

Table A-1. Surface Soil Remediation Guideline Values for Natural Area Land Use - All Exposure Pathways

This table must not be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended).

Receptor	Overall Guideline		Human		Ecological								Other		
	Pathway		Protection of Domestic Use Aquifer		Direct Soil Contact	Nutrient Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life	Protection of Wildlife Water	Management Limit				
Soil Type	Fine	Coarse	Fine	Coarse	Fine	Coarse		-	-	Fine	Coarse	Fine	Coarse	Fine	Coarse
Building Type			-	-	-	-	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
<i>General and Inorganic Parameters</i>															
pH (in 0.01M CaCl ₂)	6-8.5	6-8.5	-	-	6-8.5	6-8.5	-	-	-	-	-	-	-	-	-
Cyanide (free)	0.9	0.9	-	-	0.9	0.9	-	11	-	-	-	-	-	-	-
Fluoride	200	200	-	-	200	200	-	-	-	-	-	-	-	-	-
Sulphur (elemental) ^a	500	500	-	-	500	500	-	-	-	-	-	-	-	-	-
<i>Metals</i>															
Antimony	20	20	-	-	20	20	-	-	-	-	-	-	-	-	-
Arsenic (inorganic)	17	17	-	-	17	17	-	380	-	-	-	-	-	-	-
Barium (non-barite)	750	750	-	-	750	750	-	-	-	-	-	-	-	-	-
Barite-barium ^b	10,000	10,000	-	-	200,000	200,000	-	30,000	10,000	-	-	-	-	-	-
Beryllium	5	5	-	-	5	5	-	-	-	-	-	-	-	-	-
Boron (mg/L in saturated paste extract) ^k	3.3	3.3	65	118	3.3	3.3	-	-	-	5.0	5.0	17	17	-	-
Cadmium	3.8	3.8	-	-	10	10	54	3.8	-	-	-	-	-	-	-
Chromium (hexavalent)	0.4	0.4	-	-	0.4	0.4	-	-	-	-	-	-	-	-	-
Chromium (total)	64	64	-	-	64	64	-	-	-	-	-	-	-	-	-
Cobalt	20	20	-	-	20	20	-	-	-	-	-	-	-	-	-
Copper	63	63	-	-	63	63	350	300	-	-	-	-	-	-	-
Lead	70	70	-	-	300	300	723	70	-	-	-	-	-	-	-
Mercury (inorganic)	12	12	-	-	12	12	20	-	-	-	-	-	-	-	-
Molybdenum	4	4	-	-	4	4	-	-	-	-	-	-	-	-	-
Nickel	45	45	-	-	45	45	171	528	-	-	-	-	-	-	-
Selenium	1	1	-	-	1	1	-	4.5	-	-	-	-	-	-	-
Silver	20	20	-	-	20	20	-	-	-	-	-	-	-	-	-
Thallium	1	1	-	-	1.4	1.4	-	1.0	-	-	-	-	-	-	-

Table A-1. Surface Soil Remediation Guideline Values for Natural Area Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended).

Receptor	Overall Guideline		Human		Ecological								Other		
	Pathway		Protection of Domestic Use Aquifer	Direct Soil Contact	Nutrient Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life	Protection of Wildlife Water	Management Limit					
Soil Type	Fine	Coarse	Fine	Coarse	Fine	Coarse				Fine	Coarse	Fine	Coarse	Fine	Coarse
Building Type															
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Tin	5	5	-	-	5	5	-	-	-	-	-	-	-	-	-
Uranium	33	33	-	-	500	500	-	33	-	-	-	-	-	-	-
Vanadium	130	130	-	-	130	130	255	-	-	-	-	-	-	-	-
Zinc	250	250	-	-	250	250	280	980	-	-	-	-	-	-	-
Hydrocarbons															
Benzene	0.046	0.078	0.046	0.078	60	31	-	44	18	7.9	0.17	15	0.33	-	-
Toluene	0.52	0.12	0.52	0.95	110	75	-	2,500	980	63,000	0.12	NGR	1,000	-	-
Ethylbenzene	0.073	0.14	0.073	0.14	120	55	-	1,600	640	NGR	540	NGR	17,000	-	-
Xylenes	0.99	1.9	0.99	1.9	65	95	-	6,600	2,600	NGR	41	NGR	16,000	-	-
Styrene	0.68	0.8	110	210	-	-	-	-	-	0.68	0.8	-	-	-	-
F1	210	210	1,100	2,200	210	210	-	27,000	11,000	30,000	1,300	30,000	30,000	800	700
F2	150	150	1,500	2,900	150	150	-	25,000	9,800	30,000	520	30,000	30,000	1,000	1,000
F3	1,300	300	-	-	1,300	300	-	30,000	16,000	-	-	-	-	3,500	2,500
F4	5,600	2,800	-	-	5,600	2,800	-	21,000	8,400	-	-	-	-	10,000	10,000
Acenaphthene	0.33	0.38	NGR	NGR	-	-	-	21.5	21.5	0.33	0.38	NGR	NGR	-	-
Anthracene	1.3	0.0056	NGR	NGR	2.5	2.5	-	61.5	61.5	1.3	0.0056	NGR	NGR	-	-
Fluoranthene	15.4	0.055	NGR	NGR	50	50	-	15.4	15.4	NGR	0.055	NGR	NGR	-	-
Fluorene	0.40	0.34	NGR	NGR	-	-	-	15.4	15.4	0.40	0.34	NGR	NGR	-	-
Naphthalene	0.014	0.017	28	53	-	-	-	8.8	8.8	0.014	0.017	NGR	NGR	-	-
Phenanthrene	0.11	0.061	-	-	-	-	-	43	43	0.11	0.061	NGR	NGR	-	-
Pyrene	7.7	0.15	NGR	NGR	-	-	-	7.7	7.7	NGR	0.15	NGR	NGR	-	-
Carcinogenic PAHs	IACR<1.0 ^c	IACR<1.0 ^c	IACR<1.0 ^c	IACR<1.0 ^c	-	-	-	-	-	-	-	-	-	-	-
Benz[a]anthracene ^d	6.2	6.2	6.4	12	-	-	-	6.2	6.2	NGR	NGR	NGR	NGR	-	-
Benzo[b+j]fluoranthene ^d	6.2	6.2	3.0	5.8	-	-	-	6.2	6.2	-	-	NGR	NGR	-	-

Table A-1. Surface Soil Remediation Guideline Values for Natural Area Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended).

Receptor	Overall Guideline		Human		Ecological								Other		
	Pathway		Protection of Domestic Use Aquifer		Direct Soil Contact	Nutrient Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life	Protection of Wildlife Water	Management Limit				
Soil Type	Fine	Coarse	Fine	Coarse	Fine	Coarse				Fine	Coarse	Fine	Coarse	Fine	Coarse
Building Type			-	-	-	-	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Benzo[k]fluoranthene ^d	6.2	6.2	0.64	1.2	-	-	-	6.2	6.2	-	-	NGR	NGR	-	-
Benzo[g,h,i]perylene	-	-	130	250	-	-	-	-	-	-	-	-	-	-	-
Benzo[a]pyrene ^d	0.6	0.6	7.0	14	20	20	-	0.6	0.6	NGR	NGR	NGR	NGR	-	-
Chrysene ^d	6.2	6.2	40	78	-	-	-	6.2	6.2	-	-	NGR	NGR	-	-
Dibenz[a,h]anthracene	-	-	4.4	8.5	-	-	-	-	-	-	-	-	-	-	-
Indeno[1,2,3-c,d]pyrene	-	-	51	98	-	-	-	-	-	-	-	-	-	-	-
Chlorinated Aliphatics															
Vinyl chloride	0.014	0.02	0.014	0.02	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	0.15	0.24	0.15	0.24	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene (Trichloroethylene, TCE)	0.054	0.081	0.054	0.093	3.0	3.0	-	-	-	0.72	0.081	-	-	-	-
Tetrachloroethene (Tetrachloroethylene, Perchloroethylene, PCE)	0.26	0.46	0.26	0.46	-	-	-	-	-	0.69	0.77	-	-	-	-
1,2-Dichloroethane	0.025	0.041	0.025	0.041	-	-	-	-	-	0.12	0.12	-	-	-	-
Dichloromethane (Methylene chloride)	0.10	0.095	0.21	0.32	-	-	-	-	-	0.10	0.095	-	-	-	-
Trichloromethane (Chloroform) ¹	0.16	0.030	0.53	0.88	-	-	-	-	-	0.16	0.030	-	-	-	-
Tetrachloromethane (Carbon tetrachloride)	0.037	0.062	0.037	0.062	-	-	-	-	-	0.059	0.062	-	-	-	-
Dibromochloromethane	0.91	1.5	0.91	1.5	-	-	-	-	-	-	-	-	-	-	-
Chlorinated Aromatics															
Chlorobenzene ^e	0.61	1.1	0.61	1.1	-	-	-	-	-	BDL	BDL	-	-	-	-
1,2-Dichlorobenzene ^e	0.097	0.18	0.097	0.18	-	-	-	-	-	BDL	BDL	-	-	-	-
1,4-Dichlorobenzene	0.051	0.098	0.051	0.098	-	-	-	-	-	0.32	0.38	-	-	-	-
1,2,3-Trichlorobenzene	0.26	0.31	1.9	3.6	-	-	-	-	-	0.26	0.31	-	-	-	-
1,2,4-Trichlorobenzene	0.78	0.93	2.0	3.9	-	-	-	-	-	0.78	0.93	-	-	-	-
1,3,5-Trichlorobenzene	1.9	3.6	1.9	3.6	-	-	-	-	-	-	-	-	-	-	-
1,2,3,4-Tetrachlorobenzene	0.042	0.05	3.1	5.9	-	-	-	-	-	0.042	0.05	-	-	-	-

Table A-1. Surface Soil Remediation Guideline Values for Natural Area Land Use - All Exposure Pathways

This table must not be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended).

Receptor	Overall Guideline		Human		Ecological								Other		
	Pathway		Protection of Domestic Use Aquifer	Direct Soil Contact	Nutrient Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life	Protection of Wildlife Water	Management Limit					
Soil Type	Fine	Coarse	Fine	Coarse	Fine	Coarse				Fine	Coarse	Fine	Coarse	Fine	Coarse
Building Type			-	-	-	-	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
1,2,3,5-Tetrachlorobenzene	0.37	0.70	0.37	0.70	-	-	-	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	0.19	0.37	0.19	0.37	-	-	-	-	-	-	-	-	-	-	-
Pentachlorobenzene	24	5.2	24	47	-	-	-	-	-	NGR	5.2	-	-	-	-
Hexachlorobenzene	3.6	7.0	3.6	7.0	-	-	-	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	0.0029	0.0034	0.018	0.034	-	-	-	-	-	0.0029	0.0034	-	-	-	-
2,4,6-Trichlorophenol	0.19	0.37	0.19	0.37	-	-	-	-	-	0.42	0.5	-	-	-	-
2,3,4,6-Tetrachlorophenol	0.039	0.047	0.16	0.31	-	-	-	-	-	0.039	0.047	-	-	-	-
Pentachlorophenol	0.025	0.029	6	12	11	11	-	-	-	0.025	0.029	-	-	-	-
Dioxins & Furans ^{fg}	0.00025	0.00025	-	-	-	-	-	0.00025	0.00025	-	-	-	-	-	-
PCBs	1.3	1.3	-	-	33	33	-	1.3	1.3	-	-	-	-	-	-
Pesticides															
Aldicarb ^c	0.041	0.065	0.041	0.065	-	-	-	-	-	BDL	BDL	-	-	-	-
Aldrin	5.9	11	5.9	11	-	-	-	-	-	-	-	-	-	-	-
Atrazine and metabolites	0.0088	0.010	0.10	0.19	-	-	-	-	-	0.0088	0.010	-	-	-	-
Azniphos-methyl (Guthion)	0.41	0.75	0.41	0.75	-	-	-	-	-	-	-	-	-	-	-
Bendiocarb	0.14	0.21	0.14	0.21	-	-	-	-	-	-	-	-	-	-	-
Bromacil ⁱ	0.009	0.009	7.0	10	0.20	0.12	-	-	-	0.009	0.009	-	-	-	-
Bromoxynil	0.044	0.052	0.18	0.35	-	-	-	-	-	0.044	0.052	-	-	-	-
Carbaryl ^c	1.9	3.6	1.9	3.6	-	-	-	-	-	BDL	BDL	-	-	-	-
Carbofuran ^c	0.68	1.2	0.68	1.2	-	-	-	-	-	BDL	BDL	-	-	-	-
Chlorothalonil	0.0085	0.010	27	53	-	-	-	-	-	0.0085	0.010	-	-	-	-
Chlorpyrifos ^c	49	95	49	95	-	-	-	-	-	BDL	BDL	-	-	-	-
Cyanazine ^c	0.12	0.21	0.12	0.21	-	-	-	-	-	BDL	BDL	-	-	-	-
2,4-D ^c	0.43	0.67	0.43	0.67	-	-	-	-	-	BDL	BDL	-	-	-	-

Table A-1. Surface Soil Remediation Guideline Values for Natural Area Land Use - All Exposure Pathways

This table must not be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended).

Receptor	Overall Guideline		Human		Ecological								Other		
			Protection of Domestic Use Aquifer		Direct Soil Contact		Nutrient Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life		Protection of Wildlife Water		Management Limit	
Soil Type	Fine	Coarse	Fine	Coarse	Fine	Coarse		-	-	Fine	Coarse	Fine	Coarse	Fine	Coarse
Building Type			-	-	-	-	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
DDT	0.7	0.7	5,900	11,000	12	12	547	0.7	0.7	-	-	-	-	-	-
Diazinon °	2.2	4.2	2.2	4.2	-	-	-	-	-	BDL	BDL	-	-	-	-
Dicamba °	0.5	0.79	0.5	0.79	-	-	-	-	-	BDL	BDL	-	-	-	-
Diclofop-methyl	NGR	2.4	NGR	NGR	-	-	-	-	-	NGR	2.4	-	-	-	-
Dieldrin	0.59	1.1	0.59	1.1	-	-	-	-	-	-	-	-	-	-	-
Dimethoate	0.0058	0.0055	0.077	0.12	-	-	-	-	-	0.0058	0.0055	-	-	-	-
Dinoseb °	2.8	5.5	2.8	5.5	-	-	-	-	-	BDL	BDL	-	-	-	-
Diquat	11	21	11	21	-	-	-	-	-	-	-	-	-	-	-
Diuron	1.9	3.5	1.9	3.5	-	-	-	-	-	-	-	-	-	-	-
Endosulfan	0.80	0.0016	99	190	-	-	-	-	-	0.80	0.0016	-	-	-	-
Endrin	2.4	4.7	2.4	4.7	-	-	-	-	-	-	-	-	-	-	-
Glyphosate	0.054	0.049	0.95	1.4	-	-	-	-	-	0.054	0.049	-	-	-	-
Heptachlor epoxide	0.039	0.076	0.039	0.076	-	-	-	-	-	-	-	-	-	-	-
Lindane °	0.31	0.6	0.31	0.6	-	-	-	-	-	BDL	BDL	-	-	-	-
Linuron	0.051	0.059	0.56	1.1	-	-	-	-	-	0.051	0.059	-	-	-	-
Malathion °	0.82	1.3	0.82	1.3	-	-	-	-	-	BDL	BDL	-	-	-	-
MCPA °	0.42	0.66	0.42	0.66	-	-	-	-	-	BDL	BDL	-	-	-	-
Methoxychlor	NGR	0.32	NGR	NGR	-	-	-	-	-	NGR	0.32	-	-	-	-
Metolachlor	0.048	0.055	1.3	2.4	-	-	-	-	-	0.048	0.055	-	-	-	-
Metribuzin	0.024	0.028	7.8	15	-	-	-	-	-	0.024	0.028	-	-	-	-
Paraquat (as dichloride)	1.1	2.2	1.1	2.2	-	-	-	-	-	-	-	-	-	-	-
Parathion °	7.2	14	7.2	14	-	-	-	-	-	BDL	BDL	-	-	-	-
Phorate	0.075	0.14	0.075	0.14	-	-	-	-	-	-	-	-	-	-	-
Picloram	0.024	0.022	0.64	0.94	-	-	-	-	-	0.024	0.022	-	-	-	-

Table A-1. Surface Soil Remediation Guideline Values for Natural Area Land Use - All Exposure Pathways

This table must not be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended).

Receptor Pathway	Overall Guideline		Human		Ecological								Other		
			Protection of Domestic Use Aquifer		Direct Soil Contact		Nutrient Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life		Protection of Wildlife Water		Management Limit	
Soil Type	Fine	Coarse	Fine	Coarse	Fine	Coarse		-	-	Fine	Coarse	Fine	Coarse	Fine	Coarse
Building Type			-	-	-	-	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Simazine	0.033	0.038	0.14	0.25	-	-	-	-	-	0.033	0.038	-	-	-	-
Tebuthiuron ^{cj}	0.046	0.046	2.5	3.7	0.046	0.046	-	-	-	BDL	BDL	-	-	-	-
Terbufos	0.08	0.15	0.08	0.15	-	-	-	-	-	-	-	-	-	-	-
Toxaphene	3.3	6.3	3.3	6.3	-	-	-	-	-	-	-	-	-	-	-
Triallate	0.0077	0.0092	16	31	-	-	-	-	-	0.0077	0.0092	-	-	-	-
Trifluralin	0.22	0.045	NGR	NGR	-	-	-	-	-	0.22	0.045	-	-	-	-
Other Organics															
Aniline ^c	0.36	0.6	0.36	0.6	-	-	-	-	-	BDL	BDL	-	-	-	-
Dibutyl phthalate	0.54	0.65	70	130	-	-	-	-	-	0.54	0.65	-	-	-	-
Dichlorobenzidine	4.2	8.1	4.2	8.1	-	-	-	-	-	-	-	-	-	-	-
Diethanolamine ^h	2.0	3.5	2.0	3.5	1,000	1,000	-	-	-	500,000	45	-	-	-	-
Diethylene glycol	10	15	10	15	1,000	1,000	-	-	-	2,000	65	-	-	-	-
Diisopropanolamine	14	17	130	250	360	360	-	-	-	14	17	-	-	-	-
Ethylene glycol	60	62	60	68	1,100	1,100	1,700	-	-	89	62	-	-	-	-
Hexachlorobutadiene	0.026	0.031	0.5	0.95	-	-	-	-	-	0.026	0.031	-	-	-	-
Methanol	37	11	37	42	1,200	1,200	-	-	-	300	11	-	-	750	750
Methylmethacrylate	1.3	1.8	1.3	1.8	-	-	-	-	-	-	-	-	-	-	-
Monoethanolamine ^h	20	10	20	40	1,500	1,500	-	-	-	300,000	10	-	-	-	-
MTBE	0.044	0.062	0.044	0.062	-	-	-	-	-	7.1	6.1	-	-	-	-
Nonylphenol + ethoxylates	5.7	5.7	-	-	5.7	5.7	-	-	-	NGR	2,000	-	-	-	-
Phenol	0.0028	0.0024	1.6	2.3	20	20	-	-	-	0.0028	0.0024	-	-	-	-
Sulfolane	0.18	0.21	0.18	0.21	210	210	-	-	-	24	18	-	-	-	-
Triethylene glycol	100	150	100	150	5,000	5,000	-	-	-	10,000	200	-	-	-	-

Notes:

Table A-2. Surface Soil Remediation Guideline Values for Agricultural Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Table 1, 3 and 4.

This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human							Ecological												Other			
Pathway			Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Direct Soil Contact		Nutrient/ Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life		Protection of Livestock Water		Protection of Wildlife Water		Protection of Irrigation Water		Management Limit		
Soil Type	Fine	Coarse	-	Fine	Fine	Coarse	Coarse	Fine	Coarse	Fine	Coarse	-	-	-	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
<i>General and Inorganic Parameters</i>																									
pH (in 0.01M CaCl ₂)	6-8.5	6-8.5	-	-	-	-	-	-	-	6-8.5	6-8.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cyanide (free)	0.9	0.9	29	-	-	-	-	-	-	0.9	0.9	-	11	-	-	-	-	-	-	-	-	-	-	-	-
Fluoride	200	200	-	-	-	-	-	-	-	200	200	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sulphur (elemental) ^a	500	500	-	-	-	-	-	-	-	500	500	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Metals</i>																									
Antimony	20	20	-	-	-	-	-	-	-	20	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (inorganic)	17	17	21	-	-	-	-	-	-	17	17	-	380	-	-	-	-	-	-	-	-	-	-	-	-
Barium (non-barite)	750	750	-	-	-	-	-	-	-	750	750	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barite-barium ^b	10,000	10,000	10,000	-	-	-	-	-	-	200,000	200,000	-	30,000	10,000	-	-	-	-	-	-	-	-	-	-	-
Beryllium	5	5	-	-	-	-	-	-	-	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Boron (mg/L in saturated paste extract) ^m	3.3	3.3	7,500	-	-	-	-	65	118	3.3	3.3	-	-	-	5.0	5.0	17	17	17	17	3.4	3.4	-	-	-
Cadmium	1.4	1.4	1.4	-	-	-	-	-	-	10	10	54	3.8	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (hexavalent)	0.4	0.4	-	-	-	-	-	-	-	0.4	0.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (total)	64	64	220	-	-	-	-	-	-	64	64	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cobalt	20	20	-	-	-	-	-	-	-	20	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper	63	63	1,100	-	-	-	-	-	-	63	63	350	300	-	-	-	-	-	-	-	-	-	-	-	-
Lead	70	70	140	-	-	-	-	-	-	300	300	723	70	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (inorganic)	6.6	6.6	6.6	-	-	-	-	-	-	12	12	20	-	-	-	-	-	-	-	-	-	-	-	-	-
Molybdenum	4	4	-	-	-	-	-	-	-	4	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel	45	45	200	-	-	-	-	-	-	45	45	171	528	-	-	-	-	-	-	-	-	-	-	-	-
Selenium	1	1	80	-	-	-	-	-	-	1	1	-	4.5	-	-	-	-	-	-	-	-	-	-	-	-

Table A-2. Surface Soil Remediation Guideline Values for Agricultural Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Table 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human							Ecological												Other			
Pathway			Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Direct Soil Contact		Nutrient/ Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life		Protection of Livestock Water		Protection of Wildlife Water		Protection of Irrigation Water		Management Limit		
Soil Type	Fine	Coarse	-	Fine	Fine	Coarse	Coarse	Fine	Coarse	Fine	Coarse	-	-	-	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Silver	20	20	-	-	-	-	-	-	-	20	20	-	-	-	-	-	-	-	-	-	-	-	-	-	
Thallium	1	1	1	-	-	-	-	-	-	1.4	1.4	-	1.0	-	-	-	-	-	-	-	-	-	-	-	
Tin	5	5	-	-	-	-	-	-	-	5	5	-	-	-	-	-	-	-	-	-	-	-	-	-	
Uranium	23	23	23	-	-	-	-	-	-	500	500	-	33	-	-	-	-	-	-	-	-	-	-	-	
Vanadium	130	130	-	-	-	-	-	-	-	130	130	255	-	-	-	-	-	-	-	-	-	-	-	-	
Zinc	250	250	10,000	-	-	-	-	-	-	250	250	280	980	-	-	-	-	-	-	-	-	-	-	-	
Hydrocarbons																									
Benzene	0.046	0.073	78	1.7	1.6	0.1	0.073	0.046	0.078	60	31	-	44	18	7.9	0.17	0.2	0.21	15	0.33	-	-	-	-	
Toluene	0.52	0.12	640	2,100	1,900	130	95	0.52	0.95	110	75	-	2,500	980	63,000	0.12	26	29	NGR	1,000	-	-	-	-	
Ethylbenzene	0.073	0.14	1,700	1,000	930	60	44	0.073	0.14	120	55	-	1,600	640	NGR	540	36	42	NGR	17,000	-	-	-	-	
Xylenes	0.99	1.9	480	280	250	16	12	0.99	1.9	65	95	-	6,600	2,600	NGR	41	160	180	NGR	16,000	-	-	-	-	
Styrene	0.68	0.8	10,000	250	220	14	10	110	210	-	-	-	-	-	0.68	0.8	-	-	-	-	-	-	-	-	
F1	210	24	12,000	710	610	30	24	1,100	2,200	210	210	-	27,000	11,000	30,000	1,300	6,600	7,400	30,000	30,000	-	-	800	700	
F2	150	130	6,800	3,600	3,100	160	130	1,500	2,900	150	150	-	25,000	9,800	30,000	520	16,000	19,000	30,000	30,000	-	-	1,000	1,000	
F3	1,300	300	15,000	-	-	-	-	-	-	1,300	300	-	30,000	16,000	-	-	-	-	-	-	-	-	3,500	2,500	
F4	5,600	2,800	21,000	-	-	-	-	-	-	5,600	2,800	-	21,000	8,400	-	-	-	-	-	-	-	-	10,000	10,000	
Acenaphthene	0.33	0.38	5,300	120,000	99,000	4,800	3,900	NGR	NGR	-	-	-	21.5	21.5	0.33	0.38	NGR	NGR	NGR	NGR	-	-	-	-	
Anthracene	1.3	0.0056	24,000	NGR	NGR	780,000	670,000	NGR	NGR	2.5	2.5	-	61.5	61.5	1.3	0.0056	NGR	NGR	NGR	NGR	-	-	-	-	
Fluoranthene	15.4	0.055	3,500	NGR	NGR	550,000	480,000	NGR	NGR	50	50	-	15.4	15.4	NGR	0.055	NGR	NGR	NGR	NGR	-	-	-	-	
Fluorene	0.40	0.34	2,700	270,000	220,000	10,000	8,600	NGR	NGR	-	-	-	15.4	15.4	0.40	0.34	NGR	NGR	NGR	NGR	-	-	-	-	
Naphthalene	0.014	0.017	1,800	58	51	2.9	2.2	28	53	-	-	-	8.8	8.8	0.014	0.017	NGR	NGR	NGR	NGR	-	-	-	-	
Phenanthrene	0.11	0.061	-	-	-	-	-	-	-	-	-	-	43	43	0.11	0.061	NGR	NGR	NGR	NGR	-	-	-	-	

Table A-2. Surface Soil Remediation Guideline Values for Agricultural Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Table 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human							Ecological													Other	
			Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Direct Soil Contact		Nutrient/ Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life		Protection of Livestock Water		Protection of Wildlife Water		Protection of Irrigation Water		Management Limit	
Soil Type	Fine	Coarse	-	Fine	Fine	Coarse	Coarse	Fine	Coarse	Fine	Coarse		-	-	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Pyrene	7.7	0.15	2100	NGR	NGR	810,000	730,000	NGR	NGR	-	-	-	7.7	7.7	NGR	0.15	NGR	NGR	NGR	NGR	-	-	-	-
Carcinogenic PAHs (as B(a)P TPE) ^e	IACR<1.0 ^e and TPE ≤ 5.3	IACR<1.0 ^e and TPE ≤ 5.3	5.3 ^d	NGR	NGR	NGR	NGR	IACR<1.0 ^e	IACR<1.0 ^e	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benz[a]anthracene ^f	6.2	6.2	-	-	-	-	-	6.4	12	-	-	-	6.2	6.2	NGR	NGR	NGR	NGR	NGR	NGR	-	-	-	-
Benzo[b+j]fluoranthene ^f	6.2	6.2	-	-	-	-	-	3.0	5.8	-	-	-	6.2	6.2	-	-	NGR	NGR	NGR	NGR	-	-	-	-
Benzo[k]fluoranthene ^f	6.2	6.2	-	-	-	-	-	0.64	1.2	-	-	-	6.2	6.2	-	-	NGR	NGR	NGR	NGR	-	-	-	-
Benzo[g,h,i]perylene	-	-	-	-	-	-	-	130	250	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo[a]pyrene ^f	0.60	0.60	-	-	-	-	-	7.0	14	20	20	-	0.60	0.60	NGR	NGR	NGR	NGR	NGR	NGR	-	-	-	-
Chrysene ^f	6.2	6.2	-	-	-	-	-	40	78	-	-	-	6.2	6.2	-	-	NGR	NGR	NGR	NGR	-	-	-	-
Dibenz[a,h]anthracene	-	-	-	-	-	-	-	4.4	8.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno[1,2,3-c,d]pyrene	-	-	-	-	-	-	-	51	98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chlorinated Aliphatics																								
Vinyl chloride	0.0083	0.00034	71	0.009	0.0083	0.00049	0.00034	0.014	0.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	0.15	0.021	1,900	0.5	0.46	0.03	0.021	0.15	0.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene (Trichloroethylene, TCE)	0.054	0.012	35	0.31	0.28	0.017	0.012	0.054	0.093	3	3	-	-	-	0.72	0.081	0.13	0.14	-	-	-	-	-	-
Tetrachloroethene (Tetrachloroethylene, Perchloroethylene, PCE)	0.26	0.018	180	0.46	0.41	0.025	0.018	0.26	0.46	-	-	-	-	-	0.69	0.77	-	-	-	-	-	-	-	-
1,2-Dichloroethane	0.0062	0.0027	2,800	0.06	0.055	0.0038	0.0027	0.025	0.041	-	-	-	-	-	0.12	0.12	0.0062	0.0062	-	-	-	-	-	-
Dichloromethane (Methylene chloride)	0.052	0.048	990	18	16	1.0	0.71	0.21	0.32	-	-	-	-	-	0.1	0.095	0.052	0.048	-	-	-	-	-	-
Trichloromethane (Chloroform) ^a	0.16	0.011	72	0.24	0.22	0.015	0.011	0.53	0.88	-	-	-	-	-	0.16	0.030	0.16	0.17	-	-	-	-	-	-
Tetrachloromethane (Carbon tetrachloride)	0.013	0.00057	27	0.015	0.013	0.00078	0.00057	0.037	0.062	-	-	-	-	-	0.059	0.062	0.022	0.023	-	-	-	-	-	-

Table A-2. Surface Soil Remediation Guideline Values for Agricultural Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Table 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human							Ecological												Other			
			Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Direct Soil Contact		Nutrient/ Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life		Protection of Livestock Water		Protection of Wildlife Water		Protection of Irrigation Water		Management Limit		
Soil Type	Fine	Coarse	-	Fine	Fine	Coarse	Coarse	Fine	Coarse	Fine	Coarse		-	-	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Dibromochloromethane	0.12	0.12	760	11	7.8	0.28	0.27	0.91	1.5	-	-	-	-	-	-	-	0.12	0.12	-	-	-	-	-	-	
Chlorinated Aromatics																									
Chlorobenzene [§]	0.39	0.018	16,000	0.44	0.39	0.024	0.018	0.61	1.1	-	-	-	-	-	BDL	BDL	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene [§]	0.097	0.18	16,000	260	230	14	10	0.097	0.18	-	-	-	-	-	BDL	BDL	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	0.051	0.098	4,200	17	14	0.91	0.67	0.051	0.098	-	-	-	-	-	0.32	0.38	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	0.26	0.26	49	8.8	6.8	0.30	0.26	1.9	3.6	-	-	-	-	-	0.26	0.31	-	-	-	-	-	-	-	-	-
1,2,4-Trichlorobenzene	0.78	0.23	38	7.6	6	0.26	0.23	2.0	3.9	-	-	-	-	-	0.78	0.93	-	-	-	-	-	-	-	-	-
1,3,5-Trichlorobenzene	1.9	0.13	46	4.1	3.2	0.14	0.13	1.9	3.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,3,4-Tetrachlorobenzene	0.042	0.05	75	27	20	0.88	0.84	3.1	5.9	-	-	-	-	-	0.042	0.05	-	-	-	-	-	-	-	-	-
1,2,3,5-Tetrachlorobenzene	0.37	0.1	8.8	3.3	2.5	0.1	0.1	0.37	0.70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	0.19	0.052	4.6	1.7	1.3	0.054	0.052	0.19	0.37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pentachlorobenzene	22	5.2	22	160	140	7.9	6.1	24	47	-	-	-	-	-	NGR	5.2	-	-	-	-	-	-	-	-	-
Hexachlorobenzene	0.8	0.5	18	13	12	0.64	0.5	3.6	7	-	-	-	-	-	-	-	0.8	0.97	-	-	-	-	-	-	-
2,4-Dichlorophenol	0.0029	0.0034	2,200	170,000	140,000	6,300	5,400	0.018	0.034	-	-	-	-	-	0.0029	0.0034	-	-	-	-	-	-	-	-	-
2,4,6-Trichlorophenol	0.19	0.37	260	11,000	8,200	360	320	0.19	0.37	-	-	-	-	-	0.42	0.5	-	-	-	-	-	-	-	-	-
2,3,4,6-Tetrachlorophenol	0.039	0.047	220	15,000	11,000	480	460	0.16	0.31	-	-	-	-	-	0.039	0.047	-	-	-	-	-	-	-	-	-
Pentachlorophenol	0.025	0.029	230	NGR	NGR	110,000	83,000	6	12	11	11	-	-	-	0.025	0.029	-	-	-	-	-	-	-	-	-
Dioxins & Furans ^{h,i}	0.000004	0.000004	0.000004	-	-	-	-	-	-	-	-	-	0.00025	0.00025	-	-	-	-	-	-	-	-	-	-	-
PCBs	1.3	1.3	22	-	-	-	-	-	-	33	33	-	1.3	1.3	-	-	-	-	-	-	-	-	-	-	-
Pesticides																									
Aldicarb [§]	0.012	0.012	22	-	-	-	-	0.041	0.065	-	-	-	-	-	BDL	BDL	0.012	0.012	-	-	0.079	0.078	-	-	-

Table A-2. Surface Soil Remediation Guideline Values for Agricultural Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Table 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human							Ecological												Other		
Pathway			Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Direct Soil Contact		Nutrient/ Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life		Protection of Livestock Water		Protection of Wildlife Water		Protection of Irrigation Water		Management Limit	
Soil Type	Fine	Coarse	-	Fine	Fine	Coarse	Coarse	Fine	Coarse	Fine	Coarse		-	-	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aldrin	3.4	3.4	3.4	-	-	-	-	5.9	11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Atrazine and metabolites	0.0088	0.01	11	-	-	-	-	0.10	0.19	-	-	-	-	-	0.0088	0.01	0.025	0.028	-	-	0.049	0.057	-	-
Azinphos-methyl (Guthion)	0.41	0.75	55	-	-	-	-	0.41	0.75	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bendiocarb	0.14	0.21	89	-	-	-	-	0.14	0.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bromacil ^{sk}	0.009	0.009	2,000	-	-	-	-	7.0	10	0.20	0.12	-	-	-	0.009	0.009	2.0	2.0	-	-	BDL	BDL	-	-
Bromoxynil ^s	0.044	0.052	11	-	-	-	-	0.18	0.35	-	-	-	-	-	0.044	0.052	0.097	0.11	-	-	BDL	BDL	-	-
Carbaryl ^s	1.9	3.6	220	-	-	-	-	1.9	3.6	-	-	-	-	-	BDL	BDL	5.7	6.5	-	-	-	-	-	-
Carbofuran ^s	0.082	0.089	220	-	-	-	-	0.68	1.2	-	-	-	-	-	BDL	BDL	0.082	0.089	-	-	-	-	-	-
Chlorothalonil	0.0085	0.010	330	-	-	-	-	27	53	-	-	-	-	-	0.0085	0.010	7.9	9.5	-	-	0.43	0.52	-	-
Chlorpyrifos ^s	3.2	3.8	220	-	-	-	-	49	95	-	-	-	-	-	BDL	BDL	3.2	3.8	-	-	-	-	-	-
Cyanazine ^s	0.029	0.032	29	-	-	-	-	0.12	0.21	-	-	-	-	-	BDL	BDL	0.029	0.032	-	-	BDL	BDL	-	-
2,4-D ^s	0.10	0.10	220	-	-	-	-	0.43	0.67	-	-	-	-	-	BDL	BDL	0.10	0.10	-	-	-	-	-	-
DDT	0.7	0.7	220	-	-	-	-	5,900	11,000	12	12	547	0.7	0.7	-	-	1500	1800	-	-	-	-	-	-
Diazinon ^s	2.2	4.2	44	-	-	-	-	2.2	4.2	-	-	-	-	-	BDL	BDL	-	-	-	-	-	-	-	-
Dicamba ^s	0.12	0.12	280	-	-	-	-	0.5	0.79	-	-	-	-	-	BDL	BDL	0.12	0.12	-	-	BDL	BDL	-	-
Diclofop-methyl	0.079	0.095	22	-	-	-	-	NGR	NGR	-	-	-	-	-	NGR	2.4	3.0	3.6	-	-	0.079	0.095	-	-
Dieldrin	0.59	1.1	3.4	-	-	-	-	0.59	1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dimethoate	0.0028	0.0027	44	-	-	-	-	0.077	0.12	-	-	-	-	-	0.0058	0.0055	0.0028	0.0027	-	-	-	-	-	-
Dinoseb ^s	1.4	1.7	22	-	-	-	-	2.8	5.5	-	-	-	-	-	BDL	BDL	10	12	-	-	1.4	1.7	-	-
Diquat	11	21	180	-	-	-	-	11	21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diuron	1.9	3.5	350	-	-	-	-	1.9	3.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Endosulfan	0.80	0.0016	210	-	-	-	-	99	190	-	-	-	-	-	0.80	0.0016	-	-	-	-	-	-	-	-

Table A-2. Surface Soil Remediation Guideline Values for Agricultural Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Table 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human							Ecological													Other	
			Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Direct Soil Contact		Nutrient/ Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life		Protection of Livestock Water		Protection of Wildlife Water		Protection of Irrigation Water		Management Limit	
Soil Type	Fine	Coarse	-	Fine	Fine	Coarse	Coarse	Fine	Coarse	Fine	Coarse		-	-	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Endrin	2.4	4.7	10	-	-	-	-	2.4	4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Glyphosate	0.054	0.049	670	-	-	-	-	0.95	1.4	-	-	-	-	-	0.054	0.049	0.23	0.21	-	-	-	-	-	-
Heptachlor epoxide	0.039	0.010	0.46	0.31	0.21	0.010	0.012	0.039	0.076	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lindane [§]	0.11	0.13	6.7	-	-	-	-	0.31	0.6	-	-	-	-	-	BDL	BDL	0.11	0.13	-	-	-	-	-	-
Linuron [§]	0.051	0.059	44	-	-	-	-	0.56	1.1	-	-	-	-	-	0.051	0.059	-	-	-	-	BDL	BDL	-	-
Malathion [§]	0.82	1.3	440	-	-	-	-	0.82	1.3	-	-	-	-	-	BDL	BDL	-	-	-	-	-	-	-	-
MCPA [§]	0.026	0.025	460	-	-	-	-	0.42	0.66	-	-	-	-	-	BDL	BDL	0.026	0.025	-	-	BDL	BDL	-	-
Methoxychlor	3,500	0.32	3,500	-	-	-	-	NGR	NGR	-	-	-	-	-	NGR	0.32	-	-	-	-	-	-	-	-
Metolachlor	0.048	0.055	110	-	-	-	-	1.3	2.4	-	-	-	-	-	0.048	0.055	0.3	0.35	-	-	0.17	0.2	-	-
Metribuzin	0.012	0.014	180	-	-	-	-	7.8	15	-	-	-	-	-	0.024	0.028	1.9	2.2	-	-	0.012	0.014	-	-
Paraquat (as dichloride)	1.1	2.2	22	-	-	-	-	1.1	2.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Parathion [§]	7.2	14	110	-	-	-	-	7.2	14	-	-	-	-	-	BDL	BDL	-	-	-	-	-	-	-	-
Phorate	0.075	0.14	4.4	-	-	-	-	0.075	0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Picloram	0.024	0.022	440	-	-	-	-	0.64	0.94	-	-	-	-	-	0.024	0.022	0.15	0.14	-	-	-	-	-	-
Simazine [§]	0.033	0.038	29	-	-	-	-	0.14	0.25	-	-	-	-	-	0.033	0.038	0.033	0.038	-	-	BDL	BDL	-	-
Tebuthiuron ^{§,1}	0.046	0.046	1600	-	-	-	-	2.5	3.7	0.046	0.046	-	-	-	BDL	BDL	0.12	0.11	-	-	BDL	BDL	-	-
Terbufos	0.08	0.15	1.1	-	-	-	-	0.08	0.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toxaphene	3.3	4.8	4.8	4,600	3,100	150	170	3.3	6.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Triallate	0.0077	0.0092	290	-	-	-	-	16	31	-	-	-	-	-	0.0077	0.0092	7.4	8.8	-	-	-	-	-	-
Trifluralin	0.22	0.045	110	-	-	-	-	NGR	NGR	-	-	-	-	-	0.22	0.045	8.4	10	-	-	-	-	-	-
Other Organics																								
Aniline [§]	0.36	0.6	160	720	640	34	26	0.36	0.6	-	-	-	-	-	BDL	BDL	-	-	-	-	-	-	-	-

Table A-2. Surface Soil Remediation Guideline Values for Agricultural Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Table 1, 3 and 4.

This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human							Ecological												Other			
Pathway			Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Direct Soil Contact		Nutrient/ Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life		Protection of Livestock Water		Protection of Wildlife Water		Protection of Irrigation Water		Management Limit		
Soil Type	Fine	Coarse	-	Fine	Fine	Coarse	Coarse	Fine	Coarse	Fine	Coarse	-	-	-	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Dibutyl phthalate	0.54	0.65	1,300	220,000	180,000	9,200	7,400	70	130	-	-	-	-	-	0.54	0.65	-	-	-	-	-	-	-	-	
Dichlorobenzidine	4.2	8.1	130	NGR	NGR	NGR	NGR	4.2	8.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Diethanolamine ¹	2.0	3.5	150	-	-	-	-	2.0	3.5	1,000	1,000	-	-	-	500,000	45	-	-	-	-	-	-	-	-	
Diethylene glycol	10	15	15,000	-	-	-	-	10	15	1,000	1,000	-	-	-	2,000	65	-	-	-	-	-	-	-	-	
Diisopropanolamine	14	17	22,000	-	-	-	-	130	250	360	360	-	-	-	14	17	-	-	-	-	29	34	-	-	
Ethylene glycol	60	62	73,000	NGR	NGR	120,000	86,000	60	68	1,100	1,100	1,700	-	-	89	62	-	-	-	-	-	-	-	-	
Hexachlorobutadiene	0.026	0.0067	210	0.18	0.16	0.0087	0.0067	0.5	0.95	-	-	-	-	-	0.026	0.031	-	-	-	-	-	-	-	-	
Methanol	37	11	8,900	34,000	33,000	2,100	1,400	37	42	1,200	1,200	-	-	-	300	11	-	-	-	-	-	-	750	750	
Methylmethacrylate	1.3	0.10	1,100	3.4	3.0	0.14	0.10	1.3	1.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Monoethanolamine ¹	20	10	1,500	-	-	-	-	20	40	1,500	1,500	-	-	-	300,000	10	-	-	-	-	-	-	-	-	
MTBE	0.044	0.046	380	1.2	1.1	0.065	0.046	0.044	0.062	-	-	-	-	-	7.1	6.1	-	-	-	-	-	-	-	-	
Nonylphenol + ethoxylates	5.7	5.7	-	-	-	-	-	-	-	5.7	5.7	-	-	-	NGR	2,000	-	-	-	-	-	-	-	-	
Phenol	0.0014	0.0012	2,000	14,000	13,000	660	480	1.6	2.3	20	20	-	-	-	0.0028	0.0024	0.0014	0.0012	-	-	-	-	-	-	
Sulfolane	0.18	0.21	350	-	-	-	-	0.18	0.21	210	210	-	-	-	24	18	-	-	-	-	0.39	0.28	-	-	
Triethylene glycol	100	150	150,000	-	-	-	-	100	150	5,000	5,000	-	-	-	10,000	200	-	-	-	-	-	-	-	-	

Table A-2. Surface Soil Remediation Guideline Values for Agricultural Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Table 1, 3 and 4.

This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

- j. Analytical methodology specified in the Soil and Groundwater Remediation Guidelines for Monoethanolamine and Diethanolamine (AENV, 2010), or equivalent, must be used. See AENV (2010) for further details.*
- k. Eco-contact guidelines from Stantec (2012)*
- l. Eco-contact guidelines from Stantec (2008)*
- m. Boron must be measured in a saturated paste extract prepared in accordance with Method 15.2.1 (Carter and Gregorich, 2008)*
- n. Guideline for protection of aquatic life (fine soil) is based on a groundwater guideline of 0.10 g/L. See Appendix B for more information*

BDL - Below detection limit

NGR - no guideline required, calculated value >1,000,000 mg/kg; or for PAH groundwater protection, calculated value results in groundwater concentration greater than solubility

Table A-3. Surface Soil Remediation Guideline Values for Residential/Parkland Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human						Ecological				Other			
			Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Direct Soil Contact		Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Management Limit	
Soil Type	Fine	Coarse	-	Fine	Fine	Coarse	Coarse	Fine	Coarse	Fine	Coarse		Fine	Coarse	Fine	Coarse
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
General and Inorganic Parameters																
pH (in 0.01M CaCl ₂)	6-8.5	6-8.5	-	-	-	-	-	-	-	6-8.5	6-8.5	-	-	-	-	-
Cyanide (free)	0.9	0.9	29	-	-	-	-	-	-	0.9	0.9	-	-	-	-	-
Fluoride	200	200	-	-	-	-	-	-	-	200	200	-	-	-	-	-
Sulphur (elemental) ^a	500	500	-	-	-	-	-	-	-	500	500	-	-	-	-	-
Metals																
Antimony	20	20	-	-	-	-	-	-	-	20	20	-	-	-	-	-
Arsenic (inorganic)	17	17	21	-	-	-	-	-	-	17	17	-	-	-	-	-
Barium (non-barite)	500	500	-	-	-	-	-	-	-	500	500	-	-	-	-	-
Barite-barium ^b	10,000	10,000	10,000	-	-	-	-	-	-	200,000	200,000	-	-	-	-	-
Beryllium	5	5	-	-	-	-	-	-	-	5	5	-	-	-	-	-
Boron (mg/L in saturated paste extract) ^m	3.3	3.3	7,500	-	-	-	-	65	118	3.3	3.3	-	5.0	5.0	-	-
Cadmium	10	10	14	-	-	-	-	-	-	10	10	54	-	-	-	-
Chromium (hexavalent)	0.4	0.4	-	-	-	-	-	-	-	0.4	0.4	-	-	-	-	-
Chromium (total)	64	64	220	-	-	-	-	-	-	64	64	-	-	-	-	-
Cobalt	20	20	-	-	-	-	-	-	-	20	20	-	-	-	-	-
Copper	63	63	1,100	-	-	-	-	-	-	63	63	350	-	-	-	-
Lead	140	140	140	-	-	-	-	-	-	300	300	723	-	-	-	-
Mercury (inorganic)	6.6	6.6	6.6	-	-	-	-	-	-	12	12	20	-	-	-	-
Molybdenum	4	4	-	-	-	-	-	-	-	4	4	-	-	-	-	-
Nickel	45	45	200	-	-	-	-	-	-	45	45	171	-	-	-	-

Table A-3. Surface Soil Remediation Guideline Values for Residential/Parkland Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human						Ecological				Other			
Pathway			Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Direct Soil Contact		Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Management Limit	
Soil Type	Fine	Coarse	-	Fine	Fine	Coarse	Coarse	Fine	Coarse	Fine	Coarse		Fine	Coarse	Fine	Coarse
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Selenium	1	1	80	-	-	-	-	-	-	1	1	-	-	-	-	-
Silver	20	20	-	-	-	-	-	-	-	20	20	-	-	-	-	-
Thallium	1	1	1	-	-	-	-	-	-	1.4	1.4	-	-	-	-	-
Tin	5	5	-	-	-	-	-	-	-	5	5	-	-	-	-	-
Uranium	23	23	23	-	-	-	-	-	-	500	500	-	-	-	-	-
Vanadium	130	130	-	-	-	-	-	-	-	130	130	255	-	-	-	-
Zinc	250	250	10,000	-	-	-	-	-	-	250	250	280	-	-	-	-
Hydrocarbons																
Benzene	0.046	0.073	78	1.7	1.6	0.1	0.073	0.046	0.078	60	31	-	7.9	0.17	-	-
Toluene	0.52	0.12	640	2,100	1,900	130	95	0.52	0.95	110	75	-	63,000	0.12	-	-
Ethylbenzene	0.073	0.14	1,700	1,000	930	60	44	0.073	0.14	120	55	-	NGR	540	-	-
Xylenes	0.99	1.9	480	280	250	16	12	0.99	1.9	65	95	-	NGR	41	-	-
Styrene	0.68	0.8	10,000	250	220	14	10	110	210	-	-	-	0.68	0.8	-	-
F1	210	24	12,000	710	610	30	24	1,100	2,200	210	210	-	30,000	1,300	800	700
F2	150	130	6,800	3,600	3,100	160	130	1,500	2,900	150	150	-	30,000	520	1,000	1,000
F3	1,300	300	15,000	-	-	-	-	-	-	1,300	300	-	-	-	3,500	2,500
F4	5,600	2,800	21,000	-	-	-	-	-	-	5,600	2,800	-	-	-	10,000	10,000
Acenaphthene	0.33	0.38	5,300	120,000	99,000	4,800	3,900	NGR	NGR	-	-	-	0.33	0.38	-	-
Anthracene	1.3	0.0056	24,000	NGR	NGR	780,000	670,000	NGR	NGR	2.5	2.5	-	1.3	0.0056	-	-
Fluoranthene	50	0.055	3,500	NGR	NGR	550,000	480,000	NGR	NGR	50	50	-	NGR	0.055	-	-
Fluorene	0.40	0.34	2,700	270,000	220,000	10,000	8,600	NGR	NGR	-	-	-	0.40	0.34	-	-
Naphthalene	0.014	0.017	1800	58	51	2.9	2.2	28	53	-	-	-	0.014	0.017	-	-
Phenanthrene	0.11	0.061	-	-	-	-	-	-	-	-	-	-	0.11	0.061	-	-

Table A-3. Surface Soil Remediation Guideline Values for Residential/Parkland Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human						Ecological				Other			
	Pathway	Soil Type	Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Direct Soil Contact		Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Management Limit	
Fine				Coarse	Fine	Fine	Coarse	Coarse	Fine	Coarse	Fine		Coarse	Fine	Coarse	Fine
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Pyrene	2,100	0.15	2,100	NGR	NGR	810,000	730,000	NGR	NGR	-	-	-	NGR	0.15	-	-
Carcinogenic PAHs (as B(a)P TPE) ^c	IACR<1.0 ^c and TPE ≤ 5.3	IACR<1.0 ^c and TPE ≤ 5.3	5.3 ^d	NGR	NGR	NGR	NGR	IACR<1.0 ^c	IACR<1.0 ^c	-	-	-	-	-	-	-
Benz[a]anthracene	-	-	-	-	-	-	-	6.4	12	-	-	-	NGR	NGR	-	-
Benzo[b+j]fluoranthene	-	-	-	-	-	-	-	3.0	5.8	-	-	-	-	-	-	-
Benzo[k]fluoranthene	-	-	-	-	-	-	-	0.64	1.2	-	-	-	-	-	-	-
Benzo[g,h,i]perylene	-	-	-	-	-	-	-	130	250	-	-	-	-	-	-	-
Benzo[a]pyrene ^f	20	20	-	-	-	-	-	7.0	14	20	20	-	NGR	NGR	-	-
Chrysene	-	-	-	-	-	-	-	40	78	-	-	-	-	-	-	-
Dibenz[a,h]anthracene	-	-	-	-	-	-	-	4.4	8.5	-	-	-	-	-	-	-
Indeno[1,2,3-c,d]pyrene	-	-	-	-	-	-	-	51	98	-	-	-	-	-	-	-
Chlorinated Aliphatics																
Vinyl chloride	0.0083	0.00034	71	0.009	0.0083	0.00049	0.00034	0.014	0.02	-	-	-	-	-	-	-
1,1-Dichloroethene	0.15	0.021	1,900	0.5	0.46	0.03	0.021	0.15	0.24	-	-	-	-	-	-	-
Trichloroethene (Trichloroethylene, TCE)	0.054	0.012	35	0.31	0.28	0.017	0.012	0.054	0.093	3	3	-	0.72	0.081	-	-
Tetrachloroethene (Tetrachloroethylene, Perchloroethylene, PCE)	0.26	0.018	180	0.46	0.41	0.025	0.018	0.26	0.46	-	-	-	0.69	0.77	-	-
1,2-Dichloroethane	0.025	0.0027	2,800	0.06	0.055	0.0038	0.0027	0.025	0.041	-	-	-	0.12	0.12	-	-
Dichloromethane (Methylene chloride)	0.1	0.095	990	18	16	1.0	0.71	0.21	0.32	-	-	-	0.1	0.095	-	-
Trichloromethane (Chloroform) ⁿ	0.16	0.011	72	0.24	0.22	0.015	0.011	0.53	0.88	-	-	-	0.16	0.030	-	-

Table A-3. Surface Soil Remediation Guideline Values for Residential/Parkland Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human						Ecological				Other			
	Pathway	Soil Type	Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Direct Soil Contact		Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Management Limit	
Fine				Coarse	Fine	Fine	Coarse	Coarse	Fine	Coarse	Fine		Coarse	Fine	Coarse	Fine
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Tetrachloromethane (Carbon tetrachloride)	0.013	0.00057	27	0.014	0.013	0.00078	0.00057	0.037	0.062	-	-	-	0.059	0.062	-	-
Dibromochloromethane	0.91	0.27	760	11	7.8	0.28	0.27	0.91	1.5	-	-	-	-	-	-	-
Chlorinated Aromatics																
Chlorobenzene [§]	0.39	0.018	16,000	0.44	0.39	0.024	0.018	0.61	1.1	-	-	-	BDL	BDL	-	-
1,2-Dichlorobenzene [§]	0.097	0.18	16,000	260	230	14	10	0.097	0.18	-	-	-	BDL	BDL	-	-
1,4-Dichlorobenzene	0.051	0.098	4,200	17	14	0.91	0.67	0.051	0.098	-	-	-	0.32	0.38	-	-
1,2,3-Trichlorobenzene	0.26	0.26	49	8.8	6.8	0.30	0.26	1.9	3.6	-	-	-	0.26	0.31	-	-
1,2,4-Trichlorobenzene	0.78	0.23	38	7.6	6	0.26	0.23	2.0	3.9	-	-	-	0.78	0.93	-	-
1,3,5-Trichlorobenzene	1.9	0.13	46	4.1	3.2	0.14	0.13	1.9	3.6	-	-	-	-	-	-	-
1,2,3,4-Tetrachlorobenzene	0.042	0.05	75	27	20	0.88	0.84	3.1	5.9	-	-	-	0.042	0.05	-	-
1,2,3,5-Tetrachlorobenzene	0.37	0.10	8.8	3.3	2.5	0.10	0.10	0.37	0.70	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	0.19	0.052	4.6	1.7	1.3	0.054	0.052	0.19	0.37	-	-	-	-	-	-	-
Pentachlorobenzene	22	5.2	22	160	140	7.9	6.1	24	47	-	-	-	NGR	5.2	-	-
Hexachlorobenzene	3.6	0.5	18	13	12	0.64	0.50	3.6	7	-	-	-	-	-	-	-
2,4-Dichlorophenol	0.0029	0.0034	2,200	170,000	140,000	6,300	5,400	0.018	0.034	-	-	-	0.0029	0.0034	-	-
2,4,6-Trichlorophenol	0.19	0.37	260	11,000	8,200	360	320	0.19	0.37	-	-	-	0.42	0.5	-	-
2,3,4,6-Tetrachlorophenol	0.039	0.047	220	15,000	11,000	480	460	0.16	0.31	-	-	-	0.039	0.047	-	-
Pentachlorophenol	0.025	0.029	230	NGR	NGR	110,000	83,000	6	12	11	11	-	0.025	0.029	-	-
Dioxins & Furans ^{h,i}	0.000004	0.000004	0.000004	-	-	-	-	-	-	-	-	-	-	-	-	-
PCBs	22	22	22	-	-	-	-	-	-	33	33	-	-	-	-	-
Pesticides																
Aldicarb [§]	0.041	0.065	22	-	-	-	-	0.041	0.065	-	-	-	BDL	BDL	-	-

Table A-3. Surface Soil Remediation Guideline Values for Residential/Parkland Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human						Ecological				Other			
Pathway			Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Direct Soil Contact		Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Management Limit	
Soil Type	Fine	Coarse	-	Fine	Fine	Coarse	Coarse	Fine	Coarse	Fine	Coarse		Fine	Coarse	Fine	Coarse
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Aldrin	3.4	3.4	3.4	-	-	-	-	5.9	11	-	-	-	-	-	-	-
Atrazine and metabolites	0.0088	0.01	11	-	-	-	-	0.10	0.19	-	-	-	0.0088	0.01	-	-
Azinphos-methyl (Guthion)	0.41	0.75	55	-	-	-	-	0.41	0.75	-	-	-	-	-	-	-
Bendiocarb	0.14	0.21	89	-	-	-	-	0.14	0.21	-	-	-	-	-	-	-
Bromacil ^k	0.009	0.009	2,000	-	-	-	-	7.0	10	0.20	0.12	-	0.009	0.009	-	-
Bromoxynil	0.044	0.052	11	-	-	-	-	0.18	0.35	-	-	-	0.044	0.052	-	-
Carbaryl ^g	1.9	3.6	220	-	-	-	-	1.9	3.6	-	-	-	BDL	BDL	-	-
Carbofuran ^g	0.68	1.2	220	-	-	-	-	0.68	1.2	-	-	-	BDL	BDL	-	-
Chlorothalonil	0.0085	0.010	330	-	-	-	-	27	53	-	-	-	0.0085	0.010	-	-
Chlorpyrifos ^g	49	95	220	-	-	-	-	49	95	-	-	-	BDL	BDL	-	-
Cyanazine ^g	0.12	0.21	29	-	-	-	-	0.12	0.21	-	-	-	BDL	BDL	-	-
2,4-D ^g	0.43	0.67	220	-	-	-	-	0.43	0.67	-	-	-	BDL	BDL	-	-
DDT	12	12	220	-	-	-	-	5,900	11,000	12	12	547	-	-	-	-
Diazinon ^g	2.2	4.2	44	-	-	-	-	2.2	4.2	-	-	-	BDL	BDL	-	-
Dicamba ^g	0.5	0.79	280	-	-	-	-	0.5	0.79	-	-	-	BDL	BDL	-	-
Diclofop-methyl	22	2.4	22	-	-	-	-	NGR	NGR	-	-	-	NGR	2.4	-	-
Dieldrin	0.59	1.1	3.4	-	-	-	-	0.59	1.1	-	-	-	-	-	-	-
Dimethoate	0.0058	0.0055	44	-	-	-	-	0.077	0.12	-	-	-	0.0058	0.0055	-	-
Dinoseb ^g	2.8	5.5	22	-	-	-	-	2.8	5.5	-	-	-	BDL	BDL	-	-
Diquat	11	21	180	-	-	-	-	11	21	-	-	-	-	-	-	-
Diuron	1.9	3.5	350	-	-	-	-	1.9	3.5	-	-	-	-	-	-	-
Endosulfan	0.80	0.0016	210	-	-	-	-	99	190	-	-	-	0.80	0.0016	-	-
Endrin	2.4	4.7	10	-	-	-	-	2.4	4.7	-	-	-	-	-	-	-

Table A-3. Surface Soil Remediation Guideline Values for Residential/Parkland Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human						Ecological				Other			
	Pathway		Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Direct Soil Contact		Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Management Limit	
Fine				Coarse	-	Fine	Fine	Coarse	Coarse	Fine	Coarse		Fine	Coarse	Fine	Coarse
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Glyphosate	0.054	0.049	670	-	-	-	-	0.95	1.4	-	-	-	0.054	0.049	-	-
Heptachlor epoxide	0.039	0.010	0.46	0.31	0.21	0.010	0.012	0.039	0.076	-	-	-	-	-	-	-
Lindane ^g	0.31	0.6	6.7	-	-	-	-	0.31	0.6	-	-	-	BDL	BDL	-	-
Linuron	0.051	0.059	44	-	-	-	-	0.56	1.1	-	-	-	0.051	0.059	-	-
Malathion ^g	0.82	1.3	440	-	-	-	-	0.82	1.3	-	-	-	BDL	BDL	-	-
MCPA ^g	0.42	0.66	460	-	-	-	-	0.42	0.66	-	-	-	BDL	BDL	-	-
Methoxychlor	3,500	0.32	3,500	-	-	-	-	NGR	NGR	-	-	-	NGR	0.32	-	-
Metolachlor	0.048	0.055	110	-	-	-	-	1.3	2.4	-	-	-	0.048	0.055	-	-
Metribuzin	0.024	0.028	180	-	-	-	-	7.8	15	-	-	-	0.024	0.028	-	-
Paraquat (as dichloride)	1.1	2.2	22	-	-	-	-	1.1	2.2	-	-	-	-	-	-	-
Parathion ^g	7.2	14	110	-	-	-	-	7.2	14	-	-	-	BDL	BDL	-	-
Phorate	0.075	0.14	4.4	-	-	-	-	0.075	0.14	-	-	-	-	-	-	-
Picloram	0.024	0.022	440	-	-	-	-	0.64	0.94	-	-	-	0.024	0.022	-	-
Simazine	0.033	0.038	29	-	-	-	-	0.14	0.25	-	-	-	0.033	0.038	-	-
Tebuthiuron ^{g-1}	0.046	0.046	1,600	-	-	-	-	2.5	3.7	0.046	0.046	-	BDL	BDL	-	-
Terbufos	0.08	0.15	1.1	-	-	-	-	0.08	0.15	-	-	-	-	-	-	-
Toxaphene	3.3	4.8	4.8	4,600	3,100	150	170	3.3	6.3	-	-	-	-	-	-	-
Triallate	0.0077	0.0092	290	-	-	-	-	16	31	-	-	-	0.0077	0.0092	-	-
Trifluralin	0.22	0.045	110	-	-	-	-	NGR	NGR	-	-	-	0.22	0.045	-	-
Other Organics																
Aniline ^g	0.36	0.6	160	720	640	34	26	0.36	0.6	-	-	-	BDL	BDL	-	-
Dibutyl phthalate	0.54	0.65	1,300	220,000	180,000	9,200	7,400	70	130	-	-	-	0.54	0.65	-	-
Dichlorobenzidine	4.2	8.1	130	NGR	NGR	NGR	NGR	4.2	8.1	-	-	-	-	-	-	-

Table A-3. Surface Soil Remediation Guideline Values for Residential/Parkland Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human						Ecological				Other			
	Pathway		Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer	Direct Soil Contact		Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Management Limit		
Fine				Coarse	Fine	Fine	Coarse		Coarse	Fine		Coarse	Fine	Coarse	Fine	Coarse
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Diethanolamine ^j	2.0	3.5	150	-	-	-	-	2.0	3.5	1,000	1,000	-	500,000	45	-	-
Diethylene glycol	10	15	15,000	-	-	-	-	10	15	1,000	1,000	-	2,000	65	-	-
Diisopropanolamine	14	17	22,000	-	-	-	-	130	250	360	360	-	14	17	-	-
Ethylene glycol	60	62	73,000	NGR	NGR	120,000	86,000	60	68	1,100	1,100	1,700	89	62	-	-
Hexachlorobutadiene	0.026	0.0067	210	0.18	0.16	0.0087	0.0067	0.5	0.95	-	-	-	0.026	0.031	-	-
Methanol	37	11	8,900	34,000	33,000	2,100	1,400	37	42	1,200	1,200	-	300	11	750	750
Methylmethacrylate	1.3	0.10	1,100	3.4	3.0	0.14	0.10	1.3	1.8	-	-	-	-	-	-	-
Monoethanolamine ^j	20	10	1,500	-	-	-	-	20	40	1,500	1,500	-	300,000	10	-	-
MTBE	0.044	0.046	380	1.2	1.1	0.065	0.046	0.044	0.062	-	-	-	7.1	6.1	-	-
Nonylphenol + ethoxylates	5.7	5.7	-	-	-	-	-	-	-	5.7	5.7	-	NGR	2,000	-	-
Phenol	0.0028	0.0024	2,000	14,000	13,000	660	480	1.6	2.3	20	20	-	0.0028	0.0024	-	-
Sulfolane	0.18	0.21	350	-	-	-	-	0.18	0.21	210	210	-	24	18	-	-
Triethylene glycol	100	150	150,000	-	-	-	-	100	150	5,000	5,000	-	10,000	200	-	-

Table A-4. Surface Soil Remediation Guideline Values for Commercial Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor Pathway	Overall Guideline		Human						Ecological						Other	
			Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact		Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit	
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse		Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg	mg/kg	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
<i>General and Inorganic Parameters</i>																
pH (in 0.01M CaCl ₂)	6-8.5	6-8.5	-	-	-	-	-	-	6-8.5	6-8.5	-	-	-	-	-	-
Cyanide (free)	8	8	110	-	-	-	-	-	8	8	-	-	-	-	-	-
Fluoride	2,000	2,000	-	-	-	-	-	-	2,000	2,000	-	-	-	-	-	-
Sulphur (elemental) ^a	500	500	-	-	-	-	-	-	500	500	-	-	-	-	-	-
<i>Metals</i>																
Antimony	40	40	-	-	-	-	-	-	40	40	-	-	-	-	-	-
Arsenic (inorganic)	26	26	26	-	-	-	-	-	26	26	-	-	-	-	-	-
Barium (non-barite)	2,000	2,000	-	-	-	-	-	-	2,000	2,000	-	-	-	-	-	-
Barite-barium ^b	15,000	15,000	15,000	-	-	-	-	140,000	200,000	200,000	-	-	-	140,000	-	-
Beryllium	8	8	-	-	-	-	-	-	8	8	-	-	-	-	-	-
Boron (mg/L in saturated paste extract) ^m	5.0	5.0	11,000	-	-	65	118	110,000	7.9	7.9	-	5.0	5.0	46	-	-
Cadmium	22	22	49	-	-	-	-	-	22	22	195	-	-	-	-	-
Chromium (hexavalent)	1.4	1.4	-	-	-	-	-	-	1.4	1.4	-	-	-	-	-	-
Chromium (total)	87	87	630	-	-	-	-	-	87	87	-	-	-	-	-	-
Cobalt	300	300	-	-	-	-	-	-	300	300	-	-	-	-	-	-
Copper	91	91	4,000	-	-	-	-	-	91	91	350	-	-	-	-	-
Lead	260	260	260	-	-	-	-	-	600	600	834	-	-	-	-	-
Mercury (inorganic)	24	24	24	-	-	-	-	-	50	50	52	-	-	-	-	-
Molybdenum	40	40	-	-	-	-	-	-	40	40	-	-	-	-	-	-
Nickel	89	89	310	-	-	-	-	2,500	89	89	235	-	-	287	-	-
Selenium	2.9	2.9	125	-	-	-	-	1,135	2.9	2.9	-	-	-	5	-	-

Table A-4. Surface Soil Remediation Guideline Values for Commercial Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor Pathway	Overall Guideline		Human						Ecological						Other	
			Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact		Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit	
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse		Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg	mg/kg	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Silver	40	40	-	-	-	-	-	-	40	40	-	-	-	-	-	-
Thallium	1	1	1	-	-	-	-	-	3.6	3.6	-	-	-	-	-	-
Tin	300	300	-	-	-	-	-	-	300	300	-	-	-	-	-	-
Uranium	33	33	33	-	-	-	-	-	2000	2000	-	-	-	-	-	-
Vanadium	130	130	-	-	-	-	-	-	130	130	255	-	-	-	-	-
Zinc	410	410	16,000	-	-	-	-	140,000	450	450	410	-	-	2,900	-	-
Hydrocarbons																
Benzene	0.046	0.078	120	11	0.9	0.046	0.078	1,100	310	180	-	7.9	0.17	440	-	-
Toluene	0.52	0.12	980	13,000	1,200	0.52	0.95	9,200	330	250	-	63,000	0.12	1,100	-	-
Ethylbenzene	0.073	0.14	2,500	6,500	530	0.073	0.14	24,000	430	300	-	NGR	540	790	-	-
Xylenes	0.99	1.9	720	1,700	140	0.99	1.9	6,900	230	350	-	NGR	41	930	-	-
Styrene	0.68	0.8	16,000	1,600	120	110	210	150,000	-	-	-	0.68	0.8	-	-	-
F1	320	270	19,000	4,500	270	1,100	2,200	30,000	320	320	-	30,000	1,300	3,000	800	700
F2	260	260	10,000	23,000	1,500	1,500	2,900	30,000	260	260	-	30,000	520	2,100	1,000	1,000
F3	2,500	1,700	23,000	-	-	-	-	30,000	2,500	1,700	-	-	-	4,300	5,000	3,500
F4	6,600	3,300	30,000	-	-	-	-	30,000	6,600	3,300	-	-	-	30,000	10,000	10,000
Acenaphthene	0.33	0.38	8,000	770,000	43,000	NGR	NGR	75,000	-	-	-	0.33	0.38	-	-	-
Anthracene	1.3	0.0056	37,000	NGR	NGR	NGR	NGR	350,000	32	32	-	1.3	0.0056	36	-	-
Fluoranthene	180	0.055	5,300	NGR	NGR	NGR	NGR	50,000	180	180	-	NGR	0.055	720	-	-
Fluorene	0.40	0.34	4,100	NGR	91,000	NGR	NGR	39,000	-	-	-	0.40	0.34	-	-	-
Naphthalene	0.014	0.017	2,800	370	25	28	53	26,000	-	-	-	0.014	0.017	-	-	-
Phenanthrene	0.11	0.061	-	-	-	-	-	-	-	-	-	0.11	0.061	-	-	-
Pyrene	3,200	0.15	3,200	NGR	NGR	NGR	NGR	30,000	-	-	-	NGR	0.15	-	-	-

Table A-4. Surface Soil Remediation Guideline Values for Commercial Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human					Ecological					Other			
	Pathway		Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact		Nutrient/Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit	
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse		Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg	mg/kg	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Carcinogenic PAHs (as B(a)P TPE) ^e	IACR<1.0 ^e and TPE ≤ 8.0	IACR<1.0 ^e and TPE ≤ 8.0	8.0 ^d	NGR	NGR	IACR<1.0 ^e	IACR<1.0 ^e	75	-	-	-	-	-	-	-	-
Benz[a]anthracene	-	-	-	-	-	6.4	12	-	-	-	-	NGR	NGR	-	-	-
Benzo[b+j]fluoranthene	-	-	-	-	-	3.0	5.8	-	-	-	-	-	-	-	-	-
Benzo[k]fluoranthene	-	-	-	-	-	0.64	1.2	-	-	-	-	-	-	-	-	-
Benzo[g,h,i]perylene	-	-	-	-	-	130	250	-	-	-	-	-	-	-	-	-
Benzo[a]pyrene ^f	72	72	-	-	-	7.0	14	-	72	72	-	NGR	NGR	290	-	-
Chrysene	-	-	-	-	-	40	78	-	-	-	-	-	-	-	-	-
Dibenz[a,h]anthracene	-	-	-	-	-	4.4	8.5	-	-	-	-	-	-	-	-	-
Indeno[1,2,3-c,d]pyrene	-	-	-	-	-	51	98	-	-	-	-	-	-	-	-	-
Chlorinated Aliphatics																
Vinyl chloride	0.014	0.0043	110	0.055	0.0043	0.014	0.02	1,000	-	-	-	-	-	-	-	-
1,1-Dichloroethene	0.15	0.24	2,900	3.1	0.27	0.15	0.24	27,000	-	-	-	-	-	-	-	-
Trichloroethene (Trichloroethylene, TCE)	0.054	0.081	54	1.9	0.15	0.054	0.093	500	50	50	-	0.72	0.081	43	-	-
Tetrachloroethene (Tetrachloroethylene, Perchloroethylene, PCE)	0.26	0.22	270	2.9	0.22	0.26	0.46	2,600	-	-	-	0.69	0.77	-	-	-
1,2-Dichloroethane	0.025	0.033	4,200	0.37	0.033	0.025	0.041	40,000	-	-	-	0.12	0.12	-	-	-
Dichloromethane (Methylene chloride)	0.1	0.095	1,500	110	9.0	0.21	0.32	14,000	-	-	-	0.1	0.095	-	-	-
Trichloromethane (Chloroform) ⁿ	0.16	0.030	110	1.5	0.14	0.53	0.88	1,000	-	-	-	0.16	0.030	-	-	-
Tetrachloromethane (Carbon tetrachloride)	0.037	0.0069	41	0.092	0.0069	0.037	0.062	380	-	-	-	0.059	0.062	-	-	-
Dibromochloromethane	0.91	1.5	1,200	76	2.5	0.91	1.5	11,000	-	-	-	-	-	-	-	-

Table A-4. Surface Soil Remediation Guideline Values for Commercial Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human					Ecological					Other			
Pathway			Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact		Nutrient/Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit	
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse		Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg	mg/kg	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
<i>Chlorinated Aromatics</i>																
Chlorobenzene [§]	0.61	0.22	25,000	2.7	0.22	0.61	1.1	230,000	-	-	-	BDL	BDL	-	-	-
1,2-Dichlorobenzene [§]	0.097	0.18	25,000	1,700	130	0.097	0.18	230,000	-	-	-	BDL	BDL	-	-	-
1,4-Dichlorobenzene	0.051	0.098	6,200	100	8	0.051	0.098	59,000	-	-	-	0.32	0.38	-	-	-
1,2,3-Trichlorobenzene	0.26	0.31	74	58	2.7	1.9	3.6	700	-	-	-	0.26	0.31	-	-	-
1,2,4-Trichlorobenzene	0.78	0.93	58	51	2.4	2.0	3.9	540	-	-	-	0.78	0.93	-	-	-
1,3,5-Trichlorobenzene	1.9	1.3	69	27	1.3	1.9	3.6	660	-	-	-	-	-	-	-	-
1,2,3,4-Tetrachlorobenzene	0.042	0.05	110	190	7.9	3.1	5.9	1,100	-	-	-	0.042	0.05	-	-	-
1,2,3,5-Tetrachlorobenzene	0.37	0.70	14	23	1	0.37	0.70	130	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	0.19	0.37	7	12	0.49	0.19	0.37	66	-	-	-	-	-	-	-	-
Pentachlorobenzene	24	5.2	34	1000	70	24	47	320	-	-	-	NGR	5.2	-	-	-
Hexachlorobenzene	3.6	6	27	85	6	3.6	7	260	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	0.0029	0.0034	3,300	NGR	57,000	0.018	0.034	31,000	-	-	-	0.0029	0.0034	-	-	-
2,4,6-Trichlorophenol	0.19	0.37	400	71,000	3,300	0.19	0.37	3,700	-	-	-	0.42	0.5	-	-	-
2,3,4,6-Tetrachlorophenol	0.039	0.047	340	110,000	4,400	0.16	0.31	3,000	-	-	-	0.039	0.047	-	-	-
Pentachlorophenol	0.025	0.029	340	NGR	950,000	6	12	3,200	28	28	-	0.025	0.029	160	-	-
Dioxins & Furans ^{h,i}	0.000004	0.000004	0.000004	-	-	-	-	0.000004	-	-	-	-	-	-	-	-
PCBs	33	33	33	-	-	-	-	310	33	33	-	-	-	470	-	-
<i>Pesticides</i>																
Aldicarb [§]	0.041	0.065	34	-	-	0.041	0.065	320	-	-	-	BDL	BDL	-	-	-
Aldrin	5.1	5.1	5.1	-	-	5.9	11	49	-	-	-	-	-	-	-	-
Atrazine and metabolites	0.0088	0.01	17	-	-	0.10	0.19	160	-	-	-	0.0088	0.01	-	-	-

Table A-4. Surface Soil Remediation Guideline Values for Commercial Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor Pathway	Overall Guideline		Human						Ecological						Other	
			Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact		Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit	
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse		Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg	mg/kg	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Azniphos-methyl (Guthion)	0.41	0.75	84	-	-	0.41	0.75	790	-	-	-	-	-	-	-	-
Bendiocarb	0.14	0.21	130	-	-	0.14	0.21	1,300	-	-	-	-	-	-	-	-
Bromacil ^k	0.009	0.009	3,500	-	-	7.0	10	30,000	0.49	0.20	-	0.009	0.009	1.7	-	-
Bromoxynil	0.044	0.052	17	-	-	0.18	0.35	160	-	-	-	0.044	0.052	-	-	-
Carbaryl ^g	1.9	3.6	340	-	-	1.9	3.6	3,200	-	-	-	BDL	BDL	-	-	-
Carbofuran ^g	0.68	1.2	340	-	-	0.68	1.2	3,200	-	-	-	BDL	BDL	-	-	-
Chlorothalonil	0.0085	0.010	500	-	-	27	53	4,800	-	-	-	0.0085	0.010	-	-	-
Chlorpyrifos ^g	49	95	340	-	-	49	95	3,200	-	-	-	BDL	BDL	-	-	-
Cyanazine ^g	0.12	0.21	44	-	-	0.12	0.21	410	-	-	-	BDL	BDL	-	-	-
2,4-D ^g	0.43	0.67	340	-	-	0.43	0.67	3,200	-	-	-	BDL	BDL	-	-	-
DDT	12	12	340	-	-	5,900	11,000	3,200	12	12	547	-	-	170	-	-
Diazinon ^g	2.2	4.2	67	-	-	2.2	4.2	630	-	-	-	BDL	BDL	-	-	-
Dicamba ^g	0.5	0.79	420	-	-	0.5	0.79	4,000	-	-	-	BDL	BDL	-	-	-
Diclofop-methyl	34	2.4	34	-	-	NGR	NGR	320	-	-	-	NGR	2.4	-	-	-
Dieldrin	0.59	1.1	5.1	-	-	0.59	1.1	49	-	-	-	-	-	-	-	-
Dimethoate	0.0058	0.0055	67	-	-	0.077	0.12	630	-	-	-	0.0058	0.0055	-	-	-
Dinoseb ^g	2.8	5.5	34	-	-	2.8	5.5	320	-	-	-	BDL	BDL	-	-	-
Diquat	11	21	270	-	-	11	21	2,500	-	-	-	-	-	-	-	-
Diuron	1.9	3.5	520	-	-	1.9	3.5	4,900	-	-	-	-	-	-	-	-
Endosulfan	0.80	0.0016	320	-	-	99	190	3,000	-	-	-	0.80	0.0016	-	-	-
Endrin	2.4	4.7	15	-	-	2.4	4.7	150	-	-	-	-	-	-	-	-
Glyphosate	0.054	0.049	1,000	-	-	0.95	1.4	9,500	-	-	-	0.054	0.049	-	-	-
Heptachlor epoxide	0.039	0.076	0.69	2.4	0.094	0.039	0.076	6.5	-	-	-	-	-	-	-	-

Table A-4. Surface Soil Remediation Guideline Values for Commercial Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor Pathway	Overall Guideline		Human						Ecological						Other	
			Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact		Nutrient/Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit	
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse		Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg	mg/kg	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Lindane ^g	0.31	0.6	10	-	-	0.31	0.6	95	-	-	-	BDL	BDL	-	-	-
Linuron	0.051	0.059	67	-	-	0.56	1.1	630	-	-	-	0.051	0.059	-	-	-
Malathion ^g	0.82	1.3	670	-	-	0.82	1.3	6,300	-	-	-	BDL	BDL	-	-	-
MCPA ^g	0.42	0.66	690	-	-	0.42	0.66	160	-	-	-	BDL	BDL	-	-	-
Methoxychlor	5,300	0.32	5,300	-	-	NGR	NGR	50,000	-	-	-	NGR	0.32	-	-	-
Metolachlor	0.048	0.055	170	-	-	1.3	2.4	1,600	-	-	-	0.048	0.055	-	-	-
Metribuzin	0.024	0.028	280	-	-	7.8	15	2,600	-	-	-	0.024	0.028	-	-	-
Paraquat (as dichloride)	1.1	2.2	34	-	-	1.1	2.2	320	-	-	-	-	-	-	-	-
Parathion ^g	7.2	14	170	-	-	7.2	14	1,600	-	-	-	BDL	BDL	-	-	-
Phorate	0.075	0.14	6.7	-	-	0.075	0.14	63	-	-	-	-	-	-	-	-
Picloram	0.024	0.022	670	-	-	0.64	0.94	6,300	-	-	-	0.024	0.022	-	-	-
Simazine	0.033	0.038	44	-	-	0.14	0.25	410	-	-	-	0.033	0.038	-	-	-
Tebuthiuron ^{g,1}	0.60	0.60	2,400	-	-	2.5	3.7	22,000	0.60	0.60	-	BDL	BDL	0.66	-	-
Terbufos	0.08	0.15	1.7	-	-	0.08	0.15	16	-	-	-	-	-	-	-	-
Toxaphene	3.3	6.3	7.3	36,000	1,400	3.3	6.3	69	-	-	-	-	-	-	-	-
Triallate	0.0077	0.0092	440	-	-	16	31	4,100	-	-	-	0.0077	0.0092	-	-	-
Trifluralin	0.22	0.045	160	-	-	NGR	NGR	1,500	-	-	-	0.22	0.045	-	-	-
Other Organics																
Aniline ^g	0.36	0.6	240	4500	300	0.36	0.6	2,200	-	-	-	BDL	BDL	-	-	-
Dibutyl phthalate	0.54	0.65	1,900	NGR	82,000	70	130	19,000	-	-	-	0.54	0.65	-	-	-
Dichlorobenzidine	4.2	8.1	190	NGR	NGR	4.2	8.1	1,800	-	-	-	-	-	-	-	-
Diethanolamine ^j	2.0	3.5	200	-	-	2.0	3.5	2,000	2,000	2,000	-	500,000	45	15,000	-	-
Diethylene glycol	10	15	20,000	-	-	10	15	200,000	1,500	1,500	-	2,000	65	15,000	-	-

Table A-4. Surface Soil Remediation Guideline Values for Commercial Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor Pathway	Overall Guideline		Human					Ecological					Other			
			Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact		Nutrient/Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit	
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse		Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg	mg/kg	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Diisopropanolamine	14	17	33,000	-	-	130	250	310,000	750	750	-	14	17	5,100	-	-
Ethylene glycol	60	62	110,000	NGR	NGR	60	68	NGR	1,800	1,800	2,000	89	62	16,000	-	-
Hexachlorobutadiene	0.026	0.031	320	1.2	0.078	0.5	0.95	3,000	-	-	-	0.026	0.031	-	-	-
Methanol	37	11	13,000	210,000	18,000	37	42	-	1,600	1,600	-	300	11	-	750	750
Methylmethacrylate	1.3	1.3	1,700	20	1.3	1.3	1.8	16,000	-	-	-	-	-	-	-	-
Monoethanolamine ^j	20	10	2,000	-	-	20	40	20,000	1,500	1,500	-	300,000	10	20,000	-	-
MTBE	0.044	0.062	580	7.4	0.57	0.044	0.062	5,400	-	-	-	7.1	6.1	-	-	-
Nonylphenol + ethoxylates	14	14	-	-	-	-	-	-	14	14	-	NGR	2,000	82	-	-
Phenol	0.0028	0.0024	3,100	90,000	5,800	1.6	2.3	29,000	130	130	-	0.0028	0.0024	290	-	-
Sulfolane	0.18	0.21	540	-	-	0.18	0.21	5,000	430	430	-	24	18	3,000	-	-
Triethylene glycol	100	150	200,000	-	-	100	150	NGR	7,000	7,000	-	10,000	200	70,000	-	-

Notes:

- For more information see *Guidelines for Landfill Disposal of Sulphur Waste and Remediation of Sulphur Containing Soils* (AENV, 2011)
- True total barium as measured by fusion-XRF or fusion-ICP. For more information see *Soil Remediation Guidelines for Barite: Environmental Health and Human Health* (AENV, 2009)
- Human health direct soil contact guidelines for carcinogenic PAHs are based on B[a]P Total Potency Equivalents (TPE). TPEs are calculated by multiplying the soil concentration of individual carcinogenic PAHs by a the standardized Benzo[a]pyrene Potency Equivalence Factor (PEF) to produce a Benzo[a]pyrene relative potency concentration, and by subsequently summing the relative potency concentrations for entire PAH mixture. B[a]P PEFs are order of magnitude estimates of carcinogenic potential and are based on the World Health Organization (WHO/IPCS, 1998) scheme, as follows:

Table A-5. Surface Soil Remediation Guideline Values for Industrial Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human					Ecological					Other			
			Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact	Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit		
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse	-	Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
<i>General and Inorganic Parameters</i>																
pH (in 0.01M CaCl ₂)	6-8.5	6-8.5	-	-	-	-	-	-	6-8.5	6-8.5	-	-	-	-	-	-
Cyanide (free)	8	8	420	-	-	-	-	-	8	8	-	-	-	-	-	-
Fluoride	2,000	2,000	-	-	-	-	-	-	2,000	2,000	-	-	-	-	-	-
Sulphur (elemental) ^a	500	500	-	-	-	-	-	-	500	500	-	-	-	-	-	-
<i>Metals</i>																
Antimony	40	40	-	-	-	-	-	-	40	40	-	-	-	-	-	-
Arsenic (inorganic)	26	26	26	-	-	-	-	-	26	26	-	-	-	-	-	-
Barium (non-barite)	2,000	2,000	-	-	-	-	-	-	2,000	2,000	-	-	-	-	-	-
Barite-barium ^b	140,000	140,000	140,000	-	-	-	-	140,000	200,000	200,000	-	-	-	140,000	-	-
Beryllium	8	8	-	-	-	-	-	-	8	8	-	-	-	-	-	-
Boron (mg/L in saturated paste extract) ^m	5.0	5.0	230,000	-	-	65	118	110,000	7.9	7.9	-	5.0	5.0	46	-	-
Cadmium	22	22	2,090	-	-	-	-	-	22	22	195	-	-	-	-	-
Chromium (hexavalent)	1.4	1.4	-	-	-	-	-	-	1.4	1.4	-	-	-	-	-	-
Chromium (total)	87	87	2,300	-	-	-	-	-	87	87	-	-	-	-	-	-
Cobalt	300	300	-	-	-	-	-	-	300	300	-	-	-	-	-	-
Copper	91	91	16,000	-	-	-	-	-	91	91	350	-	-	-	-	-
Lead	600	600	8,200	-	-	-	-	-	600	600	834	-	-	-	-	-
Mercury (inorganic)	50	50	99	-	-	-	-	-	50	50	52	-	-	-	-	-
Molybdenum	40	40	-	-	-	-	-	-	40	40	-	-	-	-	-	-
Nickel	89	89	5,100	-	-	-	-	2,500	89	89	235	-	-	287	-	-
Selenium	2.9	2.9	4,050	-	-	-	-	1,135	2.9	2.9	-	-	-	5	-	-
Silver	40	40	-	-	-	-	-	-	40	40	-	-	-	-	-	-

Table A-5. Surface Soil Remediation Guideline Values for Industrial Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human						Ecological					Other		
			Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact	Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit		
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse		Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Thallium	1	1	1	-	-	-	-	-	3.6	3.6	-	-	-	-	-	-
Tin	300	300	-	-	-	-	-	-	300	300	-	-	-	-	-	-
Uranium	300	300	510	-	-	-	-	300	2,000	2,000	-	-	-	7,100	-	-
Vanadium	130	130	-	-	-	-	-	-	130	130	255	-	-	-	-	-
Zinc	410	410	270,000	-	-	-	-	140,000	450	450	410	-	-	2,900	-	-
Hydrocarbons																
Benzene	0.046	0.078	120	11	0.9	0.046	0.078	1,100	310	180	-	7.9	0.17	440	-	-
Toluene	0.52	0.12	11,000	13,000	1,200	0.52	0.95	9,200	330	250	-	63,000	0.12	1,100	-	-
Ethylbenzene	0.073	0.14	24,000	6,500	530	0.073	0.14	24,000	430	300	-	NGR	540	790	-	-
Xylenes	0.99	1.9	8,100	1,700	140	0.99	1.9	6,900	230	350	-	NGR	41	930	-	-
Styrene	0.68	0.8	150,000	1,600	120	110	210	150,000	-	-	-	0.68	0.8	-	-	-
F1	320	270	30,000	4,500	270	1,100	2,200	30,000	320	320	-	30,000	1,300	3,000	800	700
F2	260	260	30,000	23,000	1,500	1,500	2,900	30,000	260	260	-	30,000	520	2,100	1,000	1,000
F3	2,500	1,700	30,000	-	-	-	-	30,000	2,500	1,700	-	-	-	4,300	5,000	3,500
F4	6,600	3,300	30,000	-	-	-	-	30,000	6,600	3,300	-	-	-	30,000	10,000	10,000
Acenaphthene	0.33	0.38	75,000	770,000	43,000	NGR	NGR	75,000	-	-	-	0.33	0.38	-	-	-
Anthracene	1.3	0.0056	300,000	NGR	NGR	NGR	NGR	350,000	32	32	-	1.3	0.0056	36	-	-
Fluoranthene	180	0.055	50,000	NGR	NGR	NGR	NGR	50,000	180	180	-	NGR	0.055	720	-	-
Fluorene	0.40	0.34	46,000	NGR	91,000	NGR	NGR	39,000	-	-	-	0.40	0.34	-	-	-
Naphthalene	0.014	0.017	34,000	370	25	28	53	26,000	-	-	-	0.014	0.017	-	-	-
Phenanthrene	0.11	0.061	-	-	-	-	-	-	-	-	-	0.11	0.061	-	-	-
Pyrene	30,000	0.15	34,000	NGR	NGR	NGR	NGR	30,000	-	-	-	NGR	0.15	-	-	-

Table A-5. Surface Soil Remediation Guideline Values for Industrial Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human						Ecological					Other		
			Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact	Nutrient/Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit		
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse		Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit (unless otherwise indicated)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Carcinogenic PAHs (as B(a)P TPE) ^c	IACR<1.0 ^e and TPE ≤ 8.0	IACR<1.0 ^e and TPE ≤ 8.0	8.0 ^d	NGR	NGR	IACR<1.0 ^e	IACR<1.0 ^e	75	-	-	-	-	-	-	-	-
Benz[a]anthracene	-	-	-	-	-	6.4	12	-	-	-	-	NGR	NGR	-	-	-
Benzo[b+j]fluoranthene	-	-	-	-	-	3.0	5.8	-	-	-	-	-	-	-	-	-
Benzo[k]fluoranthene	-	-	-	-	-	0.64	1.2	-	-	-	-	-	-	-	-	-
Benzo[g,h,i]perylene	-	-	-	-	-	130	250	-	-	-	-	-	-	-	-	-
Benzo[a]pyrene ^f	72	72	-	-	-	7.0	14	-	72	72	-	NGR	NGR	290	-	-
Chrysene	-	-	-	-	-	40	78	-	-	-	-	-	-	-	-	-
Dibenz[a,h]anthracene	-	-	-	-	-	4.4	8.5	-	-	-	-	-	-	-	-	-
Indeno[1,2,3-c,d]pyrene	-	-	-	-	-	51	98	-	-	-	-	-	-	-	-	-
Chlorinated Aliphatics																
Vinyl chloride	0.014	0.0043	110	0.055	0.0043	0.014	0.02	1,000	-	-	-	-	-	-	-	-
1,1-Dichloroethene	0.15	0.24	34,000	3.1	0.27	0.15	0.24	27,000	-	-	-	-	-	-	-	-
Trichloroethene (Trichloroethylene, TCE)	0.054	0.081	720	1.9	0.15	0.054	0.093	500	50	50	-	0.72	0.081	43	-	-
Tetrachloroethene (Tetrachloroethylene, Perchloroethylene, PCE)	0.26	0.22	3,200	2.9	0.22	0.26	0.46	2,600	-	-	-	0.69	0.77	-	-	-
1,2-Dichloroethane	0.025	0.033	4,200	0.37	0.033	0.025	0.041	40,000	-	-	-	0.12	0.12	-	-	-
Dichloromethane (Methylene chloride)	0.1	0.095	7,300	110	9.0	0.21	0.32	14,000	-	-	-	0.1	0.095	-	-	-
Trichloromethane (Chloroform) ⁿ	0.16	0.030	1,800	1.5	0.14	0.53	0.88	1,000	-	-	-	0.16	0.030	-	-	-
Tetrachloromethane (Carbon tetrachloride)	0.037	0.0069	480	0.092	0.0069	0.037	0.062	380	-	-	-	0.059	0.062	-	-	-
Dibromochloromethane	0.91	1.5	14,000	76	2.5	0.91	1.5	11,000	-	-	-	-	-	-	-	-

Table A-5. Surface Soil Remediation Guideline Values for Industrial Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human						Ecological					Other		
	Pathway		Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact	Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit		
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse		Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
<i>Chlorinated Aromatics</i>																
Chlorobenzene ^g	0.61	0.22	300,000	2.7	0.22	0.61	1.1	230,000	-	-	-	BDL	BDL	-	-	-
1,2-Dichlorobenzene ^g	0.097	0.18	300,000	1700	130	0.097	0.18	230,000	-	-	-	BDL	BDL	-	-	-
1,4-Dichlorobenzene	0.051	0.098	74,000	100	8	0.051	0.098	59,000	-	-	-	0.32	0.38	-	-	-
1,2,3-Trichlorobenzene	0.26	0.31	930	58	2.7	1.9	3.6	700	-	-	-	0.26	0.31	-	-	-
1,2,4-Trichlorobenzene	0.78	0.93	850	51	2.4	2.0	3.9	540	-	-	-	0.78	0.93	-	-	-
1,3,5-Trichlorobenzene	1.9	1.3	920	27	1.3	1.9	3.6	660	-	-	-	-	-	-	-	-
1,2,3,4-Tetrachlorobenzene	0.042	0.05	540	190	7.9	3.1	5.9	1,100	-	-	-	0.042	0.05	-	-	-
1,2,3,5-Tetrachlorobenzene	0.37	0.70	66	23	0.96	0.37	0.70	130	-	-	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	0.19	0.37	34	12	0.49	0.19	0.37	66	-	-	-	-	-	-	-	-
Pentachlorobenzene	24	5.2	160	1000	70	24	47	320	-	-	-	NGR	5.2	-	-	-
Hexachlorobenzene	3.6	6	30	85	6	3.6	7	260	-	-	-	-	-	-	-	-
2,4-Dichlorophenol	0.0029	0.0034	16,000	NGR	57,000	0.018	0.034	31,000	-	-	-	0.0029	0.0034	-	-	-
2,4,6-Trichlorophenol	0.19	0.37	400	71,000	3,300	0.19	0.37	3,700	-	-	-	0.42	0.5	-	-	-
2,3,4,6-Tetrachlorophenol	0.039	0.047	1,500	110,000	4,400	0.16	0.31	3,000	-	-	-	0.039	0.047	-	-	-
Pentachlorophenol	0.025	0.029	4,000	NGR	950,000	6	12	3,200	28	28	-	0.025	0.029	160	-	-
Dioxins & Furans ^{h,i}	0.000004	0.000004	-	-	-	-	-	0.000004	-	-	-	-	-	-	-	-
PCBs	33	33	160	-	-	-	-	310	33	33	-	-	-	470	-	-
<i>Pesticides</i>																
Aldicarb ^g	0.041	0.065	160	-	-	0.041	0.065	320	-	-	-	BDL	BDL	-	-	-
Aldrin	5.9	11	44	-	-	5.9	11	49	-	-	-	-	-	-	-	-
Atrazine and metabolites	0.0088	0.01	80	-	-	0.10	0.19	160	-	-	-	0.0088	0.01	-	-	-
Azniphos-methyl (Guthion)	0.41	0.75	400	-	-	0.41	0.75	790	-	-	-	-	-	-	-	-

Table A-5. Surface Soil Remediation Guideline Values for Industrial Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human						Ecological					Other		
	Pathway		Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact	Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit		
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse		Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Bendiocarb	0.14	0.21	640	-	-	0.14	0.21	1,300	-	-	-	-	-	-	-	-
Bromacil ^k	0.009	0.009	15,000	-	-	7.0	10	30,000	0.49	0.20	-	0.009	0.009	1.7	-	-
Bromoxynil	0.044	0.052	80	-	-	0.18	0.35	160	-	-	-	0.044	0.052	-	-	-
Carbaryl ^g	1.9	3.6	1,600	-	-	1.9	3.6	3,200	-	-	-	BDL	BDL	-	-	-
Carbofuran ^g	0.68	1.2	1,600	-	-	0.68	1.2	3,200	-	-	-	BDL	BDL	-	-	-
Chlorothalonil	0.0085	0.010	2,400	-	-	27	53	4,800	-	-	-	0.0085	0.010	-	-	-
Chlorpyrifos ^g	49	95	1,600	-	-	49	95	3,200	-	-	-	BDL	BDL	-	-	-
Cyanazine ^g	0.12	0.21	210	-	-	0.12	0.21	410	-	-	-	BDL	BDL	-	-	-
2,4-D ^g	0.43	0.67	1,600	-	-	0.43	0.67	3,200	-	-	-	BDL	BDL	-	-	-
DDT	12	12	1,600	-	-	5,900	11,000	3,200	12	12	547	-	-	170	-	-
Diazinon ^g	2.2	4.2	320	-	-	2.2	4.2	630	-	-	-	BDL	BDL	-	-	-
Dicamba ^g	0.5	0.79	2,000	-	-	0.5	0.79	4,000	-	-	-	BDL	BDL	-	-	-
Diclofop-methyl	160	2.4	160	-	-	NGR	NGR	320	-	-	-	NGR	2.4	-	-	-
Dieldrin	0.59	1.1	44	-	-	0.59	1.1	49	-	-	-	-	-	-	-	-
Dimethoate	0.0058	0.0055	320	-	-	0.077	0.12	630	-	-	-	0.0058	0.0055	-	-	-
Dinoseb ^g	2.8	5.5	160	-	-	2.8	5.5	320	-	-	-	BDL	BDL	-	-	-
Diquat	11	21	1,300	-	-	11	21	2,500	-	-	-	-	-	-	-	-
Diuron	1.9	3.5	2,500	-	-	1.9	3.5	4,900	-	-	-	-	-	-	-	-
Endosulfan	0.80	0.0016	3,000	-	-	99	190	3,000	-	-	-	0.80	0.0016	-	-	-
Endrin	2.4	4.7	130	-	-	2.4	4.7	150	-	-	-	-	-	-	-	-
Glyphosate	0.054	0.049	4,800	-	-	0.95	1.4	9,500	-	-	-	0.054	0.049	-	-	-
Heptachlor epoxide	0.039	0.076	2.8	2.4	0.094	0.039	0.076	6.5	-	-	-	-	-	-	-	-
Lindane ^g	0.31	0.6	48	-	-	0.31	0.6	95	-	-	-	BDL	BDL	-	-	-

Table A-5. Surface Soil Remediation Guideline Values for Industrial Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human						Ecological					Other		
	Pathway		Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact	Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit		
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse		Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Linuron	0.051	0.059	320	-	-	0.56	1.1	630	-	-	-	0.051	0.059	-	-	-
Malathion ^g	0.82	1.3	3,200	-	-	0.82	1.3	6,300	-	-	-	BDL	BDL	-	-	-
MCPA ^g	0.42	0.66	8,200	-	-	0.42	0.66	160	-	-	-	BDL	BDL	-	-	-
Methoxychlor	50,000	0.32	50,000	-	-	NGR	NGR	50,000	-	-	-	NGR	0.32	-	-	-
Metolachlor	0.048	0.055	800	-	-	1.3	2.4	1,600	-	-	-	0.048	0.055	-	-	-
Metribuzin	0.024	0.028	1,300	-	-	7.8	15	2,600	-	-	-	0.024	0.028	-	-	-
Paraquat (as dichloride)	1.1	2.2	160	-	-	1.1	2.2	320	-	-	-	-	-	-	-	-
Parathion ^g	7.2	14	800	-	-	7.2	14	1,600	-	-	-	BDL	BDL	-	-	-
Phorate	0.075	0.14	32	-	-	0.075	0.14	63	-	-	-	-	-	-	-	-
Picloram	0.024	0.022	3,200	-	-	0.64	0.94	6,300	-	-	-	0.024	0.022	-	-	-
Simazine	0.033	0.038	210	-	-	0.14	0.25	410	-	-	-	0.033	0.038	-	-	-
Tebuthiuron ^{g,l}	0.60	0.60	11,000	-	-	2.5	3.7	22,000	0.60	0.60	-	BDL	BDL	0.66	-	-
Terbufos	0.08	0.15	8	-	-	0.08	0.15	16	-	-	-	-	-	-	-	-
Toxaphene	3.3	6.3	7.3	36,000	1,400	3.3	6.3	69	-	-	-	-	-	-	-	-
Triallate	0.0077	0.0092	2,100	-	-	16	31	4,100	-	-	-	0.0077	0.0092	-	-	-
Trifluralin	0.22	0.045	770	-	-	NGR	NGR	1,500	-	-	-	0.22	0.045	-	-	-
Other Organics																
Aniline ^g	0.36	0.6	1,100	4,500	300	0.36	0.6	2,200	-	-	-	BDL	BDL	-	-	-
Dibutyl phthalate	0.54	0.65	9,600	NGR	82,000	70	130	19,000	-	-	-	0.54	0.65	-	-	-
Dichlorobenzidine	4.2	8.1	190	NGR	NGR	4.2	8.1	1,800	-	-	-	-	-	-	-	-
Diethanolamine ^j	2.0	3.5	1,000	-	-	2.0	3.5	2,000	2,000	2,000	-	500,000	45	15,000	-	-
Diethylene glycol	10	15	100,000	-	-	10	15	200,000	1,500	1,500	-	2,000	65	15,000	-	-
Diisopropanolamine	14	17	280,000	-	-	130	250	310,000	750	750	-	14	17	5,100	-	-

Table A-5. Surface Soil Remediation Guideline Values for Industrial Land Use - All Exposure Pathways

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended) .

Receptor	Overall Guideline		Human						Ecological					Other		
	Pathway		Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact	Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit		
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse		Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Ethylene glycol	60	62	530,000	NGR	NGR	60	68	NGR	1,800	1,800	2,000	89	62	16,000	-	-
Hexachlorobutadiene	0.026	0.031	320	1.2	0.078	0.5	0.95	3,000	-	-	-	0.026	0.031	-	-	-
Methanol	37	11	64,000	210,000	18,000	37	42	-	1,600	1,600	-	300	11	-	750	750
Methylmethacrylate	1.3	1.3	8,000	21	1.3	1.3	1.8	16,000	-	-	-	-	-	-	-	-
Monoethanolamine ¹	20	10	10,000	-	-	20	40	20,000	1,500	1,500	-	300,000	10	20,000	-	-
MTBE	0.044	0.062	6,800	7.4	0.57	0.044	0.062	5,400	-	-	-	7.1	6.1	-	-	-
Nonylphenol + ethoxylates	14	14	-	-	-	-	-	-	14	14	-	NGR	2,000	82	-	-
Phenol	0.0028	0.0024	26,000	90,000	5,800	1.6	2.3	29,000	130	130	-	0.0028	0.0024	290	-	-
Sulfolane	0.18	0.21	2,600	-	-	0.18	0.21	5,000	430	430	-	24	18	3,000	-	-
Triethylene glycol	100	150	NGR	-	-	100	150	NGR	7,000	7,000	-	10,000	200	70,000	-	-

Notes:

- a. For more information see *Guidelines for Landfill Disposal of Sulphur Waste and Remediation of Sulphur Containing Soils (AENV, 2011)*
- b. True total barium as measured by fusion-XRF or fusion-ICP. For more information see *Soil Remediation Guidelines for Barite: Environmental Health and Human Health (AENV, 2009)*
- c. Human health direct soil contact guidelines for carcinogenic PAHs are based on B[a]P Total Potency Equivalents (TPE). TPEs are calculated by multiplying the soil concentration of individual carcinogenic PAHs by a standardized Benzo[a]pyrene Potency Equivalence Factor (PEF) to produce a Benzo[a]pyrene relative potency concentration, and by subsequently summing the relative potency concentrations for the entire PAH mixture. B[a]P PEFs are order of magnitude estimates of carcinogenic potential and are based on the World Health Organization (WHO/IPCS, 1998) scheme, as follows:

Table A-6. Subsoil Remediation Guideline Values for Natural Area Land Use - All Exposure Pathways (BTEX and PHC Only)

This table must not be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended).

Receptor	Overall Guideline		Human		Ecological								Other		
			Protection of Domestic Use Aquifer		Direct Soil Contact ^a		Nutrient/ Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life		Protection of Wildlife Water		Management Limit	
Soil Type	Fine	Coarse	Fine	Coarse	Fine	Coarse		-	-	Fine	Coarse	Fine	Coarse	Fine	Coarse
Building Type			-	-	-	-	-	-	-	-	-	-	-	-	-
Unit	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Benzene	0.046	0.078	0.046	0.078	120	62	-	na	na	7.9	0.17	15	0.33	-	-
Toluene	0.52	0.12	0.52	0.95	220	150	-	na	na	63,000	0.12	NGR	1,000	-	-
Ethylbenzene	0.073	0.14	0.073	0.14	240	110	-	na	na	NGR	540	NGR	17,000	-	-
Xylenes	0.99	1.9	0.99	1.9	130	190	-	na	na	NGR	41	NGR	16,000	-	-
F1	420	420	1,100	2,200	420	420	-	na	na	30,000	1,300	NGR	30,000	800	700
F2	300	300	1,500	2,900	300	300	-	na	na	30,000	520	NGR	30,000	1,000	1,000
F3	2,600	600	-	-	2,600	600	-	na	na	-	-	-	-	3,500	2,500
F4	10,000	5,600	-	-	11,200	5,600	-	na	na	-	-	-	-	10,000	10,000

Notes:

a. Exclusion of the ecological direct soil contact pathway for F1, F2, F3, and F4 is permitted below 3 metres

na = exposure pathway not applicable to subsoil

NGR - no guideline required, calculated value >1,000,000 mg/kg

Table A-7. Subsoil Remediation Guideline Values for Agricultural Land Use - All Exposure Pathways (BTEX and PHC Only)

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended).

Receptor	Overall Guideline		Human							Ecological												Other		
Pathway			Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Direct Soil Contact ^a		Nutrient/ Energy Cycling Check	Livestock Soil and Food Ingestion	Wildlife Soil and Food Ingestion	Protection of Freshwater Aquatic Life		Protection of Livestock Water		Protection of Wildlife Water		Protection of Irrigation Water		Management Limit	
Soil Type	Fine	Coarse	-	Fine	Fine	Coarse	Coarse	Fine	Coarse	Fine	Coarse	-	-	-	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse	Fine	Coarse
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Unit	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg	mg/kg	mg/kg	mg/kg	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Benzene	0.046	0.078	78	1.7	1.6	0.10	0.14	0.046	0.078	120	62	-	na	na	7.9	0.17	0.2	0.21	15	0.33	-	-	-	-
Toluene	0.52	0.12	640	2,100	2,000	130	180	0.52	0.95	220	150	-	na	na	63,000	0.12	26	29	NGR	1,000	-	-	-	-
Ethylbenzene	0.073	0.14	1,700	1,000	970	60	86	0.073	0.14	240	110	-	na	na	NGR	540	36	42	NGR	17,000	-	-	-	-
Xylenes	0.99	1.9	480	280	260	16	23	0.99	1.9	130	190	-	na	na	NGR	41	160	180	NGR	16,000	-	-	-	-
F1	420	30	12,000	710	630	30	55	1,100	2,200	420	420	-	na	na	30,000	1,300	6,600	7,300	NGR	30,000	-	-	800	700
F2	300	160	6,800	3,600	3,300	160	290	1,500	2,900	300	300	-	na	na	30,000	520	16,000	19,000	NGR	30,000	-	-	1,000	1,000
F3	2,600	600	15,000	-	-	-	-	-	-	2,600	600	-	na	na	-	-	-	-	-	-	-	-	3,500	2,500
F4	10,000	5,600	21,000	-	-	-	-	-	-	11,200	5,600	-	na	na	-	-	-	-	-	-	-	-	10,000	10,000

Notes:

a. Exclusion of the ecological direct soil contact pathway for F1, F2, F3, and F4 is permitted below 3 metres

na = exposure pathway not applicable to subsoil

NGR - no guideline required, calculated value >1,000,000 mg/kg

Table A-8. Subsoil Remediation Guideline Values for Residential/Parkland Land Use - All Exposure Pathways (BTEX and PHC Only)

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended).

Receptor	Overall Guideline		Human							Ecological				Other		
Pathway			Direct Soil Contact	Vapour Inhalation				Protection of Domestic Use Aquifer		Direct Soil Contact ^a		Nutrient/Energy Cycling Check	Protection of Freshwater Aquatic Life		Management Limit	
Soil Type	Fine	Coarse	-	Fine	Fine	Coarse	Coarse	Fine	Coarse	Fine	Coarse		Fine	Coarse	Fine	Coarse
Building Type			-	Basement	Slab	Basement	Slab	-	-	-	-	-	-	-	-	-
Unit	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg	mg/kg	mg/kg	mg/kg	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Benzene	0.046	0.078	78	1.7	1.6	0.10	0.14	0.046	0.078	120	62	-	7.9	0.17	-	-
Toluene	0.52	0.12	640	2,100	2,000	130	180	0.52	0.95	220	150	-	63,000	0.12	-	-
Ethylbenzene	0.073	0.14	1,700	1,000	970	60	86	0.073	0.14	240	110	-	NGR	540	-	-
Xylenes	0.99	1.9	480	280	260	16	23	0.99	1.9	130	190	-	NGR	41	-	-
F1	420	30	12,000	710	630	30	55	1,100	2,200	420	420	-	30,000	1300	800	700
F2	300	160	6,800	3,600	3,300	160	290	1,500	2,900	300	300	-	30,000	520	1,000	1,000
F3	2,600	600	15,000	-	-	-	-	-	-	2,600	600	-	-	-	3,500	2,500
F4	10,000	5,600	21,000	-	-	-	-	-	-	11,200	5,600	-	-	-	10,000	10,000

Notes:

a. Exclusion of the ecological direct soil contact pathway for F1, F2, F3, and F4 is permitted below 3 metres

na = exposure pathway not applicable to subsoil

NGR - no guideline required, calculated value >1,000,000 mg/kg

Table A-9. Subsoil Remediation Guideline Values for Commercial Land Use - All Exposure Pathways (BTEX and PHC Only)

This table must not be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 200 as amended 7).

Receptor	Overall Guideline		Human						Ecological					Other		
			Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact ^a		Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit	
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse	-	Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg	mg/kg	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Benzene	0.046	0.078	120	11	1.2	0.046	0.078	1,100	620	360	-	7.9	0.17	890	-	-
Toluene	0.52	0.12	980	14,000	1,600	0.52	0.95	9,200	660	500	-	63,000	0.12	2,100	-	-
Ethylbenzene	0.073	0.14	2,500	6,700	760	0.073	0.14	24,000	860	600	-	NGR	540	1,600	-	-
Xylenes	0.99	1.9	720	1,800	210	0.99	1.9	6,900	460	700	-	NGR	41	930	-	-
F1	640	440	19,000	4,700	440	1,100	2,200	30,000	640	640	-	30,000	1300	3,000	800	700
F2	520	520	10,000	24,000	2,400	1,500	2,900	30,000	520	520	-	30,000	520	2,100	1,000	1,000
F3	4,300	3,400	23,000	-	-	-	-	30,000	5,000	3,400	-	-	-	4,300	5,000	3,500
F4	10,000	6,600	30,000	-	-	-	-	30,000	13,200	6,600	-	-	-	30,000	10,000	10,000

Notes:

a. Exclusion of the ecological direct soil contact pathway for F1, F2, F3, and F4 is permitted below 3 metres

na = exposure pathway not applicable to subsoil

NGR - no guideline required, calculated value >1,000,000 mg/kg

Table A-10. Subsoil Remediation Guideline Values for Industrial Land Use - All Exposure Pathways (BTEX and PHC Only)

This table must **not** be used for Tier 1 assessment and remediation, unless directed by Section 2.4.3 or 5.1.2. Tier 1 soil guidelines are found in Tables 1, 3 and 4. This table is provided to assist Tier 2 guideline development, using the procedures outlined in the companion Tier 2 document (ESRD 2007 as amended).

Receptor	Overall Guideline		Human						Ecological					Other		
Pathway			Direct Soil Contact	Vapour Inhalation		Protection of Domestic Use Aquifer		Off-Site Migration	Direct Soil Contact ^a		Nutrient/ Energy Cycling Check	Protection of Freshwater Aquatic Life		Off-Site Migration	Management Limit	
Soil Type	Fine	Coarse	-	Fine	Coarse	Fine	Coarse	-	Fine	Coarse		Fine	Coarse	-	Fine	Coarse
Building Type			-	Slab	Slab	-	-	-	-	-	-	-	-	-	-	-
Unit	(mg/kg)	(mg/kg)	(mg/kg)	mg/kg	mg/kg	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
Benzene	0.046	0.078	120	11	1.2	0.046	0.078	1,100	620	360	-	7.9	0.17	890	-	-
Toluene	0.52	0.12	11,000	14,000	1,600	0.52	0.95	9,200	660	500	-	63,000	0.12	2,100	-	-
Ethylbenzene	0.073	0.14	24,000	6,700	760	0.073	0.14	24,000	860	600	-	NGR	540	1,600	-	-
Xylenes	0.99	1.9	8,100	1,800	210	0.99	1.9	6,900	460	700	-	NGR	41	930	-	-
F1	640	440	30,000	4,700	440	1,100	2,200	30,000	640	640	-	30,000	1300	3,000	800	700
F2	520	520	30,000	24,000	2,400	1,500	2,900	30,000	520	520	-	30,000	520	2,100	1,000	1,000
F3	4,300	3,400	30,000	-	-	-	-	30,000	5,000	3,400	-	-	-	4,300	5,000	3,500
F4	10,000	6,600	30,000	-	-	-	-	30,000	13,200	6,600	-	-	-	30,000	10,000	10,000

Notes:

a. Exclusion of the ecological direct soil contact pathway for F1, F2, F3, and F4 is permitted below 3 metres

na = exposure pathway not applicable to subsoil

NGR - no guideline required, calculated value >1,000,000 mg/kg