Table 3
EPA SSL Soil/Water Partition Equation

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THH edit May 21, 2007
Ct = Cw*[(koc*foc)+(Pw+(Pa*Hd))/Pb]

Ct = soil concentration [mg/kg]
Cw = leachate concentration [mg/L]
koc = soil organic carbon-water partition coefficient [L/kg]
foc = fraction organic carbon [kg/kg]
Pw = water-filled soil porosity
Pa = air filled soil porosity
Pb = dry soil bulk density [kg/L]
Hd = dimensionless Henry's Law

Sand 0.1m scenario					**Predicted**	**Target**							Raw Leaching	**Round Leaching**
	DEQ-7	**Solubility**			**attenuation**	**source**							Soil Target	**Soil Target**
chemical	**mg/L**	**mg/L**	**koc**	**Hd**	**source/POC**	**mg/L**	**soil**	foc	Pt	Pw	Pa	Pb	[mg/kg]	**[mg/kg]**
Methyl t-Butyl Ether	3.00E-02	4.80E+04	1.20E+01	2.40E-02	20.1	6.03E-01	sand	0.006	0.4	0.079	0.321	1.5	7.84E-02	0.08
Benzene	5.00E-03	1.75E+03	6.17E+01	2.28E-01	16.1	8.04E-02							3.79E-02	0.04
Toluene	1.00E+00	5.26E+02	1.40E+02	2.72E-01	14.6	1.46E+01							1.39E+01	10
Ethylbenzene	7.00E-01	1.69E+02	2.04E+02	3.23E-01	14.1	9.90E+00							1.33E+01	10
Xylenes	1.00E+01	1.75E+02	2.45E+02	2.76E-01	13.7	1.37E+02							2.17E+02	200
Naphthalene	1.00E-01	3.10E+01	1.19E+03	1.98E-02	12.9	1.29E+00							9.32E+00	9
Acenaphthene	4.20E-01	4.24E+00	4.90E+03	6.36E-03	12.6	5.31E+00							1.56E+02	200
Flourene	2.80E-01	1.98E+00	7.71E+03	2.61E-03	12.6	3.54E+00							1.64E+02	200
Anthracene	2.10E+00	4.34E-02	2.35E+04	2.67E-03	12.6	2.65E+01							3.74E+03	4,000
Flouranthene	2.80E-01	2.06E-01	4.91E+04	6.60E-04	12.6	3.54E+00							1.04E+03	1,000
Pyrene	9.60E-01	1.35E-01	6.80E+04	4.51E-04	12.6	1.21E+01							4.95E+03	5,000
Benzo(a)Anthracene	4.80E-04	9.40E-03	3.58E+05	1.37E-04	12.6	6.06E-03							1.30E+01	10
Chrysene	4.80E-02	1.60E-03	3.98E+05	3.88E-03	12.6	6.06E-01							1.45E+03	1,000
Benzo(a)Pyrene	4.80E-05	1.62E-03	9.69E+05	4.63E-05	12.6	6.06E-04							3.52E+00	4
Benzo (b)Fluoranthene	4.80E-04	1.50E-03	1.23E+06	4.55E-03	12.6	6.06E-03							4.48E+01	40
Benzo (k) Fluoranthene	4.79E-03	8.00E-04	1.23E+06	3.40E-05	12.6	6.05E-02							4.47E+02	400
Dibenzo(a,h) Anthracene	4.80E-05	2.49E-03	1.79E+06	6.03E-07	12.6	6.06E-04							6.51E+00	7
Indeno(1,2,3,c,d)Pyrene	4.40E-05	2.20E-05	3.47E+06	6.56E-05	12.6	5.56E-04							1.16E+01	10
C9-C10 Aromatics	1.00E+00	5.10E+04	1.78E+03	3.30E-01	12.6	1.26E+01							1.36E+02	100
C5-C8 Aliphatics	8.00E-01	1.10E+04	2.27E+03	5.40E+01	12.6	1.01E+01							2.55E+02	300
C11-C22 Aromatics	1.00E+00	5.80E+03	5.00E+03	3.00E-02	12.6	1.26E+01							3.80E+02	400
C9-C12 Aliphatics	5.00E-01	7.00E+01	1.50E+05	6.50E+01	12.6	6.32E+00							5.77E+03	6,000
C9-C18 Aliphatics	5.00E-01	1.00E+01	6.80E+05	6.90E+01	12.6	6.32E+00							2.59E+04	30,000
C19-C36 Aliphatics	1.00E+00	immobile	immobile	immobile	immobile	immobile							none	**none**

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Pa = air filled soil porosity
Pb = dry soil bulk density [kg/L]
Hd = dimensionless Henry's Law

Sand 3.1m scenario					**Predicted**	**Target**								**Round Leaching**
	DEQ-7	**Solubility**			**attenuation**	**source**							Soil Target	**Soil Target**
chemical	**mg/L**	**mg/L**	**koc**	**Hd**	**source/POC**	**mg/L**	**soil**	foc	Pt	Pw	Pa	Pb	[mg/kg]	**[mg/kg]**
Methyl t-Butyl Ether	3.00E-02	4.80E+04	1.20E+01	2.40E-02	43.3	1.30E+00	sand	0.006	0.4	0.073	0.327	1.5	1.64E-01	0.2
Benzene	5.00E-03	1.75E+03	6.17E+01	2.28E-01	43.3	2.17E-01							1.01E-01	0.1
Toluene	1.00E+00	5.26E+02	1.40E+02	2.72E-01	42.9	4.29E+01							4.07E+01	40
Ethylbenzene	7.00E-01	1.69E+02	2.04E+02	3.23E-01	42.7	2.99E+01							4.01E+01	40
Xylenes	1.00E+01	1.75E+02	2.45E+02	2.76E-01	43.0	4.30E+02							6.79E+02	700
Naphthalene	1.00E-01	3.10E+01	1.19E+03	1.98E-02	42.6	4.26E+00							3.06E+01	30
Acenaphthene	4.20E-01	4.24E+00	4.90E+03	6.36E-03	42.6	1.79E+01							5.26E+02	500
Flourene	2.80E-01	1.98E+00	7.71E+03	2.61E-03	42.6	1.19E+01							5.52E+02	600
Anthracene	2.10E+00	4.34E-02	2.35E+04	2.67E-03	42.6	8.94E+01							1.26E+04	10,000
Flouranthene	2.80E-01	2.06E-01	4.91E+04	6.60E-04	42.6	1.19E+01							3.51E+03	4,000
Pyrene	9.60E-01	1.35E-01	6.80E+04	4.51E-04	42.6	4.09E+01							1.67E+04	20,000
Benzo(a)Anthracene	4.80E-04	9.40E-03	3.58E+05	1.37E-04	42.6	2.04E-02							4.38E+01	40
Chrysene	4.80E-02	1.60E-03	3.98E+05	3.88E-03	42.6	2.04E+00							4.88E+03	5,000
Benzo(a)Pyrene	4.80E-05	1.62E-03	9.69E+05	4.63E-05	42.6	2.04E-03							1.19E+01	10
Benzo (b)Fluoranthene	4.80E-04	1.50E-03	1.23E+06	4.55E-03	42.6	2.04E-02							1.51E+02	200
Benzo (k) Fluoranthene	4.79E-03	8.00E-04	1.23E+06	3.40E-05	42.6	2.04E-01							1.50E+03	2,000
Dibenzo(a,h) Anthracene	4.80E-05	2.49E-03	1.79E+06	6.03E-07	42.6	2.04E-03							2.19E+01	20
Indeno(1,2,3,c,d)Pyrene	4.40E-05	2.20E-05	3.47E+06	6.56E-05	42.6	1.87E-03							3.90E+01	40
C9-C10 Aromatics	1.00E+00	5.10E+04	1.78E+03	3.30E-01	42.6	4.26E+01							4.59E+02	500
C5-C8 Aliphatics	8.00E-01	1.10E+04	2.27E+03	5.40E+01	42.6	3.41E+01							8.65E+02	900
C11-C22 Aromatics	1.00E+00	5.80E+03	5.00E+03	3.00E-02	42.6	4.26E+01							1.28E+03	1,000
C9-C12 Aliphatics	5.00E-01	7.00E+01	1.50E+05	6.50E+01	42.6	2.13E+01							1.95E+04	20,000
C9-C18 Aliphatics	5.00E-01	1.00E+01	6.80E+05	6.90E+01	42.6	2.13E+01							8.72E+04	90,000
C19-C36 Aliphatics	1.00E+00	immobile	immobile	immobile	immobile	immobile							none	**none**

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Pw = water-filled soil porosity
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Sand 6.1m scenario					**Predicted**	**Target**								**Round Leaching**
	DEQ-7	**Solubility**			**attenuation**	**source**							Soil Target	**Soil Target**
chemical	**mg/L**	**mg/L**	**koc**	**Hd**	**source/POC**	**mg/L**	**soil**	foc	Pt	Pw	Pa	Pb	[mg/kg]	**[mg/kg]**
Methyl t-Butyl Ether	3.00E-02	4.80E+04	1.20E+01	2.40E-02	66.7	2.00E+00	sand	0.006	0.4	0.073	0.327	1.5	2.52E-01	0.3
Benzene	5.00E-03	1.75E+03	6.17E+01	2.28E-01	66.8	3.34E-01							1.56E-01	0.2
Toluene	1.00E+00	5.26E+02	1.40E+02	2.72E-01	66.3	6.63E+01							6.28E+01	60
Ethylbenzene	7.00E-01	1.69E+02	2.04E+02	3.23E-01	65.9	4.62E+01							6.20E+01	60
Xylenes	1.00E+01	1.75E+02	2.45E+02	2.76E-01	66.3	6.63E+02							1.05E+03	1,000
Naphthalene	1.00E-01	3.10E+01	1.19E+03	1.98E-02	65.8	6.58E+00							4.74E+01	50
Acenaphthene	4.20E-01	4.24E+00	4.90E+03	6.36E-03	65.8	2.76E+01							8.13E+02	800
Flourene	2.80E-01	1.98E+00	7.71E+03	2.61E-03	65.8	1.84E+01							8.53E+02	900
Anthracene	2.10E+00	4.34E-02	2.35E+04	2.67E-03	65.8	1.38E+02							1.95E+04	20,000
Flouranthene	2.80E-01	2.06E-01	4.91E+04	6.60E-04	65.8	1.84E+01							5.43E+03	5,000
Pyrene	9.60E-01	1.35E-01	6.80E+04	4.51E-04	65.8	6.32E+01							2.58E+04	30,000
Benzo(a)Anthracene	4.80E-04	9.40E-03	3.58E+05	1.37E-04	65.8	3.16E-02							6.77E+01	70
Chrysene	4.80E-02	1.60E-03	3.98E+05	3.88E-03	65.8	3.16E+00							7.54E+03	8,000
Benzo(a)Pyrene	4.80E-05	1.62E-03	9.69E+05	4.63E-05	65.8	3.16E-03							1.84E+01	20
Benzo (b)Fluoranthene	4.80E-04	1.50E-03	1.23E+06	4.55E-03	65.8	3.16E-02							2.33E+02	200
Benzo (k) Fluoranthene	4.79E-03	8.00E-04	1.23E+06	3.40E-05	65.8	3.15E-01							2.33E+03	2,000
Dibenzo(a,h) Anthracene	4.80E-05	2.49E-03	1.79E+06	6.03E-07	65.8	3.16E-03							3.39E+01	30
Indeno(1,2,3,c,d)Pyrene	4.40E-05	2.20E-05	3.47E+06	6.56E-05	65.8	2.89E-03							6.03E+01	60
C9-C10 Aromatics	1.00E+00	5.10E+04	1.78E+03	3.30E-01	65.8	6.58E+01							7.10E+02	700
C5-C8 Aliphatics	8.00E-01	1.10E+04	2.27E+03	5.40E+01	65.8	5.26E+01							1.34E+03	1,000
C11-C22 Aromatics	1.00E+00	5.80E+03	5.00E+03	3.00E-02	65.8	6.58E+01							1.98E+03	2,000
C9-C12 Aliphatics	5.00E-01	7.00E+01	1.50E+05	6.50E+01	65.8	3.29E+01							3.01E+04	30,000
C9-C18 Aliphatics	5.00E-01	1.00E+01	6.80E+05	6.90E+01	65.8	3.29E+01							1.35E+05	100,000
C19-C36 Aliphatics	1.00E+00	immobile	immobile	immobile	immobile	immobile							none	**none**