA
8	Zinc	99.3	0.7	0.0	100.0	4.04E+04	NR	2.02E+04	1.72E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	NA	NA	NA	NA
9	Boron	97.3	2.7	0.0	100.0	1.03E+04	NR	5.16E+03	4.39E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	NA	NA	NA	NA
10	Barium	#####	#DIV/0!	0.0	#DIV/0!	1.34E+03	NR	6.72E+02	5.72E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	NA	NA	NA	NA
11	Free cyanide	97.2	2.8	0.0	100.0	7.62E+02	NR	3.81E+02	3.24E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	NA	NA	NA	NA	NA	NA
12	Phenol	63.9	36.1	0.0	100.0	3.10E+02	3.43E+00	1.55E+02	1.32E-07	0.00E+00	4.32E-03	1.02E-04	0.00E+00	NA	NA	NA	NA	NA	NA
13	TPH Aliphatic C5-6	55.7	3.2	41.0	100.0	2.98E+01	7.40E+04	1.49E+01	1.27E-08	0.00E+00	2.70E+00	7.22E-04	0.00E+00	NA	NA	NA	NA	NA	NA
14	TPH Aliphatic C6-8	82.2	1.0	16.8	100.0	7.27E+01	7.40E+04	3.64E+01	3.10E-08	0.00E+00	2.70E+00	1.13E-03	0.00E+00	NA	NA	NA	NA	NA	NA
15	TPH Aliphatic C8-10	96.1	0.1	3.8	100.0	1.88E+01	4.29E+03	9.42E+00	8.01E-09	0.00E+00	1.57E-01	1.38E-04	0.00E+00	NA	NA	NA	NA	NA	NA
16	TPH Aliphatic C10-12	99.2	0.0	0.8	100.0	9.29E+01	4.27E+03	4.65E+01	3.96E-08	0.00E+00	1.56E-01	3.06E-04	0.00E+00	NA	NA	NA	NA	NA	NA
17	TPH Aliphatic C12-16	99.9	0.0	0.1	100.0	7.45E+02	4.08E+03	3.72E+02	3.17E-07	0.00E+00	1.49E-01	8.49E-04	0.00E+00	NA	NA	NA	NA	NA	NA
18	TPH Aliphatic C16-35	100.0	0.0	0.0	100.0	4.53E+04	1.45E+04	2.26E+04	1.93E-05	0.00E+00	5.30E-01	1.25E-02	0.00E+00	NA	NA	NA	NA	NA	NA
19	TPH Aliphatic C35-44	100.0	0.0	0.0	100.0	4.53E+04	1.45E+04	2.26E+04	1.93E-05	0.00E+00	5.30E-01	1.25E-02	0.00E+00	NA	NA	NA	NA	NA	NA
20	TPH Aromatic C8-10	96.7	2.9	0.4	100.0	3.32E+01	8.82E+02	1.66E+01	1.41E-08	0.00E+00	3.23E-02	8.33E-05	0.00E+00	NA	NA	NA	NA	NA	NA



		Average Daily Exposure (mg kg ⁻¹ bw day ⁻¹)							Distribution by Pathway (%)							
		Direct soil ingestion	Consumption of homegrown produce and attached soil	Dermal contact with soil and dust	Inhalation of dust	Inhalation of vapour	Background (oral)	Background (inhalation)	Direct soil ingestion	Consumption of homegrown produce and attached soil	Dermal contact with soil and dust	Inhalation of dust	Inhalation of vapour (indoor)	Inhalation of vapour (outdoor)	Background (oral)	Background (inhalation)
1	Arsenic	2.60E-04	0.00E+00	4.01E-05	8.25E-07	0.00E+00	0.00E+00	0.00E+00	86.41	0.00	13.32	0.27	0.00	0.00	0.00	0.00
2	Cadmium	1.31E-04	0.00E+00	6.73E-07	4.16E-07	0.00E+00	7.54E-04	1.21E-06	49.59	0.00	0.25	0.16	0.00	0.00	49.84	0.16
3	Mercury, inorganic	1.76E-03	0.00E+00	0.00E+00	5.59E-06	0.00E+00	5.63E-05	0.00E+00	96.61	0.00	0.00	0.31	0.00	0.00	3.08	0.00
4	Nickel	9.45E-04	0.00E+00	2.43E-05	3.00E-06	0.00E+00	7.31E-03	3.64E-06	48.45	0.00	1.24	0.15	0.00	0.00	49.85	0.15
5	Selenium	4.41E-03	0.00E+00	0.00E+00	1.40E-05	0.00E+00	1.97E-03	3.64E-06	68.96	0.00	0.00	0.22	0.00	0.00	30.82	0.00
6	Chromium III	4.65E-03	0.00E+00	0.00E+00	1.48E-05	0.00E+00	3.39E-03	1.64E-05	57.65	0.00	0.00	0.18	0.00	0.00	41.98	0.18
7	Copper	4.60E-02	0.00E+00	0.00E+00	1.46E-04	0.00E+00	3.94E-01	4.12E-05	49.90	0.00	0.00	0.16	0.00	0.00	49.90	0.04
8	Zinc	3.00E-01	0.00E+00	0.00E+00	9.52E-04	0.00E+00	1.52E+00	1.45E-04	49.91	0.00	0.00	0.16	0.00	0.00	49.91	0.02
9	Boron	7.65E-02	0.00E+00	0.00E+00	2.43E-04	0.00E+00	2.08E-01	2.41E-05	49.91	0.00	0.00	0.16	0.00	0.00	49.91	0.02
10	Barium	9.97E-03	0.00E+00	0.00E+00	3.16E-05	0.00E+00	4.77E-02	6.06E-02	49.84	0.00	0.00	0.16	0.00	0.00	50.00	0.00
11	Free cyanide	5.65E-03	0.00E+00	2.90E-04	1.79E-05	0.00E+00	1.69E-02	3.64E-06	47.47	0.00	2.44	0.15	0.00	0.00	49.91	0.03
12	Phenol	2.30E-03	0.00E+00	3.55E-03	7.30E-06	4.00E-03	1.97E-02	2.42E-03	15.79	0.00	24.33	0.05	27.38	0.03	15.79	16.63
13	TPH Aliphatic C5-6	2.21E-04	0.00E+00	1.14E-04	7.01E-07	2.50E+00	5.62E+95	6.06E+95	0.00	0.00	0.00	0.00	49.99	0.00	0.01	49.99
14	TPH Aliphatic C6-8	5.39E-04	0.00E+00	2.77E-04	1.71E-06	2.50E+00	5.62E+95	6.06E+95	0.01	0.00	0.01	0.00	49.98	0.00	0.02	49.98
15	TPH Aliphatic C8-10	1.40E-04	0.00E+00	7.18E-05	4.43E-07	1.45E-01	5.62E+95	6.06E+95	0.05	0.00	0.02	0.00	49.92	0.00	0.07	49.93
16	TPH Aliphatic C10-12	6.89E-04	0.00E+00	3.54E-04	2.19E-06	1.44E-01	5.62E+95	6.06E+95	0.24	0.00	0.12	0.00	49.64	0.00	0.36	49.64
17	TPH Aliphatic C12-16	5.52E-03	0.00E+00	2.84E-03	1.75E-05	1.38E-01	5.62E+95	6.06E+95	1.89	0.00	0.97	0.01	47.13	0.01	2.85	47.15
18	TPH Aliphatic C16-35	3.36E-01	0.00E+00	1.72E-01	1.07E-03	4.91E-01	5.62E+95	0.00E+00	16.78	0.00	8.62	0.05	24.51	0.03	50.00	0.00
19	TPH Aliphatic C35-44	3.36E-01	0.00E+00	1.72E-01	1.07E-03	4.91E-01	5.62E+95	0.00E+00	16.78	0.00	8.62	0.05	24.51	0.03	50.00	0.00
20	TPH Aromatic C8-10	2.46E-04	0.00E+00	1.26E-04	7.80E-07	2.99E-02	5.62E+95	6.06E+95	0.41	0.00	0.21	0.00	49.38	0.01	0.62	49.38



		Oral Health Criteria Value ($\mu\text{g kg}^{-1} \text{ BW day}^{-1}$)		Inhalation Health Criteria Value ($\mu\text{g kg}^{-1} \text{ BW day}^{-1}$)		Oral Mean Daily Intake ($\mu\text{g day}^{-1}$)	Inhalation Mean Daily Intake ($\mu\text{g day}^{-1}$)	Air-water partition coefficient (K_{aw}) ($\text{cm}^3 \text{ cm}^{-3}$)	Coefficient of Diffusion in Air ($\text{m}^2 \text{ s}^{-1}$)	Coefficient of Diffusion in Water ($\text{m}^2 \text{ s}^{-1}$)	$\log K_{oc}$ ($\text{cm}^2 \text{ g}^{-1}$)	$\log K_{ow}$ (dimensionless)	Dermal Absorption Fraction (dimensionless)	Soil-to-dust transport factor ($\text{g g}^{-1} \text{ DW}$)	Sub-surface soil to indoor air correction factor (dimensionless)	Relative bioavailability via soil ingestion (unitless)	Relative bioavailability via dust inhalation (unitless)
1	Arsenic	ID	0.3	ID	0.002	NR	NR	NR	NR	NR	NR	NR	0.03	0.5	1	1	1
2	Cadmium	TDI	0.36	TDI	0.0014	13.4	0.02	NR	NR	NR	NR	NR	0.001	0.5	1	1	1
3	Mercury, inorganic	TDI	2	TDI	0.06	1	0	NR	NR	NR	NR	NR	0	0.5	1	1	1
4	Nickel	TDI	12	TDI	0.006	130	0.06	NR	NR	NR	NR	NR	0.005	0.5	1	1	1
5	Selenium	TDI	6.4	NR	0	35	0.06	NR	NR	NR	NR	NR	0	0.5	1	1	1
6	Chromium III	TDI	150	TDI	0.03	60.2	0.27	NR	NR	NR	NR	NR	0	0.5	1	1	1
7	Copper	TDI	160	TDI	0.286	7000	0.68	NR	NR	NR	NR	NR	0	0.5	1	1	1
8	Zinc	TDI	600	TDI	600	27000	2.4	NR	NR	NR	NR	NR	0	0.5	1	1	1
9	Boron	TDI	160	TDI	2.9	3700	0.398	NR	NR	NR	NR	NR	0	0.5	1	1	1
10	Barium	TDI	20	NR	0	847	1000	NR	NR	NR	NR	NR	0	0.5	1	1	1
11	Free cyanide	TDI	12	TDI	0.9	300	0.06	NR	NR	NR	NR	NR	0.01	0.5	1	1	1
12	Phenol	TDI	700	TDI	10	350	40	8.35E-06	7.90E-06	6.36E-10	1.92	1.48	0.3	0.5	1	1	1
13	TPH Aliphatic C5-6	TDI	5000	TDI	5000	9.99E+99	9.99E+99	2.10E+01	1.00E-05	1.00E-09	2.91	3.31	0.1	0.5	10	1	1
14	TPH Aliphatic C6-8	TDI	5000	TDI	5000	9.99E+99	9.99E+99	2.73E+01	1.00E-05	1.00E-09	3.58	4.13	0.1	0.5	10	1	1
15	TPH Aliphatic C8-10	TDI	100	TDI	290	9.99E+99	9.99E+99	4.15E+01	1.00E-05	1.00E-09	4.48	5.22	0.1	0.5	10	1	1
16	TPH Aliphatic C10-12	TDI	100	TDI	290	9.99E+99	9.99E+99	6.44E+01	1.00E-05	1.00E-09	5.38	6.3	0.1	0.5	10	1	1
17	TPH Aliphatic C12-16	TDI	100	TDI	290	9.99E+99	9.99E+99	1.71E+02	1.00E-05	1.00E-09	6.73	7.94	0.1	0.5	10	1	1
18	TPH Aliphatic C16-35	TDI	2000	NR	0	9.99E+99	NR	1.07E+03	1.00E-05	1.00E-09	8.76	10.39	0.1	0.5	10	1	1
19	TPH Aliphatic C35-44	TDI	2000	NR	0	9.99E+99	NR	1.07E+03	1.00E-05	1.00E-09	8.76	10.39	0.1	0.5	10	1	1
20	TPH Aromatic C8-10	TDI	40	TDI	60	9.99E+99	9.99E+99	2.53E-01	1.00E-05	1.00E-09	3.2	3.69	0.1	0.5	10	1	1

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Report title Tier 1 Generic Assessment Criteria for PAHs

Created by Darren Makin at AMEC



RESULTS



		Assessment Criterion (mg kg ⁻¹)			Ratio of ADE to HCV			Saturation Limit (mg kg ⁻¹)	50% rule?	
		oral	inhalation	combined	oral	inhalation	combined		Oral	Inhal
1	Naphthalene	1.58E+03	1.64E+00	1.64E+00	0.00	1.00	1.00	7.64E+01 (sol)	No	No
2	Acenaphthene	4.85E+03	3.54E+03	2.05E+03	0.42	0.58	1.00	5.70E+01 (sol)	No	No
3	Acenaphthylene	4.85E+03	3.27E+03	1.95E+03	0.40	0.60	1.00	8.61E+01 (sol)	No	No
4	Anthracene	2.43E+04	1.08E+05	1.98E+04	0.82	0.18	1.00	1.17E+00 (vap)	No	No
5	Chrysene	1.62E+01	1.95E+01	8.84E+00	0.55	0.45	1.00	4.40E-01 (vap)	No	No
6	Fluorene	3.23E+03	4.35E+03	1.85E+03	0.57	0.43	1.00	3.09E+01 (sol)	No	No
7	Fluoranthene	1.01E+03	2.69E+04	9.72E+02	0.96	0.04	1.00	1.89E+01 (vap)	No	No
8	Pyrene	2.42E+03	6.18E+04	2.33E+03	0.96	0.04	1.00	2.20E+00 (vap)	No	No
9	Benz[a]anthracene	1.12E+01	5.55E+00	3.71E+00	0.33	0.67	1.00	1.71E+00 (sol)	No	No
10	Benzo[b]fluoranthene	1.15E+01	1.79E+01	6.99E+00	0.61	0.39	1.00	1.22E+00 (sol)	No	No
11	Benzo[k]fluoranthene	1.62E+01	2.66E+01	1.01E+01	0.62	0.38	1.00	6.87E-01 (sol)	No	No
12	Benzo[ghi]perylene	7.35E+01	1.29E+02	4.68E+01	0.64	0.36	1.00	1.87E-02 (vap)	No	No
13	Phenanthrene	1.00E+03	5.04E+03	8.37E+02	0.83	0.17	1.00	3.60E+01 (sol)	No	No
14	Indeno(123-cd)pyrene	6.95E+00	1.04E+01	4.17E+00	0.60	0.40	1.00	6.14E-02 (vap)	No	No
15	Dibenz[ah]anthracene	1.46E+00	2.13E+00	8.65E-01	0.59	0.41	1.00	3.93E-03 (vap)	No	No
16	Benzo[a]pyrene	1.62E+00	2.62E+00	1.00E+00	0.62	0.38	1.00	9.11E-01 (vap)	No	No
17	Benzene	2.58E+01	2.69E-01	2.66E-01	0.01	0.99	1.00	1.22E+03 (sol)	No	No
18	Ethylbenzene	8.88E+03	1.70E+02	1.67E+02	0.02	0.98	1.00	5.18E+02 (vap)	No	No
19	Toluene	1.98E+04	6.26E+02	6.07E+02	0.03	0.97	1.00	8.69E+02 (vap)	No	No
20	Xylene, o-	1.60E+04	5.98E+01	5.95E+01	0.00	1.00	1.00	4.78E+02 (sol)	No	No



		Soil Distribution				Media Concentrations													
		Sorbed	Dissolved	Vapour	Total	Soil	Soil gas	Indoor Dust	Outdoor dust at 0.8m	Outdoor dust at 1.6m	Indoor Vapour	Outdoor vapour at 0.8m	Outdoor vapour at 1.6m	Green vegetables	Root vegetables	Tuber vegetables	Herbaceous fruit	Shrub fruit	Tree fruit
		%	%	%	%	mg kg ⁻¹	mg m ⁻³	mg kg ⁻¹	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg m ⁻³	mg kg ⁻¹ FW	mg kg ⁻¹ FW	mg kg ⁻¹ FW	mg kg ⁻¹ FW	mg kg ⁻¹ FW	mg kg ⁻¹ FW
1	Naphthalene	93.2	6.8	0.0	100.0	1.64E+00	2.70E+00	8.19E-01	6.97E-10	0.00E+00	7.45E-04	8.51E-07	0.00E+00	NA	NA	NA	NA	NA	NA
2	Acenaphthene	98.0	2.0	0.0	100.0	2.05E+03	1.12E+02	1.02E+03	8.71E-07	0.00E+00	3.74E-02	2.19E-04	0.00E+00	NA	NA	NA	NA	NA	NA
3	Acenaphthylene	97.5	2.5	0.0	100.0	1.95E+03	1.02E+02	9.77E+02	8.31E-07	0.00E+00	3.87E-02	2.23E-04	0.00E+00	NA	NA	NA	NA	NA	NA
4	Anthracene	99.2	0.8	0.0	100.0	1.98E+04	1.09E+02	9.90E+03	8.43E-06	0.00E+00	5.90E-02	9.62E-04	0.00E+00	NA	NA	NA	NA	NA	NA
5	Chrysene	99.9	0.1	0.0	100.0	8.84E+00	8.81E-05	4.42E+00	3.76E-09	0.00E+00	1.13E-07	1.08E-07	0.00E+00	NA	NA	NA	NA	NA	NA
6	Fluorene	98.4	1.6	0.0	100.0	1.85E+03	4.60E+01	9.27E+02	7.89E-07	0.00E+00	1.84E-02	1.51E-04	0.00E+00	NA	NA	NA	NA	NA	NA
7	Fluoranthene	99.7	0.3	0.0	100.0	9.72E+02	5.78E-01	4.86E+02	4.14E-07	0.00E+00	4.63E-04	2.30E-05	0.00E+00	NA	NA	NA	NA	NA	NA
8	Pyrene	99.7	0.3	0.0	100.0	2.33E+03	1.39E+00	1.17E+03	9.93E-07	0.00E+00	1.16E-03	5.82E-05	0.00E+00	NA	NA	NA	NA	NA	NA
9	Benzo[a]anthracene	99.9	0.1	0.0	100.0	3.71E+00	2.60E-04	1.85E+00	1.58E-09	0.00E+00	2.50E-07	3.95E-08	0.00E+00	NA	NA	NA	NA	NA	NA
10	Benzo[b]fluoranthene	100.0	0.0	0.0	100.0	6.99E+00	2.36E-05	3.49E+00	2.97E-09	0.00E+00	3.08E-08	6.06E-08	0.00E+00	NA	NA	NA	NA	NA	NA
11	Benzo[k]fluoranthene	100.0	0.0	0.0	100.0	1.01E+01	2.04E-05	5.03E+00	4.28E-09	0.00E+00	2.69E-08	7.33E-08	0.00E+00	NA	NA	NA	NA	NA	NA
12	Benzo[ghi]perylene	100.0	0.0	0.0	100.0	4.68E+01	4.56E-05	2.34E+01	1.99E-08	0.00E+00	5.92E-08	2.01E-07	0.00E+00	NA	NA	NA	NA	NA	NA
13	Phenanthrene	99.2	0.8	0.0	100.0	8.37E+02	3.72E+00	4.18E+02	3.56E-07	0.00E+00	2.22E-03	3.97E-05	0.00E+00	NA	NA	NA	NA	NA	NA
14	Indeno(123-cd)pyrene	99.9	0.1	0.0	100.0	4.17E+00	1.69E-05	2.08E+00	1.77E-09	0.00E+00	2.21E-08	3.90E-08	0.00E+00	NA	NA	NA	NA	NA	NA
15	Dibenz[ah]anthracene	100.0	0.0	0.0	100.0	8.65E-01	4.32E-06	4.32E-01	3.68E-10	0.00E+00	5.37E-09	5.47E-09	0.00E+00	NA	NA	NA	NA	NA	NA
16	Benzo[a]pyrene	100.0	0.0	0.0	100.0	1.00E+00	2.35E-06	5.00E-01	4.25E-10	0.00E+00	3.10E-09	7.86E-09	0.00E+00	NA	NA	NA	NA	NA	NA
17	Benzene	57.3	39.9	2.8	100.0	2.66E-01	4.51E+01	1.33E-01	1.13E-10	0.00E+00	1.50E-03	1.58E-06	0.00E+00	NA	NA	NA	NA	NA	NA
18	Ethylbenzene	89.8	9.4	0.8	100.0	1.67E+02	8.02E+03	8.33E+01	7.09E-08	0.00E+00	2.25E-01	4.73E-04	0.00E+00	NA	NA	NA	NA	NA	NA
19	Toluene	80.2	18.5	1.3	100.0	6.07E+02	4.73E+04	3.03E+02	2.58E-07	0.00E+00	1.43E+00	2.30E-03	0.00E+00	NA	NA	NA	NA	NA	NA
20	Xylene, o-	89.6	9.9	0.6	100.0	5.95E+01	1.98E+03	2.98E+01	2.53E-08	0.00E+00	5.55E-02	1.40E-04	0.00E+00	NA	NA	NA	NA	NA	NA



	Average Daily Exposure (mg kg ⁻¹ bw day ⁻¹)							Distribution by Pathway (%)							
	Direct soil ingestion	Consumption of homegrown produce and attached soil	Dermal contact with soil and dust	Inhalation of dust	Inhalation of vapour	Background (oral)	Background (inhalation)	Direct soil ingestion	Consumption of homegrown produce and attached soil	Dermal contact with soil and dust	Inhalation of dust	Inhalation of vapour (indoor)	Inhalation of vapour (outdoor)	Background (oral)	Background (inhalation)
1 Naphthalene	1.21E-05	0.00E+00	8.11E-06	3.85E-08	6.90E-04	3.94E-04	1.70E-04	1.35	0.00	0.90	0.00	76.63	0.00	2.25	18.86
2 Acenaphthene	1.52E-02	0.00E+00	1.01E-02	4.82E-05	3.46E-02	5.51E-05	1.52E-06	25.28	0.00	16.88	0.08	57.64	0.02	0.09	0.00
3 Acenaphthylene	1.45E-02	0.00E+00	9.67E-03	4.60E-05	3.58E-02	7.88E-06	6.67E-07	24.14	0.00	16.12	0.08	59.63	0.02	0.01	0.00
4 Anthracene	1.47E-01	0.00E+00	9.81E-02	4.66E-04	5.47E-02	4.50E-06	2.49E-06	48.94	0.00	32.68	0.16	18.21	0.01	0.00	0.00
5 Chrysene	6.56E-05	0.00E+00	4.38E-05	2.08E-07	1.09E-07	0.00E+00	0.00E+00	59.78	0.00	39.93	0.19	0.10	0.00	0.00	0.00
6 Fluorene	1.38E-02	0.00E+00	9.19E-03	4.37E-05	1.70E-02	3.32E-05	5.09E-06	34.38	0.00	22.96	0.11	42.45	0.02	0.08	0.01
7 Fluoranthene	7.21E-03	0.00E+00	4.82E-03	2.29E-05	4.29E-04	1.97E-05	5.09E-06	57.67	0.00	38.52	0.18	3.42	0.01	0.16	0.04
8 Pyrene	1.73E-02	0.00E+00	1.16E-02	5.49E-05	1.08E-03	1.97E-05	3.94E-06	57.65	0.00	38.50	0.18	3.58	0.01	0.07	0.01
9 Benz[a]anthracene	2.75E-05	0.00E+00	1.84E-05	8.72E-08	2.33E-07	0.00E+00	0.00E+00	59.54	0.00	39.77	0.19	0.50	0.00	0.00	0.00
10 Benzo[b]fluoranthene	5.18E-05	0.00E+00	3.46E-05	1.65E-07	3.10E-08	0.00E+00	0.00E+00	59.82	0.00	39.95	0.19	0.03	0.00	0.00	0.00
11 Benzo[k]fluoranthene	7.46E-05	0.00E+00	4.98E-05	2.37E-07	2.79E-08	0.00E+00	0.00E+00	59.83	0.00	39.96	0.19	0.02	0.00	0.00	0.00
12 Benzo[ghi]perylene	3.47E-04	0.00E+00	2.32E-04	1.10E-06	6.32E-08	0.00E+00	0.00E+00	59.84	0.00	39.96	0.19	0.01	0.00	0.00	0.00
13 Phenanthrene	6.21E-03	0.00E+00	4.14E-03	1.97E-05	2.05E-03	8.66E-05	3.14E-05	49.49	0.00	33.05	0.16	16.35	0.01	0.69	0.25
14 Indeno(123-cd)pyrene	3.09E-05	0.00E+00	2.06E-05	9.81E-08	2.20E-08	0.00E+00	0.00E+00	59.82	0.00	39.95	0.19	0.04	0.00	0.00	0.00
15 Dibenz[ah]anthracene	6.42E-06	0.00E+00	4.28E-06	2.04E-08	5.19E-09	0.00E+00	0.00E+00	59.81	0.00	39.95	0.19	0.05	0.00	0.00	0.00
16 Benzo[a]pyrene	7.41E-06	0.00E+00	4.95E-06	2.35E-08	3.20E-09	0.00E+00	0.00E+00	59.83	0.00	39.96	0.19	0.02	0.00	0.00	0.00
17 Benzene	1.97E-06	0.00E+00	1.01E-06	6.25E-09	1.39E-03	0.00E+00	0.00E+00	0.14	0.00	0.07	0.00	99.78	0.00	0.00	0.00
18 Ethylbenzene	1.24E-03	0.00E+00	6.35E-04	3.92E-06	2.08E-01	2.81E-04	7.88E-03	0.57	0.00	0.29	0.00	95.39	0.01	0.13	3.61
19 Toluene	4.50E-03	0.00E+00	2.31E-03	1.43E-05	1.33E+00	5.63E-04	3.15E-02	0.33	0.00	0.17	0.00	97.14	0.01	0.04	2.31
20 Xylene, o-	4.42E-04	0.00E+00	2.27E-04	1.40E-06	5.13E-02	6.19E-04	8.49E-03	0.72	0.00	0.37	0.00	83.99	0.01	1.01	13.89



		Oral Health Criteria Value ($\mu\text{g kg}^{-1}$ BW day $^{-1}$)		Inhalation Health Criteria Value ($\mu\text{g kg}^{-1}$ BW day $^{-1}$)		Oral Mean Daily Intake ($\mu\text{g day}^{-1}$)		Inhalation Mean Daily Intake ($\mu\text{g day}^{-1}$)		Air-water partition coefficient (K_{aw}) ($\text{cm}^3 \text{cm}^{-3}$)		Coefficient of Diffusion in Air (m^2 s^{-1})		Coefficient of Diffusion in Water ($\text{m}^2 \text{s}^{-1}$)		$\log K_{oc}$ ($\text{cm}^2 \text{g}^{-1}$)		$\log K_{ow}$ (dimensionless)		Dermal Absorption Fraction (dimensionless)		Soil-to-dust transport factor (g g^{-1} DW)		Sub-surface soil to indoor air correction factor (dimensionless)		Relative bioavailability via soil ingestion (unitless)		Relative bioavailability via dust inhalation (unitless)
1	Naphthalene	TDI	20	TDI	0.86	7	2.8	6.62E-03	6.52E-06	5.16E-10	2.81	3.34	0.13	0.5	1	1	1											
2	Acenaphthene	TDI	60	TDI	60	0.98	0.025	7.59E-04	5.58E-06	4.70E-10	3.37	4.03	0.13	0.5	1	1	1											
3	Acenaphthylene	TDI	60	TDI	60	0.14	0.011	5.68E-04	5.97E-06	4.82E-10	3.26	3.91	0.13	0.5	1	1	1											
4	Anthracene	TDI	300	TDI	300	0.08	0.041	1.81E-04	5.36E-06	4.36E-10	3.75	4.5	0.13	0.5	1	1	1											
5	Chrysene	ID	0.2	ID	0.0007	NR	NR	3.18E-06	4.57E-06	3.77E-10	4.74	5.73	0.13	0.5	1	1	1											
6	Fluorene	TDI	40	TDI	40	0.59	0.084	4.12E-04	5.58E-06	4.47E-10	3.45	4.13	0.13	0.5	1	1	1											
7	Fluoranthene	TDI	12.5	TDI	12.5	0.35	0.084	6.29E-05	5.01E-06	4.11E-10	4.26	5.13	0.13	0.5	1	1	1											
8	Pyrene	TDI	30	TDI	30	0.35	0.065	5.64E-05	5.01E-06	4.15E-10	4.21	5.08	0.13	0.5	1	1	1											
9	Benzo[a]anthracene	ID	0.138	ID	0.00048	NR	NR	3.16E-05	4.60E-06	3.80E-10	4.89	5.91	0.13	0.5	1	1	1											
10	Benzo[b]fluoranthene	ID	0.142	ID	0.0005	NR	NR	2.05E-06	4.36E-06	3.62E-10	5.02	6.08	0.13	0.5	1	1	1											
11	Benzo[k]fluoranthene	ID	0.2	ID	0.0007	NR	NR	1.74E-06	4.36E-06	3.62E-10	5.17	6.26	0.13	0.5	1	1	1											
12	Benzo[ghi]perylene	ID	0.909	ID	0.0032	NR	NR	2.36E-06	4.22E-06	3.56E-10	5.62	6.81	0.13	0.5	1	1	1											
13	Phenanthrene	TDI	12.5	TDI	12.5	1.54	0.518	1.43E-04	5.34E-06	4.32E-10	3.74	4.5	0.13	0.5	1	1	1											
14	Indeno(123-cd)pyrene	ID	0.086	ID	0.0003	NR	NR	2.05E-06	4.17E-06	3.51E-10	4.94	5.97	0.13	0.5	1	1	1											
15	Dibenz[ah]anthracene	ID	0.018	ID	0.000063	NR	NR	5.40E-06	4.08E-06	3.40E-10	5.27	6.38	0.13	0.5	1	1	1											
16	Benzo[a]pyrene	ID	0.02	ID	0.00007	NR	NR	1.76E-06	4.38E-06	3.67E-10	5.11	6.18	0.13	0.5	1	1	1											
17	Benzene	ID	0.29	ID	1.4	NR	NR	1.16E-01	8.77E-06	6.64E-10	1.83	2.13	0.1	0.5	10	1	1											
18	Ethylbenzene	TDI	100	TDI	220	5	130	1.39E-01	7.04E-06	5.31E-10	2.65	3.15	0.1	0.5	10	1	1											
19	Toluene	TDI	223	TDI	1400	10	520	1.15E-01	7.78E-06	5.88E-10	2.31	2.73	0.1	0.5	10	1	1											
20	Xylene, o-	TDI	180	TDI	60	11	140	9.20E-02	7.01E-06	5.31E-10	2.63	3.12	0.1	0.5	10	1	1											



Environment
Agency

		Soil-to-water partition coefficient ($\text{cm}^3 \text{g}^{-1}$)	Vapour pressure (Pa)	Water solubility (mg L^{-1})	Soil-to-plant concentration factor for green vegetables (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)	Soil-to-plant concentration factor for root vegetables (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)	Soil-to-plant concentration factor for tuber vegetables (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)	Soil-to-plant concentration factor for herbaceous fruit (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)	Soil-to-plant concentration factor for shrub fruit (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)	Soil-to-plant concentration factor for tree fruit (mg g^{-1} plant DW or FW basis over mg g^{-1} DW soil)
1	Naphthalene	3.74E+00	2.31E+00	1.90E+01	model	model	model	model	model	model
2	Acenaphthene	1.36E+01	7.37E-02	4.11E+00	model	model	model	model	model	model
3	Acenaphthylene	1.06E+01	7.08E-02	7.95E+00	model	model	model	model	model	model
4	Anthracene	3.26E+01	8.49E-05	5.60E-02	model	model	model	model	model	model
5	Chrysene	3.19E+02	4.52E-08	2.00E-03	model	model	model	model	model	model
6	Fluorene	1.63E+01	1.56E-02	1.86E+00	model	model	model	model	model	model
7	Fluoranthene	1.06E+02	1.31E-04	2.30E-01	model	model	model	model	model	model
8	Pyrene	9.41E+01	1.53E-05	1.30E-01	model	model	model	model	model	model
9	Benzo[a]anthracene	4.50E+02	1.24E-06	3.80E-03	model	model	model	model	model	model
10	Benzo[b]fluoranthene	6.07E+02	6.34E-08	2.00E-03	model	model	model	model	model	model
11	Benzo[k]fluoranthene	8.58E+02	1.64E-08	8.00E-04	model	model	model	model	model	model
12	Benzo[ghi]perylene	2.42E+03	1.55E-10	2.64E-04	model	model	model	model	model	model
13	Phenanthrene	3.19E+01	2.82E-03	1.12E+00	model	model	model	model	model	model
14	Indeno(123-cd)pyrene	5.05E+02	2.12E-09	2.00E-04	model	model	model	model	model	model
15	Dibenz[ah]anthracene	1.08E+03	1.66E-10	6.00E-04	model	model	model	model	model	model
16	Benzo[a]pyrene	7.47E+02	2.00E-08	3.80E-03	model	model	model	model	model	model
17	Benzene	3.92E-01	6.24E+03	1.78E+03	model	model	model	0.00E+00	0.00E+00	model
18	Ethylbenzene	2.59E+00	5.53E+02	1.80E+02	model	model	model	0.00E+00	0.00E+00	model
19	Toluene	1.18E+00	1.73E+03	5.90E+02	model	model	model	0.00E+00	0.00E+00	model
20	Xylene, o-	2.47E+00	3.86E+02	1.73E+02	model	model	model	0.00E+00	0.00E+00	model

