

**Table A**

Residential Closure Levels  
Commercial/Industrial Closure Levels

**Appendix 1**  
**Default Closure Tables**

Table A Constituent	Default CAS	Closure SOIL	Residential							January 1, 2004					
			Soil Attenuation Capacity (mg/kg)	Soil Saturation (Csat) (mg/kg)	Construction (mg/kg)	Soil Direct (mg/kg)	Migration to GW (mg/kg)	Default Closure Level (mg/kg)	GROUNDWATER		Residential (mg/l)	Default Closure Level (mg/l)			
									Groundwater Solubility (mg/l)	MCL (mg/l)					
Acenaphthene	83-32-9	6000/2000		50,000	NC	9,500	NC	130	NC	130	4.2		0.46	NC	0.46
Acenaphthylene	208-96-8	6000/2000		5,900	NC	1,100	NC	18	NC	18	3.9		0.071	NC	0.071
Acetone (2-Propanone)	67-64-1	6000/2000	200,000	34,000	NC	4,800	NC	3.8	NC	3.8	1,000,000		0.95	NC	0.95
Acrolein <sup>5</sup>	107-02-8	6000/2000	50,000	3.5	NC	0.5	NC	0.00027	NC	0.00027	210,000		0.000055	NC	0.000055
Aldrin	309-00-2	6000/2000		27	NC	0.25	C	4.9	C	0.25	0.18		0.00005	C	0.00005
Anthracene	120-12-7	6000/2000		250,000	NC	47,000	NC	51	NC	51	0.043		2.3	NC	0.043
Antimony and compounds <sup>6</sup>	7440-36-0	10,000		460	NC	140	NC	5.4	NC	5.4		0.006	0.015	NC	0.006
Arsenic <sup>3,6</sup>	7440-38-2	10,000		320	NC	3.9		29	C	3.9		0.05	0.00057	C	0.05
Barium <sup>6</sup>	7440-39-3	10,000		79,000	NC	23,000	NC	1,600	NC	1,600		2	2.6	NC	2
Benzene	71-43-2	6000/2000	590	560	NC	7.8	C	0.034	C	0.034	1,800	0.005	0.0052	C	0.005
Benzo(a)anthracene	56-55-3	6000/2000		790	C	5	C	19	C	5	0.0094		0.0012	C	0.0012
Benzo(a)pyrene	50-32-8	6000/2000		79	C	0.5	C	8.2	C	0.5	0.0016	0.0002	0.00012	C	0.0002
Benzo(b)fluoranthene	205-99-2	6000/2000		790	C	5	C	57	C	5	0.0015		0.0012	C	0.0012
Benzo(g,h,i)perylene <sup>14</sup>	191-24-2	6000/2000		7,900	C	50	C	16	C	16	0.00026		0.012	C	0.00026
Benzo(k)fluoranthene <sup>14</sup>	207-08-9	6000/2000		7,900	C	50	C	39	C	39	0.0008		0.012	C	0.0008
Benzoic acid <sup>6</sup>	65-85-0	6000/2000		1,000,000	NC	730,000	NC	590	NC	590	3,500		150	NC	150
Benzyl Alcohol	100-51-6	6000/2000	8,800	270,000	NC	55,000	NC	48	NC	48	40,000		11	NC	11
Beryllium and compounds <sup>9</sup>	7440-41-7	10,000		2,300	NC	680	NC	63	C	63		0.004	0.073	NC	0.004
Bis(2-chloro-1-methylethyl) ether	108-60-1	6000/2000	550	5,200	C	30	C	0.027	C	0.027	1,700		0.0042	C	0.0042
Bis(2-Chloroethyl)ether <sup>5</sup>	111-44-4	6000/2000	4,000	280	C	1.6	C	0.0007	C	0.0007	17,000		0.00015	C	0.00015
Bis(2-chloroisopropyl)ether	39638-32-9	6000/2000	550	5,200	C	30	C	0.027	C	0.027	1,700		0.0042	C	0.0042
Bis(2-ethylhexyl)phthalate	117-81-7	6000/2000	10,000	18,000	NC	300	C	3,600	C	300	0.34	0.006	0.061	C	0.006
Bromodichloromethane <sup>7</sup>	75-27-4	6000/2000	2,100	2,100	C	10	C	0.51	C	0.51	6,700	0.08	0.0029	C	0.08
Bromoform(tribromomethane) <sup>7</sup>	75-25-2	6000/2000	1,200	7,700	NC	280	C	0.6	C	0.6	3,100	0.08	0.11	C	0.08
n-Butanol	71-36-3	6000/2000	16,000	2,700	NC	380	NC	16	NC	16	74,000		3.7	NC	3.7
Butylbenzylphthalate <sup>2,14</sup>	85-68-7	6000/2000	310	180,000	NC	37,000	NC	6,200	NC	310	2.7		7.3	NC	2.7
Cadmium <sup>3,6</sup>	7440-43-9	10,000		590	NC	12		7.5	C	7.5		0.005	0.018	NC	0.005
Carbazole	86-74-8	6000/2000		31,000	C	210	C	5.9	C	5.9	7.5		0.043	C	0.043
Carbon disulfide	75-15-0	6000/2000	480	6,200	NC	900	NC	10	NC	10	1,200		1.3	NC	1.3
Carbon tetrachloride	56-23-5	6000/2000	520	31	NC	3.3	C	0.066	C	0.066	790	0.005	0.0026	C	0.005
Chlordane	12789-03-6	6000/2000		510	NC	17	C	9.6	C	9.6	0.056	0.002	0.0024	C	0.002
p-Chloroaniline <sup>6</sup>	106-47-8	6000/2000		3,600	NC	730	NC	0.97	NC	0.97	5,300		0.15	NC	0.15
Chlorobenzene	108-90-7	6000/2000	310	2,600	NC	380	NC	1.3	NC	1.3	470	0.1	0.13	NC	0.1
Chloroethane	75-00-3	6000/2000	3,000	16,000	C	80	C	0.65	C	0.65	5,700		0.062	C	0.062
Chloroform <sup>7,10</sup>	67-66-3	6000/2000	2,300	6.4	NC	0.91	NC	0.47	C	0.47	7,900	0.08	0.00084	NC	0.08
2-Chloronaphthalene	91-58-7	6000/2000		71,000	NC	15,000	NC	42	NC	42	12		0.61	NC	0.61
2-Chlorophenol <sup>6</sup>	95-57-8	6000/2000	22,000	2,200	NC	360	NC	0.75	NC	0.75	22,000		0.038	NC	0.038

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			Soil Attenuation Capacity (mg/kg)	Soil Saturation (Csat) (mg/kg)	Construction (mg/kg)	Soil Direct (mg/kg)	Migration to GW (mg/kg)	Default Closure Level (mg/kg)	Groundwater Solubility (mg/l)	MCL (mg/l)	Residential (mg/l)	Default Closure Level (mg/l)			
Chromium III <sup>6</sup>	16065-83-1	10,000		1,000,000	NC	520,000	NC	1,000,000	NC	10,000		0.1	55	NC	0.1
Chromium VI <sup>6,12</sup>	18540-29-9	10,000		3,400	NC	430	C	38	C	38		0.1	0.11	NC	0.1
Chrysene <sup>14</sup>	218-01-9	6000/2000		79,000	C	500	C	25	C	25	0.0016		0.12	C	0.0016
Copper <sup>6</sup>	7440-50-8	10,000		42,000	NC	13,000	NC	920	NC	920		1.3	1.4	NC	1.3
Cyanide, Free <sup>13</sup>	57-12-5	6000/2000	0	23,000	NC	6,900	NC	0.94	NC	0.94	1,000,000	0.2	0.73	NC	0.2
Cyclohexane <sup>2</sup>	110-82-7	6000/2000	69	51,000	NC	7,200	NC	330	NC	69		55	13	NC	13
DDD	72-54-8	6000/2000		3,100	C	28	C	140	C	28	0.09		0.0035	C	0.0035
DDE	72-55-9	6000/2000		2,200	C	20	C	450	C	20	0.12		0.0025	C	0.0025
DDT	50-29-3	6000/2000		540	NC	20	C	260	C	20	0.025		0.0025	C	0.0025
Dibenzo(a,h)anthracene	53-70-3	6000/2000		79	C	0.5	C	18	C	0.5	0.0025		0.00012	C	0.00012
Dibenzofuran	132-64-9	6000/2000		1,800	NC	370	NC	4.9	NC	4.9		3.1	0.015	NC	0.015
1,2-Dichlorobenzene	95-50-1	6000/2000	220	18,000	NC	2,800	NC	17	NC	17	160	0.6	0.48	NC	0.6
1,3-Dichlorobenzene	541-73-1	6000/2000	230	250	NC	40	NC	0.2	NC	0.2	160		0.0069	NC	0.0069
1,4-Dichlorobenzene	106-46-7	6000/2000		8,000	C	42	C	2.2	C	2.2	74	0.075	0.008	C	0.075
3,3-Dichlorobenzidine	91-94-1	6000/2000		1,400	C	9.5	C	0.062	C	0.062	3.1		0.0019	C	0.0019
1,1-Dichloroethane	75-34-3	6000/2000	1,400	8,600	NC	1,300	NC	5.6	NC	5.6	5,100		0.99	NC	0.99
1,2-Dichloroethane	107-06-2	6000/2000	2,000	150	NC	3.7	C	0.024	C	0.024	8,500	0.005	0.002	C	0.005
1,1-Dichloroethylene	75-35-4	6000/2000	930	2,200	NC	310	NC	0.058	NC	0.058	2,300	0.007	0.43	NC	0.007
cis-1,2-Dichloroethylene	156-59-2	6000/2000	1,000	750	NC	110	NC	0.4	NC	0.4	3,500	0.07	0.077	NC	0.07
trans-1,2-Dichloroethylene	156-60-5	6000/2000	2,100	1,200	NC	180	NC	0.68	NC	0.68	6,300	0.1	0.15	NC	0.1
2,4-Dichlorophenol <sup>6</sup>	120-83-2	6000/2000		2,700	NC	550	NC	1.1	NC	1.1	4,500		0.11	NC	0.11
2,4-Dichlorophenoxyacetic acid (2,4-D)	94-75-7	6000/2000		9,100	NC	2,000	NC	0.35	NC	0.35	680	0.07	0.37	NC	0.07
1,2-Dichloropropane	78-87-5	6000/2000	830	100	NC	4.5	C	0.03	C	0.03	2,800	0.005	0.0026	C	0.005
1,3-Dichloropropene	542-75-6	6000/2000	1,000	290	NC	9.5	C	0.04	C	0.04	2,800		0.0056	C	0.0056
Dieldrin	60-57-1	6000/2000		39	C	0.27	C	0.046	C	0.046	0.2		0.000053	C	0.000053
Diethylphthalate	84-66-2	6000/2000	840	710,000	NC	150,000	NC	450	NC	450	1,100		29	NC	29
2,4-Dimethylphenol <sup>6</sup>	105-67-9	6000/2000		18,000	NC	3,700	NC	9	NC	9	7,900		0.73	NC	0.73
Dimethylphthalate <sup>2</sup>	131-11-3	6000/2000	1,100	1,000,000	NC	1,000,000	NC	2,000	NC	1,100	4,000		370	NC	370
Di-n-butyl phthalate <sup>2</sup>	84-74-2	6000/2000	760	89,000	NC	18,000	NC	5,000	NC	760	11		3.7	NC	3.7
2,4-Dinitrophenol <sup>6</sup>	51-28-5	6000/2000		1,800	NC	370	NC	0.29	NC	0.29	2,800		0.073	NC	0.073
Dinitrotoluene mixture	25321-14-6	6000/2000		890	NC	6.3	C	0.0091	C	0.0091	230		0.0013	C	0.0013
Di-n-octyl phthalate <sup>14</sup>	117-84-0	6000/2000	3,300	18,000	NC	3,700	NC	67,000	NC	2,000	0.02		0.73	NC	0.02
Endosulfan	115-29-7	6000/2000		5,300	NC	1,100	NC	20	NC	20	0.51		0.22	NC	0.22
Endrin	72-20-8	6000/2000		270	NC	55	NC	0.99	NC	0.99	0.25	0.002	0.011	NC	0.002
Ethylbenzene	100-41-4	6000/2000	160	29,000	NC	4,600	NC	13	NC	13	170	0.7	1.6	NC	0.7
Fluoranthene <sup>14</sup>	206-44-0	6000/2000		33,000	NC	6,300	NC	880	NC	880	0.21		1.5	NC	0.21
Fluorene	86-73-7	6000/2000		33,000	NC	6,300	NC	170	NC	170	2		0.31	NC	0.31
alpha-HCH(alpha-BHC)	319-84-6	6000/2000		120	C	0.99	C	0.0072	C	0.0072	2		0.00014	C	0.00014
beta-HCH(beta-BHC)	319-85-7	6000/2000		410	C	3.5	C	0.026	C	0.026	0.24		0.00047	C	0.00047

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			Soil Attenuation Capacity (mg/kg)	Soil Saturation (Csat) (mg/kg)	Construction (mg/kg)	Soil Direct (mg/kg)	Migration to GW (mg/kg)	Default Closure Level (mg/kg)	GROUNDWATER Groundwater Solubility (mg/l)	MCL (mg/l)	Residential (mg/l)	Default Closure Level (mg/l)			
gamma-HCH(Lindane)	58-89-9	6000/2000		310	NC	4.8	C	0.0094	C	0.0094	6.8	0.0002	0.00066	C	0.0002
Heptachlor	76-44-8	6000/2000		140	C	0.93	C	23	C	0.93	0.18	0.0004	0.00019	C	0.0004
Heptachlor epoxide	1024-57-3	6000/2000		12	NC	0.47	C	0.67	C	0.47	0.2	0.0002	0.000094	C	0.0002
<b>Hexachloro-1,3-butadiene</b>	87-68-3	6000/2000	350	180	NC	37	NC	16	C	16	3.2		0.0073	NC	0.0073
<b>Hexachlorobenzene</b>	118-74-1	6000/2000		390	C	2.7	C	2.2	C	2.2	6.2	0.001	0.00053	C	0.001
<b>Hexachlorocyclopentadiene</b>	77-47-4	6000/2000	720	5,300	NC	1,100	NC	400	NC	400	1.8	0.05	0.22	NC	0.05
Hexachloroethane	67-72-1	6000/2000		660	NC	120	NC	2.8	C	2.8	50		0.037	NC	0.037
<b>n-Hexane</b>	110-54-3	6000/2000	100	1,200	NC	170	NC	97	NC	97	9.5		0.44	NC	0.44
<b>Indeno(1,2,3-cd)pyrene</b> <sup>14</sup>	193-39-5	6000/2000		790	C	5	C	3.1	C	3.1	0.000022		0.0012	C	0.000022
<b>Iodomethane</b>	74-88-4	6000/2000	3,600	620	C	4.3	C	0.0044	C	0.0044	14,000		0.00085	C	0.00085
Isophorone	78-59-1	6000/2000	3,500	180,000	NC	4,500	C	5.3	C	5.3	12,000		0.9	C	0.9
Lead <sup>8</sup>	7439-92-1	10,000		970	NC	400	NC	81	NC	81		0.015	.015	NC	0.015
<b>Mercury and compounds</b> <sup>9</sup>	7439-97-6	10,000		340	NC	100	NC	2.1	NC	2.1	69,000	0.002	0.011	NC	0.002
Methoxychlor <sup>14</sup>	72-43-5	6000/2000		4,400	NC	910	NC	160	NC	160	0.045	0.04	0.18	NC	0.04
Methyl bromide (bromomethane)	74-83-9	6000/2000	3,700	69	NC	9.9	NC	0.052	NC	0.052	15,000		0.011	NC	0.011
<b>Methyl ethyl ketone (MEK)</b>	78-93-3	6000/2000	28,000	260,000	NC	44,000	NC	35	NC	35	140,000		8.4	NC	8.4
<b>Methyl tertiary butyl ether (MTBE)</b> <sup>16</sup>	1634-04-4	6000/2000	11,000	110,000	NC	670	C	0.18	C	0.18	48,000		0.18	C	0.04
<b>4-Methyl-2-pentanone (MIBK)</b>	108-10-1	6000/2000	8,700	64,000	NC	12,000	NC	20	NC	20	19,000		2.2	NC	2.2
Methylene chloride	75-09-2	6000/2000	3,000	22,000	C	120	C	0.023	C	0.023	13,000	0.005	0.063	C	0.005
<b>2-Methylnaphthalene</b>	91-57-6	6000/2000		17,000	NC	3,200	NC	16	NC	16	25		0.15	NC	0.15
<b>3-Methylphenol (m-cresol)</b> <sup>6</sup>	108-39-4	6000/2000	6,100	44,000	NC	9,100	NC	9.8	NC	9.8	23,000		1.8	NC	1.8
<b>4-Methylphenol (p-cresol)</b> <sup>6</sup>	106-44-5	6000/2000		4,400	NC	910	NC	1.1	NC	1.1	22,000		0.18	NC	0.18
<b>2-Methylphenol(o-cresol)</b> <sup>6</sup>	95-48-7	6000/2000		39,000	NC	7,500	NC	14	NC	14	26,000		1.8	NC	1.8
<b>Naphthalene</b>	91-20-3	6000/2000		17,000	NC	3,200	NC	0.7	NC	0.7	31		0.0083	NC	0.0083
<b>Nickel, soluble salts</b> <sup>6</sup>	various	10,000		23,000	NC	6,900	NC	950	C	950			0.73	NC	0.73
<b>2-Nitroaniline</b>	88-74-4	6000/2000		51	NC	10	NC	0.013	NC	0.013	1,500		0.0021	NC	0.0021
<b>Nitrobenzene</b>	98-95-3	6000/2000	690	440	NC	91	NC	0.028	NC	0.028	2,100		0.0043	NC	0.0043
N-Nitrosodi-n-propylamine <sup>5,6</sup>	621-64-7	6000/2000	2,500	89	C	0.61	C	0.0006	C	0.0006	9,900		0.00012	C	0.00012
N-Nitrosodiphenylamine <sup>6</sup>	86-30-6	6000/2000		130,000	C	870	C	9.7	C	9.7	35		0.17	C	0.17
PCBs (polychlorinated biphenyls) <sup>11</sup>	1336-36-3	6000/2000		16	NC	1.8	C	6.2	C	1.8	0.7	0.0005	0.00043	C	0.0005
Pentachlorophenol <sup>6</sup>	87-86-5	6000/2000		3,800	C	20	C	0.028	C	0.028	2,000	0.001	0.0071	C	0.001
<b>Phenanthrene</b>	85-01-8	6000/2000		2,500	NC	470	NC	13	NC	13	1.2		0.023	NC	0.023
<b>Phenol</b> <sup>6</sup>	108-95-2	6000/2000		230,000	NC	44,000	NC	56	NC	56	83,000		11	NC	11
<b>Pyrene</b> <sup>14</sup>	129-00-0	6000/2000		25,000	NC	4,700	NC	570	NC	570	0.14		1.1	NC	0.14
Selenium <sup>6</sup>	7782-49-2	10,000		5,700	NC	1,700	NC	5.2	NC	5.2		0.05	0.18	NC	0.05
Silver <sup>6</sup>	7440-22-4	10,000		5,700	NC	1,700	NC	31	NC	31			0.18	NC	0.18
<b>Styrene</b>	100-42-5	6000/2000	550	68,000	NC	11,000	NC	3.5	NC	3.5	310	0.1	2	NC	0.1
1,1,1,2-Tetrachloroethane	630-20-6	6000/2000	1,200	7,400	C	39	C	0.053	C	0.053	3,000		0.0069	C	0.0069
1,1,2,2-Tetrachloroethane	79-34-5	6000/2000	1,200	960	C	5	C	0.007	C	0.007	3,000		0.0009	C	0.0009

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Table A Constituent	Default CAS	Closure SOIL	Residential								GROUNDWATER			January 1, 2004												
			Soil Attenuation Capacity (mg/kg)	Soil Saturation (Csat) (mg/kg)	Construction (mg/kg)		Soil Direct (mg/kg)		Migration to GW (mg/kg)		Default Closure Level (mg/kg)	Groundwater Solubility (mg/l)	MCL (mg/l)	Residential (mg/l)		Default Closure Level (mg/l)										
																	SOIL									
Tetrachloroethylene (PCE)	127-18-4	6000/2000	120	720	NC	16	C	0.058	C	0.058	200	0.005	0.0088	C	0.005											
<b>Thallium (and compounds) <sup>6</sup></b>	7440-28-0	10,000		80	NC	24	NC	2.8	NC	2.8		0.002	0.0026	NC	0.002											
Toluene	108-88-3	6000/2000	310	11,000	NC	1,700	NC	12	NC	12	530	1	0.93	NC	1											
Toxaphene	8001-35-2	6000/2000		560	C	3.9	C	31	C	3.9	0.74	0.003	0.00077	C	0.003											
1,2,4-Trichlorobenzene	120-82-1	6000/2000	1,100	8,900	NC	1,800	NC	5.3	NC	5.3	300	0.07	0.22	NC	0.07											
<b>1,1,1-Trichloroethane</b>	71-55-6	6000/2000	640	34,000	NC	5,000	NC	1.9	NC	1.9	1,300	0.2	3.8	NC	0.2											
1,1,2-Trichloroethane	79-00-5	6000/2000	1,300	600	NC	9.4	C	0.03	C	0.03	4,400	0.005	0.0032	C	0.005											
<b>Trichloroethylene (TCE)</b>	79-01-6	6000/2000	630	150	C	0.71	C	0.057	C	0.057	1,100	0.005	0.00045	C	0.005											
2,4,5-Trichlorophenol <sup>6</sup>	95-95-4	6000/2000		89,000	NC	18,000	NC	250	NC	250	1,200		3.7	NC	3.7											
<b>2,4,6-Trichlorophenol <sup>6</sup></b>	88-06-2	6000/2000		89	NC	18	NC	0.07	C	0.07	800		0.0037	NC	0.0037											
<b>2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)</b>	93-76-5	6000/2000		8,900	NC	1,800	NC	2.2	NC	2.2	270		0.37	NC	0.37											
<b>1,2,4-Trimethylbenzene</b>	95-63-6	6000/2000	430	920	NC	130	NC	2.5	NC	2.5	57		0.016	NC	0.016											
<b>1,3,5-Trimethylbenzene</b>	108-67-8	6000/2000	90	380	NC	54	NC	0.61	NC	0.61	48		0.016	NC	0.016											
Vinyl acetate	108-05-4	6000/2000	4,200	7,600	NC	1,100	NC	2.3	NC	2.3	20,000		0.55	NC	0.55											
<b>Vinyl chloride (chloroethene) <sup>15</sup></b>	75-01-4	6000/2000	930	250	C	1.5	C	0.013	C	0.013	2,800	0.002	0.00053	C	0.002											
<b>Xylene mixed (total)</b>	1330-20-7	6000/2000	170	4,800	NC	690	NC	210	NC	170	160	10	0.27	NC	10											
Zinc <sup>6</sup>	7440-66-6	10,000		340,000	NC	100,000	NC	14,000	NC	10,000			11	NC	11											

**Appendix 1  
Default Closure Tables**

Table A Constituent	Default CAS	Closure SOIL Soil Attenuation Capacity (mg/kg)	Industrial Soil Saturation (Csat) (mg/kg)	Construction (mg/kg)									January 1, 2004					
													Migration to GW (mg/kg)	Default Closure Level (mg/kg)	Groundwater Solubility (mg/l)	MCL (mg/l)	Industrial (mg/l)	Default Closure Level (mg/l)
Acenaphthene <sup>14</sup>	83-32-9	6000/2000		50,000	NC	24,000	NC	1,200	NC	1,200	4.2		6.1	NC	4.2			
Acenaphthylene	208-96-8	6000/2000		5,900	NC	2,800	NC	180	NC	180	3.9		0.73	NC	0.73			
Acetone (2-Propanone)	67-64-1	6000/2000	200,000	34,000	NC	6,300	NC	370	NC	370	1,000,000		92	NC	92			
Acrolein <sup>5</sup>	107-02-8	6000/2000	50,000	3.5	NC	0.64	NC	0.25	NC	0.25	210,000		0.051	NC	0.051			
Aldrin	309-00-2	6000/2000		27	NC	0.8	C	16	C	0.8	0.18		0.00017	C	0.00017			
Anthracene <sup>14</sup>	120-12-7	6000/2000		250,000	NC	120,000	NC	51	NC	51	0.043		31	NC	0.043			
Antimony and compounds <sup>6</sup>	7440-36-0	10,000		460	NC	620	NC	37	NC	37		0.006	0.041	NC	0.041			
Arsenic <sup>6</sup>	7440-38-2	10,000		320	NC	20	C	29	C	20		0.05	0.0019	C	0.05			
Barium <sup>6</sup>	7440-39-3	10,000		79,000	NC	98,000	NC	5,900	NC	5,900		2	7.2	NC	7.2			
Benzene	71-43-2	6000/2000	590	560	NC	13	C	0.35	C	0.35	1,800	0.005	0.052	C	0.052			
Benzo(a)anthracene	56-55-3	6000/2000		790	C	15	C	62	C	15	0.0094		0.0039	C	0.0039			
Benzo(a)pyrene	50-32-8	6000/2000		79	C	1.5	C	16	C	1.5	0.0016	0.0002	0.00039	C	0.00039			
Benzo(b)fluoranthene <sup>14</sup>	205-99-2	6000/2000		790	C	15	C	74	C	15	0.0015		0.0039	C	0.0015			
Benzo(g,h,i)perylene <sup>14</sup>	191-24-2	6000/2000		7,900	C	150	C	16	C	16	0.00026		0.039	C	0.00026			
Benzo(k)fluoranthene <sup>14</sup>	207-08-9	6000/2000		7,900	C	150	C	39	C	39	0.0008		0.039	C	0.0008			
Benzoic acid <sup>6</sup>	65-85-0	6000/2000		1,000,000	NC	1,000,000	NC	1,600	NC	1,600	3,500		410	NC	410			
Benzyl Alcohol	100-51-6	6000/2000	8,800	270,000	NC	150,000	NC	140	NC	140	40,000		31	NC	31			
Beryllium and compounds <sup>9</sup>	7440-41-7	10,000		2,300	NC	2,900	NC	3,200	C	2,300		0.004	0.2	NC	0.2			
Bis(2-chloro-1-methylethyl) ether	108-60-1	6000/2000	550	5,200	C	61	C	0.26	C	0.26	1,700		0.041	C	0.041			
Bis(2-Chloroethyl)ether <sup>5</sup>	111-44-4	6000/2000	4,000	280	C	3	C	0.012	C	0.012	17,000		0.0026	C	0.0026			
Bis(2-chloroisopropyl)ether	39638-32-9	6000/2000	550	5,200	C	61	C	0.26	C	0.26	1,700		0.041	C	0.041			
Bis(2-ethylhexyl)phthalate	117-81-7	6000/2000	10,000	18,000	NC	980	C	120,000	C	980	0.34	0.006	0.2	C	0.2			
Bromodichloromethane <sup>7</sup>	75-27-4	6000/2000	2,100	2,100	C	17	C	0.51	C	0.51	6,700	0.08	0.046	C	0.08			
Bromoform(tribromomethane) <sup>7</sup>	75-25-2	6000/2000	1,200	7,700	NC	580	C	2.7	C	2.7	3,100	0.08	0.36	C	0.36			
n-Butanol	71-36-3	6000/2000	16,000	2,700	NC	490	NC	44	NC	44	74,000		10	NC	10			
Butylbenzylphthalate <sup>2,14</sup>	85-68-7	6000/2000	310	180,000	NC	98,000	NC	6,200	NC	310	2.7		20	NC	2.7			
Cadmium <sup>6</sup>	7440-43-9	10,000		590	NC	990	NC	77	C	77		0.005	0.051	NC	0.051			
Carbazole	86-74-8	6000/2000		31,000	C	690	C	20	C	20	7.5		0.14	C	0.14			
Carbon disulfide	75-15-0	6000/2000	480	6,200	NC	1,200	NC	82	NC	82	1,200		10	NC	10			
Carbon tetrachloride	56-23-5	6000/2000	520	31	NC	5.2	C	0.29	C	0.29	790	0.005	0.022	C	0.022			
Chlordane	12789-03-6	6000/2000		510	NC	68	C	39	C	39	0.056	0.002	0.0082	C	0.0082			
p-Chloroaniline <sup>6</sup>	106-47-8	6000/2000		3,600	NC	2,000	NC	2.7	NC	2.7	5,300		0.41	NC	0.41			
Chlorobenzene	108-90-7	6000/2000	310	2,600	NC	510	NC	27	NC	27	470	0.1	2	NC	2			
Chloroethane	75-00-3	6000/2000	3,000	16,000	C	120	C	10	C	10	5,700		0.99	C	0.99			
Chloroform <sup>7,10</sup>	67-66-3	6000/2000	2,300	6.4	NC	1.2	NC	6	C	1.2	7,900	0.08	1	NC	1			
2-Chloronaphthalene	91-58-7	6000/2000		71,000	NC	39,000	NC	560	NC	560	12		8.2	NC	8.2			
2-Chlorophenol <sup>6</sup>	95-57-8	6000/2000	22,000	2,200	NC	580	NC	10	NC	10	22,000		0.51	NC	0.51			

**Appendix 1**  
**Default Closure Tables**

Table A Constituent	Default CAS	Closure SOIL Soil Attenuation Capacity (mg/kg)	Industrial Soil Saturation (C <sub>sat</sub> ) (mg/kg)	Construction (mg/kg)												January 1, 2004			
																Groundwater Solubility (mg/l)	MCL (mg/l)	Industrial (mg/l)	Default Closure Level (mg/l)
Chromium III <sup>6</sup>	16065-83-1	10,000		1,000,000	NC	1,000,000	NC	1,000,000	NC	10,000			0.1		150	NC	150		
Chromium VI <sup>6,12</sup>	18540-29-9	10,000		3,400	NC	650	C	120	C	120			0.1		0.31	NC	0.31		
Chrysene <sup>14</sup>	218-01-9	6000/2000		79,000	C	1,500	C	25	C	25	0.0016			0.39	C	0.0016			
Copper <sup>6</sup>	7440-50-8	10,000		42,000	NC	57,000	NC	2,700	NC	2,700			1.3		3.8	NC	3.8		
Cyanide, Free <sup>13</sup>	57-12-5	6000/2000	0	23,000	NC	31,000	NC	9.6	NC	9.6	1,000,000		0.2		2	NC	2		
<u>Cyclohexane</u> <sup>2,14</sup>	110-82-7	6000/2000	69	51,000	NC	9,300	NC	1,400	NC	69	55			170	NC	55			
DDD	72-54-8	6000/2000		3,100	C	120	C	480	C	120	0.09			0.012	C	0.012			
DDE	72-55-9	6000/2000		2,200	C	86	C	1,500	C	86	0.12			0.0084	C	0.0084			
DDT	50-29-3	6000/2000		540	NC	86	C	890	C	86	0.025			0.0084	C	0.0084			
Dibenzo(a,h)anthracene	53-70-3	6000/2000		79	C	1.5	C	60	C	1.5	0.0025			0.00039	C	0.00039			
Dibenzofuran	132-64-9	6000/2000		1,800	NC	980	NC	65	NC	65	3.1			0.2	NC	0.2			
1,2-Dichlorobenzene <sup>2</sup>	95-50-1	6000/2000	220	18,000	NC	3,900	NC	270	NC	220	160	0.6		9.2	NC	9.2			
1,3-Dichlorobenzene	541-73-1	6000/2000	230	250	NC	58	NC	2.7	NC	2.7	160			0.092	NC	0.092			
1,4-Dichlorobenzene	106-46-7	6000/2000		8,000	C	73	C	3.4	C	3.4	74	0.075		0.12	C	0.12			
3,3-Dichlorobenzidine	91-94-1	6000/2000		1,400	C	31	C	0.21	C	0.21	3.1			0.0064	C	0.0064			
1,1-Dichloroethane	75-34-3	6000/2000	1,400	8,600	NC	1,700	NC	58	NC	58	5,100			10	NC	10			
1,2-Dichloroethane	107-06-2	6000/2000	2,000	150	NC	5.8	C	0.15	C	0.15	8,500	0.005		0.031	C	0.031			
1,1-Dichloroethylene	75-35-4	6000/2000	930	2,200	NC	410	NC	42	NC	42	2,300	0.007		5.1	NC	5.1			
cis-1,2-Dichloroethylene	156-59-2	6000/2000	1,000	750	NC	140	NC	5.8	NC	5.8	3,500	0.07		1	NC	1			
trans-1,2-Dichloroethylene	156-60-5	6000/2000	2,100	1,200	NC	230	NC	14	NC	14	6,300	0.1		2	NC	2			
2,4-Dichlorophenol <sup>6</sup>	120-83-2	6000/2000		2,700	NC	1,500	NC	3	NC	3	4,500			0.31	NC	0.31			
2,4-Dichlorophenoxyacetic acid (2,4-D)	94-75-7	6000/2000		9,100	NC	5,200	NC	5.2	NC	5.2	680	0.07		1	NC	1			
1,2-Dichloropropane	78-87-5	6000/2000	830	100	NC	7.2	C	0.25	C	0.25	2,800	0.005		0.042	C	0.042			
1,3-Dichloropropene	542-75-6	6000/2000	1,000	290	NC	16	C	0.2	C	0.2	2,800			0.029	C	0.029			
Dieldrin	60-57-1	6000/2000		39	C	0.86	C	0.15	C	0.15	0.2			0.00018	C	0.00018			
Diethylphthalate	84-66-2	6000/2000	840	710,000	NC	390,000	NC	1,300	NC	840	1,100			82	NC	82			
2,4-Dimethylphenol <sup>6</sup>	105-67-9	6000/2000		18,000	NC	9,800	NC	25	NC	25	7,900			2	NC	2			
Dimethylphthalate <sup>2</sup>	131-11-3	6000/2000	1,100	1,000,000	NC	1,000,000	NC	5,600	NC	1,100	4,000			1,000	NC	1,000			
Di-n-butyl phthalate <sup>2</sup>	84-74-2	6000/2000	760	89,000	NC	49,000	NC	14,000	NC	760	11			10	NC	10			
2,4-Dinitrophenol <sup>6</sup>	51-28-5	6000/2000		1,800	NC	980	NC	0.82	NC	0.82	2,800			0.2	NC	0.2			
Dinitrotoluene mixture	25321-14-6	6000/2000		890	NC	20	C	0.031	C	0.031	230			0.0042	C	0.0042			
Di-n-octyl phthalate <sup>14</sup>	117-84-0	6000/2000	3,300	18,000	NC	9,800	NC	67,000	NC	2,000	0.02			2	NC	0.02			
Endosulfan <sup>14</sup>	115-29-7	6000/2000		5,300	NC	2,900	NC	46	NC	46	0.51			0.61	NC	0.51			
Endrin	72-20-8	6000/2000		270	NC	150	NC	15	NC	15	0.25	0.002		0.031	NC	0.031			
Ethylbenzene <sup>2</sup>	100-41-4	6000/2000	160	29,000	NC	6,800	NC	200	NC	160	170	0.7		10	NC	10			
Fluoranthene <sup>14</sup>	206-44-0	6000/2000		33,000	NC	16,000	NC	880	NC	880	0.21			4.1	NC	0.21			
Fluorene <sup>14</sup>	86-73-7	6000/2000		33,000	NC	16,000	NC	1,100	NC	1,100	2			4.1	NC	2			
alpha-HCH(alpha-BHC)	319-84-6	6000/2000		120	C	4	C	0.024	C	0.024	2			0.00045	C	0.00045			

**Appendix 1**  
**Default Closure Tables**

Table A Constituent	Default CAS	Closure SOIL	Industrial									January 1, 2004							
												Construction	Soil Direct	Migration to GW	Default Closure Level	Groundwater Solubility	MCL	Industrial	Default Closure Level
beta-HCH(beta-BHC)	319-85-7	6000/2000		410	C	14	C	0.086	C	0.086	0.24		0.0016	C	0.0016				
gamma-HCH(Lindane)	58-89-9	6000/2000		310	NC	19	C	0.1	C	0.1	6.8	0.0002	0.0022	C	0.0022				
Heptachlor	76-44-8	6000/2000		140	C	2.9	C	36	C	2.9	0.18	0.0004	0.00064	C	0.00064				
Heptachlor epoxide	1024-57-3	6000/2000		12	NC	1.5	C	1	C	1	0.2	0.0002	0.00031	C	0.00031				
<b>Hexachloro-1,3-butadiene</b>	87-68-3	6000/2000	350	180	NC	98	NC	44	C	44	3.2		0.02	NC	0.02				
<b>Hexachlorobenzene</b>	118-74-1	6000/2000		390	C	8.6	C	3.9	C	3.9	6.2	0.001	0.0018	C	0.0018				
<b>Hexachlorocyclopentadiene</b> <sup>2</sup>	77-47-4	6000/2000	720	5,300	NC	2,900	NC	4,900	NC	720	1.8	0.05	0.61	NC	0.61				
Hexachloroethane	67-72-1	6000/2000		660	NC	240	NC	7.7	C	7.7	50		0.1	NC	0.1				
<b>n-Hexane</b> <sup>2</sup>	110-54-3	6000/2000	100	1,200	NC	220	NC	1,300	NC	100	9.5		6.1	NC	6.1				
<b>Indeno(1,2,3-cd)pyrene</b> <sup>14</sup>	193-39-5	6000/2000		790	C	15	C	3.1	C	3.1	0.000022		0.0039	C	0.000022				
<b>Iodomethane</b>	74-88-4	6000/2000	3,600	620	C	14	C	0.015	C	0.015	14,000		0.0029	C	0.0029				
Isophorone	78-59-1	6000/2000	3,500	180,000	NC	14,000	C	18	C	18	12,000		3	C	3				
Lead <sup>8</sup>	7439-92-1	10,000		970	NC	1,300	NC	230	NC	230		0.015	.042	NC	.042				
<b>Mercury and compounds</b> <sup>9</sup>	7439-97-6	10,000		340	NC	470	NC	32	NC	32	69,000	0.002	0.031	NC	0.031				
Methoxychlor <sup>14</sup>	72-43-5	6000/2000		4,400	NC	2,500	NC	180	NC	180	0.045	0.04	0.51	NC	0.045				
Methyl bromide (bromomethane)	74-83-9	6000/2000	3,700	69	NC	13	NC	0.7	NC	0.7	15,000		0.14	NC	0.14				
<b>Methyl ethyl ketone (MEK)</b>	78-93-3	6000/2000	28,000	260,000	NC	70,000	NC	250	NC	250	140,000		61	NC	61				
<b>Methyl tertiary butyl ether (MTBE)</b>	1634-04-4	6000/2000	11,000	110,000	NC	1,400	C	3.9	C	3.9	48,000		0.87	C	0.87				
<b>4-Methyl-2-pentanone (MIBK)</b>	108-10-1	6000/2000	8,700	64,000	NC	29,000	NC	75	NC	75	19,000		8.2	NC	8.2				
Methylene chloride	75-09-2	6000/2000	3,000	22,000	C	200	C	1.8	C	1.8	13,000	0.005	0.38	C	0.38				
<b>2-Methylnaphthalene</b>	91-57-6	6000/2000		17,000	NC	8,000	NC	210	NC	210	25		2	NC	2				
<b>3-Methylphenol (m-cresol)</b> <sup>6</sup>	108-39-4	6000/2000	6,100	44,000	NC	25,000	NC	28	NC	28	23,000		5.1	NC	5.1				
<b>4-Methylphenol (p-cresol)</b> <sup>6</sup>	106-44-5	6000/2000		4,400	NC	2,500	NC	3	NC	3	22,000		0.51	NC	0.51				
<b>2-Methylphenol(o-cresol)</b> <sup>6</sup>	95-48-7	6000/2000		39,000	NC	17,000	NC	39	NC	39	26,000		5.1	NC	5.1				
<b>Naphthalene</b>	91-20-3	6000/2000		17,000	NC	8,000	NC	170	NC	170	31		2	NC	2				
<b>Nickel, soluble salts</b>	various	10,000		23,000	NC	31,000	NC	2,700	C	2,700			2	NC	2				
<b>2-Nitroaniline</b>	88-74-4	6000/2000		51	NC	28	NC	0.036	NC	0.036	1,500		0.0058	NC	0.0058				
<b>Nitrobenzene</b>	98-95-3	6000/2000	690	440	NC	250	NC	0.34	NC	0.34	2,100		0.051	NC	0.051				
N-Nitrosodi-n-propylamine <sup>5,6</sup>	621-64-7	6000/2000	2,500	89	C	2	C	0.002	C	0.002	9,900		0.00041	C	0.00041				
N-Nitrosodiphenylamine <sup>6</sup>	86-30-6	6000/2000		130,000	C	2,800	C	32	C	32	35		0.58	C	0.58				
PCBs (polychlorinated biphenyls) <sup>11</sup>	1336-36-3	6000/2000		16	NC	5.3	C	18	C	5.3	0.7	0.0005	0.0014	C	0.0014				
Pentachlorophenol <sup>6</sup>	87-86-5	6000/2000		3,800	C	54	C	0.66	C	0.66	2,000	0.001	0.024	C	0.024				
<b>Phenanthrene</b>	85-01-8	6000/2000		2,500	NC	1,200	NC	170	NC	170	1.2		0.31	NC	0.31				
<b>Phenol</b> <sup>6</sup>	108-95-2	6000/2000		230,000	NC	96,000	NC	160	NC	160	83,000		31	NC	31				
<b>Pyrene</b> <sup>14</sup>	129-00-0	6000/2000		25,000	NC	12,000	NC	570	NC	570	0.14		3.1	NC	0.14				
Selenium <sup>6</sup>	7782-49-2	10,000		5,700	NC	7,800	NC	53	NC	53		0.05	0.51	NC	0.51				
Silver <sup>6</sup>	7440-22-4	10,000		5,700	NC	7,800	NC	87	NC	87			0.51	NC	0.51				
<b>Styrene</b> <sup>2</sup>	100-42-5	6000/2000	550	68,000	NC	16,000	NC	720	NC	550	310	0.1	20	NC	20				
1,1,1,2-Tetrachloroethane	630-20-6	6000/2000	1,200	7,400	C	67	C	0.85	C	0.85	3,000		0.11	C	0.11				



**Appendix 1**  
**Default Closure Tables**

<b>Table A</b>		<b>Default</b>	<b>Closure</b>	<b>Industrial</b>								<b>January 1, 2004</b>			
Constituent	CAS	SOIL				GROUNDWATER									
		Soil Attenuation Capacity	Soil Saturation (Csat)	Construction	Soil Direct	Migration to GW	Default Closure Level	Groundwater Solubility	MCL	Industrial	Default Closure Level				
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/l)	(mg/l)	(mg/l)	(mg/l)				
1,1,2,2-Tetrachloroethane	79-34-5	6000/2000	1,200	960	C	8.7	C	0.11	C	0.11	3,000		0.014	C	0.014
Tetrachloroethylene (PCE)	127-18-4	6000/2000	120	720	NC	27	C	0.64	C	0.64	200	0.005	0.055	C	0.055
<b>Thallium (and compounds) <sup>6</sup></b>	7440-28-0	10,000		80	NC	110	NC	10	NC	10		0.002	0.0072	NC	0.0072
Toluene	108-88-3	6000/2000	310	11,000	NC	2,200	NC	240	NC	240	530	1	20	NC	20
Toxaphene	8001-35-2	6000/2000		560	C	12	C	31	C	12	0.74	0.003	0.0026	C	0.003
1,2,4-Trichlorobenzene	120-82-1	6000/2000	1,100	8,900	NC	4,900	NC	77	NC	77	300	0.07	1	NC	1
<b>1,1,1-Trichloroethane</b>	71-55-6	6000/2000	640	34,000	NC	6,700	NC	280	NC	280	1,300	0.2	29	NC	29
1,1,2-Trichloroethane	79-00-5	6000/2000	1,300	600	NC	15	C	0.3	C	0.3	4,400	0.005	0.05	C	0.05
<b>Trichloroethylene (TCE)</b>	79-01-6	6000/2000	630	150	C	1.1	C	0.082	C	0.082	1,100	0.005	0.0072	C	0.0072
2,4,5-Trichlorophenol <sup>6</sup>	95-95-4	6000/2000		89,000	NC	49,000	NC	690	NC	690	1,200		10	NC	10
<b>2,4,6-Trichlorophenol <sup>6</sup></b>	88-06-2	6000/2000		89	NC	49	NC	0.2	C	0.2	800		0.01	NC	0.01
<b>2,4,5-Trichlorophenoxyacetic acid (2,4,5-T)</b>	93-76-5	6000/2000		8,900	NC	4,900	NC	6.1	NC	6.1	270		1	NC	1
<b>1,2,4-Trimethylbenzene</b>	95-63-6	6000/2000	430	920	NC	170	NC	780	NC	170	57		5.1	NC	5.1
<b>1,3,5-Trimethylbenzene</b>	108-67-8	6000/2000	90	380	NC	68	NC	190	NC	68	48		5.1	NC	5.1
Vinyl acetate	108-05-4	6000/2000	4,200	7,600	NC	1,400	NC	430	NC	430	20,000		100	NC	100
<b>Vinyl chloride (chloroethene) <sup>15</sup></b>	75-01-4	6000/2000	930	250	C	3.1	C	0.013	C	0.013	2,800	0.002	0.0019	C	0.002
<b>Xylene mixed (total) <sup>2</sup></b>	1330-20-7	6000/2000	170	4,800	NC	890	NC	430	NC	170	160	10	20	NC	20
Zinc <sup>6</sup>	7440-66-6	10,000		340,000	NC	470,000	NC	38,000	NC	10,000			31	NC	31

Table A Footnotes

1. Note each column in the closure level tables has a “c” or an “nc” next to the value. This designation indicates whether the numerical value is the result of calculation from a carcinogenic endpoint or a noncarcinogenic endpoint. Knowing the carcinogenic or noncarcinogenic designation is necessary when performing additivity. The user should be aware that there are many parameters used to calculate the closure levels, and a given compound may have closure levels that result from either carcinogenic or noncarcinogenic endpoints. Sometimes the endpoints may be different for different closure types. For instance, a direct soil value may have been generated from a carcinogenic endpoint, but the groundwater value may be from a noncarcinogenic endpoint. Most carcinogens are calculated using endpoints from both carcinogenic and noncarcinogenic toxicity information, and the system used to calculate the default closure level selects the lowest endpoint.

2. Certain chemicals that are considered liquids at soil temperatures have calculated soil saturation levels. The soil saturation level, or “C<sub>sat</sub>” value, is an indicator of the possibility there is free product present. In cases where the C<sub>sat</sub> value is lower than any other soil calculated value the C<sub>sat</sub> value becomes the default closure level. If the user does not think free product exists at the site but has concentrations that exceed C<sub>sat</sub>, but not other closure levels, then they should contact the IDEM site manager in order to verify there is no free product.

3. Residential soil direct contact values for arsenic and cadmium are based on the algorithms that measure the soil-plant-human uptake and not on the algorithms normally used to measure direct contact to surface soil.

4. Construction values are listed as the raw calculated values. When applying construction values to closures, the user should recognize that values for organic chemicals will be capped at the Soil Attenuation Capacity (SAC) value or the C<sub>sat</sub>, whichever is lower, or at 10,000 mg/kg for metals. Default SAC values are 6000 mg/kg for Direct Contact (surface soil) and 2000 mg/kg for Migration to Groundwater (subsurface soil). It is possible to raise the SAC value based on the organic carbon content in the soil, and the user is referred to the non-default chapter for further information.

Direct Contact and Migration to Groundwater closure levels are also listed as the raw calculated values. When applying these values separately, the user should recognize that these values will be capped at the SAC, the C<sub>sat</sub> or the Construction value, whichever is less. Other options exist to change the Direct Contact and Migration to Groundwater numbers, and the user is referred to the non-default chapter for further information.

5. Acrolein, Bis(2-chloroethyl)ether, and N-Nitroso-di-n-propylamine (as well as other compounds) may not have an analytical method available with a detection limit or quantitation limit that will meet the closure level. Appendix 2 should be consulted for suggested analytical procedures with detection limits that meet or approach meeting closure levels. If analytical methods capable of meeting closure levels for all site contaminants are not available, the IDEM site manager should be contacted to arrange for a conference with an IDEM chemist.

6. K<sub>oc</sub> and K<sub>d</sub> values for ionizing organics and metals will vary depending on pH. If the

source area pH is outside the range of 6.0-8.0, then see the discussion in Section A1.0, under Table A, pages A.1-1 and A.1-2. Default closure levels have been calculated using Koc and Kd values at pH 6.8.

7. A “trihalomethane” is an organic compound consisting of a single carbon atom with three “halogen” atoms (bromine, chlorine, fluorine, or iodine) and a hydrogen atom attached. The National Primary Drinking Water Standards now include a “Total Trihalomethane standard” (TTHM MCL) of 0.08 mg/L. Under certain circumstances, i.e., when more than one trihalomethane compound is present on site, the “trihalomethane” standard will apply to bromoform, chloroform and bromodichloromethane. The composite standard may reduce the individual closure levels because the total concentration may not exceed the TTHM MCL.

8. Lead values were calculated using:

The 1994 Integrated Exposure Uptake Biokinetic Model (see EPA/540/R-93/081, PB-963510),

The Methodology for Assessing Risks Associated with Adult Exposure to Lead in Soil SRC-GLD-F0162-209-Draft-7/21/96,

Review of the Methodology for Establishing Risk-Based Remediation Goals for Commercial Areas of the California Gultch Site, USEPA, Technical Review Workgroup for Lead, October 26, 1995 for industrial and construction exposures, and

The Drinking Water Regulation and Health Advisories EPA 822-R-96-001, February, 1996 action levels for residential groundwater and an extrapolation to determine industrial groundwater levels.

The Kd value for lead was taken from Sheppard and Thibault (*Default Soil Solid Liquid Partition Coefficients, Kds for Four Major Soil Types: A Compendium*, Health Physics Vol 59, No 4, pp 471-482, 1990) for sandy soils and is considered to be applicable anywhere in the state.

9. Closure levels for Beryllium and Mercury must be determined with a site specific pH. Please see the discussion in section A.1.0 under Table A, pages A.1-1 and A.1-2.

10. Chloroform no longer has an Oral Slope Factor; the Oral RfD at 0.01 mg/kg-day is considered to be protective of the carcinogenic endpoint from the oral route.

11. PCBs are assumed to be a mixture and that Arochlors 1016 and 1254 are present.

12. Total Chromium concentrations must be assumed to be 100% Chromium VI unless a species-specific ratio evaluation of Chromium VI to Chromium III is made. The Inhalation Slope Factor used for Chromium VI is from USEPA Region 09 and is based on a review of the available studies and literature.

13. Cyanide values apply to “free” cyanide only. The closure levels are not applicable to copper

cyanide and other complexed cyanides. The physical constants used in the calculation of the free cyanide closure levels are based on hydrogen cyanide (non-complexed, ionic cyanide). Total cyanide concentrations may not be representative of, and in fact may over estimate, free cyanide concentrations.

14. Certain compounds have very low solubilities, and the groundwater closure values are defaulted to their respective solubility limits. Concentrations in excess of the solubility limit can be an indicator of the presence of free product. When the solubility limit has been exceeded and the user believes that free product does not exist, then the user should contact the project manager to determine a course of action to verify there is no free product.

15. Vinyl Chloride calculations are based on a child-only slope factor. This may not be applicable at sites where there are only adults. In such a case, the user should contact the IDEM project manager to determine if an alternate closure level is applicable.

16. Residential Groundwater value from EPA Drinking Water and Health Advisories, EPA 822-R-02-038, USEPA, Office of Water, Summer 2002.