SITE ASSESSMENT FOR PROPOSED COKE POINT DREDGED MATERIAL CONTAINMENT FACILITY AT SPARROWS POINT

BALTIMORE COUNTY, MARYLAND

APPENDIX C

Mass Distribution Calculations

Prepared for:

Maryland Port Administration
2310 Broening Highway
Baltimore, Maryland 21224

Under Contract to:

Maryland Environmental Service

Maryland Environmental Service
259 Najoles Road
Millersville, MD 21108

Prepared by:

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APPENDIX C. MASS DISTRIBUTION CALCULATIONS

Contents:

NAPL RECOVERY TEST CALCULATIONS

Results from LNAPL Bail Down Tests
Wells BP-MW-5, BP-MW-8, and BP-MW-10
Coke Point Peninsula, Sparrows Pt., Maryland, 24 June 2009

OBJECTIVE

The objective of the test was to remove product in the well to a minimal thickness and time the recovery of product to its original thickness.

This provides an estimate of the potential recovery rate using a skimmer or other product recovery tool.

APPROACH

Recovery rate was calculated by determining the time it takes for 80 percent of the original NAPL thickness to return to the well. This was used to calculate volume per time by converting the recovery (linear ft per time) into volume per time using a conversion factor based on the well radius.

Bail down tests were performed on wells BP-MW-5, BP-MW-8, and BP-MW-10 at the Benzol Processing area of the Coke Point Peninsula on 24 June 2009.

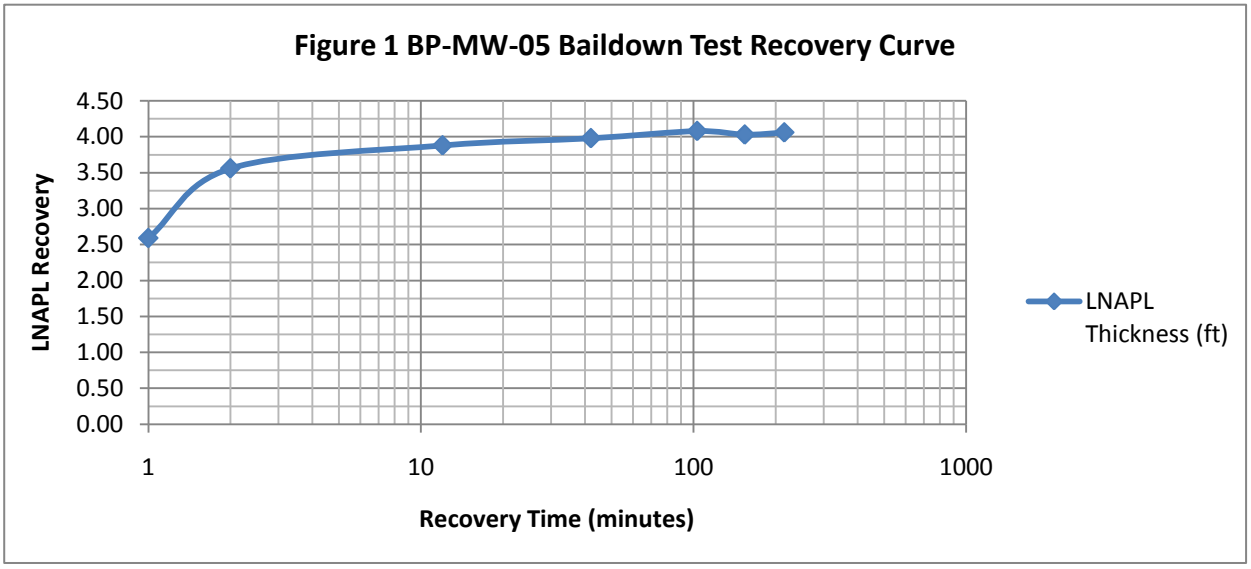
Results from LNAPL Bail Down Tests
Wells BP-MW-5, BP-MW-8, and BP-MW-10
Coke Point Peninsula, Sparrows Pt., Maryland, 24 June 2009

Well BP-MW-05

- Initial LNAPL thickness was 4.1 ft.
- Well was bailed for 33 minutes to a thickness of 2.59 ft.

Table 1. LNAPL Recovery Data for Well BP-MW-05

Recovery Time (minutes)	LNAPL Thickness (ft)	Percent Recovery
1	2.59	0.0%
2	3.56	64.2%
12	3.88	85.4%
42	3.98	92.1%
103	4.08	98.7%
154	4.03	95.4%
215	4.06	97.4%



Recovery rate calculation

1. Maximum baildown = 4.1 - 2.59 = 1.51 ft
2. 80% recovery = (0.8 x 1.51 ft) +2.59 ft = 1.21 ft + 2.59 ft = 3.80 ft
3. Elapsed time to 80% recovery (interpolation from Figure 1) = 6 min
4. Compute average recovery rate (in gal/day) to 80% recovery

   π(well radius in ft)^2 x (7.48 gal/ft^3) = gal per linear ft in a well

   π(0.08 ft)^2 x (7.48 gal/ft^3) = 0.05 gal per linear ft (2-in. well)

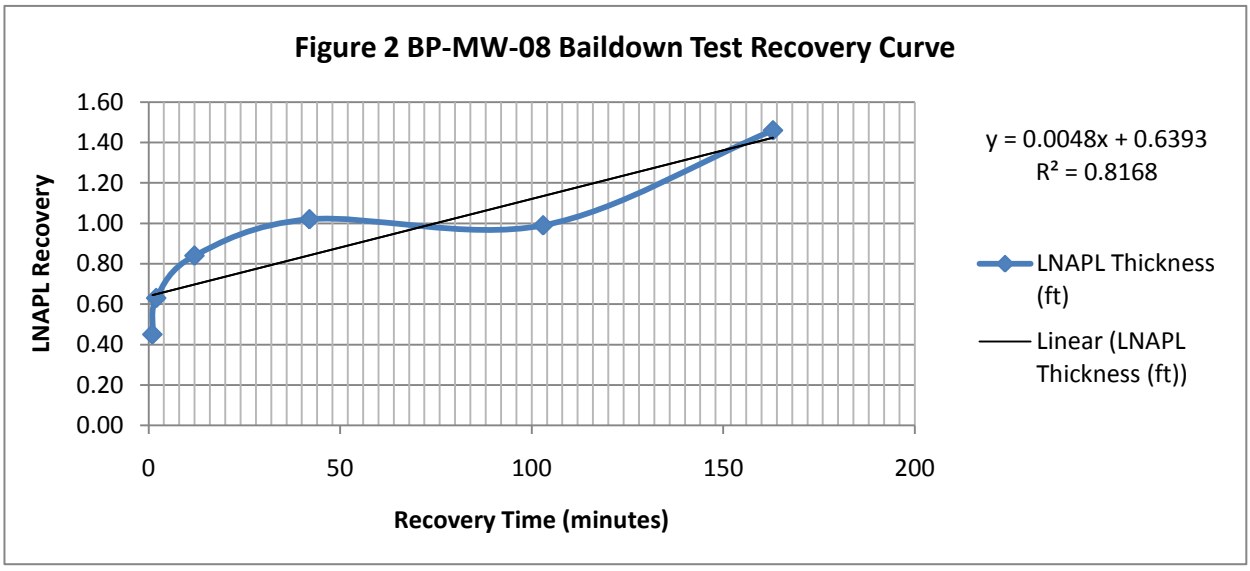
   0.05 gal/ft x (1.21 ft)/(6 min) = 0.01 gal/min = 14.5 gal/day

Well BP-MW-08

- Initial LNAPL thickness was 4.49 ft.
- Well was bailed for 8 minutes to a thickness of 0.45 ft.

Table 2. LNAPL Recovery Data for Well BP-MW-08

Recovery Time (minutes)	LNAPL Thickness (ft)	Percent Recovery
1	0.45	0.0%
2	0.63	4.5%
12	0.84	9.7%
42	1.02	14.1%
103	0.99	13.4%
163	1.46	25.0%



Recovery rate calculation

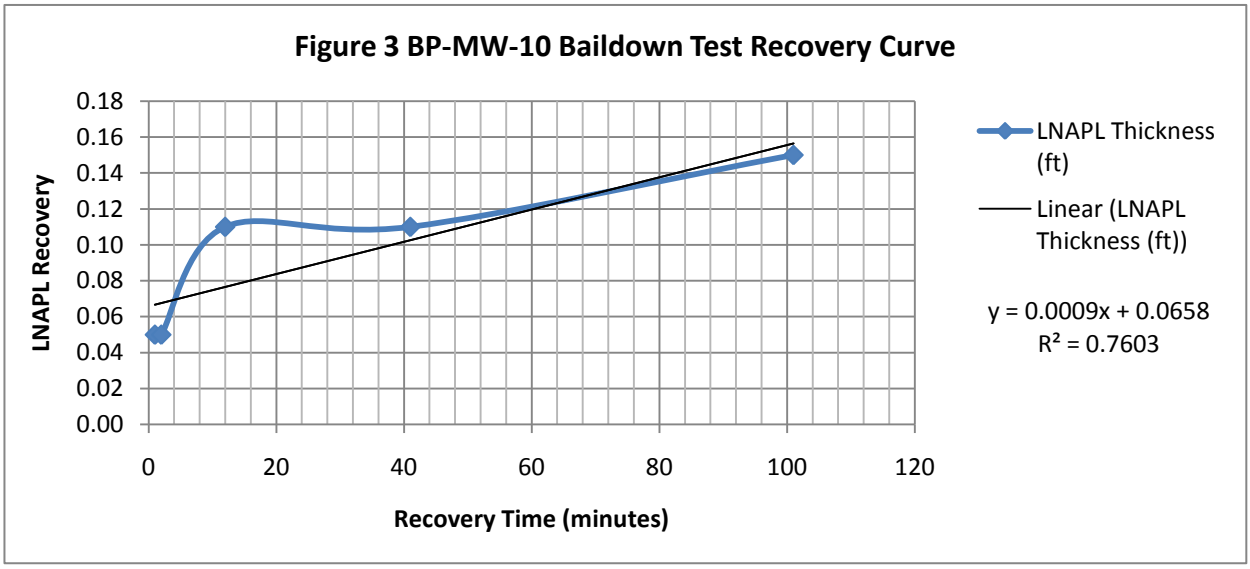
1. Maximum baildown = 4.49 - 0.45 = 4.04 ft
2. 80% recovery = 0.8 x 4.04 = 3.23 ft
3. Compute elapsed time to 80% recovery (linear extrapolation from Figure 2)
   x = (y - 0.6393)/0.0048 = (3.23 - 0.6393)/0.0048 = 540 min
4. Compute average recovery rate to 80% recovery
   0.05 gal/ft x (3.23 ft)/(540 min) = 2.99E-4 gal/min = 0.43 gal/day

Well BP-MW-10

- Initial LNAPL thickness was 0.70 ft.
- Well was bailed for 4 minutes to a thickness of 0.05 ft.

Table 3. LNAPL Recovery Data for Well BP-MW-10

Recovery Time (minutes)	LNAPL Thickness (ft)	Percent Recovery
1	0.05	0.0%
2	0.05	0.0%
12	0.11	9.2%
41	0.11	9.2%
101	0.15	15.4%



Recovery rate calculation

1. Maximum baildown = 0.70 - 0.05 = 0.65 ft
2. 80% recovery = 0.8 x 0.65 = 0.52 ft
3. Compute elapsed time to 80% recovery (linear extrapolation from Figure 2)
   x = (y - 0.0658)/0.0009 = (0.52 - 0.0658)/0.0009 = 505 min
4. Compute average recovery rate to 80% recovery
   0.05 gal/ft x (0.52 ft)/(505 min) = 5.15E-5 gal/min = 0.07 gal/day

NAPLANAL MODEL

NAPLANAL MODEL INFORMATION

Excerpted from NAPLANAL Version 1.0.0 Readme.TXT, December 10 1997.

Introduction

NAPLANAL is a program developed to estimate the residual NAPL saturation and individual chemical component compositional distribution in a soil sample from the results of soil chemical analysis. The model is especially useful for those who collect soil samples but have been unable to relate the total soil chemical concentrations with fundamental parameters such as NAPL saturation.

The original NAPLANAL code was written using FORTRAN and operates under DOS environment. The current version of NAPLANAL program was rewritten using Visual Basic which provides the end user with a visual interface.

Understanding the Model Output

The output file summarizes the input and output for each sample in a single page. The type of model used (saturated vs. unsaturated, porosity known vs. water content known, etc.), and the values of input parameters except for the chemical concentrations are displayed in the first several lines for verification. In the table of results, the first two columns display the chemicals detected in the sample, and the third column, "total mass (mg/kg)*", displays the input sample chemical concentrations for verification. The asterisk "*" signals that the concentration is normalized by the wet mass of the sample.

The next several columns give the calculated masses of each chemical in each phase, also normalized by the wet mass of the sample. Thus, the sum of the masses in each phase should add up to the total chemical masses displayed in the third column, "total mass (mg/kg)*". These values can be used to determine fractional distribution among phases.

After these columns are columns that give the calculated concentrations of chemicals in each phase normalized by the volume or mass of the phase. These include aqueous concentrations (mg in aqueous phase per liter of water), sorbed concentrations (mg sorbed per kg of dry soil), , and concentrations in NAPL (kg in NAPL per liter of NAPL).

The last column contains calculated mole fractions of chemicals in the NAPL phase. The sum of the mole fractions equals one by definition. When no NAPL is calculated to be present in the sample, the mole fractions represent the estimated mole fractions of a NAPL that may have caused the observed chemical concentrations in the sample. Refer to the discussion of the dilution model at the end of this section.

Additional calculations follow the table displaying the calculated chemical component distributions. First, given and calculated phase volumes are presented as fractions of the total sample volume. The sum of the volume fractions of each phase should equal one. Also, the sum of the water, NAPL, and air volume fractions should equal the given or calculated porosity. Second, the calculated densities of the bulk sample and the NAPL itself (if NAPL is present in the sample) are presented. (Note that the calculated NAPL density is an approximation - it is simply the weighted average of the pure component densities.) Finally, if NAPL is present, the NAPL saturation (volume of NAPL per volume of pore space) is presented as a percentage.

If no NAPL is present in the sample, a dilution factor is given.

This dilution factor provides a measure of how much more concentrated the chemicals in the sample must be before a NAPL would be calculated to exist in the sample. A dilution factor of zero and a NAPL

saturation of zero indicates that the sample is at the solubility limit with respect to NAPL without a NAPL present. A dilution factor of 10 implies that the sample theoretically could be reproduced by mixing 10 parts clean soil sample with one part sample at the solubility limit with respect to NAPL. In other words, a dilution factor of 10 implies that the chemical concentrations need to be 11 times their measured values to reach the solubility limit with respect to a NAPL.

Reference

Mariner, P.E., M. Jin, and R.E. Jackson, "Algorithms for the Estimation of NAPL Saturation and Composition from Typical Soil Chemical Analyses." Ground Water Monitoring and Remediation, Spring Issue, p. 122. 1997.

Notes

Naphthalene was not detected in sample BH-SED-09-12 and the model was not run for that sample.

The model did not converge for two samples (BP-B02-14 and BP-B04-16) and therefore did not produce an output file. It is believed that the concentrations of naphthalene were too low for the model to process.

NAPLANAL MODEL
ONSHORE INVESTIGATION OUTPUT FILES

NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:51:23 PM

Sample Name Identification, BP-SO-B01-8

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.2200,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	3.7000,	0.0009,	0.7105,	2.9886,	0.0093,	0.7910,	0.0006,	0.0004,
30,	2-methylnaphthalene,	7.4000,	0.0018,	1.4032,	5.9951,	0.0184,	1.5622,	0.0011,	0.0007,
32,	acenapthene,	0.9400,	0.0000,	0.0146,	0.9254,	0.0004,	0.0162,	0.0002,	0.0001,
31,	acenapthylene,	4.1000,	0.0002,	0.0404,	4.0594,	0.0018,	0.0450,	0.0008,	0.0005,
35,	anthracene,	8.4000,	0.0000,	0.0046,	8.3954,	0.0000,	0.0051,	0.0016,	0.0008,
42,	benzene,	5700.0000,	160.7603,	1234.1157,	4305.1240,	1655.4107,	1373.9909,	0.8026,	0.9459,
39,	benz(a)anthracene,	12.0000,	0.0000,	0.0634,	11.9366,	0.0000,	0.0706,	0.0022,	0.0009,
40,	benzo(a)pyrene,	9.7000,	0.0000,	0.0390,	9.6610,	0.0000,	0.0434,	0.0018,	0.0007,
50,	benzo(b)fluoranthene,	12.0000,	0.0000,	0.0562,	11.9438,	0.0000,	0.0626,	0.0022,	0.0008,
51,	benzo(k)fluoranthene,	4.0000,	0.0000,	0.0058,	3.9942,	0.0000,	0.0064,	0.0007,	0.0003,
33,	9h-fluorene,	11.0000,	0.0002,	0.1244,	10.8754,	0.0019,	0.1385,	0.0020,	0.0011,
38,	chrysene,	13.0000,	0.0000,	0.0032,	12.9968,	0.0000,	0.0035,	0.0024,	0.0010,
44,	ethylbenzene,	140.0000,	0.2683,	27.2960,	112.4357,	2.7627,	30.3898,	0.0210,	0.0182,
36,	fluoranthene,	18.0000,	0.0000,	0.1068,	17.8932,	0.0003,	0.1189,	0.0033,	0.0015,
28,	naphthalene,	29.0000,	0.0114,	1.3689,	27.6197,	0.1172,	1.5240,	0.0051,	0.0037,
34,	phenanthrene,	18.0000,	0.0002,	0.2153,	17.7845,	0.0017,	0.2397,	0.0033,	0.0017,
37,	pyrene,	16.0000,	0.0000,	0.0609,	15.9390,	0.0002,	0.0678,	0.0030,	0.0014,
43,	toluene,	140.0000,	1.0600,	29.4114,	109.5287,	10.9150,	32.7449,	0.0204,	0.0204,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.220000,
NAPL Volume Frac.(l/l), 0.012151,
Soil Volume Frac.(l/l), 0.767849,
Porosity (Volume Frac.), 0.232151,

Bulk Density (kg/l), 2.2654,
NAPL Density (kg/l), 0.8744,

NAPL Saturation (%), 5.2341,
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Numerical Accuracy Information
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The solution converged in 46 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/8/2009 3:47:36 PM

Sample Name Identification, BP-SO-B01-14

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.2500,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	1.4000,	0.0005,	0.3134,	1.0862,	0.0042,	0.3547,	0.0002,	0.0002,
30,	2-methylnaphthalene,	2.1000,	0.0007,	0.4644,	1.6349,	0.0062,	0.5256,	0.0004,	0.0002,
32,	acenapthene,	0.7100,	0.0000,	0.0133,	0.6967,	0.0003,	0.0150,	0.0002,	0.0001,
31,	acenapthylene,	1.5000,	0.0001,	0.0179,	1.4820,	0.0008,	0.0203,	0.0003,	0.0002,
35,	anthracene,	1.4000,	0.0000,	0.0009,	1.3991,	0.0000,	0.0010,	0.0003,	0.0002,
42,	benzene,	4300.0000,	163.9120,	1067.4555,	3068.6325,	1455.6042,	1208.1515,	0.6959,	0.8318,
39,	benz(a)anthracene,	2.6000,	0.0000,	0.0167,	2.5833,	0.0000,	0.0188,	0.0006,	0.0002,
40,	benzo(a)pyrene,	1.8000,	0.0000,	0.0088,	1.7912,	0.0000,	0.0099,	0.0004,	0.0002,
50,	benzo(b)fluoranthene,	3.2000,	0.0000,	0.0182,	3.1818,	0.0000,	0.0206,	0.0007,	0.0003,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	8.9000,	0.0002,	0.1219,	8.7779,	0.0019,	0.1379,	0.0020,	0.0011,
38,	chrysene,	2.4000,	0.0000,	0.0007,	2.3993,	0.0000,	0.0008,	0.0005,	0.0002,
44,	ethylbenzene,	81.0000,	0.2130,	18.3838,	62.4032,	1.8915,	20.8069,	0.0142,	0.0124,
36,	fluoranthene,	6.7000,	0.0000,	0.0482,	6.6518,	0.0001,	0.0545,	0.0015,	0.0007,
28,	naphthalene,	67.0000,	0.0372,	3.7988,	63.1640,	0.3307,	4.2995,	0.0143,	0.0104,
34,	phenanthrene,	5.7000,	0.0001,	0.0825,	5.6174,	0.0007,	0.0934,	0.0013,	0.0007,
37,	pyrene,	4.5000,	0.0000,	0.0208,	4.4792,	0.0001,	0.0235,	0.0010,	0.0005,
43,	toluene,	820.0000,	8.4732,	199.4480,	612.0788,	75.2454,	225.7362,	0.1388,	0.1406,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.250000,
NAPL Volume Frac.(l/l), 0.009790,
Soil Volume Frac.(l/l), 0.740210,
Porosity (Volume Frac.), 0.259790,

Bulk Density (kg/l), 2.2201,
NAPL Density (kg/l), 0.8726,

NAPL Saturation (%), 3.7684,
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Numerical Accuracy Information
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The solution converged in 42 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/22/2009 2:39:37 PM

Sample Name Identification, BP-SO-B01-20

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.3700,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	3.7000,	0.0091,	3.4716,	0.2194,	0.0499,	4.2420,	0.0014,	0.0019,
30,	2-methylnaphthalene,	7.8000,	0.0191,	7.3116,	0.4693,	0.1051,	8.9342,	0.0029,	0.0041,
32,	acenapthene,	1.5000,	0.0037,	0.7653,	0.7311,	0.0203,	0.9351,	0.0045,	0.0059,
31,	acenapthylene,	4.2000,	0.0148,	1.6676,	2.5176,	0.0815,	2.0377,	0.0156,	0.0207,
35,	anthracene,	11.0000,	0.0006,	0.3850,	10.6144,	0.0034,	0.4704,	0.0658,	0.0747,
42,	benzene,	140.0000,	28.3440,	106.0957,	5.5603,	156.1928,	129.6400,	0.0345,	0.0893,
39,	benz(a)anthracene,	14.0000,	0.0001,	3.6567,	10.3432,	0.0003,	4.4682,	0.0641,	0.0568,
40,	benzo(a)pyrene,	9.8000,	0.0000,	2.0737,	7.7263,	0.0000,	2.5339,	0.0479,	0.0384,
50,	benzo(b)fluoranthene,	16.0000,	0.0002,	3.8154,	12.1845,	0.0008,	4.6621,	0.0755,	0.0605,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	8.9000,	0.0117,	3.8427,	5.0457,	0.0643,	4.6954,	0.0313,	0.0381,
38,	chrysene,	14.0000,	0.0000,	0.2229,	13.7771,	0.0001,	0.2724,	0.0854,	0.0757,
44,	ethylbenzene,	0.9200,	0.0171,	0.8502,	0.0526,	0.0944,	1.0389,	0.0003,	0.0006,
36,	fluoranthene,	39.0000,	0.0065,	11.0838,	27.9098,	0.0356,	13.5434,	0.1730,	0.1730,
28,	naphthalene,	48.0000,	0.6202,	36.3585,	11.0213,	3.4175,	44.4270,	0.0683,	0.1078,
34,	phenanthrene,	36.0000,	0.0254,	16.0546,	19.9199,	0.1401,	19.6174,	0.1234,	0.1401,
37,	pyrene,	20.0000,	0.0024,	4.0565,	15.9411,	0.0130,	4.9567,	0.0988,	0.0988,
43,	toluene,	20.0000,	1.3084,	17.7013,	0.9903,	7.2098,	21.6295,	0.0061,	0.0135,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.370000,
NAPL Volume Frac.(l/l), 0.000329,
Soil Volume Frac.(l/l), 0.629671,
Porosity (Volume Frac.), 0.370329,

Bulk Density (kg/l), 2.0389,
NAPL Density (kg/l), 0.8987,

NAPL Saturation (%), 0.0888,
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Numerical Accuracy Information
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The solution converged in 7 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/28/2009 3:48:52 PM

Sample Name Identification, BP-SO-B02-08

Model used: Unsaturated sample,
Porosity (Volume Frac.), 0.3000,
Water moisture content (Volume Frac.), 0.1100,
Fraction organic carbon (foc), 0.0100,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in air, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil (mg/kg)^,	Conc., in air, (mg/L),	Conc. , in NAPL, (kg/L),	Mole frac., in NAPL,
29,	1-methylnaphthalene,	2.4000,	0.0017,	0.0000,	2.3658,	0.0325,	0.0295,	2.5065,	0.0003,	0.0010,	0.0011,
30,	2-methylnaphthalene,	5.3000,	0.0036,	0.0001,	5.2233,	0.0729,	0.0651,	5.5339,	0.0014,	0.0022,	0.0026,
32,	acenapthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
31,	acenapthylene,	0.8400,	0.0015,	0.0002,	0.6311,	0.2073,	0.0267,	0.6686,	0.0016,	0.0061,	0.0068,
35,	anthracene,	1.8000,	0.0001,	0.0000,	0.2572,	1.5427,	0.0019,	0.2725,	0.0001,	0.0457,	0.0433,
42,	benzene,	360.0000,	23.1398,	9.2842,	323.8833,	3.6928,	413.4247,	343.1425,	96.0665,	0.1094,	0.2362,
39,	benz(a)anthracene,	3.8000,	0.0000,	0.0000,	2.3524,	1.4476,	0.0002,	2.4923,	0.0000,	0.0429,	0.0317,
40,	benzo(a)pyrene,	3.0000,	0.0000,	0.0000,	1.6570,	1.3430,	0.0000,	1.7555,	0.0000,	0.0398,	0.0266,
50,	benzo(b)fluoranthene,	5.4000,	0.0000,	0.0000,	3.1863,	2.2137,	0.0006,	3.3757,	0.0000,	0.0656,	0.0438,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	15.0000,	0.0095,	0.0000,	11.6598,	3.3307,	0.1692,	12.3531,	0.0005,	0.0987,	0.1001,
38,	chrysene,	3.5000,	0.0000,	0.0000,	0.2423,	3.2577,	0.0001,	0.2567,	0.0000,	0.0965,	0.0713,
44,	ethylbenzene,	14.0000,	0.0739,	0.0341,	13.7075,	0.1845,	1.3202,	14.5226,	0.3529,	0.0055,	0.0087,
36,	fluoranthene,	7.6000,	0.0008,	0.0000,	4.9097,	2.6896,	0.0137,	5.2016,	0.0000,	0.0797,	0.0664,
28,	naphthalene,	63.0000,	0.2684,	0.0222,	58.8299,	3.8796,	4.7945,	62.3281,	0.2292,	0.1149,	0.1512,
34,	phenanthrene,	8.7000,	0.0029,	0.0000,	6.8485,	1.8486,	0.0518,	7.2557,	0.0003,	0.0548,	0.0518,
37,	pyrene,	6.1000,	0.0005,	0.0000,	3.2883,	2.8112,	0.0092,	3.4838,	0.0000,	0.0833,	0.0695,
43,	toluene,	140.0000,	2.6584,	1.2154,	134.4893,	1.6369,	47.4955,	142.4865,	12.5764,	0.0485,	0.0888,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.110000,
NAPL Volume Frac.(l/l), 0.000066,
Soil Volume Frac.(l/l), 0.700000,
Air Volume Frac.(l/l), 0.189934,
Porosity (Volume Frac.), 0.300000,

Bulk Density (kg/l), 1.9653,
NAPL Density (kg/l), 0.8944,

NAPL Saturation (%), 0.0221,

Numerical Accuracy Information
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The solution converged in 12 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/15/2009 8:37:15 AM

Sample Name Identification, BP-SO-B02-20

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.3300,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	11.0000,	0.0216,	9.8942,	1.0842,	0.1381,	11.7366,	0.0051,	0.0054,
30,	2-methylnaphthalene,	23.0000,	0.0452,	20.6557,	2.2991,	0.2883,	24.5021,	0.0109,	0.0113,
32,	acenapthene,	2.0000,	0.0030,	0.7517,	1.2452,	0.0194,	0.8917,	0.0059,	0.0057,
31,	acenapthylene,	1.4000,	0.0029,	0.3862,	1.0110,	0.0183,	0.4581,	0.0048,	0.0047,
35,	anthracene,	4.4000,	0.0001,	0.0901,	4.3097,	0.0008,	0.1069,	0.0204,	0.0170,
42,	benzene,	360.0000,	61.3471,	273.7732,	24.8797,	391.2683,	324.7527,	0.1178,	0.2236,
39,	benz(a)anthracene,	6.3000,	0.0000,	1.0669,	5.2330,	0.0001,	1.2656,	0.0248,	0.0161,
40,	benzo(a)pyrene,	3.4000,	0.0000,	0.4557,	2.9443,	0.0000,	0.5406,	0.0139,	0.0082,
50,	benzo(b)fluoranthene,	6.3000,	0.0000,	0.9636,	5.3363,	0.0002,	1.1431,	0.0253,	0.0148,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	6.1000,	0.0047,	1.8601,	4.2352,	0.0302,	2.2065,	0.0201,	0.0179,
38,	chrysene,	7.1000,	0.0000,	0.0656,	7.0344,	0.0000,	0.0779,	0.0333,	0.0216,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	17.0000,	0.0016,	3.1676,	13.8309,	0.0099,	3.7574,	0.0655,	0.0480,
28,	naphthalene,	260.0000,	2.4155,	168.8379,	88.7466,	15.4059,	200.2773,	0.4203,	0.4860,
34,	phenanthrene,	20.0000,	0.0084,	6.3435,	13.6481,	0.0537,	7.5247,	0.0646,	0.0537,
37,	pyrene,	9.6000,	0.0006,	1.2285,	8.3709,	0.0038,	1.4572,	0.0396,	0.0291,
43,	toluene,	58.0000,	3.1024,	50.0427,	4.8549,	19.7871,	59.3612,	0.0230,	0.0370,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.330000,
NAPL Volume Frac.(l/l), 0.000444,
Soil Volume Frac.(l/l), 0.669556,
Porosity (Volume Frac.), 0.330444,

Bulk Density (kg/l), 2.1047,
NAPL Density (kg/l), 0.8955,

NAPL Saturation (%), 0.1345,
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Numerical Accuracy Information
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The solution converged in 6 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/15/2009 8:43:41 AM

Sample Name Identification, BP-SO-B02-20-2

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.3300,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	10.0000,	0.0197,	8.9936,	0.9867,	0.1255,	10.6684,	0.0047,	0.0049,
30,	2-methylnaphthalene,	24.0000,	0.0472,	21.5512,	2.4016,	0.3008,	25.5643,	0.0114,	0.0118,
32,	acenapthene,	2.2000,	0.0033,	0.8263,	1.3704,	0.0213,	0.9801,	0.0065,	0.0062,
31,	acenapthylene,	1.7000,	0.0035,	0.4685,	1.2280,	0.0222,	0.5558,	0.0058,	0.0057,
35,	anthracene,	4.4000,	0.0001,	0.0900,	4.3098,	0.0008,	0.1068,	0.0204,	0.0170,
42,	benzene,	360.0000,	61.3421,	273.7505,	24.9074,	391.2361,	324.7260,	0.1178,	0.2236,
39,	benz(a)anthracene,	7.2000,	0.0000,	1.2181,	5.9818,	0.0001,	1.4450,	0.0283,	0.0184,
40,	benzo(a)pyrene,	3.9000,	0.0000,	0.5222,	3.3778,	0.0000,	0.6194,	0.0160,	0.0094,
50,	benzo(b)fluoranthene,	6.3000,	0.0000,	0.9627,	5.3373,	0.0002,	1.1419,	0.0252,	0.0148,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	6.0000,	0.0047,	1.8281,	4.1673,	0.0297,	2.1685,	0.0197,	0.0176,
38,	chrysene,	7.3000,	0.0000,	0.0674,	7.2326,	0.0000,	0.0800,	0.0342,	0.0222,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	16.0000,	0.0015,	2.9784,	13.0202,	0.0093,	3.5330,	0.0616,	0.0451,
28,	naphthalene,	260.0000,	2.4145,	168.7692,	88.8163,	15.3997,	200.1959,	0.4199,	0.4858,
34,	phenanthrene,	20.0000,	0.0084,	6.3383,	13.6532,	0.0537,	7.5186,	0.0645,	0.0537,
37,	pyrene,	8.9000,	0.0006,	1.1377,	7.7618,	0.0036,	1.3495,	0.0367,	0.0269,
43,	toluene,	58.0000,	3.1021,	50.0377,	4.8602,	19.7851,	59.3553,	0.0230,	0.0370,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.330000,
NAPL Volume Frac.(l/l), 0.000445,
Soil Volume Frac.(l/l), 0.669555,
Porosity (Volume Frac.), 0.330445,

Bulk Density (kg/l), 2.1047,
NAPL Density (kg/l), 0.8955,

NAPL Saturation (%), 0.1347,
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Numerical Accuracy Information
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The solution converged in 6 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/22/2009 3:35:58 PM

Sample Name Identification, BP-SO-B03-4
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1100,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.0170,	0.0000,	0.0170,	0.0000,	0.0002,	0.0178,	0.0006,
30,	2-methylnaphthalene,	0.0270,	0.0000,	0.0270,	0.0000,	0.0003,	0.0282,	0.0010,
32,	acenapthene,	0.0140,	0.0000,	0.0140,	0.0000,	0.0003,	0.0146,	0.0068,
31,	acenapthylene,	0.0038,	0.0000,	0.0038,	0.0000,	0.0002,	0.0040,	0.0030,
35,	anthracene,	0.0056,	0.0000,	0.0056,	0.0000,	0.0000,	0.0059,	0.0682,
42,	benzene,	0.0410,	0.0022,	0.0388,	0.0000,	0.0490,	0.0406,	0.0020,
39,	benz(a)anthracene,	0.0280,	0.0000,	0.0280,	0.0000,	0.0000,	0.0293,	0.0273,
40,	benzo(a)pyrene,	0.0470,	0.0000,	0.0470,	0.0000,	0.0000,	0.0492,	0.0546,
50,	benzo(b)fluoranthene,	0.0650,	0.0000,	0.0650,	0.0000,	0.0000,	0.0680,	0.0648,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	0.0058,	0.0000,	0.0058,	0.0000,	0.0001,	0.0061,	0.0036,
38,	chrysene,	0.0300,	0.0000,	0.0300,	0.0000,	0.0000,	0.0314,	0.6392,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	0.0290,	0.0000,	0.0290,	0.0000,	0.0001,	0.0303,	0.0284,
28,	naphthalene,	0.2200,	0.0008,	0.2192,	0.0000,	0.0176,	0.2294,	0.0408,
34,	phenanthrene,	0.0330,	0.0000,	0.0330,	0.0000,	0.0002,	0.0345,	0.0181,
37,	pyrene,	0.0270,	0.0000,	0.0270,	0.0000,	0.0001,	0.0283,	0.0413,
43,	toluene,	0.0088,	0.0001,	0.0087,	0.0000,	0.0030,	0.0091,	0.0004,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.890000,
Water Volume Frac.(l/l), 0.110000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.110000,

Bulk Density (kg/l), 2.4685,

Dilution Factor (Vol. fac.), 72.2865,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 7/22/2009 3:51:40 PM

Sample Name Identification, BP-SO-B03-12
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.0980,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.0180,	0.0000,	0.0180,	0.0000,	0.0002,	0.0187,	0.0012,
30,	2-methylnaphthalene,	0.0380,	0.0000,	0.0380,	0.0000,	0.0005,	0.0395,	0.0026,
32,	acenapthene,	0.0072,	0.0000,	0.0072,	0.0000,	0.0002,	0.0075,	0.0068,
31,	acenapthylene,	0.0078,	0.0000,	0.0078,	0.0000,	0.0003,	0.0081,	0.0118,
35,	anthracene,	0.0120,	0.0000,	0.0120,	0.0000,	0.0001,	0.0125,	0.2831,
42,	benzene,	0.0720,	0.0034,	0.0686,	0.0000,	0.0861,	0.0714,	0.0070,
39,	benz(a)anthracene,	0.0073,	0.0000,	0.0073,	0.0000,	0.0000,	0.0076,	0.0138,
40,	benzo(a)pyrene,	0.0084,	0.0000,	0.0084,	0.0000,	0.0000,	0.0087,	0.0189,
50,	benzo(b)fluoranthene,	0.0130,	0.0000,	0.0130,	0.0000,	0.0000,	0.0135,	0.0251,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	0.0110,	0.0000,	0.0110,	0.0000,	0.0002,	0.0114,	0.0132,
38,	chrysene,	0.0078,	0.0000,	0.0078,	0.0000,	0.0000,	0.0081,	0.3221,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	0.0180,	0.0000,	0.0180,	0.0000,	0.0000,	0.0187,	0.0342,
28,	naphthalene,	0.4600,	0.0014,	0.4586,	0.0000,	0.0367,	0.4774,	0.1654,
34,	phenanthrene,	0.0510,	0.0000,	0.0510,	0.0000,	0.0004,	0.0531,	0.0541,
37,	pyrene,	0.0130,	0.0000,	0.0130,	0.0000,	0.0000,	0.0135,	0.0385,
43,	toluene,	0.0230,	0.0003,	0.0227,	0.0000,	0.0079,	0.0236,	0.0021,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.902000,
Water Volume Frac.(l/l), 0.098000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.098000,

Bulk Density (kg/l), 2.4883,

Dilution Factor (Vol. fac.), 141.8007,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:58:46 PM

Sample Name Identification, BP-SO-B03-32

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.3000,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.3200,	0.0006,	0.3191,	0.0003,	0.0044,	0.3708,	0.0001,	0.0002,
30,	2-methylnaphthalene,	1.8000,	0.0034,	1.7951,	0.0015,	0.0245,	2.0854,	0.0006,	0.0010,
32,	acenapthene,	0.2000,	0.0007,	0.1969,	0.0024,	0.0050,	0.2288,	0.0010,	0.0015,
31,	acenapthylene,	0.9700,	0.0061,	0.9458,	0.0181,	0.0439,	1.0987,	0.0076,	0.0112,
35,	anthracene,	1.5000,	0.0013,	1.1104,	0.3883,	0.0092,	1.2900,	0.1640,	0.2048,
42,	benzene,	65.0000,	10.5940,	54.3698,	0.0361,	76.1000,	63.1630,	0.0153,	0.0435,
39,	benz(a)anthracene,	2.1000,	0.0000,	2.0272,	0.0727,	0.0002,	2.3551,	0.0307,	0.0299,
40,	benzo(a)pyrene,	1.4000,	0.0000,	1.3368,	0.0632,	0.0000,	1.5530,	0.0267,	0.0235,
50,	benzo(b)fluoranthene,	1.5000,	0.0000,	1.4416,	0.0584,	0.0003,	1.6747,	0.0247,	0.0217,
51,	benzo(k)fluoranthene,	0.7700,	0.0000,	0.6803,	0.0897,	0.0001,	0.7903,	0.0379,	0.0334,
33,	9h-fluorene,	2.3000,	0.0050,	2.2574,	0.0376,	0.0359,	2.6225,	0.0159,	0.0213,
38,	chrysene,	2.1000,	0.0001,	1.1772,	0.9227,	0.0007,	1.3675,	0.3897,	0.3799,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	4.8000,	0.0020,	4.6495,	0.1485,	0.0142,	5.4015,	0.0627,	0.0690,
28,	naphthalene,	16.0000,	0.1959,	15.7436,	0.0605,	1.4069,	18.2898,	0.0256,	0.0444,
34,	phenanthrene,	4.6000,	0.0052,	4.5236,	0.0712,	0.0375,	5.2552,	0.0301,	0.0375,
37,	pyrene,	3.2000,	0.0013,	3.0468,	0.1519,	0.0093,	3.5396,	0.0641,	0.0706,
43,	toluene,	9.8000,	0.5009,	9.2925,	0.0066,	3.5984,	10.7953,	0.0028,	0.0067,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.300000,
NAPL Volume Frac.(l/l), 0.000005,
Soil Volume Frac.(l/l), 0.699995,
Porosity (Volume Frac.), 0.300005,

Bulk Density (kg/l), 2.1550,
NAPL Density (kg/l), 0.8994,
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NAPL Saturation (%), 0.0017,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 7 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/15/2009 1:24:42 PM

Sample Name Identification, BP-SO-B04-10
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1800,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.3300,	0.0003,	0.3297,	0.0000,	0.0042,	0.3570,	0.0013,
30,	2-methylnaphthalene,	0.6400,	0.0006,	0.6394,	0.0000,	0.0081,	0.6923,	0.0026,
32,	acenapthene,	0.1600,	0.0003,	0.1597,	0.0000,	0.0038,	0.1729,	0.0090,
31,	acenapthylene,	0.0290,	0.0001,	0.0289,	0.0000,	0.0013,	0.0313,	0.0026,
35,	anthracene,	0.0610,	0.0000,	0.0610,	0.0000,	0.0005,	0.0660,	0.0858,
42,	benzene,	79.0000,	7.1688,	71.8312,	0.0000,	93.7124,	77.7813,	0.4386,
39,	benz(a)anthracene,	0.0870,	0.0000,	0.0870,	0.0000,	0.0000,	0.0942,	0.0098,
40,	benzo(a)pyrene,	0.0600,	0.0000,	0.0600,	0.0000,	0.0000,	0.0650,	0.0081,
50,	benzo(b)fluoranthene,	0.1000,	0.0000,	0.1000,	0.0000,	0.0000,	0.1083,	0.0115,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	0.0750,	0.0000,	0.0750,	0.0000,	0.0000,	0.0812,	0.1848,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	0.2000,	0.0000,	0.2000,	0.0000,	0.0006,	0.2165,	0.0227,
28,	naphthalene,	7.3000,	0.0462,	7.2538,	0.0000,	0.6042,	7.8546,	0.1561,
34,	phenanthrene,	0.3100,	0.0002,	0.3098,	0.0000,	0.0024,	0.3355,	0.0196,
37,	pyrene,	0.1500,	0.0000,	0.1500,	0.0000,	0.0004,	0.1624,	0.0265,
43,	toluene,	3.9000,	0.1048,	3.7952,	0.0000,	1.3699,	4.1096,	0.0210,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.820000,
Water Volume Frac.(l/l), 0.180000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.180000,

Bulk Density (kg/l), 2.3530,

Dilution Factor (Vol. fac.), 7.1903,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 7/15/2009 9:05:43 AM

Sample Name Identification, BP-SO-B04-24

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.2500,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	1.1000,	0.0016,	1.0930,	0.0054,	0.0145,	1.2305,	0.0004,	0.0006,
30,	2-methylnaphthalene,	3.0000,	0.0044,	2.9806,	0.0150,	0.0395,	3.3556,	0.0010,	0.0016,
32,	acenapthene,	1.7000,	0.0043,	1.5776,	0.1181,	0.0386,	1.7761,	0.0079,	0.0113,
31,	acenapthylene,	1.6000,	0.0072,	1.4244,	0.1685,	0.0641,	1.6036,	0.0112,	0.0163,
35,	anthracene,	3.2000,	0.0009,	1.0124,	2.1867,	0.0081,	1.1397,	0.1457,	0.1809,
42,	benzene,	38.0000,	4.9834,	32.8816,	0.1350,	44.6004,	37.0183,	0.0090,	0.0255,
39,	benz(a)anthracene,	4.2000,	0.0000,	3.4381,	0.7618,	0.0003,	3.8707,	0.0508,	0.0492,
40,	benzo(a)pyrene,	3.6000,	0.0000,	2.7866,	0.8134,	0.0001,	3.1372,	0.0542,	0.0475,
50,	benzo(b)fluoranthene,	5.6000,	0.0001,	4.4793,	1.1206,	0.0009,	5.0428,	0.0747,	0.0655,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	3.0000,	0.0047,	2.7159,	0.2794,	0.0419,	3.0576,	0.0186,	0.0248,
38,	chrysene,	4.0000,	0.0000,	0.6847,	3.3152,	0.0004,	0.7709,	0.2210,	0.2141,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	9.9000,	0.0027,	8.2666,	1.6307,	0.0245,	9.3066,	0.1087,	0.1189,
28,	naphthalene,	19.0000,	0.1779,	18.3855,	0.4366,	1.5922,	20.6985,	0.0291,	0.0502,
34,	phenanthrene,	11.0000,	0.0090,	10.0173,	0.9737,	0.0806,	11.2776,	0.0649,	0.0806,
37,	pyrene,	6.5000,	0.0016,	4.9687,	1.5296,	0.0147,	5.5938,	0.1019,	0.1115,
43,	toluene,	2.3000,	0.0922,	2.1982,	0.0096,	0.8249,	2.4747,	0.0006,	0.0015,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.250000,
NAPL Volume Frac.(l/l), 0.000034,
Soil Volume Frac.(l/l), 0.749966,
Porosity (Volume Frac.), 0.250034,

Bulk Density (kg/l), 2.2374,
NAPL Density (kg/l), 0.8997,

NAPL Saturation (%), 0.0134,
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Numerical Accuracy Information
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The solution converged in 6 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/14/2009 12:39:19 PM

Sample Name Identification, BP-SO-B05-8

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1000,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	24.0000,	0.0071,	14.2432,	9.7498,	0.1748,	14.8598,	0.0075,	0.0068,
30,	2-methylnaphthalene,	63.0000,	0.0184,	37.1506,	25.8310,	0.4560,	38.7589,	0.0198,	0.0180,
32,	acenapthene,	4.6000,	0.0004,	0.4053,	4.1943,	0.0092,	0.4229,	0.0032,	0.0027,
31,	acenapthylene,	22.0000,	0.0021,	1.2676,	20.7302,	0.0529,	1.3225,	0.0159,	0.0135,
35,	anthracene,	2.2000,	0.0000,	0.0073,	2.1927,	0.0001,	0.0077,	0.0017,	0.0012,
42,	benzene,	470.0000,	14.7233,	290.4106,	164.8660,	365.0394,	302.9827,	0.1267,	0.2086,
39,	benz(a)anthracene,	1.1000,	0.0000,	0.0348,	1.0652,	0.0000,	0.0363,	0.0008,	0.0005,
40,	benzo(a)pyrene,	0.7800,	0.0000,	0.0189,	0.7611,	0.0000,	0.0197,	0.0006,	0.0003,
50,	benzo(b)fluoranthene,	1.2000,	0.0000,	0.0337,	1.1663,	0.0000,	0.0352,	0.0009,	0.0005,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	14.0000,	0.0005,	0.9196,	13.0799,	0.0131,	0.9594,	0.0100,	0.0078,
38,	chrysene,	1.3000,	0.0000,	0.0019,	1.2981,	0.0000,	0.0020,	0.0010,	0.0006,
44,	ethylbenzene,	17.0000,	0.0388,	10.1543,	6.8068,	0.9631,	10.5939,	0.0052,	0.0063,
36,	fluoranthene,	3.7000,	0.0000,	0.1309,	3.5691,	0.0004,	0.1365,	0.0027,	0.0017,
28,	naphthalene,	1000.0000,	0.7551,	233.2740,	765.9709,	18.7210,	243.3726,	0.5885,	0.5906,
34,	phenanthrene,	14.0000,	0.0003,	0.9695,	13.0302,	0.0072,	1.0115,	0.0100,	0.0072,
37,	pyrene,	3.1000,	0.0000,	0.0712,	3.0288,	0.0002,	0.0742,	0.0023,	0.0015,
43,	toluene,	330.0000,	2.8571,	203.6953,	123.4475,	70.8378,	212.5134,	0.0948,	0.1324,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.100000,
NAPL Volume Frac.(l/l), 0.003227,
Soil Volume Frac.(l/l), 0.896773,
Porosity (Volume Frac.), 0.103227,

Bulk Density (kg/l), 2.4793,
NAPL Density (kg/l), 0.8919,

NAPL Saturation (%), 3.1261,
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Numerical Accuracy Information
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The solution converged in 168 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/8/2009 2:44:13 PM

Sample Name Identification, BP-SO-B05-14

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.3500,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	38.0000,	0.0493,	20.5223,	17.4284,	0.2911,	24.7457,	0.0116,	0.0113,
30,	2-methylnaphthalene,	98.0000,	0.1262,	52.5463,	45.3275,	0.7454,	63.3602,	0.0301,	0.0293,
32,	acenapthene,	7.5000,	0.0024,	0.5418,	6.9558,	0.0142,	0.6533,	0.0046,	0.0042,
31,	acenapthylene,	31.0000,	0.0119,	1.4556,	29.5325,	0.0702,	1.7552,	0.0196,	0.0179,
35,	anthracene,	4.4000,	0.0000,	0.0118,	4.3881,	0.0001,	0.0143,	0.0029,	0.0023,
42,	benzene,	220.0000,	27.7483,	112.8033,	79.4484,	163.8772,	136.0181,	0.0528,	0.0936,
39,	benz(a)anthracene,	2.0000,	0.0000,	0.0513,	1.9487,	0.0000,	0.0618,	0.0013,	0.0008,
40,	benzo(a)pyrene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
50,	benzo(b)fluoranthene,	1.1000,	0.0000,	0.0250,	1.0750,	0.0000,	0.0302,	0.0007,	0.0004,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	25.0000,	0.0037,	1.3406,	23.6557,	0.0221,	1.6165,	0.0157,	0.0131,
38,	chrysene,	2.1000,	0.0000,	0.0025,	2.0975,	0.0000,	0.0030,	0.0014,	0.0008,
44,	ethylbenzene,	7.7000,	0.0772,	4.1617,	3.4611,	0.4562,	5.0182,	0.0023,	0.0030,
36,	fluoranthene,	6.3000,	0.0001,	0.1808,	6.1191,	0.0006,	0.2180,	0.0041,	0.0028,
28,	naphthalene,	1300.0000,	4.0117,	255.4320,	1040.5563,	23.6923,	307.9995,	0.6911,	0.7474,
34,	phenanthrene,	27.0000,	0.0022,	1.5275,	25.4703,	0.0132,	1.8419,	0.0169,	0.0132,
37,	pyrene,	4.9000,	0.0000,	0.0911,	4.8089,	0.0003,	0.1098,	0.0032,	0.0022,
43,	toluene,	140.0000,	5.2353,	76.9259,	57.8387,	30.9191,	92.7572,	0.0384,	0.0578,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.350000,
NAPL Volume Frac.(l/l), 0.003112,
Soil Volume Frac.(l/l), 0.646888,
Porosity (Volume Frac.), 0.353112,

Bulk Density (kg/l), 2.0670,
NAPL Density (kg/l), 0.8966,

NAPL Saturation (%), 0.8814,
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Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 105 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/14/2009 1:07:31 PM

Sample Name Identification, BP-SO-B05-20
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.3800,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	4.4000,	0.0119,	4.3881,	0.0000,	0.0636,	5.4029,	0.0030,
30,	2-methylnaphthalene,	11.0000,	0.0298,	10.9702,	0.0000,	0.1589,	13.5074,	0.0075,
32,	acenapthene,	0.8400,	0.0042,	0.8358,	0.0000,	0.0224,	1.0291,	0.0078,
31,	acenapthylene,	3.7000,	0.0339,	3.6661,	0.0000,	0.1806,	4.5140,	0.0550,
35,	anthracene,	0.5400,	0.0009,	0.5391,	0.0000,	0.0047,	0.6638,	0.1262,
42,	benzene,	21.0000,	4.5765,	16.4235,	0.0000,	24.3638,	20.2220,	0.0167,
39,	benz(a)anthracene,	0.5100,	0.0000,	0.5100,	0.0000,	0.0000,	0.6279,	0.0096,
40,	benzo(a)pyrene,	0.4500,	0.0000,	0.4500,	0.0000,	0.0000,	0.5541,	0.0101,
50,	benzo(b)fluoranthene,	0.3700,	0.0000,	0.3700,	0.0000,	0.0001,	0.4556,	0.0071,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	2.8000,	0.0088,	2.7912,	0.0000,	0.0471,	3.4367,	0.0334,
38,	chrysene,	0.5100,	0.0001,	0.5099,	0.0000,	0.0003,	0.6279,	0.2089,
44,	ethylbenzene,	0.5900,	0.0121,	0.5779,	0.0000,	0.0647,	0.7115,	0.0005,
36,	fluoranthene,	1.2000,	0.0007,	1.1993,	0.0000,	0.0039,	1.4766,	0.0226,
28,	naphthalene,	120.0000,	2.0976,	117.9024,	0.0000,	11.1670,	145.1714,	0.4218,
34,	phenanthrene,	3.2000,	0.0053,	3.1947,	0.0000,	0.0281,	3.9336,	0.0336,
37,	pyrene,	0.8900,	0.0005,	0.8895,	0.0000,	0.0029,	1.0952,	0.0261,
43,	toluene,	12.0000,	0.8589,	11.1411,	0.0000,	4.5726,	13.7178,	0.0102,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.620000,
Water Volume Frac.(l/l), 0.380000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.380000,

Bulk Density (kg/l), 2.0230,

Dilution Factor (Vol. fac.), 0.1975,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 7/15/2009 2:18:18 PM

Sample Name Identification, BP-SO-B06-8

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1900,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	18.0000,	0.0132,	12.6912,	5.2955,	0.1627,	13.8265,	0.0069,	0.0063,
30,	2-methylnaphthalene,	44.0000,	0.0322,	30.8799,	13.0879,	0.3958,	33.6423,	0.0171,	0.0156,
32,	acenapthene,	8.2000,	0.0022,	1.1218,	7.0760,	0.0266,	1.2222,	0.0092,	0.0078,
31,	acenapthylene,	8.2000,	0.0027,	0.7474,	7.4500,	0.0326,	0.8142,	0.0097,	0.0083,
35,	anthracene,	1.9000,	0.0000,	0.0104,	1.8896,	0.0001,	0.0113,	0.0025,	0.0018,
42,	benzene,	440.0000,	32.3677,	302.8363,	104.7960,	397.5025,	329.9271,	0.1369,	0.2271,
39,	benz(a)anthracene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
40,	benzo(a)pyrene,	0.0600,	0.0000,	0.0023,	0.0577,	0.0000,	0.0026,	0.0001,	0.0000,
50,	benzo(b)fluoranthene,	0.1000,	0.0000,	0.0045,	0.0955,	0.0000,	0.0049,	0.0001,	0.0001,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	10.0000,	0.0013,	1.0340,	8.9647,	0.0154,	1.1265,	0.0117,	0.0091,
38,	chrysene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
44,	ethylbenzene,	5.5000,	0.0313,	3.8823,	1.5864,	0.3845,	4.2296,	0.0021,	0.0025,
36,	fluoranthene,	3.2000,	0.0000,	0.1815,	3.0184,	0.0005,	0.1978,	0.0039,	0.0025,
28,	naphthalene,	710.0000,	1.6105,	236.0087,	472.3808,	19.7786,	257.1214,	0.6169,	0.6239,
34,	phenanthrene,	12.0000,	0.0008,	1.3053,	10.6939,	0.0102,	1.4221,	0.0140,	0.0102,
37,	pyrene,	2.8000,	0.0000,	0.1039,	2.6961,	0.0003,	0.1132,	0.0035,	0.0023,
43,	toluene,	170.0000,	3.5933,	121.5162,	44.8905,	44.1289,	132.3867,	0.0586,	0.0825,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.190000,
NAPL Volume Frac.(l/l), 0.001787,
Soil Volume Frac.(l/l), 0.808213,
Porosity (Volume Frac.), 0.191787,

Bulk Density (kg/l), 2.3334,
NAPL Density (kg/l), 0.8933,

NAPL Saturation (%), 0.9316,
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Numerical Accuracy Information
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The solution converged in 399 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/15/2009 2:34:19 PM

Sample Name Identification, BP-SO-B06-12

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.2600,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	16.0000,	0.0102,	6.4732,	9.5166,	0.0865,	7.3511,	0.0044,	0.0034,
30,	2-methylnaphthalene,	40.0000,	0.0252,	16.0329,	23.9420,	0.2142,	18.2071,	0.0111,	0.0084,
32,	acenapthene,	2.0000,	0.0002,	0.0861,	1.9136,	0.0021,	0.0978,	0.0009,	0.0006,
31,	acenapthylene,	8.4000,	0.0012,	0.2325,	8.1663,	0.0106,	0.2640,	0.0038,	0.0027,
35,	anthracene,	1.2000,	0.0000,	0.0019,	1.1981,	0.0000,	0.0021,	0.0006,	0.0003,
42,	benzene,	1500.0000,	101.3321,	630.2439,	768.4240,	862.3059,	715.7139,	0.3549,	0.4927,
39,	benz(a)anthracene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
40,	benzo(a)pyrene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
50,	benzo(b)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	9.1000,	0.0005,	0.2884,	8.8110,	0.0045,	0.3276,	0.0041,	0.0027,
38,	chrysene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
44,	ethylbenzene,	29.0000,	0.1435,	11.8280,	17.0285,	1.2211,	13.4320,	0.0079,	0.0080,
36,	fluoranthene,	2.1000,	0.0000,	0.0352,	2.0647,	0.0001,	0.0400,	0.0010,	0.0005,
28,	naphthalene,	720.0000,	0.9167,	89.3036,	629.7796,	7.8011,	101.4145,	0.2909,	0.2461,
34,	phenanthrene,	8.5000,	0.0003,	0.2846,	8.2151,	0.0023,	0.3232,	0.0038,	0.0023,
37,	pyrene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
43,	toluene,	770.0000,	14.5997,	328.2077,	427.1926,	124.2391,	372.7173,	0.1973,	0.2322,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.260000,
NAPL Volume Frac.(l/l), 0.004790,
Soil Volume Frac.(l/l), 0.735210,
Porosity (Volume Frac.), 0.264790,

Bulk Density (kg/l), 2.2125,
NAPL Density (kg/l), 0.8804,

NAPL Saturation (%), 1.8091,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/15/2009 2:49:12 PM

Sample Name Identification, BP-SO-B06-16
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.3700,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	1.0000,	0.0026,	0.9974,	0.0000,	0.0143,	1.2184,	0.0006,
30,	2-methylnaphthalene,	2.6000,	0.0068,	2.5932,	0.0000,	0.0373,	3.1680,	0.0017,
32,	acenapthene,	0.1600,	0.0008,	0.1592,	0.0000,	0.0042,	0.1945,	0.0014,
31,	acenapthylene,	0.6100,	0.0054,	0.6046,	0.0000,	0.0295,	0.7386,	0.0087,
35,	anthracene,	0.1200,	0.0002,	0.1198,	0.0000,	0.0010,	0.1464,	0.0268,
42,	benzene,	760.0000,	160.1654,	599.8346,	0.0000,	882.8577,	732.7719,	0.5818,
39,	benz(a)anthracene,	0.0840,	0.0000,	0.0840,	0.0000,	0.0000,	0.1026,	0.0015,
40,	benzo(a)pyrene,	0.0650,	0.0000,	0.0650,	0.0000,	0.0000,	0.0794,	0.0014,
50,	benzo(b)fluoranthene,	0.0870,	0.0000,	0.0870,	0.0000,	0.0000,	0.1063,	0.0016,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	0.5800,	0.0018,	0.5782,	0.0000,	0.0097,	0.7064,	0.0066,
38,	chrysene,	0.0800,	0.0000,	0.0800,	0.0000,	0.0000,	0.0977,	0.0313,
44,	ethylbenzene,	12.0000,	0.2370,	11.7630,	0.0000,	1.3064,	14.3700,	0.0099,
36,	fluoranthene,	0.2600,	0.0002,	0.2598,	0.0000,	0.0008,	0.3174,	0.0047,
28,	naphthalene,	16.0000,	0.2682,	15.7318,	0.0000,	1.4783,	19.2183,	0.0538,
34,	phenanthrene,	0.8600,	0.0014,	0.8586,	0.0000,	0.0075,	1.0489,	0.0086,
37,	pyrene,	0.2200,	0.0001,	0.2199,	0.0000,	0.0007,	0.2686,	0.0062,
43,	toluene,	310.0000,	21.3256,	288.6744,	0.0000,	117.5504,	352.6513,	0.2534,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.630000,
Water Volume Frac.(l/l), 0.370000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.370000,

Bulk Density (kg/l), 2.0395,

Dilution Factor (Vol. fac.), 0.1533,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/31/2009 8:10:39 AM

Sample Name Identification, BP-SO-B07-12-DL

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1600,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	11.0000,	0.0071,	8.4171,	2.5758,	0.1062,	9.0272,	0.0049,	0.0041,
30,	2-methylnaphthalene,	29.0000,	0.0187,	22.1089,	6.8724,	0.2790,	23.7115,	0.0130,	0.0110,
32,	acenapthene,	1.9000,	0.0005,	0.3376,	1.5619,	0.0079,	0.3621,	0.0030,	0.0023,
31,	acenapthylene,	8.7000,	0.0030,	1.0464,	7.6505,	0.0449,	1.1223,	0.0145,	0.0114,
35,	anthracene,	1.1000,	0.0000,	0.0082,	1.0918,	0.0001,	0.0088,	0.0021,	0.0014,
42,	benzene,	680.0000,	43.9947,	507.2641,	128.7412,	655.4631,	544.0344,	0.2443,	0.3746,
39,	benz(a)anthracene,	0.4600,	0.0000,	0.0313,	0.4287,	0.0000,	0.0336,	0.0008,	0.0004,
40,	benzo(a)pyrene,	0.3000,	0.0000,	0.0158,	0.2842,	0.0000,	0.0169,	0.0005,	0.0003,
50,	benzo(b)fluoranthene,	0.2700,	0.0000,	0.0164,	0.2536,	0.0000,	0.0176,	0.0005,	0.0002,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	6.8000,	0.0009,	0.9240,	5.8751,	0.0136,	0.9909,	0.0111,	0.0080,
38,	chrysene,	0.4400,	0.0000,	0.0015,	0.4385,	0.0000,	0.0016,	0.0008,	0.0004,
44,	ethylbenzene,	8.4000,	0.0421,	6.4307,	1.9272,	0.6270,	6.8969,	0.0037,	0.0041,
36,	fluoranthene,	1.4000,	0.0000,	0.1061,	1.2939,	0.0003,	0.1138,	0.0025,	0.0015,
28,	naphthalene,	420.0000,	0.9402,	169.8009,	249.2588,	14.0084,	182.1093,	0.4730,	0.4419,
34,	phenanthrene,	7.2000,	0.0005,	1.0272,	6.1722,	0.0079,	1.1017,	0.0117,	0.0079,
37,	pyrene,	1.4000,	0.0000,	0.0699,	1.3301,	0.0002,	0.0750,	0.0025,	0.0015,
43,	toluene,	250.0000,	4.6325,	193.0605,	52.3070,	69.0183,	207.0550,	0.0993,	0.1290,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.160000,
NAPL Volume Frac.(l/l), 0.001256,
Soil Volume Frac.(l/l), 0.838744,
Porosity (Volume Frac.), 0.161256,

Bulk Density (kg/l), 2.3838,
NAPL Density (kg/l), 0.8882,
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NAPL Saturation (%), 0.7790,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 924 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/16/2009 1:39:57 PM

Sample Name Identification, BP-SO-B08-6

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.2400,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	2.7000,	0.0032,	2.2866,	0.4102,	0.0301,	2.5601,	0.0012,	0.0012,
30,	2-methylnaphthalene,	1.8000,	0.0021,	1.5207,	0.2771,	0.0200,	1.7027,	0.0008,	0.0008,
32,	acenapthene,	14.0000,	0.0098,	3.7688,	10.2214,	0.0917,	4.2197,	0.0296,	0.0268,
31,	acenapthylene,	2.7000,	0.0024,	0.5103,	2.1872,	0.0229,	0.5714,	0.0063,	0.0058,
35,	anthracene,	1.8000,	0.0000,	0.0227,	1.7773,	0.0002,	0.0254,	0.0051,	0.0040,
42,	benzene,	130.0000,	14.4553,	100.5796,	14.9651,	135.6776,	112.6124,	0.0433,	0.0775,
39,	benz(a)anthracene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
40,	benzo(a)pyrene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
50,	benzo(b)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	6.7000,	0.0023,	1.4167,	5.2810,	0.0217,	1.5861,	0.0153,	0.0129,
38,	chrysene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
44,	ethylbenzene,	36.0000,	0.3290,	30.3405,	5.3305,	3.0882,	33.9703,	0.0154,	0.0203,
36,	fluoranthene,	1.9000,	0.0001,	0.2332,	1.6668,	0.0007,	0.2610,	0.0048,	0.0033,
28,	naphthalene,	550.0000,	2.6992,	294.1547,	253.1461,	25.3343,	329.3459,	0.7328,	0.7992,
34,	phenanthrene,	8.0000,	0.0015,	1.7686,	6.2299,	0.0141,	1.9802,	0.0180,	0.0141,
37,	pyrene,	1.4000,	0.0000,	0.1152,	1.2848,	0.0003,	0.1289,	0.0037,	0.0026,
43,	toluene,	54.0000,	1.7914,	45.0526,	7.1560,	16.8141,	50.4424,	0.0207,	0.0314,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.240000,
NAPL Volume Frac.(l/l), 0.000778,
Soil Volume Frac.(l/l), 0.759222,
Porosity (Volume Frac.), 0.240778,

Bulk Density (kg/l), 2.2526,
NAPL Density (kg/l), 0.8972,

NAPL Saturation (%), 0.3232,
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Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 398 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/16/2009 1:29:52 PM

Sample Name Identification, BP-SO-B08-10
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1300,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	2.2000,	0.0015,	2.1985,	0.0000,	0.0273,	2.3225,	0.0025,
30,	2-methylnaphthalene,	5.4000,	0.0036,	5.3964,	0.0000,	0.0671,	5.7007,	0.0063,
32,	acenapthene,	2.7000,	0.0033,	2.6967,	0.0000,	0.0619,	2.8488,	0.0432,
31,	acenapthylene,	1.2000,	0.0027,	1.1973,	0.0000,	0.0506,	1.2648,	0.0307,
35,	anthracene,	0.5200,	0.0002,	0.5198,	0.0000,	0.0039,	0.5491,	0.2079,
42,	benzene,	15.0000,	0.9542,	14.0458,	0.0000,	17.8768,	14.8378,	0.0244,
39,	benz(a)anthracene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
40,	benzo(a)pyrene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
50,	benzo(b)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	1.7000,	0.0013,	1.6987,	0.0000,	0.0246,	1.7945,	0.0347,
38,	chrysene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
44,	ethylbenzene,	0.5300,	0.0027,	0.5273,	0.0000,	0.0506,	0.5570,	0.0008,
36,	fluoranthene,	0.7500,	0.0001,	0.7499,	0.0000,	0.0021,	0.7922,	0.0241,
28,	naphthalene,	90.0000,	0.3887,	89.6113,	0.0000,	7.2819,	94.6642,	0.5480,
34,	phenanthrene,	2.3000,	0.0009,	2.2991,	0.0000,	0.0173,	2.4287,	0.0414,
37,	pyrene,	0.5100,	0.0001,	0.5099,	0.0000,	0.0014,	0.5387,	0.0256,
43,	toluene,	6.7000,	0.1236,	6.5764,	0.0000,	2.3157,	6.9472,	0.0103,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.870000,
Water Volume Frac.(l/l), 0.130000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.130000,

Bulk Density (kg/l), 2.4355,

Dilution Factor (Vol. fac.), 1.3856,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/31/2009 8:14:25 AM

Sample Name Identification, BP-SO-B08-16
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.2900,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	2.0000,	0.0036,	1.9964,	0.0000,	0.0271,	2.3041,	0.0022,
30,	2-methylnaphthalene,	5.0000,	0.0091,	4.9909,	0.0000,	0.0678,	5.7602,	0.0057,
32,	acenapthene,	1.1000,	0.0037,	1.0963,	0.0000,	0.0275,	1.2653,	0.0170,
31,	acenapthylene,	1.5000,	0.0092,	1.4908,	0.0000,	0.0688,	1.7206,	0.0371,
35,	anthracene,	0.3500,	0.0004,	0.3496,	0.0000,	0.0029,	0.4035,	0.1357,
42,	benzene,	50.0000,	7.8309,	42.1691,	0.0000,	58.6370,	48.6688,	0.0710,
39,	benz(a)anthracene,	0.1800,	0.0000,	0.1800,	0.0000,	0.0000,	0.2077,	0.0056,
40,	benzo(a)pyrene,	0.1000,	0.0000,	0.1000,	0.0000,	0.0000,	0.1154,	0.0037,
50,	benzo(b)fluoranthene,	0.1100,	0.0000,	0.1100,	0.0000,	0.0000,	0.1270,	0.0035,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	1.4000,	0.0029,	1.3971,	0.0000,	0.0221,	1.6124,	0.0277,
38,	chrysene,	0.1500,	0.0000,	0.1500,	0.0000,	0.0001,	0.1731,	0.1019,
44,	ethylbenzene,	5.6000,	0.0774,	5.5226,	0.0000,	0.5794,	6.3738,	0.0081,
36,	fluoranthene,	0.5500,	0.0002,	0.5498,	0.0000,	0.0017,	0.6345,	0.0172,
28,	naphthalene,	74.0000,	0.8671,	73.1329,	0.0000,	6.4927,	84.4051,	0.4339,
34,	phenanthrene,	1.9000,	0.0021,	1.8979,	0.0000,	0.0156,	2.1904,	0.0331,
37,	pyrene,	0.4100,	0.0002,	0.4098,	0.0000,	0.0012,	0.4730,	0.0200,
43,	toluene,	53.0000,	2.5899,	50.4101,	0.0000,	19.3933,	58.1799,	0.0768,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.710000,
Water Volume Frac.(l/l), 0.290000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.290000,

Bulk Density (kg/l), 2.1715,

Dilution Factor (Vol. fac.), 1.1183,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 7/16/2009 2:14:36 PM

Sample Name Identification, BP-SO-B09-8
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1900,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	3.7000,	0.0038,	3.6962,	0.0000,	0.0473,	4.0233,	0.0037,
30,	2-methylnaphthalene,	7.6000,	0.0079,	7.5921,	0.0000,	0.0972,	8.2641,	0.0078,
32,	acenapthene,	2.0000,	0.0038,	1.9962,	0.0000,	0.0472,	2.1729,	0.0280,
31,	acenapthylene,	1.4000,	0.0049,	1.3951,	0.0000,	0.0607,	1.5185,	0.0313,
35,	anthracene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
42,	benzene,	56.0000,	5.3966,	50.6034,	0.0000,	66.3645,	55.0826,	0.0768,
39,	benz(a)anthracene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
40,	benzo(a)pyrene,	0.8700,	0.0000,	0.8700,	0.0000,	0.0000,	0.9470,	0.0291,
50,	benzo(b)fluoranthene,	1.1000,	0.0000,	1.1000,	0.0000,	0.0002,	1.1973,	0.0315,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	6.1000,	0.0074,	6.0926,	0.0000,	0.0908,	6.6319,	0.1089,
38,	chrysene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
44,	ethylbenzene,	4.1000,	0.0327,	4.0673,	0.0000,	0.4025,	4.4273,	0.0054,
36,	fluoranthene,	1.8000,	0.0004,	1.7996,	0.0000,	0.0052,	1.9589,	0.0507,
28,	naphthalene,	82.0000,	0.5546,	81.4454,	0.0000,	6.8196,	88.6547,	0.4359,
34,	phenanthrene,	2.9000,	0.0018,	2.8982,	0.0000,	0.0225,	3.1547,	0.0457,
37,	pyrene,	2.3000,	0.0005,	2.2995,	0.0000,	0.0066,	2.5030,	0.1011,
43,	toluene,	33.0000,	0.9458,	32.0542,	0.0000,	11.6305,	34.8915,	0.0441,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.810000,
Water Volume Frac.(l/l), 0.190000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.190000,

Bulk Density (kg/l), 2.3365,

Dilution Factor (Vol. fac.), 1.0264,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 7/16/2009 2:05:10 PM

Sample Name Identification, BP-SO-B09-14

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1800,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	5.9000,	0.0008,	0.7585,	5.1407,	0.0098,	0.8298,	0.0005,	0.0004,
30,	2-methylnaphthalene,	14.0000,	0.0018,	1.7755,	12.2227,	0.0229,	1.9424,	0.0013,	0.0009,
32,	acenapthene,	3.1000,	0.0001,	0.0300,	3.0700,	0.0007,	0.0328,	0.0003,	0.0002,
31,	acenapthylene,	5.4000,	0.0001,	0.0331,	5.3667,	0.0015,	0.0363,	0.0006,	0.0004,
35,	anthracene,	27.0000,	0.0000,	0.0091,	26.9909,	0.0001,	0.0100,	0.0029,	0.0016,
42,	benzene,	6100.0000,	93.0033,	907.3018,	5099.6948,	1195.8847,	992.5843,	0.5456,	0.6834,
39,	benz(a)anthracene,	29.0000,	0.0000,	0.0953,	28.9047,	0.0000,	0.1042,	0.0031,	0.0013,
40,	benzo(a)pyrene,	26.0000,	0.0000,	0.0649,	25.9351,	0.0000,	0.0710,	0.0028,	0.0011,
50,	benzo(b)fluoranthene,	37.0000,	0.0000,	0.1077,	36.8923,	0.0000,	0.1178,	0.0039,	0.0015,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	18.0000,	0.0001,	0.1269,	17.8729,	0.0019,	0.1388,	0.0019,	0.0011,
38,	chrysene,	31.0000,	0.0000,	0.0047,	30.9953,	0.0000,	0.0051,	0.0033,	0.0014,
44,	ethylbenzene,	47.0000,	0.0476,	6.1481,	40.8044,	0.6115,	6.7260,	0.0044,	0.0040,
36,	fluoranthene,	89.0000,	0.0001,	0.3283,	88.6716,	0.0009,	0.3592,	0.0095,	0.0046,
28,	naphthalene,	110.0000,	0.0215,	3.2819,	106.6966,	0.2762,	3.5904,	0.0114,	0.0087,
34,	phenanthrene,	94.0000,	0.0004,	0.7011,	93.2984,	0.0055,	0.7670,	0.0100,	0.0055,
37,	pyrene,	52.0000,	0.0000,	0.1231,	51.8769,	0.0004,	0.1347,	0.0055,	0.0027,
43,	toluene,	2900.0000,	11.7011,	412.5947,	2475.7042,	150.4589,	451.3768,	0.2649,	0.2812,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.180000,
NAPL Volume Frac.(l/l), 0.021635,
Soil Volume Frac.(l/l), 0.798365,
Porosity (Volume Frac.), 0.201635,

Bulk Density (kg/l), 2.3145,
NAPL Density (kg/l), 0.8719,

NAPL Saturation (%), 10.7296,

Numerical Accuracy Information
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The solution converged in 16 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/16/2009 1:56:52 PM

Sample Name Identification, BP-SO-B09-18

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.3300,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	3.0000,	0.0008,	0.3392,	2.6600,	0.0048,	0.4078,	0.0003,	0.0002,
30,	2-methylnaphthalene,	7.7000,	0.0019,	0.8587,	6.8394,	0.0121,	1.0322,	0.0007,	0.0005,
32,	acenapthene,	0.7100,	0.0000,	0.0059,	0.7040,	0.0002,	0.0071,	0.0001,	0.0000,
31,	acenapthylene,	1.1000,	0.0000,	0.0058,	1.0941,	0.0003,	0.0070,	0.0001,	0.0001,
35,	anthracene,	7.8000,	0.0000,	0.0023,	7.7977,	0.0000,	0.0027,	0.0008,	0.0004,
42,	benzene,	5600.0000,	167.2341,	724.0832,	4708.6826,	1048.6112,	870.3473,	0.4779,	0.5992,
39,	benz(a)anthracene,	11.0000,	0.0000,	0.0313,	10.9687,	0.0000,	0.0376,	0.0011,	0.0005,
40,	benzo(a)pyrene,	8.4000,	0.0000,	0.0181,	8.3819,	0.0000,	0.0218,	0.0009,	0.0003,
50,	benzo(b)fluoranthene,	13.0000,	0.0000,	0.0327,	12.9673,	0.0000,	0.0393,	0.0013,	0.0005,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	2.5000,	0.0000,	0.0153,	2.4847,	0.0003,	0.0183,	0.0003,	0.0001,
38,	chrysene,	11.0000,	0.0000,	0.0014,	10.9986,	0.0000,	0.0017,	0.0011,	0.0005,
44,	ethylbenzene,	350.0000,	0.7014,	40.2479,	309.0507,	4.3980,	48.3780,	0.0314,	0.0289,
36,	fluoranthene,	26.0000,	0.0000,	0.0829,	25.9170,	0.0003,	0.0997,	0.0026,	0.0013,
28,	naphthalene,	130.0000,	0.0496,	3.3655,	126.5849,	0.3112,	4.0453,	0.0128,	0.0098,
34,	phenanthrene,	21.0000,	0.0002,	0.1355,	20.8643,	0.0012,	0.1629,	0.0021,	0.0012,
37,	pyrene,	20.0000,	0.0000,	0.0409,	19.9590,	0.0001,	0.0492,	0.0020,	0.0010,
43,	toluene,	3800.0000,	30.3291,	474.6415,	3295.0294,	190.1729,	570.5186,	0.3344,	0.3555,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.330000,
NAPL Volume Frac.(l/l), 0.020389,
Soil Volume Frac.(l/l), 0.649611,
Porosity (Volume Frac.), 0.350389,

Bulk Density (kg/l), 2.0692,
NAPL Density (kg/l), 0.8698,

NAPL Saturation (%), 5.8189,
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Numerical Accuracy Information
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The solution converged in 16 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/16/2009 2:30:38 PM

Sample Name Identification, BP-SO-B10-4
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.2000,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	1.4000,	0.0016,	1.3984,	0.0000,	0.0180,	1.5304,	0.0009,
30,	2-methylnaphthalene,	2.1000,	0.0023,	2.0977,	0.0000,	0.0270,	2.2956,	0.0014,
32,	acenapthene,	4.3000,	0.0088,	4.2912,	0.0000,	0.1021,	4.6960,	0.0396,
31,	acenapthylene,	3.6000,	0.0135,	3.5865,	0.0000,	0.1570,	3.9248,	0.0531,
35,	anthracene,	1.1000,	0.0007,	1.0993,	0.0000,	0.0086,	1.2030,	0.2536,
42,	benzene,	6.1000,	0.6226,	5.4774,	0.0000,	7.2219,	5.9942,	0.0055,
39,	benz(a)anthracene,	0.8900,	0.0000,	0.8900,	0.0000,	0.0001,	0.9740,	0.0164,
40,	benzo(a)pyrene,	0.6500,	0.0000,	0.6500,	0.0000,	0.0000,	0.7113,	0.0143,
50,	benzo(b)fluoranthene,	0.6400,	0.0000,	0.6400,	0.0000,	0.0001,	0.7004,	0.0121,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	3.0000,	0.0039,	2.9961,	0.0000,	0.0449,	3.2788,	0.0353,
38,	chrysene,	0.8100,	0.0000,	0.8100,	0.0000,	0.0004,	0.8864,	0.3270,
44,	ethylbenzene,	0.5700,	0.0048,	0.5652,	0.0000,	0.0562,	0.6185,	0.0005,
36,	fluoranthene,	2.9000,	0.0007,	2.8993,	0.0000,	0.0083,	3.1728,	0.0538,
28,	naphthalene,	25.0000,	0.1801,	24.8199,	0.0000,	2.0893,	27.1614,	0.0875,
34,	phenanthrene,	3.5000,	0.0024,	3.4976,	0.0000,	0.0273,	3.8276,	0.0363,
37,	pyrene,	2.1000,	0.0005,	2.0995,	0.0000,	0.0060,	2.2975,	0.0608,
43,	toluene,	1.9000,	0.0579,	1.8421,	0.0000,	0.6720,	2.0159,	0.0017,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.800000,
Water Volume Frac.(l/l), 0.200000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.200000,

Bulk Density (kg/l), 2.3200,

Dilution Factor (Vol. fac.), 0.3282,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 7/16/2009 3:10:17 PM

Sample Name Identification, BP-SO-B11-4-DL
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1700,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.2000,	0.0002,	0.1998,	0.0000,	0.0025,	0.2153,	0.0020,
30,	2-methylnaphthalene,	0.5000,	0.0005,	0.4995,	0.0000,	0.0063,	0.5382,	0.0051,
32,	acenapthene,	0.0250,	0.0000,	0.0250,	0.0000,	0.0006,	0.0269,	0.0035,
31,	acenapthylene,	0.0240,	0.0001,	0.0239,	0.0000,	0.0010,	0.0258,	0.0053,
35,	anthracene,	0.0200,	0.0000,	0.0200,	0.0000,	0.0002,	0.0215,	0.0694,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
40,	benzo(a)pyrene,	0.0110,	0.0000,	0.0110,	0.0000,	0.0000,	0.0119,	0.0036,
50,	benzo(b)fluoranthene,	0.0290,	0.0000,	0.0290,	0.0000,	0.0000,	0.0312,	0.0082,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	0.7600,	0.0008,	0.7592,	0.0000,	0.0112,	0.8179,	0.1347,
38,	chrysene,	0.0920,	0.0000,	0.0920,	0.0000,	0.0000,	0.0991,	0.5593,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	0.0840,	0.0000,	0.0840,	0.0000,	0.0002,	0.0905,	0.0235,
28,	naphthalene,	1.9000,	0.0112,	1.8888,	0.0000,	0.1565,	2.0348,	0.1003,
34,	phenanthrene,	0.3000,	0.0002,	0.2998,	0.0000,	0.0023,	0.3230,	0.0469,
37,	pyrene,	0.0850,	0.0000,	0.0850,	0.0000,	0.0002,	0.0916,	0.0371,
43,	toluene,	0.0750,	0.0019,	0.0731,	0.0000,	0.0263,	0.0788,	0.0010,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.830000,
Water Volume Frac.(l/l), 0.170000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.170000,

Bulk Density (kg/l), 2.3695,

Dilution Factor (Vol. fac.), 19.3178,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/31/2009 8:37:28 AM

Sample Name Identification, CT-SO-B01-10
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1000,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.2300,	0.0001,	0.2299,	0.0000,	0.0028,	0.2395,	0.0002,
30,	2-methylnaphthalene,	0.3600,	0.0002,	0.3598,	0.0000,	0.0044,	0.3749,	0.0004,
32,	acenapthene,	0.0470,	0.0000,	0.0470,	0.0000,	0.0011,	0.0489,	0.0007,
31,	acenapthylene,	0.0860,	0.0001,	0.0859,	0.0000,	0.0036,	0.0895,	0.0019,
35,	anthracene,	0.2100,	0.0001,	0.2099,	0.0000,	0.0016,	0.2187,	0.0739,
42,	benzene,	0.4900,	0.0236,	0.4664,	0.0000,	0.5855,	0.4860,	0.0007,
39,	benz(a)anthracene,	0.7700,	0.0000,	0.7700,	0.0000,	0.0001,	0.8023,	0.0217,
40,	benzo(a)pyrene,	0.4700,	0.0000,	0.4700,	0.0000,	0.0000,	0.4897,	0.0158,
50,	benzo(b)fluoranthene,	1.0000,	0.0000,	1.0000,	0.0000,	0.0002,	1.0419,	0.0288,
51,	benzo(k)fluoranthene,	0.0370,	0.0000,	0.0370,	0.0000,	0.0000,	0.0386,	0.0035,
38,	chrysene,	1.1000,	0.0000,	1.1000,	0.0000,	0.0006,	1.1461,	0.6776,
44,	ethylbenzene,	0.0540,	0.0002,	0.0538,	0.0000,	0.0051,	0.0561,	0.0001,
36,	fluoranthene,	2.6000,	0.0003,	2.5997,	0.0000,	0.0071,	2.7087,	0.0737,
33,	9h-fluorene,	0.1100,	0.0001,	0.1099,	0.0000,	0.0016,	0.1145,	0.0020,
28,	naphthalene,	0.9300,	0.0030,	0.9270,	0.0000,	0.0743,	0.9659,	0.0050,
34,	phenanthrene,	2.0000,	0.0006,	1.9994,	0.0000,	0.0149,	2.0832,	0.0317,
37,	pyrene,	1.4000,	0.0002,	1.3998,	0.0000,	0.0038,	1.4585,	0.0619,
43,	toluene,	0.3800,	0.0052,	0.3748,	0.0000,	0.1302,	0.3905,	0.0005,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.900000,
Water Volume Frac.(l/l), 0.100000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.100000,

Bulk Density (kg/l), 2.4850,

Dilution Factor (Vol. fac.), 1.1285,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/5/2009 8:10:57 AM

Sample Name Identification, CT-SO-B01-14
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1500,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.1200,	0.0001,	0.1199,	0.0000,	0.0015,	0.1279,	0.0002,
30,	2-methylnaphthalene,	1.2900,	0.0010,	1.2890,	0.0000,	0.0162,	1.3748,	0.0021,
32,	acenapthene,	0.0520,	0.0001,	0.0519,	0.0000,	0.0012,	0.0554,	0.0012,
31,	acenapthylene,	0.1400,	0.0004,	0.1396,	0.0000,	0.0060,	0.1489,	0.0051,
35,	anthracene,	0.2600,	0.0001,	0.2599,	0.0000,	0.0020,	0.2772,	0.1472,
42,	benzene,	0.6300,	0.0468,	0.5832,	0.0000,	0.7495,	0.6220,	0.0014,
39,	benz(a)anthracene,	0.5400,	0.0000,	0.5400,	0.0000,	0.0000,	0.5760,	0.0245,
40,	benzo(a)pyrene,	0.3900,	0.0000,	0.3900,	0.0000,	0.0000,	0.4160,	0.0211,
50,	benzo(b)fluoranthene,	0.6800,	0.0000,	0.6800,	0.0000,	0.0001,	0.7253,	0.0315,
51,	benzo(k)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	0.6000,	0.0000,	0.6000,	0.0000,	0.0003,	0.6399,	0.5947,
44,	ethylbenzene,	0.0580,	0.0003,	0.0577,	0.0000,	0.0056,	0.0615,	0.0001,
36,	fluoranthene,	1.3000,	0.0002,	1.2998,	0.0000,	0.0036,	1.3863,	0.0593,
33,	9h-fluorene,	0.1900,	0.0002,	0.1898,	0.0000,	0.0028,	0.2025,	0.0055,
28,	naphthalene,	2.0000,	0.0102,	1.9898,	0.0000,	0.1633,	2.1223,	0.0172,
34,	phenanthrene,	1.1000,	0.0005,	1.0995,	0.0000,	0.0084,	1.1727,	0.0280,
37,	pyrene,	0.8400,	0.0001,	0.8399,	0.0000,	0.0024,	0.8958,	0.0597,
43,	toluene,	0.5100,	0.0111,	0.4989,	0.0000,	0.1774,	0.5321,	0.0011,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.850000,
Water Volume Frac.(l/l), 0.150000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.150000,

Bulk Density (kg/l), 2.4025,

Dilution Factor (Vol. fac.), 2.3456,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/5/2009 8:19:46 AM

Sample Name Identification, CT-SO-B01-18

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.2400,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	160.0000,	0.0874,	61.6381,	98.2745,	0.8154,	69.3121,	0.0252,	0.0316,
30,	2-methylnaphthalene,	410.0000,	0.2219,	156.4344,	253.3437,	2.0695,	175.9108,	0.0649,	0.0815,
32,	acenapthene,	19.0000,	0.0020,	0.7568,	18.2412,	0.0185,	0.8510,	0.0047,	0.0054,
31,	acenapthylene,	350.0000,	0.0432,	8.9526,	341.0043,	0.4027,	10.0672,	0.0874,	0.1025,
35,	anthracene,	140.0000,	0.0002,	0.2010,	139.7989,	0.0016,	0.2260,	0.0358,	0.0359,
42,	benzene,	15.0000,	0.8829,	6.0790,	8.0381,	8.2359,	6.8358,	0.0021,	0.0047,
39,	benz(a)anthracene,	130.0000,	0.0000,	1.7965,	128.2035,	0.0001,	2.0201,	0.0328,	0.0257,
40,	benzo(a)pyrene,	99.0000,	0.0000,	1.0421,	97.9579,	0.0000,	1.1718,	0.0251,	0.0178,
50,	benzo(b)fluoranthene,	130.0000,	0.0000,	1.5937,	128.4063,	0.0003,	1.7921,	0.0329,	0.0233,
51,	benzo(k)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	110.0000,	0.0000,	0.0705,	109.9295,	0.0000,	0.0793,	0.0282,	0.0220,
44,	ethylbenzene,	1.3000,	0.0055,	0.5054,	0.7891,	0.0517,	0.5683,	0.0002,	0.0003,
36,	fluoranthene,	350.0000,	0.0017,	5.4237,	344.5746,	0.0160,	6.0989,	0.0883,	0.0779,
33,	9h-fluorene,	190.0000,	0.0092,	5.5669,	184.4239,	0.0858,	6.2600,	0.0472,	0.0507,
28,	naphthalene,	1100.0000,	1.1783,	127.0606,	971.7611,	10.9908,	142.8799,	0.2489,	0.3467,
34,	phenanthrene,	490.0000,	0.0131,	15.1677,	474.8192,	0.1218,	17.0561,	0.1216,	0.1218,
37,	pyrene,	200.0000,	0.0006,	1.9970,	198.0023,	0.0059,	2.2457,	0.0507,	0.0448,
43,	toluene,	26.0000,	0.4261,	10.6046,	14.9692,	3.9750,	11.9249,	0.0038,	0.0074,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.240000,
NAPL Volume Frac.(l/l), 0.008740,
Soil Volume Frac.(l/l), 0.751260,
Porosity (Volume Frac.), 0.248740,

Bulk Density (kg/l), 2.2387,
NAPL Density (kg/l), 0.8998,

NAPL Saturation (%), 3.5135,

Numerical Accuracy Information
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The solution converged in 100 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/5/2009 8:38:48 AM

Sample Name Identification, CT-SO-B02-12
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1600,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.0750,	0.0001,	0.0749,	0.0000,	0.0009,	0.0803,	0.0004,
30,	2-methylnaphthalene,	0.1800,	0.0002,	0.1798,	0.0000,	0.0023,	0.1928,	0.0011,
32,	acenapthene,	0.0270,	0.0000,	0.0270,	0.0000,	0.0006,	0.0289,	0.0022,
31,	acenapthylene,	0.0870,	0.0002,	0.0868,	0.0000,	0.0037,	0.0930,	0.0112,
35,	anthracene,	0.0720,	0.0000,	0.0720,	0.0000,	0.0006,	0.0771,	0.1451,
42,	benzene,	0.1700,	0.0135,	0.1565,	0.0000,	0.2020,	0.1677,	0.0014,
39,	benz(a)anthracene,	0.1500,	0.0000,	0.1500,	0.0000,	0.0000,	0.1608,	0.0242,
40,	benzo(a)pyrene,	0.1100,	0.0000,	0.1100,	0.0000,	0.0000,	0.1179,	0.0212,
50,	benzo(b)fluoranthene,	0.1900,	0.0000,	0.1900,	0.0000,	0.0000,	0.2037,	0.0313,
51,	benzo(k)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	0.1600,	0.0000,	0.1600,	0.0000,	0.0001,	0.1715,	0.5645,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	0.3600,	0.0001,	0.3599,	0.0000,	0.0010,	0.3858,	0.0584,
33,	9h-fluorene,	0.0590,	0.0001,	0.0589,	0.0000,	0.0009,	0.0632,	0.0061,
28,	naphthalene,	1.5000,	0.0082,	1.4918,	0.0000,	0.1230,	1.5990,	0.0460,
34,	phenanthrene,	0.2900,	0.0001,	0.2899,	0.0000,	0.0022,	0.3107,	0.0263,
37,	pyrene,	0.2400,	0.0000,	0.2400,	0.0000,	0.0007,	0.2572,	0.0608,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.840000,
Water Volume Frac.(l/l), 0.160000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.160000,

Bulk Density (kg/l), 2.3860,

Dilution Factor (Vol. fac.), 10.8490,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/31/2009 8:39:08 AM

Sample Name Identification, CT-SO-B02-16

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1400,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	6.7000,	0.0048,	6.6142,	0.0810,	0.0826,	7.0208,	0.0024,	0.0032,
30,	2-methylnaphthalene,	16.0000,	0.0114,	15.7921,	0.1965,	0.1972,	16.7628,	0.0057,	0.0078,
32,	acenapthene,	0.9100,	0.0010,	0.7670,	0.1420,	0.0177,	0.8141,	0.0041,	0.0052,
31,	acenapthylene,	14.0000,	0.0266,	10.8100,	3.1635,	0.4590,	11.4744,	0.0918,	0.1168,
35,	anthracene,	4.5000,	0.0003,	0.7092,	3.7905,	0.0054,	0.7528,	0.1100,	0.1195,
42,	benzene,	1.6000,	0.1092,	1.4758,	0.0150,	1.8873,	1.5665,	0.0004,	0.0011,
39,	benz(a)anthracene,	3.8000,	0.0000,	2.4543,	1.3457,	0.0002,	2.6052,	0.0390,	0.0331,
40,	benzo(a)pyrene,	3.0000,	0.0000,	1.7419,	1.2581,	0.0000,	1.8490,	0.0365,	0.0280,
50,	benzo(b)fluoranthene,	4.0000,	0.0000,	2.4706,	1.5294,	0.0005,	2.6224,	0.0444,	0.0341,
51,	benzo(k)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	3.3000,	0.0000,	0.2542,	3.0458,	0.0001,	0.2699,	0.0884,	0.0750,
44,	ethylbenzene,	0.2900,	0.0016,	0.2850,	0.0034,	0.0275,	0.3025,	0.0001,	0.0002,
36,	fluoranthene,	9.7000,	0.0011,	6.5176,	3.1813,	0.0182,	6.9183,	0.0923,	0.0884,
33,	9h-fluorene,	7.1000,	0.0048,	5.6557,	1.4395,	0.0822,	6.0034,	0.0418,	0.0487,
28,	naphthalene,	110.0000,	0.4888,	103.4335,	6.0777,	8.4455,	109.7915,	0.1764,	0.2664,
34,	phenanthrene,	16.0000,	0.0057,	12.8933,	3.1010,	0.0978,	13.6859,	0.0900,	0.0978,
37,	pyrene,	6.0000,	0.0006,	3.4054,	2.5940,	0.0095,	3.6147,	0.0753,	0.0721,
43,	toluene,	4.5000,	0.0894,	4.3633,	0.0473,	1.5438,	4.6315,	0.0014,	0.0029,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.140000,
NAPL Volume Frac.(l/l), 0.000083,
Soil Volume Frac.(l/l), 0.859917,
Porosity (Volume Frac.), 0.140083,

Bulk Density (kg/l), 2.4189,
NAPL Density (kg/l), 0.8999,

NAPL Saturation (%), 0.0595,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/6/2009 12:46:57 PM

Sample Name Identification, CT-SO-B02-20

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.2000,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	29.0000,	0.0233,	20.9235,	8.0532,	0.2697,	22.9211,	0.0090,	0.0105,
30,	2-methylnaphthalene,	72.0000,	0.0576,	51.7218,	20.2207,	0.6666,	56.6598,	0.0225,	0.0262,
32,	acenapthene,	3.8000,	0.0011,	0.5571,	3.2417,	0.0133,	0.6103,	0.0036,	0.0039,
31,	acenapthylene,	64.0000,	0.0237,	6.2752,	57.7011,	0.2750,	6.8743,	0.0641,	0.0700,
35,	anthracene,	26.0000,	0.0001,	0.1539,	25.8460,	0.0012,	0.1686,	0.0287,	0.0268,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	23.0000,	0.0000,	1.2618,	21.7382,	0.0001,	1.3823,	0.0242,	0.0176,
40,	benzo(a)pyrene,	16.0000,	0.0000,	0.6753,	15.3247,	0.0000,	0.7398,	0.0170,	0.0112,
50,	benzo(b)fluoranthene,	24.0000,	0.0000,	1.1736,	22.8264,	0.0002,	1.2856,	0.0254,	0.0167,
51,	benzo(k)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	20.0000,	0.0000,	0.0530,	19.9470,	0.0000,	0.0580,	0.0222,	0.0161,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	57.0000,	0.0009,	3.4890,	53.5101,	0.0101,	3.8221,	0.0595,	0.0488,
33,	9h-fluorene,	34.0000,	0.0049,	3.7783,	30.2168,	0.0567,	4.1391,	0.0336,	0.0335,
28,	naphthalene,	660.0000,	1.6828,	231.2919,	427.0252,	19.4903,	253.3741,	0.4746,	0.6148,
34,	phenanthrene,	82.0000,	0.0065,	9.5820,	72.4115,	0.0750,	10.4968,	0.0805,	0.0750,
37,	pyrene,	33.0000,	0.0003,	1.3234,	31.6762,	0.0038,	1.4498,	0.0352,	0.0289,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.200000,
NAPL Volume Frac.(l/l), 0.002084,
Soil Volume Frac.(l/l), 0.797916,
Porosity (Volume Frac.), 0.202084,

Bulk Density (kg/l), 2.3164,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 1.0313,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/6/2009 1:00:41 PM

Sample Name Identification, CT-SO-B03-10
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1400,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.0097,	0.0000,	0.0097,	0.0000,	0.0001,	0.0103,	0.0001,
30,	2-methylnaphthalene,	0.0190,	0.0000,	0.0190,	0.0000,	0.0002,	0.0202,	0.0001,
32,	acenapthene,	0.0038,	0.0000,	0.0038,	0.0000,	0.0001,	0.0040,	0.0004,
31,	acenapthylene,	0.0150,	0.0000,	0.0150,	0.0000,	0.0006,	0.0159,	0.0023,
35,	anthracene,	0.0260,	0.0000,	0.0260,	0.0000,	0.0002,	0.0276,	0.0611,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	0.1400,	0.0000,	0.1400,	0.0000,	0.0000,	0.1486,	0.0264,
40,	benzo(a)pyrene,	0.1100,	0.0000,	0.1100,	0.0000,	0.0000,	0.1168,	0.0247,
50,	benzo(b)fluoranthene,	0.2200,	0.0000,	0.2200,	0.0000,	0.0000,	0.2335,	0.0423,
51,	benzo(k)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	0.1700,	0.0000,	0.1700,	0.0000,	0.0001,	0.1804,	0.6995,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	0.3200,	0.0001,	0.3199,	0.0000,	0.0009,	0.3396,	0.0605,
33,	9h-fluorene,	0.0082,	0.0000,	0.0082,	0.0000,	0.0001,	0.0087,	0.0010,
28,	naphthalene,	0.1600,	0.0008,	0.1592,	0.0000,	0.0130,	0.1690,	0.0057,
34,	phenanthrene,	0.1600,	0.0001,	0.1599,	0.0000,	0.0012,	0.1698,	0.0169,
37,	pyrene,	0.2000,	0.0000,	0.2000,	0.0000,	0.0006,	0.2123,	0.0591,
17,	trichloroethylene (tce),	0.0026,	0.0001,	0.0025,	0.0000,	0.0021,	0.0026,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.860000,
Water Volume Frac.(l/l), 0.140000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.140000,

Bulk Density (kg/l), 2.4190,

Dilution Factor (Vol. fac.), 12.9554,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
17	79-01-6	trichloroethylene (tce)	131.5000	1.4600	9.3700	1384.9000	126.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/6/2009 1:19:36 PM

Sample Name Identification, CT-SO-B03-20

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1600,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	8.8000,	0.0065,	7.6504,	1.1432,	0.0965,	8.2042,	0.0026,	0.0037,
30,	2-methylnaphthalene,	13.0000,	0.0095,	11.2786,	1.7119,	0.1423,	12.0951,	0.0039,	0.0056,
32,	acenapthene,	4.0000,	0.0019,	1.2268,	2.7713,	0.0286,	1.3156,	0.0063,	0.0084,
31,	acenapthylene,	33.0000,	0.0208,	7.2167,	25.7625,	0.3096,	7.7392,	0.0586,	0.0788,
35,	anthracene,	30.0000,	0.0002,	0.4532,	29.5466,	0.0035,	0.4860,	0.0672,	0.0771,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	24.0000,	0.0000,	3.1216,	20.8784,	0.0002,	3.3476,	0.0475,	0.0426,
40,	benzo(a)pyrene,	18.0000,	0.0000,	1.8349,	16.1651,	0.0000,	1.9677,	0.0368,	0.0298,
50,	benzo(b)fluoranthene,	25.0000,	0.0000,	2.9235,	22.0765,	0.0006,	3.1351,	0.0502,	0.0407,
51,	benzo(k)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	21.0000,	0.0000,	0.1427,	20.8573,	0.0001,	0.1531,	0.0474,	0.0425,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	79.0000,	0.0022,	11.3597,	67.6382,	0.0321,	12.1820,	0.1539,	0.1556,
33,	9h-fluorene,	32.0000,	0.0077,	7.7938,	24.1985,	0.1145,	8.3580,	0.0550,	0.0677,
28,	naphthalene,	81.0000,	0.2604,	47.0298,	33.7098,	3.8796,	50.4344,	0.0767,	0.1224,
34,	phenanthrene,	120.0000,	0.0157,	30.5002,	89.4841,	0.2336,	32.7082,	0.2035,	0.2336,
37,	pyrene,	44.0000,	0.0008,	4.2750,	39.7242,	0.0121,	4.5845,	0.0904,	0.0914,
17,	trichloroethylene (tce),	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.160000,
NAPL Volume Frac.(l/l), 0.001048,
Soil Volume Frac.(l/l), 0.838952,
Porosity (Volume Frac.), 0.161048,

Bulk Density (kg/l), 2.3842,

NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.6508,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 214 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
17	79-01-6	trichloroethylene (tce)	131.5000	1.4600	9.3700	1384.9000	126.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/6/2009 1:26:08 PM

Sample Name Identification, CT-SO-B03-22
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1400,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	3.6000,	0.0026,	3.5974,	0.0000,	0.0449,	3.8184,	0.0020,
30,	2-methylnaphthalene,	8.5000,	0.0061,	8.4939,	0.0000,	0.1061,	9.0156,	0.0047,
32,	acenapthene,	0.7700,	0.0010,	0.7690,	0.0000,	0.0177,	0.8162,	0.0059,
31,	acenapthylene,	7.1000,	0.0174,	7.0826,	0.0000,	0.3007,	7.5177,	0.0868,
35,	anthracene,	1.7000,	0.0007,	1.6993,	0.0000,	0.0129,	1.8036,	0.3249,
42,	benzene,	0.3200,	0.0221,	0.2979,	0.0000,	0.3810,	0.3163,	0.0002,
39,	benz(a)anthracene,	0.5400,	0.0000,	0.5400,	0.0000,	0.0000,	0.5732,	0.0083,
40,	benzo(a)pyrene,	0.3800,	0.0000,	0.3800,	0.0000,	0.0000,	0.4033,	0.0069,
50,	benzo(b)fluoranthene,	0.5500,	0.0000,	0.5500,	0.0000,	0.0001,	0.5838,	0.0086,
51,	benzo(k)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	0.5600,	0.0000,	0.5600,	0.0000,	0.0003,	0.5944,	0.1874,
44,	ethylbenzene,	0.0950,	0.0005,	0.0945,	0.0000,	0.0091,	0.1003,	0.0001,
36,	fluoranthene,	3.2000,	0.0005,	3.1995,	0.0000,	0.0089,	3.3960,	0.0492,
33,	9h-fluorene,	5.3000,	0.0045,	5.2955,	0.0000,	0.0770,	5.6209,	0.0517,
28,	naphthalene,	43.0000,	0.2022,	42.7978,	0.0000,	3.4944,	45.4268,	0.1251,
34,	phenanthrene,	11.0000,	0.0048,	10.9952,	0.0000,	0.0834,	11.6706,	0.0946,
37,	pyrene,	1.8000,	0.0003,	1.7997,	0.0000,	0.0050,	1.9103,	0.0432,
43,	toluene,	0.4300,	0.0086,	0.4214,	0.0000,	0.1491,	0.4473,	0.0003,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.860000,
Water Volume Frac.(l/l), 0.140000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.140000,

Bulk Density (kg/l), 2.4190,

Dilution Factor (Vol. fac.), 0.1348,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/6/2009 3:58:09 PM

Sample Name Identification, CT-SO-B04-10
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.2400,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.9700,	0.0014,	0.9686,	0.0000,	0.0128,	1.0841,	0.0005,
30,	2-methylnaphthalene,	1.9000,	0.0027,	1.8973,	0.0000,	0.0250,	2.1234,	0.0011,
32,	acenapthene,	0.1600,	0.0004,	0.1596,	0.0000,	0.0039,	0.1786,	0.0012,
31,	acenapthylene,	0.7700,	0.0037,	0.7663,	0.0000,	0.0343,	0.8577,	0.0095,
35,	anthracene,	0.7000,	0.0006,	0.6994,	0.0000,	0.0056,	0.7827,	0.1347,
42,	benzene,	0.5100,	0.0640,	0.4460,	0.0000,	0.6013,	0.4991,	0.0004,
39,	benz(a)anthracene,	1.5000,	0.0000,	1.5000,	0.0000,	0.0001,	1.6787,	0.0231,
40,	benzo(a)pyrene,	1.2000,	0.0000,	1.2000,	0.0000,	0.0000,	1.3430,	0.0221,
50,	benzo(b)fluoranthene,	2.2000,	0.0000,	2.2000,	0.0000,	0.0004,	2.4621,	0.0347,
51,	benzo(k)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	1.8000,	0.0001,	1.7999,	0.0000,	0.0010,	2.0144,	0.6067,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	3.1000,	0.0010,	3.0990,	0.0000,	0.0091,	3.4683,	0.0480,
33,	9h-fluorene,	0.6300,	0.0010,	0.6290,	0.0000,	0.0096,	0.7039,	0.0062,
28,	naphthalene,	9.6000,	0.0872,	9.5128,	0.0000,	0.8190,	10.6464,	0.0280,
34,	phenanthrene,	3.5000,	0.0030,	3.4970,	0.0000,	0.0280,	3.9137,	0.0303,
37,	pyrene,	2.2000,	0.0007,	2.1993,	0.0000,	0.0065,	2.4614,	0.0532,
43,	toluene,	0.2800,	0.0107,	0.2693,	0.0000,	0.1005,	0.3014,	0.0002,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.760000,
Water Volume Frac.(l/l), 0.240000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.240000,

Bulk Density (kg/l), 2.2540,

Dilution Factor (Vol. fac.), 0.0844,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/6/2009 4:01:59 PM

Sample Name Identification, CT-SO-B04-14
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1800,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.4800,	0.0005,	0.4795,	0.0000,	0.0061,	0.5193,	0.0003,
30,	2-methylnaphthalene,	1.2000,	0.0012,	1.1988,	0.0000,	0.0153,	1.2981,	0.0008,
32,	acenapthene,	0.1200,	0.0002,	0.1198,	0.0000,	0.0028,	0.1297,	0.0011,
31,	acenapthylene,	0.6700,	0.0022,	0.6678,	0.0000,	0.0289,	0.7231,	0.0100,
35,	anthracene,	0.8600,	0.0005,	0.8595,	0.0000,	0.0066,	0.9307,	0.2008,
42,	benzene,	0.7500,	0.0681,	0.6819,	0.0000,	0.8897,	0.7384,	0.0007,
39,	benz(a)anthracene,	1.4000,	0.0000,	1.4000,	0.0000,	0.0001,	1.5160,	0.0262,
40,	benzo(a)pyrene,	1.2000,	0.0000,	1.2000,	0.0000,	0.0000,	1.2994,	0.0268,
50,	benzo(b)fluoranthene,	1.6000,	0.0000,	1.6000,	0.0000,	0.0003,	1.7325,	0.0306,
51,	benzo(k)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	1.3000,	0.0001,	1.2999,	0.0000,	0.0007,	1.4076,	0.5316,
44,	ethylbenzene,	0.0400,	0.0003,	0.0397,	0.0000,	0.0039,	0.0430,	0.0000,
36,	fluoranthene,	2.8000,	0.0006,	2.7994,	0.0000,	0.0080,	3.0313,	0.0526,
33,	9h-fluorene,	0.6000,	0.0007,	0.5993,	0.0000,	0.0089,	0.6490,	0.0072,
28,	naphthalene,	7.1000,	0.0450,	7.0550,	0.0000,	0.5876,	7.6394,	0.0252,
34,	phenanthrene,	2.6000,	0.0015,	2.5985,	0.0000,	0.0201,	2.8137,	0.0273,
37,	pyrene,	2.0000,	0.0004,	1.9996,	0.0000,	0.0057,	2.1652,	0.0587,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.820000,
Water Volume Frac.(l/l), 0.180000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.180000,

Bulk Density (kg/l), 2.3530,

Dilution Factor (Vol. fac.), 0.3595,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/6/2009 4:41:41 PM

Sample Name Identification, CT-SO-B04-18

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.2400,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	30.0000,	0.0315,	22.3833,	7.5853,	0.2950,	25.0758,	0.0092,	0.0114,
30,	2-methylnaphthalene,	74.0000,	0.0773,	54.9931,	18.9296,	0.7248,	61.6083,	0.0229,	0.0285,
32,	acenapthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
31,	acenapthylene,	49.0000,	0.0257,	5.3842,	43.5901,	0.2413,	6.0318,	0.0528,	0.0614,
35,	anthracene,	28.0000,	0.0002,	0.1881,	27.8117,	0.0015,	0.2107,	0.0337,	0.0334,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	31.0000,	0.0000,	1.9173,	29.0827,	0.0002,	2.1480,	0.0352,	0.0273,
40,	benzo(a)pyrene,	24.0000,	0.0000,	1.1439,	22.8560,	0.0000,	1.2816,	0.0277,	0.0194,
50,	benzo(b)fluoranthene,	33.0000,	0.0000,	1.8206,	31.1793,	0.0004,	2.0396,	0.0378,	0.0265,
51,	benzo(k)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	27.0000,	0.0000,	0.0812,	26.9188,	0.0000,	0.0910,	0.0326,	0.0253,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	73.0000,	0.0016,	5.0332,	67.9653,	0.0148,	5.6386,	0.0823,	0.0720,
33,	9h-fluorene,	40.0000,	0.0081,	4.9732,	35.0186,	0.0763,	5.5715,	0.0424,	0.0452,
28,	naphthalene,	470.0000,	1.6392,	178.3847,	289.9761,	15.3725,	199.8428,	0.3511,	0.4849,
34,	phenanthrene,	110.0000,	0.0123,	14.3705,	95.6172,	0.1150,	16.0991,	0.1158,	0.1150,
37,	pyrene,	49.0000,	0.0007,	2.2198,	46.7795,	0.0065,	2.4868,	0.0566,	0.0496,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.240000,
NAPL Volume Frac.(l/l), 0.001859,
Soil Volume Frac.(l/l), 0.758141,
Porosity (Volume Frac.), 0.241859,

Bulk Density (kg/l), 2.2507,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.7686,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 75 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/31/2009 9:06:51 AM

Sample Name Identification, CT-SO-B05-8
Model used: Unsaturated sample,
Porosity (Volume Frac.), 0.3000,
Water moisture content (Volume Frac.), 0.0990,
Fraction organic carbon (foc), 0.0100,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in air, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in air, (mg/L),	Mole frac., in NAPL,
29,	1-methylnaphthalene,	0.0650,	0.0000,	0.0000,	0.0650,	0.0000,	0.0008,	0.0684,	0.0000,	0.0001,
30,	2-methylnaphthalene,	0.1400,	0.0001,	0.0000,	0.1399,	0.0000,	0.0017,	0.1474,	0.0000,	0.0003,
32,	acenapthene,	0.0110,	0.0000,	0.0000,	0.0110,	0.0000,	0.0003,	0.0116,	0.0000,	0.0003,
31,	acenapthylene,	0.0240,	0.0001,	0.0000,	0.0239,	0.0000,	0.0010,	0.0252,	0.0001,	0.0010,
35,	anthracene,	0.0810,	0.0000,	0.0000,	0.0810,	0.0000,	0.0006,	0.0853,	0.0000,	0.0547,
42,	benzene,	0.1200,	0.0070,	0.0033,	0.1096,	0.0000,	0.1391,	0.1155,	0.0323,	0.0003,
39,	benz(a)anthracene,	0.5100,	0.0000,	0.0000,	0.5100,	0.0000,	0.0000,	0.5373,	0.0000,	0.0276,
40,	benzo(a)pyrene,	0.3600,	0.0000,	0.0000,	0.3600,	0.0000,	0.0000,	0.3793,	0.0000,	0.0232,
50,	benzo(b)fluoranthene,	0.7900,	0.0000,	0.0000,	0.7900,	0.0000,	0.0002,	0.8323,	0.0000,	0.0436,
51,	benzo(k)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	0.5800,	0.0000,	0.0000,	0.5800,	0.0000,	0.0003,	0.6110,	0.0000,	0.6854,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	1.1000,	0.0002,	0.0000,	1.0998,	0.0000,	0.0030,	1.1587,	0.0000,	0.0598,
33,	9h-fluorene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
28,	naphthalene,	0.7400,	0.0030,	0.0003,	0.7367,	0.0000,	0.0597,	0.7761,	0.0029,	0.0076,
34,	phenanthrene,	0.6800,	0.0003,	0.0000,	0.6797,	0.0000,	0.0051,	0.7161,	0.0000,	0.0207,
37,	pyrene,	0.8800,	0.0001,	0.0000,	0.8799,	0.0000,	0.0024,	0.9270,	0.0000,	0.0746,
43,	toluene,	0.3200,	0.0055,	0.0030,	0.3115,	0.0000,	0.1094,	0.3281,	0.0290,	0.0008,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.700000,
Water Volume Frac.(l/l), 0.099000,
NAPL Volume Frac.(l/l), 0.000000,
Air Volume Frac.(l/l), 0.201000,
Porosity (Volume Frac.), 0.300000,

Bulk Density (kg/l), 1.9543,

Dilution Factor (Vol. fac.), 3.0380,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/31/2009 9:07:51 AM

Sample Name Identification, CT-SO-B05-16
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1600,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.4300,	0.0004,	0.4296,	0.0000,	0.0054,	0.4605,	0.0028,
30,	2-methylnaphthalene,	1.1000,	0.0009,	1.0991,	0.0000,	0.0139,	1.1781,	0.0073,
32,	acenapthene,	0.0700,	0.0001,	0.0699,	0.0000,	0.0016,	0.0749,	0.0064,
31,	acenapthylene,	0.6600,	0.0019,	0.6581,	0.0000,	0.0282,	0.7054,	0.0962,
35,	anthracene,	0.0880,	0.0000,	0.0880,	0.0000,	0.0007,	0.0943,	0.2005,
42,	benzene,	1.7000,	0.1355,	1.5645,	0.0000,	2.0204,	1.6770,	0.0155,
39,	benz(a)anthracene,	0.0460,	0.0000,	0.0460,	0.0000,	0.0000,	0.0493,	0.0084,
40,	benzo(a)pyrene,	0.0320,	0.0000,	0.0320,	0.0000,	0.0000,	0.0343,	0.0070,
50,	benzo(b)fluoranthene,	0.0590,	0.0000,	0.0590,	0.0000,	0.0000,	0.0632,	0.0110,
51,	benzo(k)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	0.0520,	0.0000,	0.0520,	0.0000,	0.0000,	0.0557,	0.2075,
44,	ethylbenzene,	0.1100,	0.0007,	0.1093,	0.0000,	0.0106,	0.1171,	0.0009,
36,	fluoranthene,	0.1400,	0.0000,	0.1400,	0.0000,	0.0004,	0.1500,	0.0257,
33,	9h-fluorene,	0.4200,	0.0004,	0.4196,	0.0000,	0.0062,	0.4497,	0.0488,
28,	naphthalene,	7.7000,	0.0423,	7.6577,	0.0000,	0.6314,	8.2081,	0.2669,
34,	phenanthrene,	0.4500,	0.0002,	0.4498,	0.0000,	0.0034,	0.4821,	0.0461,
37,	pyrene,	0.1100,	0.0000,	0.1100,	0.0000,	0.0003,	0.1179,	0.0315,
43,	toluene,	2.0000,	0.0468,	1.9532,	0.0000,	0.6979,	2.0936,	0.0175,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.840000,
Water Volume Frac.(l/l), 0.160000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.160000,

Bulk Density (kg/l), 2.3860,

Dilution Factor (Vol. fac.), 12.3997,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/31/2009 9:08:54 AM

Sample Name Identification, CT-SO-B05-20

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.2000,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	18.0000,	0.0147,	13.1776,	4.8077,	0.1698,	14.4354,	0.0055,	0.0066,
30,	2-methylnaphthalene,	46.0000,	0.0373,	33.5351,	12.4275,	0.4322,	36.7360,	0.0141,	0.0170,
32,	acenapthene,	3.1000,	0.0010,	0.4757,	2.6234,	0.0113,	0.5211,	0.0030,	0.0033,
31,	acenapthylene,	56.0000,	0.0218,	5.7614,	50.2168,	0.2525,	6.3113,	0.0570,	0.0642,
35,	anthracene,	31.0000,	0.0001,	0.1935,	30.8063,	0.0015,	0.2120,	0.0350,	0.0337,
42,	benzene,	7.1000,	0.5712,	5.0123,	1.5166,	6.6153,	5.4907,	0.0017,	0.0038,
39,	benz(a)anthracene,	25.0000,	0.0000,	1.4426,	23.5574,	0.0001,	1.5803,	0.0268,	0.0201,
40,	benzo(a)pyrene,	20.0000,	0.0000,	0.8885,	19.1115,	0.0000,	0.9733,	0.0217,	0.0147,
50,	benzo(b)fluoranthene,	29.0000,	0.0000,	1.4920,	27.5080,	0.0003,	1.6344,	0.0312,	0.0212,
51,	benzo(k)fluoranthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	27.0000,	0.0000,	0.0755,	26.9245,	0.0000,	0.0827,	0.0306,	0.0230,
44,	ethylbenzene,	0.5400,	0.0034,	0.3954,	0.1412,	0.0394,	0.4331,	0.0002,	0.0003,
36,	fluoranthene,	66.0000,	0.0011,	4.2476,	61.7513,	0.0122,	4.6531,	0.0701,	0.0594,
33,	9h-fluorene,	35.0000,	0.0053,	4.0783,	30.9164,	0.0612,	4.4675,	0.0351,	0.0362,
28,	naphthalene,	570.0000,	1.5040,	206.7204,	361.7756,	17.4194,	226.4516,	0.4110,	0.5495,
34,	phenanthrene,	100.0000,	0.0083,	12.2489,	87.7428,	0.0958,	13.4180,	0.0997,	0.0958,
37,	pyrene,	50.0000,	0.0005,	2.1108,	47.8887,	0.0061,	2.3122,	0.0544,	0.0461,
43,	toluene,	10.0000,	0.2328,	7.3826,	2.3846,	2.6958,	8.0873,	0.0027,	0.0050,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.200000,
NAPL Volume Frac.(l/l), 0.002039,
Soil Volume Frac.(l/l), 0.797961,
Porosity (Volume Frac.), 0.202039,

Bulk Density (kg/l), 2.3164,
NAPL Density (kg/l), 0.8998,

NAPL Saturation (%), 1.0093,

Numerical Accuracy Information
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The solution converged in 102 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL MODEL
OFFSHORE INVESTIGATION OUTPUT FILES

NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 11:37:22 AM

Sample Name Identification, BH-SED-01-00
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5300,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.1700,	0.0008,	0.1692,	0.0000,	0.0028,	0.2411,	0.0002,
30,	2-methylnaphthalene,	0.3400,	0.0017,	0.3383,	0.0000,	0.0057,	0.4823,	0.0004,
32,	acenapthene,	0.0730,	0.0007,	0.0723,	0.0000,	0.0022,	0.1031,	0.0013,
31,	acenapthylene,	0.2300,	0.0038,	0.2262,	0.0000,	0.0129,	0.3224,	0.0065,
35,	anthracene,	0.3100,	0.0009,	0.3091,	0.0000,	0.0031,	0.4406,	0.1375,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	0.6800,	0.0000,	0.6800,	0.0000,	0.0001,	0.9693,	0.0242,
40,	benzo(a)pyrene,	1.1000,	0.0000,	1.1000,	0.0000,	0.0000,	1.5681,	0.0467,
50,	benzo(b)fluoranthene,	1.3000,	0.0001,	1.2999,	0.0000,	0.0003,	1.8530,	0.0473,
51,	benzo(k)fluoranthene,	0.4400,	0.0000,	0.4400,	0.0000,	0.0001,	0.6272,	0.0521,
33,	9h-fluorene,	0.2000,	0.0012,	0.1988,	0.0000,	0.0039,	0.2835,	0.0045,
38,	chrysene,	0.6800,	0.0001,	0.6799,	0.0000,	0.0005,	0.9692,	0.5292,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	1.3000,	0.0015,	1.2985,	0.0000,	0.0049,	1.8511,	0.0465,
28,	naphthalene,	3.7000,	0.1173,	3.5827,	0.0000,	0.3929,	5.1073,	0.0244,
34,	phenanthrene,	0.6100,	0.0018,	0.6082,	0.0000,	0.0062,	0.8669,	0.0122,
37,	pyrene,	1.2000,	0.0013,	1.1987,	0.0000,	0.0045,	1.7087,	0.0670,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.470000,
Water Volume Frac.(l/l), 0.530000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.530000,

Bulk Density (kg/l), 1.7755,

Dilution Factor (Vol. fac.), 0.9659,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 11:39:45 AM

Sample Name Identification, BH-SED-01

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5300,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total mass, (mg/kg)*,	Mass in water, (mg/kg)*,	Mass in soil, (mg/kg)*,	Mass in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction in NAPL,
29,	1-methylnaphthalene,	1.2000,	0.0060,	1.1928,	0.0013,	0.0200,	1.7003,	0.0005,	0.0008,
30,	2-methylnaphthalene,	2.3000,	0.0114,	2.2861,	0.0024,	0.0383,	3.2589,	0.0009,	0.0015,
32,	acenapthene,	0.3000,	0.0027,	0.2926,	0.0047,	0.0091,	0.4172,	0.0018,	0.0027,
31,	acenapthylene,	0.7000,	0.0114,	0.6716,	0.0169,	0.0383,	0.9575,	0.0065,	0.0097,
35,	anthracene,	1.0000,	0.0021,	0.6834,	0.3145,	0.0070,	0.9743,	0.1199,	0.1546,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	3.0000,	0.0001,	2.8647,	0.1352,	0.0003,	4.0837,	0.0516,	0.0519,
40,	benzo(a)pyrene,	1.8000,	0.0000,	1.6946,	0.1054,	0.0000,	2.4158,	0.0402,	0.0366,
50,	benzo(b)fluoranthene,	2.5000,	0.0002,	2.3733,	0.1265,	0.0006,	3.3833,	0.0482,	0.0439,
51,	benzo(k)fluoranthene,	1.3000,	0.0001,	1.1077,	0.1922,	0.0003,	1.5791,	0.0733,	0.0668,
33,	9h-fluorene,	0.8600,	0.0049,	0.8368,	0.0183,	0.0163,	1.1929,	0.0070,	0.0097,
38,	chrysene,	1.6000,	0.0002,	0.7876,	0.8123,	0.0006,	1.1227,	0.3097,	0.3119,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	4.8000,	0.0052,	4.6015,	0.1934,	0.0173,	6.5596,	0.0737,	0.0838,
28,	naphthalene,	28.0000,	0.8832,	26.9804,	0.1365,	2.9586,	38.4616,	0.0520,	0.0933,
34,	phenanthrene,	2.1000,	0.0062,	2.0513,	0.0425,	0.0209,	2.9242,	0.0162,	0.0209,
37,	pyrene,	4.2000,	0.0044,	3.9374,	0.2582,	0.0148,	5.6129,	0.0985,	0.1119,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.530000,
NAPL Volume Frac.(l/l), 0.000005,
Soil Volume Frac.(l/l), 0.469995,
Porosity (Volume Frac.), 0.530005,

Bulk Density (kg/l), 1.7755,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.0009,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/24/2009 9:00:19 AM

Sample Name Identification, BH-SED-02-00

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.3400,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	2.6000,	0.0056,	2.4693,	0.1251,	0.0347,	2.9499,	0.0009,	0.0013,
30,	2-methylnaphthalene,	5.0000,	0.0109,	4.7450,	0.2441,	0.0667,	5.6686,	0.0018,	0.0026,
32,	acenapthene,	1.5000,	0.0036,	0.8475,	0.6489,	0.0220,	1.0125,	0.0047,	0.0064,
31,	acenapthylene,	5.5000,	0.0193,	2.4800,	3.0007,	0.1185,	2.9627,	0.0215,	0.0302,
35,	anthracene,	7.3000,	0.0004,	0.3160,	6.9835,	0.0027,	0.3775,	0.0501,	0.0599,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	12.0000,	0.0001,	3.6731,	8.3268,	0.0003,	4.3880,	0.0597,	0.0558,
40,	benzo(a)pyrene,	13.0000,	0.0000,	3.2613,	9.7386,	0.0001,	3.8961,	0.0699,	0.0590,
50,	benzo(b)fluoranthene,	19.0000,	0.0002,	5.3378,	13.6620,	0.0012,	6.3767,	0.0980,	0.0828,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	4.4000,	0.0057,	2.1411,	2.2532,	0.0350,	2.5578,	0.0162,	0.0207,
38,	chrysene,	11.0000,	0.0000,	0.2177,	10.7823,	0.0001,	0.2600,	0.0773,	0.0722,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	33.0000,	0.0056,	10.9320,	22.0624,	0.0344,	13.0597,	0.1583,	0.1668,
28,	naphthalene,	85.0000,	1.0109,	67.5725,	16.4166,	6.2096,	80.7243,	0.1178,	0.1959,
34,	phenanthrene,	20.0000,	0.0139,	10.0210,	9.9651,	0.0855,	11.9714,	0.0715,	0.0855,
37,	pyrene,	28.0000,	0.0035,	6.7469,	21.2496,	0.0212,	8.0601,	0.1524,	0.1607,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.340000,
NAPL Volume Frac.(l/l), 0.000291,
Soil Volume Frac.(l/l), 0.659709,
Porosity (Volume Frac.), 0.340291,

Bulk Density (kg/l), 2.0885,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.0856,
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Numerical Accuracy Information
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The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 11:42:58 AM

Sample Name Identification, BH-SED-02-4

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1500,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	2.9000,	0.0022,	2.7757,	0.1221,	0.0348,	2.9609,	0.0011,	0.0014,
30,	2-methylnaphthalene,	8.4000,	0.0063,	8.0347,	0.3590,	0.1008,	8.5707,	0.0034,	0.0040,
32,	acenapthene,	1.2000,	0.0010,	0.7201,	0.4789,	0.0167,	0.7681,	0.0045,	0.0049,
31,	acenapthylene,	5.0000,	0.0065,	2.4347,	2.5588,	0.1039,	2.5971,	0.0240,	0.0264,
35,	anthracene,	4.6000,	0.0001,	0.2278,	4.3721,	0.0017,	0.2430,	0.0410,	0.0386,
42,	benzene,	36.0000,	2.5872,	32.2367,	1.1761,	41.4305,	34.3873,	0.0110,	0.0237,
39,	benz(a)anthracene,	3.7000,	0.0000,	1.2462,	2.4538,	0.0001,	1.3293,	0.0230,	0.0169,
40,	benzo(a)pyrene,	3.1000,	0.0000,	0.8626,	2.2374,	0.0000,	0.9202,	0.0210,	0.0139,
50,	benzo(b)fluoranthene,	3.0000,	0.0000,	0.9307,	2.0692,	0.0002,	0.9928,	0.0194,	0.0129,
51,	benzo(k)fluoranthene,	1.5000,	0.0000,	0.1821,	1.3179,	0.0000,	0.1942,	0.0123,	0.0082,
33,	9h-fluorene,	5.1000,	0.0024,	2.6632,	2.4344,	0.0389,	2.8408,	0.0228,	0.0230,
38,	chrysene,	3.5000,	0.0000,	0.0795,	3.4205,	0.0000,	0.0848,	0.0321,	0.0236,
44,	ethylbenzene,	0.0870,	0.0005,	0.0829,	0.0036,	0.0080,	0.0885,	0.0000,	0.0001,
36,	fluoranthene,	11.0000,	0.0007,	3.9954,	7.0039,	0.0112,	4.2620,	0.0656,	0.0544,
28,	naphthalene,	290.0000,	1.2219,	238.4574,	50.3208,	19.5666,	254.3661,	0.4715,	0.6172,
34,	phenanthrene,	18.0000,	0.0046,	9.6554,	8.3400,	0.0736,	10.2996,	0.0781,	0.0736,
37,	pyrene,	10.0000,	0.0005,	2.6767,	7.3228,	0.0075,	2.8553,	0.0686,	0.0569,
43,	toluene,	0.5700,	0.0119,	0.5372,	0.0209,	0.1910,	0.5730,	0.0002,	0.0004,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.150000,
NAPL Volume Frac.(l/l), 0.000256,
Soil Volume Frac.(l/l), 0.849744,
Porosity (Volume Frac.), 0.150256,

Bulk Density (kg/l), 2.4021,
NAPL Density (kg/l), 0.8997,

NAPL Saturation (%), 0.1706,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 6 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 11:46:30 AM

Sample Name Identification, BH-SED-03A

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.4300,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	2.1000,	0.0069,	2.0591,	0.0340,	0.0311,	2.6455,	0.0008,	0.0012,
30,	2-methylnaphthalene,	3.0000,	0.0099,	2.9409,	0.0493,	0.0445,	3.7783,	0.0012,	0.0018,
32,	acenapthene,	1.3000,	0.0064,	1.0354,	0.2582,	0.0289,	1.3302,	0.0061,	0.0085,
31,	acenapthylene,	2.3000,	0.0186,	1.6364,	0.6450,	0.0841,	2.1024,	0.0151,	0.0214,
35,	anthracene,	2.3000,	0.0006,	0.2805,	2.0190,	0.0026,	0.3603,	0.0474,	0.0572,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	6.7000,	0.0001,	3.8539,	2.8460,	0.0004,	4.9514,	0.0668,	0.0629,
40,	benzo(a)pyrene,	7.6000,	0.0000,	3.8525,	3.7475,	0.0001,	4.9496,	0.0880,	0.0750,
50,	benzo(b)fluoranthene,	11.0000,	0.0003,	5.9984,	5.0013,	0.0014,	7.7065,	0.1174,	0.1001,
51,	benzo(k)fluoranthene,	1.3000,	0.0000,	0.3500,	0.9500,	0.0001,	0.4496,	0.0223,	0.0190,
33,	9h-fluorene,	1.0000,	0.0029,	0.7425,	0.2546,	0.0131,	0.9540,	0.0060,	0.0077,
38,	chrysene,	5.5000,	0.0000,	0.3210,	5.1790,	0.0002,	0.4124,	0.1216,	0.1145,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	12.0000,	0.0054,	7.2369,	4.7577,	0.0245,	9.2977,	0.1117,	0.1188,
28,	naphthalene,	90.0000,	1.7902,	81.7407,	6.4691,	8.0783,	105.0176,	0.1518,	0.2548,
34,	phenanthrene,	4.8000,	0.0074,	3.6200,	1.1727,	0.0332,	4.6508,	0.0275,	0.0332,
37,	pyrene,	9.8000,	0.0036,	4.8354,	4.9610,	0.0163,	6.2123,	0.1164,	0.1239,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.430000,
NAPL Volume Frac.(l/l), 0.000083,
Soil Volume Frac.(l/l), 0.569917,
Porosity (Volume Frac.), 0.430083,

Bulk Density (kg/l), 1.9404,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.0192,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 11:49:48 AM

Sample Name Identification, BH-SED-3A-12
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.4000,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.6500,	0.0019,	0.6481,	0.0000,	0.0095,	0.8111,	0.0011,
30,	2-methylnaphthalene,	1.6000,	0.0047,	1.5953,	0.0000,	0.0235,	1.9966,	0.0027,
32,	acenapthene,	0.0930,	0.0005,	0.0925,	0.0000,	0.0025,	0.1158,	0.0022,
31,	acenapthylene,	0.3200,	0.0032,	0.3168,	0.0000,	0.0159,	0.3965,	0.0119,
35,	anthracene,	0.1800,	0.0003,	0.1797,	0.0000,	0.0016,	0.2249,	0.1051,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	0.4600,	0.0000,	0.4600,	0.0000,	0.0000,	0.5757,	0.0215,
40,	benzo(a)pyrene,	0.4600,	0.0000,	0.4600,	0.0000,	0.0000,	0.5757,	0.0257,
50,	benzo(b)fluoranthene,	0.6700,	0.0000,	0.6700,	0.0000,	0.0002,	0.8385,	0.0321,
51,	benzo(k)fluoranthene,	0.2800,	0.0000,	0.2800,	0.0000,	0.0001,	0.3504,	0.0436,
33,	9h-fluorene,	0.3500,	0.0012,	0.3488,	0.0000,	0.0060,	0.4365,	0.0104,
38,	chrysene,	0.3800,	0.0000,	0.3800,	0.0000,	0.0002,	0.4755,	0.3888,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	0.7000,	0.0005,	0.6995,	0.0000,	0.0023,	0.8755,	0.0329,
28,	naphthalene,	29.0000,	0.5505,	28.4495,	0.0000,	2.7390,	35.6065,	0.2543,
34,	phenanthrene,	0.5400,	0.0010,	0.5390,	0.0000,	0.0048,	0.6746,	0.0142,
37,	pyrene,	0.7300,	0.0005,	0.7295,	0.0000,	0.0024,	0.9130,	0.0536,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.600000,
Water Volume Frac.(l/l), 0.400000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.400000,

Bulk Density (kg/l), 1.9900,

Dilution Factor (Vol. fac.), 1.9433,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 12:02:32 PM

Sample Name Identification, BH-SED-3B-00

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.6400,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
30,	2-methylnaphthalene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
32,	acenapthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
31,	acenapthylene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
35,	anthracene,	36.0000,	0.0001,	0.0130,	35.9869,	0.0002,	0.0223,	0.0043,	0.0035,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	57.0000,	0.0000,	0.2007,	56.7992,	0.0000,	0.3431,	0.0068,	0.0044,
40,	benzo(a)pyrene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
50,	benzo(b)fluoranthene,	57.0000,	0.0000,	0.1779,	56.8221,	0.0001,	0.3040,	0.0068,	0.0039,
51,	benzo(k)fluoranthene,	30.0000,	0.0000,	0.0288,	29.9712,	0.0000,	0.0493,	0.0036,	0.0021,
33,	9h-fluorene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	54.0000,	0.0000,	0.0087,	53.9913,	0.0000,	0.0149,	0.0065,	0.0041,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	140.0000,	0.0010,	0.5536,	139.4454,	0.0025,	0.9462,	0.0167,	0.0121,
28,	naphthalene,	7200.0000,	12.2908,	229.4781,	6958.2312,	30.1701,	392.2107,	0.8319,	0.9517,
34,	phenanthrene,	88.0000,	0.0035,	0.7033,	87.2932,	0.0086,	1.2021,	0.0104,	0.0086,
37,	pyrene,	110.0000,	0.0005,	0.2791,	109.7204,	0.0013,	0.4771,	0.0131,	0.0095,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.640000,
NAPL Volume Frac.(l/l), 0.013141,
Soil Volume Frac.(l/l), 0.346859,
Porosity (Volume Frac.), 0.653141,

Bulk Density (kg/l), 1.5710,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 2.0120,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/27/2009 3:52:21 PM

Sample Name Identification, BH-SED-03B-2
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5400,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.4300,	0.0022,	0.4278,	0.0000,	0.0073,	0.6173,	0.0003,
30,	2-methylnaphthalene,	0.7500,	0.0039,	0.7461,	0.0000,	0.0127,	1.0766,	0.0005,
32,	acenapthene,	0.1500,	0.0014,	0.1486,	0.0000,	0.0047,	0.2144,	0.0015,
31,	acenapthylene,	0.3000,	0.0052,	0.2948,	0.0000,	0.0170,	0.4254,	0.0047,
35,	anthracene,	0.3600,	0.0011,	0.3589,	0.0000,	0.0037,	0.5178,	0.0891,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	1.6000,	0.0001,	1.5999,	0.0000,	0.0002,	2.3087,	0.0318,
40,	benzo(a)pyrene,	1.7000,	0.0000,	1.7000,	0.0000,	0.0000,	2.4531,	0.0403,
50,	benzo(b)fluoranthene,	2.5000,	0.0002,	2.4998,	0.0000,	0.0007,	3.6072,	0.0508,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	0.2000,	0.0012,	0.1988,	0.0000,	0.0039,	0.2869,	0.0025,
38,	chrysene,	1.1000,	0.0002,	1.0998,	0.0000,	0.0008,	1.5869,	0.4779,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	2.2000,	0.0026,	2.1974,	0.0000,	0.0083,	3.1709,	0.0439,
28,	naphthalene,	51.0000,	1.6806,	49.3194,	0.0000,	5.4744,	71.1672,	0.1872,
34,	phenanthrene,	0.6400,	0.0020,	0.6380,	0.0000,	0.0066,	0.9206,	0.0071,
37,	pyrene,	2.0000,	0.0023,	1.9977,	0.0000,	0.0076,	2.8826,	0.0623,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.460000,
Water Volume Frac.(l/l), 0.540000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.540000,

Bulk Density (kg/l), 1.7590,

Dilution Factor (Vol. fac.), 0.0841,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 7/24/2009 10:55:20 AM

Sample Name Identification, BH-SED-3C-00

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.6900,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	4.1000,	0.0356,	3.5941,	0.4703,	0.0778,	6.6172,	0.0023,	0.0030,
30,	2-methylnaphthalene,	5.9000,	0.0511,	5.1627,	0.6862,	0.1118,	9.5052,	0.0033,	0.0044,
32,	acenapthene,	4.2000,	0.0256,	1.4017,	2.7727,	0.0561,	2.5806,	0.0134,	0.0164,
31,	acenapthylene,	2.0000,	0.0162,	0.4808,	1.5030,	0.0354,	0.8852,	0.0073,	0.0090,
35,	anthracene,	5.0000,	0.0005,	0.0861,	4.9134,	0.0011,	0.1584,	0.0238,	0.0251,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	13.0000,	0.0001,	1.8958,	11.1041,	0.0003,	3.4904,	0.0537,	0.0444,
40,	benzo(a)pyrene,	15.0000,	0.0000,	1.7211,	13.2788,	0.0001,	3.1688,	0.0643,	0.0480,
50,	benzo(b)fluoranthene,	21.0000,	0.0004,	2.7584,	18.2412,	0.0009,	5.0785,	0.0883,	0.0660,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	2.8000,	0.0086,	0.7506,	2.0408,	0.0189,	1.3819,	0.0099,	0.0112,
38,	chrysene,	10.0000,	0.0000,	0.0775,	9.9224,	0.0001,	0.1427,	0.0480,	0.0397,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	30.0000,	0.0107,	4.8259,	25.1635,	0.0234,	8.8850,	0.1218,	0.1135,
28,	naphthalene,	190.0000,	7.2609,	112.2681,	70.4709,	15.8999,	206.6987,	0.3410,	0.5016,
34,	phenanthrene,	6.9000,	0.0116,	1.9299,	4.9585,	0.0254,	3.5532,	0.0240,	0.0254,
37,	pyrene,	23.0000,	0.0056,	2.5165,	20.4779,	0.0122,	4.6332,	0.0991,	0.0924,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.690000,
NAPL Volume Frac.(l/l), 0.000312,
Soil Volume Frac.(l/l), 0.309688,
Porosity (Volume Frac.), 0.690312,

Bulk Density (kg/l), 1.5110,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.0452,
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Numerical Accuracy Information
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The solution converged in 5 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/27/2009 4:13:36 PM

Sample Name Identification, BH-SED-03C-2_RE

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.6000,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
30,	2-methylnaphthalene,	66.0000,	0.1409,	20.8923,	44.9668,	0.3877,	32.9555,	0.0150,	0.0153,
32,	acenapthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
31,	acenapthylene,	15.0000,	0.0067,	0.2904,	14.7029,	0.0183,	0.4581,	0.0049,	0.0047,
35,	anthracene,	7.4000,	0.0000,	0.0080,	7.3920,	0.0001,	0.0126,	0.0025,	0.0020,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	11.0000,	0.0000,	0.1148,	10.8852,	0.0000,	0.1810,	0.0036,	0.0023,
40,	benzo(a)pyrene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
50,	benzo(b)fluoranthene,	14.0000,	0.0000,	0.1295,	13.8705,	0.0000,	0.2043,	0.0046,	0.0027,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
38,	chrysene,	8.0000,	0.0000,	0.0039,	7.9961,	0.0000,	0.0061,	0.0027,	0.0017,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	24.0000,	0.0004,	0.2809,	23.7187,	0.0012,	0.4431,	0.0079,	0.0057,
28,	naphthalene,	2800.0000,	11.0136,	249.8138,	2539.1726,	30.3119,	394.0551,	0.8464,	0.9562,
34,	phenanthrene,	20.0000,	0.0019,	0.4694,	19.5287,	0.0053,	0.7404,	0.0065,	0.0053,
37,	pyrene,	18.0000,	0.0002,	0.1356,	17.8642,	0.0006,	0.2139,	0.0060,	0.0043,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.600000,
NAPL Volume Frac.(l/l), 0.004954,
Soil Volume Frac.(l/l), 0.395046,
Porosity (Volume Frac.), 0.604954,

Bulk Density (kg/l), 1.6513,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.8189,
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Numerical Accuracy Information
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The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 12:08:39 PM

Sample Name Identification, BH-SED-03D-2

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.6300,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.3300,	0.0025,	0.3268,	0.0007,	0.0063,	0.5368,	0.0001,	0.0002,
30,	2-methylnaphthalene,	0.8100,	0.0061,	0.8021,	0.0019,	0.0155,	1.3174,	0.0004,	0.0006,
32,	acenapthene,	0.1500,	0.0020,	0.1431,	0.0049,	0.0051,	0.2350,	0.0010,	0.0015,
31,	acenapthylene,	0.9300,	0.0221,	0.8608,	0.0471,	0.0566,	1.4139,	0.0091,	0.0144,
35,	anthracene,	0.8700,	0.0020,	0.4343,	0.4337,	0.0051,	0.7133,	0.0835,	0.1132,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	2.8000,	0.0001,	2.5397,	0.2602,	0.0003,	4.1716,	0.0501,	0.0530,
40,	benzo(a)pyrene,	3.4000,	0.0000,	2.9957,	0.4043,	0.0001,	4.9206,	0.0778,	0.0746,
50,	benzo(b)fluoranthene,	3.6000,	0.0004,	3.2264,	0.3732,	0.0010,	5.2995,	0.0719,	0.0688,
51,	benzo(k)fluoranthene,	1.7000,	0.0001,	1.2348,	0.4650,	0.0004,	2.0282,	0.0895,	0.0858,
33,	9h-fluorene,	0.6300,	0.0052,	0.5964,	0.0284,	0.0134,	0.9796,	0.0055,	0.0079,
38,	chrysene,	2.2000,	0.0002,	0.6792,	1.5205,	0.0006,	1.1157,	0.2928,	0.3099,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	5.8000,	0.0090,	5.3070,	0.4840,	0.0229,	8.7170,	0.0932,	0.1114,
28,	naphthalene,	5.3000,	0.2470,	4.9981,	0.0549,	0.6315,	8.2096,	0.0106,	0.0199,
34,	phenanthrene,	1.4000,	0.0061,	1.3339,	0.0599,	0.0157,	2.1910,	0.0115,	0.0157,
37,	pyrene,	4.3000,	0.0064,	3.7586,	0.5350,	0.0162,	6.1738,	0.1030,	0.1231,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.630000,
NAPL Volume Frac.(l/l), 0.000008,
Soil Volume Frac.(l/l), 0.369992,
Porosity (Volume Frac.), 0.630008,

Bulk Density (kg/l), 1.6105,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.0013,

Numerical Accuracy Information
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The solution converged in 16 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 12:12:50 PM

Sample Name Identification, BH-SED-03E-2
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.6300,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.0660,	0.0005,	0.0655,	0.0000,	0.0013,	0.1076,	0.0001,
30,	2-methylnaphthalene,	0.1500,	0.0011,	0.1489,	0.0000,	0.0029,	0.2445,	0.0002,
32,	acenapthene,	0.0310,	0.0004,	0.0306,	0.0000,	0.0011,	0.0502,	0.0005,
31,	acenapthylene,	0.2000,	0.0050,	0.1950,	0.0000,	0.0128,	0.3203,	0.0049,
35,	anthracene,	0.2300,	0.0011,	0.2289,	0.0000,	0.0027,	0.3761,	0.0905,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	0.8300,	0.0000,	0.8300,	0.0000,	0.0001,	1.3632,	0.0263,
40,	benzo(a)pyrene,	1.1000,	0.0000,	1.1000,	0.0000,	0.0000,	1.8068,	0.0415,
50,	benzo(b)fluoranthene,	1.1000,	0.0001,	1.0999,	0.0000,	0.0003,	1.8066,	0.0356,
51,	benzo(k)fluoranthene,	0.5800,	0.0001,	0.5799,	0.0000,	0.0002,	0.9526,	0.0611,
33,	9h-fluorene,	0.1100,	0.0010,	0.1090,	0.0000,	0.0025,	0.1791,	0.0022,
38,	chrysene,	0.9200,	0.0003,	0.9197,	0.0000,	0.0008,	1.5106,	0.6364,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	0.9800,	0.0017,	0.9783,	0.0000,	0.0042,	1.6070,	0.0311,
28,	naphthalene,	0.8700,	0.0410,	0.8290,	0.0000,	0.1047,	1.3617,	0.0050,
34,	phenanthrene,	0.2900,	0.0013,	0.2887,	0.0000,	0.0034,	0.4742,	0.0051,
37,	pyrene,	1.2000,	0.0020,	1.1980,	0.0000,	0.0052,	1.9677,	0.0595,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.370000,
Water Volume Frac.(l/l), 0.630000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.630000,

Bulk Density (kg/l), 1.6105,

Dilution Factor (Vol. fac.), 0.5165,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 7/24/2009 12:14:16 PM

Sample Name Identification, BH-SED-04-00

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.4500,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	2.5000,	0.0089,	2.4448,	0.0464,	0.0376,	3.1998,	0.0010,	0.0015,
30,	2-methylnaphthalene,	5.9000,	0.0210,	5.7680,	0.1111,	0.0888,	7.5494,	0.0024,	0.0035,
32,	acenapthene,	0.8300,	0.0043,	0.6417,	0.1839,	0.0183,	0.8400,	0.0039,	0.0053,
31,	acenapthylene,	2.2000,	0.0185,	1.5014,	0.6801,	0.0786,	1.9651,	0.0144,	0.0200,
35,	anthracene,	3.1000,	0.0007,	0.3342,	2.7650,	0.0031,	0.4375,	0.0585,	0.0694,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	6.9000,	0.0001,	3.7323,	3.1676,	0.0004,	4.8851,	0.0671,	0.0621,
40,	benzo(a)pyrene,	8.5000,	0.0000,	4.0134,	4.4866,	0.0001,	5.2529,	0.0950,	0.0796,
50,	benzo(b)fluoranthene,	12.0000,	0.0003,	6.1279,	5.8718,	0.0015,	8.0205,	0.1243,	0.1042,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	1.8000,	0.0054,	1.2874,	0.5072,	0.0231,	1.6850,	0.0107,	0.0137,
38,	chrysene,	5.4000,	0.0000,	0.2763,	5.1237,	0.0002,	0.3616,	0.1085,	0.1005,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	12.0000,	0.0056,	6.8324,	5.1621,	0.0235,	8.9426,	0.1093,	0.1142,
28,	naphthalene,	97.0000,	2.0670,	87.0185,	7.9145,	8.7611,	113.8945,	0.1675,	0.2764,
34,	phenanthrene,	7.4000,	0.0119,	5.3838,	2.0043,	0.0503,	7.0466,	0.0424,	0.0503,
37,	pyrene,	8.3000,	0.0031,	3.8075,	4.4894,	0.0131,	4.9835,	0.0950,	0.0994,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.450000,
NAPL Volume Frac.(l/l), 0.000090,
Soil Volume Frac.(l/l), 0.549910,
Porosity (Volume Frac.), 0.450090,

Bulk Density (kg/l), 1.9073,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.0200,
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Numerical Accuracy Information
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The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 12:16:51 PM

Sample Name Identification, BH-SED-04-8

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5900,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	37.0000,	0.0533,	8.1705,	28.7762,	0.1501,	12.7598,	0.0056,	0.0058,
30,	2-methylnaphthalene,	93.0000,	0.1324,	20.2882,	72.5795,	0.3728,	31.6838,	0.0142,	0.0147,
32,	acenapthene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
31,	acenapthylene,	25.0000,	0.0065,	0.2936,	24.6999,	0.0183,	0.4584,	0.0048,	0.0047,
35,	anthracene,	17.0000,	0.0000,	0.0111,	16.9889,	0.0001,	0.0173,	0.0033,	0.0027,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	35.0000,	0.0000,	0.2206,	34.7794,	0.0000,	0.3445,	0.0068,	0.0044,
40,	benzo(a)pyrene,	29.0000,	0.0000,	0.1390,	28.8610,	0.0000,	0.2171,	0.0056,	0.0033,
50,	benzo(b)fluoranthene,	33.0000,	0.0000,	0.1844,	32.8156,	0.0001,	0.2879,	0.0064,	0.0037,
51,	benzo(k)fluoranthene,	12.0000,	0.0000,	0.0207,	11.9793,	0.0000,	0.0323,	0.0023,	0.0014,
33,	9h-fluorene,	19.0000,	0.0019,	0.2561,	18.7420,	0.0055,	0.4000,	0.0037,	0.0032,
38,	chrysene,	28.0000,	0.0000,	0.0081,	27.9919,	0.0000,	0.0127,	0.0055,	0.0035,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	67.0000,	0.0007,	0.4740,	66.5253,	0.0019,	0.7403,	0.0130,	0.0095,
28,	naphthalene,	4400.0000,	10.4633,	245.3027,	4144.2340,	29.4682,	383.0869,	0.8112,	0.9296,
34,	phenanthrene,	44.0000,	0.0025,	0.6272,	43.3703,	0.0070,	0.9795,	0.0085,	0.0070,
37,	pyrene,	46.0000,	0.0003,	0.2091,	45.7906,	0.0009,	0.3265,	0.0090,	0.0065,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.590000,
NAPL Volume Frac.(l/l), 0.008489,
Soil Volume Frac.(l/l), 0.401511,
Porosity (Volume Frac.), 0.598489,

Bulk Density (kg/l), 1.6616,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 1.4185,

Numerical Accuracy Information
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The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 12:19:27 PM

Sample Name Identification, BH-SED-05-00

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.3800,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
30,	2-methylnaphthalene,	3.4000,	0.0080,	2.9412,	0.4508,	0.0426,	3.6239,	0.0010,	0.0017,
32,	acenapthene,	4.5000,	0.0069,	1.3695,	3.1236,	0.0367,	1.6873,	0.0072,	0.0107,
31,	acenapthylene,	9.0000,	0.0181,	1.9507,	7.0313,	0.0961,	2.4034,	0.0162,	0.0245,
35,	anthracene,	22.0000,	0.0005,	0.3292,	21.6703,	0.0029,	0.4056,	0.0498,	0.0644,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	48.0000,	0.0001,	6.1908,	41.8091,	0.0006,	7.6277,	0.0961,	0.0970,
40,	benzo(a)pyrene,	48.0000,	0.0000,	4.8506,	43.1494,	0.0001,	5.9764,	0.0992,	0.0906,
50,	benzo(b)fluoranthene,	53.0000,	0.0003,	6.1450,	46.8547,	0.0014,	7.5712,	0.1077,	0.0983,
51,	benzo(k)fluoranthene,	19.0000,	0.0000,	0.7357,	18.2643,	0.0002,	0.9065,	0.0420,	0.0383,
33,	9h-fluorene,	3.5000,	0.0027,	0.8458,	2.6515,	0.0143,	1.0421,	0.0061,	0.0084,
38,	chrysene,	40.0000,	0.0000,	0.2692,	39.7307,	0.0002,	0.3317,	0.0913,	0.0921,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	88.0000,	0.0076,	12.5485,	75.4438,	0.0407,	15.4610,	0.1735,	0.1975,
28,	naphthalene,	50.0000,	0.5115,	28.7098,	20.7787,	2.7210,	35.3732,	0.0478,	0.0858,
34,	phenanthrene,	23.0000,	0.0096,	5.8021,	17.1883,	0.0511,	7.1487,	0.0395,	0.0511,
37,	pyrene,	59.0000,	0.0035,	5.6822,	53.3143,	0.0184,	7.0011,	0.1226,	0.1396,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.380000,
NAPL Volume Frac.(l/l), 0.000879,
Soil Volume Frac.(l/l), 0.619121,
Porosity (Volume Frac.), 0.380879,

Bulk Density (kg/l), 2.0215,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.2308,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 12:21:32 PM

Sample Name Identification, BH-SED-05-8

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.4600,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	3.4000,	0.0102,	2.6946,	0.6952,	0.0419,	3.5637,	0.0015,	0.0016,
30,	2-methylnaphthalene,	8.6000,	0.0257,	6.7940,	1.7803,	0.1057,	8.9852,	0.0038,	0.0042,
32,	acenapthene,	9.7000,	0.0138,	1.9768,	7.7094,	0.0568,	2.6144,	0.0166,	0.0166,
31,	acenapthylene,	1.8000,	0.0032,	0.2508,	1.5459,	0.0133,	0.3317,	0.0033,	0.0034,
35,	anthracene,	6.7000,	0.0001,	0.0590,	6.6409,	0.0006,	0.0780,	0.0143,	0.0124,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	7.1000,	0.0000,	0.5659,	6.5341,	0.0001,	0.7484,	0.0141,	0.0095,
40,	benzo(a)pyrene,	6.2000,	0.0000,	0.3825,	5.8175,	0.0000,	0.5058,	0.0125,	0.0077,
50,	benzo(b)fluoranthene,	6.4000,	0.0000,	0.4559,	5.9440,	0.0001,	0.6030,	0.0128,	0.0078,
51,	benzo(k)fluoranthene,	3.5000,	0.0000,	0.0806,	3.4194,	0.0000,	0.1065,	0.0074,	0.0045,
33,	9h-fluorene,	7.2000,	0.0050,	1.1312,	6.0638,	0.0205,	1.4961,	0.0131,	0.0121,
38,	chrysene,	5.5000,	0.0000,	0.0217,	5.4783,	0.0000,	0.0287,	0.0118,	0.0080,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	16.0000,	0.0012,	1.4184,	14.5804,	0.0049,	1.8758,	0.0314,	0.0240,
28,	naphthalene,	590.0000,	6.4594,	260.8013,	322.7393,	26.5321,	344.9171,	0.6956,	0.8370,
34,	phenanthrene,	23.0000,	0.0087,	3.7907,	19.2006,	0.0358,	5.0132,	0.0414,	0.0358,
37,	pyrene,	10.0000,	0.0005,	0.5867,	9.4128,	0.0020,	0.7760,	0.0203,	0.0155,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.460000,
NAPL Volume Frac.(l/l), 0.000877,
Soil Volume Frac.(l/l), 0.539123,
Porosity (Volume Frac.), 0.460877,

Bulk Density (kg/l), 1.8895,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.1902,

Numerical Accuracy Information
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The solution converged in 26 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 12:25:35 PM

Sample Name Identification, BH-SED-06-00

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5900,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.5600,	0.0033,	0.5144,	0.0423,	0.0093,	0.7940,	0.0002,	0.0004,
30,	2-methylnaphthalene,	1.0000,	0.0059,	0.9174,	0.0767,	0.0167,	1.4162,	0.0004,	0.0007,
32,	acenapthene,	3.0000,	0.0157,	1.3295,	1.6547,	0.0446,	2.0524,	0.0087,	0.0130,
31,	acenapthylene,	6.4000,	0.0466,	2.1414,	4.2120,	0.1322,	3.3058,	0.0220,	0.0336,
35,	anthracene,	13.0000,	0.0014,	0.3521,	12.6466,	0.0039,	0.5435,	0.0661,	0.0863,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	24.0000,	0.0002,	5.1226,	18.8772,	0.0006,	7.9078,	0.0987,	0.1005,
40,	benzo(a)pyrene,	26.0000,	0.0000,	4.4413,	21.5586,	0.0001,	6.8562,	0.1127,	0.1039,
50,	benzo(b)fluoranthene,	12.0000,	0.0002,	2.3252,	9.6745,	0.0007,	3.5895,	0.0506,	0.0466,
51,	benzo(k)fluoranthene,	12.0000,	0.0001,	0.8249,	11.1750,	0.0002,	1.2735,	0.0584,	0.0538,
33,	9h-fluorene,	1.9000,	0.0052,	0.6990,	1.1958,	0.0148,	1.0791,	0.0063,	0.0087,
38,	chrysene,	23.0000,	0.0001,	0.2821,	22.7178,	0.0002,	0.4355,	0.1188,	0.1210,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	44.0000,	0.0147,	10.2754,	33.7099,	0.0417,	15.8623,	0.1762,	0.2026,
28,	naphthalene,	16.0000,	0.4655,	11.1364,	4.3981,	1.3224,	17.1914,	0.0230,	0.0417,
34,	phenanthrene,	11.0000,	0.0163,	4.1979,	6.7859,	0.0463,	6.4803,	0.0355,	0.0463,
37,	pyrene,	28.0000,	0.0065,	4.5742,	23.4192,	0.0186,	7.0613,	0.1224,	0.1408,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.590000,
NAPL Volume Frac.(l/l), 0.000321,
Soil Volume Frac.(l/l), 0.409679,
Porosity (Volume Frac.), 0.590321,

Bulk Density (kg/l), 1.6759,
NAPL Density (kg/l), 0.9000,
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NAPL Saturation (%), 0.0543,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 3 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/28/2009 8:34:09 AM

Sample Name Identification, BH-SED-06-6

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5800,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	17.0000,	0.0622,	10.0961,	6.8417,	0.1812,	15.3999,	0.0056,	0.0070,
30,	2-methylnaphthalene,	30.0000,	0.1091,	17.7044,	12.1865,	0.3177,	27.0051,	0.0101,	0.0125,
32,	acenapthene,	44.0000,	0.0445,	3.9092,	40.0463,	0.1296,	5.9628,	0.0330,	0.0379,
31,	acenapthylene,	7.3000,	0.0089,	0.4242,	6.8670,	0.0259,	0.6470,	0.0057,	0.0066,
35,	anthracene,	47.0000,	0.0006,	0.1584,	46.8410,	0.0017,	0.2416,	0.0386,	0.0384,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	48.0000,	0.0001,	1.5320,	46.4680,	0.0002,	2.3368,	0.0383,	0.0297,
40,	benzo(a)pyrene,	37.0000,	0.0000,	0.9035,	36.0965,	0.0000,	1.3781,	0.0298,	0.0209,
50,	benzo(b)fluoranthene,	55.0000,	0.0001,	1.5605,	53.4394,	0.0004,	2.3802,	0.0441,	0.0309,
3,	bromodichloromethane,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
33,	9h-fluorene,	36.0000,	0.0171,	2.3860,	33.5969,	0.0499,	3.6395,	0.0277,	0.0295,
38,	chrysene,	42.0000,	0.0000,	0.0633,	41.9367,	0.0000,	0.0965,	0.0346,	0.0268,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	110.0000,	0.0054,	3.9280,	106.0666,	0.0158,	5.9915,	0.0875,	0.0765,
28,	naphthalene,	620.0000,	5.8204,	144.4912,	469.6884,	16.9536,	220.3969,	0.3875,	0.5348,
34,	phenanthrene,	120.0000,	0.0314,	8.3862,	111.5824,	0.0914,	12.7918,	0.0921,	0.0914,
37,	pyrene,	81.0000,	0.0026,	1.8775,	79.1199,	0.0075,	2.8638,	0.0653,	0.0571,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.580000,
NAPL Volume Frac.(l/l), 0.002048,
Soil Volume Frac.(l/l), 0.417952,
Porosity (Volume Frac.), 0.582048,

Bulk Density (kg/l), 1.6894,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.3518,
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Numerical Accuracy Information
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The solution converged in 4 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
3	75-27-4	bromodichloromethane	163.8000	1.9700	2.0600	6716.9000	61.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 12:32:08 PM

Sample Name Identification, BH-SED-07-00

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5100,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	1.2000,	0.0045,	0.9635,	0.2321,	0.0158,	1.3435,	0.0004,	0.0006,
30,	2-methylnaphthalene,	1.8000,	0.0067,	1.4408,	0.3525,	0.0236,	2.0091,	0.0006,	0.0009,
32,	acenapthene,	8.4000,	0.0155,	1.8065,	6.5780,	0.0548,	2.5190,	0.0107,	0.0160,
31,	acenapthylene,	16.0000,	0.0372,	2.3633,	13.5995,	0.1318,	3.2954,	0.0221,	0.0335,
35,	anthracene,	40.0000,	0.0011,	0.3770,	39.6219,	0.0038,	0.5257,	0.0643,	0.0834,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	61.0000,	0.0001,	5.1776,	55.8223,	0.0005,	7.2198,	0.0905,	0.0918,
40,	benzo(a)pyrene,	56.0000,	0.0000,	3.6838,	52.3161,	0.0001,	5.1368,	0.0849,	0.0778,
50,	benzo(b)fluoranthene,	59.0000,	0.0003,	4.4789,	54.5208,	0.0011,	6.2455,	0.0884,	0.0811,
51,	benzo(k)fluoranthene,	31.0000,	0.0001,	0.7629,	30.2370,	0.0002,	1.0639,	0.0490,	0.0450,
33,	9h-fluorene,	4.7000,	0.0042,	0.7820,	3.9138,	0.0149,	1.0904,	0.0063,	0.0088,
38,	chrysene,	63.0000,	0.0001,	0.2663,	62.7336,	0.0002,	0.3713,	0.1017,	0.1031,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	140.0000,	0.0137,	13.2086,	126.7778,	0.0485,	18.4184,	0.2056,	0.2353,
28,	naphthalene,	28.0000,	0.3879,	12.8104,	14.8017,	1.3741,	17.8632,	0.0240,	0.0433,
34,	phenanthrene,	28.0000,	0.0137,	4.8847,	23.1016,	0.0487,	6.8113,	0.0375,	0.0487,
37,	pyrene,	75.0000,	0.0049,	4.6934,	70.3018,	0.0172,	6.5446,	0.1140,	0.1305,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.510000,
NAPL Volume Frac.(l/l), 0.001114,
Soil Volume Frac.(l/l), 0.488886,
Porosity (Volume Frac.), 0.511114,

Bulk Density (kg/l), 1.8066,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.2179,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 12:34:48 PM

Sample Name Identification, BH-SED-07-6
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5800,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total mass, (mg/kg)*,	Mass in water, (mg/kg)*,	Mass in soil, (mg/kg)*,	Mass in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.1900,	0.0012,	0.1888,	0.0000,	0.0034,	0.2873,	0.0002,
30,	2-methylnaphthalene,	0.3700,	0.0023,	0.3677,	0.0000,	0.0066,	0.5594,	0.0004,
32,	acenapthene,	0.2100,	0.0024,	0.2076,	0.0000,	0.0069,	0.3159,	0.0033,
31,	acenapthylene,	0.1600,	0.0033,	0.1567,	0.0000,	0.0095,	0.2384,	0.0040,
35,	anthracene,	0.3200,	0.0012,	0.3188,	0.0000,	0.0035,	0.4850,	0.1266,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	0.9500,	0.0000,	0.9500,	0.0000,	0.0001,	1.4450,	0.0302,
40,	benzo(a)pyrene,	1.0000,	0.0000,	1.0000,	0.0000,	0.0000,	1.5211,	0.0379,
50,	benzo(b)fluoranthene,	1.1000,	0.0001,	1.0999,	0.0000,	0.0003,	1.6731,	0.0357,
51,	benzo(k)fluoranthene,	0.4500,	0.0000,	0.4500,	0.0000,	0.0001,	0.6844,	0.0476,
33,	9h-fluorene,	0.1800,	0.0013,	0.1787,	0.0000,	0.0037,	0.2719,	0.0036,
38,	chrysene,	0.7600,	0.0002,	0.7598,	0.0000,	0.0006,	1.1557,	0.5280,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	1.7000,	0.0023,	1.6977,	0.0000,	0.0068,	2.5824,	0.0543,
28,	naphthalene,	9.8000,	0.3777,	9.4223,	0.0000,	1.1025,	14.3324,	0.0572,
34,	phenanthrene,	0.6300,	0.0023,	0.6277,	0.0000,	0.0068,	0.9547,	0.0112,
37,	pyrene,	1.2000,	0.0016,	1.1984,	0.0000,	0.0048,	1.8228,	0.0598,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.420000,
Water Volume Frac.(l/l), 0.580000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.580000,

Bulk Density (kg/l), 1.6930,

Dilution Factor (Vol. fac.), 0.6446,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 12:38:16 PM

Sample Name Identification, BH-SED-08-00

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.6400,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.3000,	0.0023,	0.2916,	0.0061,	0.0057,	0.4872,	0.0001,	0.0002,
30,	2-methylnaphthalene,	0.6700,	0.0051,	0.6510,	0.0139,	0.0128,	1.0878,	0.0003,	0.0005,
32,	acenapthene,	0.7600,	0.0083,	0.5707,	0.1810,	0.0207,	0.9536,	0.0039,	0.0061,
31,	acenapthylene,	2.0000,	0.0351,	1.3088,	0.6561,	0.0875,	2.1870,	0.0143,	0.0223,
35,	anthracene,	3.7000,	0.0017,	0.3642,	3.3341,	0.0043,	0.6085,	0.0726,	0.0966,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	8.1000,	0.0002,	4.1768,	3.9230,	0.0005,	6.9797,	0.0854,	0.0887,
40,	benzo(a)pyrene,	8.8000,	0.0000,	3.9335,	4.8664,	0.0001,	6.5731,	0.1059,	0.0996,
50,	benzo(b)fluoranthene,	8.8000,	0.0005,	4.2707,	4.5288,	0.0013,	7.1366,	0.0986,	0.0927,
38,	chrysene,	7.6000,	0.0001,	0.3531,	7.2468,	0.0003,	0.5901,	0.1578,	0.1639,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	14.0000,	0.0135,	7.6173,	6.3692,	0.0335,	12.7290,	0.1386,	0.1626,
33,	9h-fluorene,	0.6100,	0.0039,	0.4221,	0.1840,	0.0097,	0.7053,	0.0040,	0.0057,
28,	naphthalene,	12.0000,	0.5375,	10.4142,	1.0483,	1.3387,	17.4028,	0.0228,	0.0422,
34,	phenanthrene,	3.6000,	0.0122,	2.5409,	1.0469,	0.0303,	4.2461,	0.0228,	0.0303,
37,	pyrene,	9.1000,	0.0070,	3.9451,	5.1479,	0.0173,	6.5925,	0.1121,	0.1314,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
51,	benzo(k)fluoranthene,	3.6000,	0.0001,	0.8085,	2.7914,	0.0002,	1.3510,	0.0608,	0.0571,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.640000,
NAPL Volume Frac.(l/l), 0.000073,
Soil Volume Frac.(l/l), 0.359927,
Porosity (Volume Frac.), 0.640073,

Bulk Density (kg/l), 1.5939,
NAPL Density (kg/l), 0.9000,
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NAPL Saturation (%), 0.0114,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 12:42:28 PM

Sample Name Identification, BH-SED-08-10
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5500,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.0880,	0.0005,	0.0875,	0.0000,	0.0015,	0.1279,	0.0001,
30,	2-methylnaphthalene,	0.2400,	0.0013,	0.2387,	0.0000,	0.0041,	0.3488,	0.0002,
32,	acenapthene,	0.0530,	0.0005,	0.0525,	0.0000,	0.0017,	0.0767,	0.0006,
31,	acenapthylene,	0.2000,	0.0036,	0.1964,	0.0000,	0.0115,	0.2869,	0.0036,
35,	anthracene,	0.2500,	0.0008,	0.2492,	0.0000,	0.0026,	0.3641,	0.0719,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	1.3000,	0.0000,	1.3000,	0.0000,	0.0001,	1.8995,	0.0300,
40,	benzo(a)pyrene,	1.4000,	0.0000,	1.4000,	0.0000,	0.0000,	2.0457,	0.0386,
50,	benzo(b)fluoranthene,	1.6000,	0.0001,	1.5999,	0.0000,	0.0004,	2.3377,	0.0378,
38,	chrysene,	1.2000,	0.0003,	1.1997,	0.0000,	0.0009,	1.7531,	0.6059,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	1.8000,	0.0022,	1.7978,	0.0000,	0.0069,	2.6270,	0.0418,
33,	9h-fluorene,	0.1500,	0.0009,	0.1491,	0.0000,	0.0030,	0.2178,	0.0022,
28,	naphthalene,	17.0000,	0.5825,	16.4175,	0.0000,	1.8454,	23.9896,	0.0724,
34,	phenanthrene,	0.3100,	0.0010,	0.3090,	0.0000,	0.0032,	0.4515,	0.0040,
37,	pyrene,	1.3000,	0.0016,	1.2984,	0.0000,	0.0050,	1.8973,	0.0471,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
51,	benzo(k)fluoranthene,	0.5700,	0.0000,	0.5700,	0.0000,	0.0002,	0.8328,	0.0438,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.450000,
Water Volume Frac.(l/l), 0.550000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.550000,

Bulk Density (kg/l), 1.7425,

Dilution Factor (Vol. fac.), 0.2443,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 12:44:42 PM

Sample Name Identification, BH-SED-09-00

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.4900,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.4900,	0.0020,	0.4692,	0.0188,	0.0075,	0.6395,	0.0002,	0.0003,
30,	2-methylnaphthalene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
32,	acenapthene,	0.8500,	0.0042,	0.5270,	0.3189,	0.0156,	0.7182,	0.0029,	0.0046,
31,	acenapthylene,	2.6000,	0.0191,	1.3193,	1.2615,	0.0719,	1.7980,	0.0116,	0.0183,
35,	anthracene,	4.9000,	0.0007,	0.2653,	4.6340,	0.0026,	0.3616,	0.0425,	0.0574,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	17.0000,	0.0002,	6.0898,	10.9101,	0.0006,	8.2994,	0.1000,	0.1055,
40,	benzo(a)pyrene,	18.0000,	0.0000,	5.3574,	12.6426,	0.0001,	7.3012,	0.1158,	0.1106,
50,	benzo(b)fluoranthene,	16.0000,	0.0003,	5.2931,	10.7065,	0.0013,	7.2137,	0.0981,	0.0937,
51,	benzo(k)fluoranthene,	8.6000,	0.0001,	1.1337,	7.4662,	0.0003,	1.5451,	0.0684,	0.0653,
33,	9h-fluorene,	0.8600,	0.0023,	0.4682,	0.3894,	0.0087,	0.6381,	0.0036,	0.0052,
38,	chrysene,	16.0000,	0.0001,	0.3986,	15.6014,	0.0003,	0.5432,	0.1429,	0.1509,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	29.0000,	0.0107,	11.1716,	17.8177,	0.0401,	15.2251,	0.1632,	0.1945,
28,	naphthalene,	10.0000,	0.2287,	8.1974,	1.5739,	0.8594,	11.1717,	0.0144,	0.0271,
34,	phenanthrene,	6.3000,	0.0091,	3.5226,	2.7683,	0.0343,	4.8007,	0.0254,	0.0343,
37,	pyrene,	17.0000,	0.0046,	4.8711,	12.1242,	0.0175,	6.6385,	0.1111,	0.1323,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.490000,
NAPL Volume Frac.(l/l), 0.000201,
Soil Volume Frac.(l/l), 0.509799,
Porosity (Volume Frac.), 0.490201,

Bulk Density (kg/l), 1.8411,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.0410,

Numerical Accuracy Information
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The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 7/28/2009 10:14:22 AM

Sample Name Identification, BH-SED-10-00

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5900,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.5900,	0.0036,	0.5623,	0.0241,	0.0102,	0.8679,	0.0002,	0.0004,
30,	2-methylnaphthalene,	0.6800,	0.0041,	0.6477,	0.0282,	0.0118,	0.9997,	0.0003,	0.0005,
32,	acenapthene,	1.8000,	0.0128,	1.0852,	0.7020,	0.0364,	1.6749,	0.0070,	0.0106,
31,	acenapthylene,	3.0000,	0.0319,	1.4677,	1.5004,	0.0906,	2.2652,	0.0150,	0.0231,
35,	anthracene,	4.9000,	0.0010,	0.2490,	4.6500,	0.0027,	0.3844,	0.0464,	0.0610,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	15.0000,	0.0002,	5.1450,	9.8547,	0.0006,	7.9408,	0.0983,	0.1010,
40,	benzo(a)pyrene,	15.0000,	0.0000,	4.2578,	10.7422,	0.0001,	6.5714,	0.1072,	0.0996,
50,	benzo(b)fluoranthene,	13.0000,	0.0004,	4.1105,	8.8891,	0.0012,	6.3441,	0.0887,	0.0824,
38,	chrysene,	14.0000,	0.0001,	0.3267,	13.6732,	0.0003,	0.5042,	0.1364,	0.1401,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	31.0000,	0.0164,	11.4536,	19.5301,	0.0465,	17.6773,	0.1949,	0.2258,
33,	9h-fluorene,	1.7000,	0.0067,	0.8963,	0.7970,	0.0190,	1.3834,	0.0080,	0.0112,
28,	naphthalene,	9.9000,	0.3317,	7.9387,	1.6296,	0.9425,	12.2525,	0.0163,	0.0297,
34,	phenanthrene,	6.4000,	0.0135,	3.4706,	2.9160,	0.0383,	5.3564,	0.0291,	0.0383,
37,	pyrene,	21.0000,	0.0082,	5.7338,	15.2580,	0.0233,	8.8495,	0.1523,	0.1764,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.590000,
NAPL Volume Frac.(l/l), 0.000168,
Soil Volume Frac.(l/l), 0.409832,
Porosity (Volume Frac.), 0.590168,

Bulk Density (kg/l), 1.6762,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.0285,

Numerical Accuracy Information
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The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 12:51:20 PM

Sample Name Identification, BH-SED-10-2

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5900,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.8000,	0.0050,	0.7761,	0.0189,	0.0141,	1.1977,	0.0003,	0.0005,
30,	2-methylnaphthalene,	1.3000,	0.0081,	1.2607,	0.0313,	0.0229,	1.9455,	0.0006,	0.0009,
32,	acenapthene,	1.4000,	0.0120,	1.0140,	0.3741,	0.0340,	1.5648,	0.0067,	0.0099,
31,	acenapthylene,	1.8000,	0.0244,	1.1217,	0.6540,	0.0692,	1.7310,	0.0118,	0.0176,
35,	anthracene,	4.1000,	0.0014,	0.3519,	3.7468,	0.0039,	0.5430,	0.0676,	0.0862,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	8.0000,	0.0002,	3.8234,	4.1764,	0.0004,	5.9004,	0.0753,	0.0750,
40,	benzo(a)pyrene,	7.7000,	0.0000,	3.1572,	4.5427,	0.0001,	4.8724,	0.0819,	0.0738,
50,	benzo(b)fluoranthene,	7.9000,	0.0003,	3.5372,	4.3624,	0.0010,	5.4588,	0.0787,	0.0709,
38,	chrysene,	7.2000,	0.0001,	0.2895,	6.9104,	0.0002,	0.4468,	0.1247,	0.1241,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	17.0000,	0.0123,	8.6126,	8.3751,	0.0350,	13.2911,	0.1511,	0.1698,
33,	9h-fluorene,	1.6000,	0.0079,	1.0564,	0.5357,	0.0223,	1.6303,	0.0097,	0.0132,
28,	naphthalene,	32.0000,	1.1537,	27.6137,	3.2325,	3.2780,	42.6143,	0.0583,	0.1034,
34,	phenanthrene,	7.0000,	0.0183,	4.7200,	2.2616,	0.0520,	7.2841,	0.0408,	0.0520,
37,	pyrene,	12.0000,	0.0068,	4.7638,	7.2294,	0.0193,	7.3516,	0.1304,	0.1466,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
51,	benzo(k)fluoranthene,	4.3000,	0.0001,	0.8574,	3.4426,	0.0002,	1.3231,	0.0621,	0.0559,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.590000,
NAPL Volume Frac.(l/l), 0.000093,
Soil Volume Frac.(l/l), 0.409907,
Porosity (Volume Frac.), 0.590093,

Bulk Density (kg/l), 1.6763,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.0157,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 6 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:03:50 PM

Sample Name Identification, BH-SED-11-00

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5800,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.8500,	0.0050,	0.8103,	0.0348,	0.0145,	1.2328,	0.0003,	0.0006,
30,	2-methylnaphthalene,	1.7000,	0.0099,	1.6195,	0.0706,	0.0290,	2.4640,	0.0007,	0.0011,
32,	acenapthene,	1.3000,	0.0089,	0.7832,	0.5080,	0.0259,	1.1916,	0.0051,	0.0076,
31,	acenapthylene,	1.8000,	0.0183,	0.8798,	0.9018,	0.0535,	1.3386,	0.0091,	0.0136,
35,	anthracene,	4.4000,	0.0008,	0.2231,	4.1761,	0.0024,	0.3394,	0.0420,	0.0539,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	14.0000,	0.0002,	4.7938,	9.2060,	0.0005,	7.2935,	0.0926,	0.0927,
40,	benzo(a)pyrene,	12.0000,	0.0000,	3.3998,	8.6002,	0.0001,	5.1727,	0.0865,	0.0784,
50,	benzo(b)fluoranthene,	12.0000,	0.0004,	3.7875,	8.2121,	0.0010,	5.7625,	0.0826,	0.0748,
38,	chrysene,	13.0000,	0.0001,	0.3026,	12.6973,	0.0002,	0.4604,	0.1277,	0.1279,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	28.0000,	0.0142,	10.3283,	17.6576,	0.0414,	15.7140,	0.1776,	0.2007,
33,	9h-fluorene,	1.8000,	0.0068,	0.9481,	0.8452,	0.0198,	1.4424,	0.0085,	0.0117,
28,	naphthalene,	37.0000,	1.1909,	29.6972,	6.1119,	3.4756,	45.1831,	0.0615,	0.1096,
34,	phenanthrene,	5.7000,	0.0115,	3.0875,	2.6010,	0.0336,	4.6976,	0.0262,	0.0336,
37,	pyrene,	19.0000,	0.0071,	5.1779,	13.8150,	0.0207,	7.8780,	0.1390,	0.1571,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
51,	benzo(k)fluoranthene,	4.6000,	0.0001,	0.5708,	4.0292,	0.0002,	0.8684,	0.0405,	0.0367,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.580000,
NAPL Volume Frac.(l/l), 0.000168,
Soil Volume Frac.(l/l), 0.419832,
Porosity (Volume Frac.), 0.580168,

Bulk Density (kg/l), 1.6927,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.0290,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:06:15 PM

Sample Name Identification, BH-SED-11-2

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5400,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	14.0000,	0.0259,	4.9066,	9.0675,	0.0838,	7.1245,	0.0030,	0.0032,
30,	2-methylnaphthalene,	41.0000,	0.0750,	14.2242,	26.7008,	0.2430,	20.6538,	0.0089,	0.0096,
32,	acenapthene,	40.0000,	0.0135,	1.3819,	38.6047,	0.0436,	2.0065,	0.0129,	0.0128,
31,	acenapthylene,	4.2000,	0.0017,	0.0930,	4.1053,	0.0054,	0.1350,	0.0014,	0.0014,
35,	anthracene,	35.0000,	0.0001,	0.0434,	34.9565,	0.0004,	0.0629,	0.0117,	0.0100,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	37.0000,	0.0000,	0.4420,	36.5580,	0.0000,	0.6417,	0.0122,	0.0082,
40,	benzo(a)pyrene,	29.0000,	0.0000,	0.2637,	28.7363,	0.0000,	0.3830,	0.0096,	0.0058,
50,	benzo(b)fluoranthene,	47.0000,	0.0000,	0.4979,	46.5020,	0.0001,	0.7230,	0.0155,	0.0094,
51,	benzo(k)fluoranthene,	14.0000,	0.0000,	0.0459,	13.9541,	0.0000,	0.0666,	0.0047,	0.0028,
33,	9h-fluorene,	34.0000,	0.0053,	0.8628,	33.1319,	0.0172,	1.2528,	0.0110,	0.0102,
38,	chrysene,	33.0000,	0.0000,	0.0182,	32.9817,	0.0000,	0.0265,	0.0110,	0.0074,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	85.0000,	0.0013,	1.1388,	83.8599,	0.0044,	1.6536,	0.0280,	0.0211,
28,	naphthalene,	2400.0000,	8.3568,	242.4431,	2149.2001,	27.0794,	352.0324,	0.7164,	0.8542,
34,	phenanthrene,	99.0000,	0.0085,	2.6550,	96.3365,	0.0275,	3.8551,	0.0321,	0.0275,
37,	pyrene,	66.0000,	0.0007,	0.5693,	65.4300,	0.0022,	0.8267,	0.0218,	0.0165,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.540000,
NAPL Volume Frac.(l/l), 0.005250,
Soil Volume Frac.(l/l), 0.454750,
Porosity (Volume Frac.), 0.545250,

Bulk Density (kg/l), 1.7498,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.9628,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 263 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:15:49 PM

Sample Name Identification, BH-SED-12-00

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5000,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.1800,	0.0008,	0.1784,	0.0009,	0.0029,	0.2457,	0.0001,	0.0001,
30,	2-methylnaphthalene,	0.3700,	0.0016,	0.3666,	0.0018,	0.0059,	0.5049,	0.0001,	0.0002,
32,	acenapthene,	0.2400,	0.0018,	0.2221,	0.0161,	0.0066,	0.3059,	0.0012,	0.0019,
31,	acenapthylene,	0.9500,	0.0127,	0.8409,	0.0964,	0.0463,	1.1582,	0.0073,	0.0118,
35,	anthracene,	1.2000,	0.0010,	0.3874,	0.8115,	0.0038,	0.5336,	0.0615,	0.0847,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	4.8000,	0.0001,	3.9509,	0.8490,	0.0004,	5.4420,	0.0644,	0.0692,
40,	benzo(a)pyrene,	5.5000,	0.0000,	4.2867,	1.2133,	0.0001,	5.9044,	0.0920,	0.0895,
50,	benzo(b)fluoranthene,	4.9000,	0.0003,	3.9431,	0.9566,	0.0010,	5.4312,	0.0725,	0.0705,
38,	chrysene,	4.8000,	0.0002,	0.8428,	3.9570,	0.0006,	1.1609,	0.3000,	0.3225,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	7.5000,	0.0062,	6.2904,	1.2033,	0.0228,	8.6644,	0.0912,	0.1107,
33,	9h-fluorene,	0.3500,	0.0016,	0.3168,	0.0316,	0.0060,	0.4363,	0.0024,	0.0035,
28,	naphthalene,	5.3000,	0.1462,	5.0377,	0.1160,	0.5338,	6.9390,	0.0088,	0.0168,
34,	phenanthrene,	1.7000,	0.0042,	1.5497,	0.1461,	0.0152,	2.1346,	0.0111,	0.0152,
37,	pyrene,	5.0000,	0.0038,	3.8476,	1.1486,	0.0139,	5.2996,	0.0871,	0.1057,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
51,	benzo(k)fluoranthene,	3.0000,	0.0001,	1.6760,	1.3239,	0.0004,	2.3085,	0.1004,	0.0976,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.500000,
NAPL Volume Frac.(l/l), 0.000024,
Soil Volume Frac.(l/l), 0.499976,
Porosity (Volume Frac.), 0.500024,

Bulk Density (kg/l), 1.8250,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.0048,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
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30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:19:12 PM

Sample Name Identification, BH-SED-12-4

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.4400,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.0640,	0.0002,	0.0637,	0.0000,	0.0010,	0.0826,	0.0000,	0.0000,
30,	2-methylnaphthalene,	0.1200,	0.0004,	0.1195,	0.0001,	0.0018,	0.1549,	0.0000,	0.0001,
32,	acenapthene,	0.0750,	0.0005,	0.0738,	0.0008,	0.0021,	0.0956,	0.0004,	0.0006,
31,	acenapthylene,	0.3000,	0.0035,	0.2918,	0.0047,	0.0151,	0.3783,	0.0024,	0.0039,
35,	anthracene,	0.6300,	0.0010,	0.4851,	0.1438,	0.0045,	0.6290,	0.0726,	0.0998,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	2.6000,	0.0001,	2.5232,	0.0767,	0.0002,	3.2713,	0.0387,	0.0416,
40,	benzo(a)pyrene,	1.8000,	0.0000,	1.7307,	0.0693,	0.0000,	2.2438,	0.0350,	0.0340,
50,	benzo(b)fluoranthene,	4.2000,	0.0002,	4.0604,	0.1394,	0.0010,	5.2643,	0.0703,	0.0684,
38,	chrysene,	2.7000,	0.0002,	1.6220,	1.0778,	0.0011,	2.1029,	0.5438,	0.5841,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	4.2000,	0.0032,	4.0862,	0.1106,	0.0139,	5.2977,	0.0558,	0.0677,
33,	9h-fluorene,	0.1500,	0.0006,	0.1473,	0.0021,	0.0026,	0.1910,	0.0010,	0.0015,
28,	naphthalene,	1.9000,	0.0422,	1.8517,	0.0060,	0.1847,	2.4008,	0.0030,	0.0058,
34,	phenanthrene,	0.7400,	0.0015,	0.7287,	0.0097,	0.0067,	0.9448,	0.0049,	0.0067,
37,	pyrene,	3.2000,	0.0024,	3.0680,	0.1296,	0.0105,	3.9776,	0.0654,	0.0793,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
51,	benzo(k)fluoranthene,	0.1300,	0.0000,	0.1169,	0.0131,	0.0000,	0.1516,	0.0066,	0.0064,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.440000,
NAPL Volume Frac.(l/l), 0.000004,
Soil Volume Frac.(l/l), 0.559996,
Porosity (Volume Frac.), 0.440004,

Bulk Density (kg/l), 1.9240,
NAPL Density (kg/l), 0.9000,
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NAPL Saturation (%), 0.0009,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:23:30 PM

Sample Name Identification, BH-SED-13A-00

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.2400,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.8300,	0.0012,	0.8264,	0.0025,	0.0109,	0.9248,	0.0003,	0.0004,
30,	2-methylnaphthalene,	1.6000,	0.0022,	1.5929,	0.0049,	0.0210,	1.7827,	0.0005,	0.0008,
32,	acenapthene,	0.9100,	0.0022,	0.8682,	0.0396,	0.0211,	0.9717,	0.0041,	0.0062,
31,	acenapthylene,	1.5000,	0.0066,	1.3931,	0.1003,	0.0624,	1.5591,	0.0105,	0.0159,
35,	anthracene,	2.2000,	0.0008,	0.9500,	1.2492,	0.0076,	1.0632,	0.1303,	0.1688,
42,	benzene,	0.0790,	0.0099,	0.0689,	0.0002,	0.0929,	0.0771,	0.0000,	0.0001,
39,	benz(a)anthracene,	4.0000,	0.0000,	3.5245,	0.4755,	0.0003,	3.9445,	0.0496,	0.0501,
40,	benzo(a)pyrene,	3.6000,	0.0000,	3.0568,	0.5432,	0.0001,	3.4211,	0.0567,	0.0518,
50,	benzo(b)fluoranthene,	3.6000,	0.0001,	3.1241,	0.4758,	0.0006,	3.4964,	0.0496,	0.0454,
38,	chrysene,	3.3000,	0.0000,	0.8359,	2.4640,	0.0005,	0.9355,	0.2571,	0.2599,
44,	ethylbenzene,	0.0049,	0.0001,	0.0048,	0.0000,	0.0005,	0.0054,	0.0000,	0.0000,
36,	fluoranthene,	8.9000,	0.0025,	7.9435,	0.9540,	0.0234,	8.8902,	0.0995,	0.1136,
33,	9h-fluorene,	1.8000,	0.0028,	1.6913,	0.1059,	0.0259,	1.8929,	0.0111,	0.0153,
28,	naphthalene,	16.0000,	0.1433,	15.6307,	0.2260,	1.3457,	17.4936,	0.0236,	0.0424,
34,	phenanthrene,	7.9000,	0.0063,	7.4526,	0.4410,	0.0596,	8.3408,	0.0460,	0.0596,
37,	pyrene,	6.0000,	0.0016,	5.0516,	0.9468,	0.0149,	5.6537,	0.0988,	0.1127,
43,	toluene,	0.0570,	0.0022,	0.0547,	0.0001,	0.0204,	0.0612,	0.0000,	0.0000,
51,	benzo(k)fluoranthene,	1.8000,	0.0000,	1.2033,	0.5967,	0.0002,	1.3467,	0.0623,	0.0569,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.240000,
NAPL Volume Frac.(l/l), 0.000022,
Soil Volume Frac.(l/l), 0.759978,
Porosity (Volume Frac.), 0.240022,

Bulk Density (kg/l), 2.2540,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.0090,

Numerical Accuracy Information
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The solution converged in 6 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:26:23 PM

Sample Name Identification, BH-SED-13-6
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.1900,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.1200,	0.0001,	0.1199,	0.0000,	0.0015,	0.1305,	0.0003,
30,	2-methylnaphthalene,	0.2100,	0.0002,	0.2098,	0.0000,	0.0027,	0.2284,	0.0005,
32,	acenapthene,	0.1100,	0.0002,	0.1098,	0.0000,	0.0026,	0.1195,	0.0036,
31,	acenapthylene,	0.2200,	0.0008,	0.2192,	0.0000,	0.0095,	0.2386,	0.0116,
35,	anthracene,	0.2600,	0.0002,	0.2598,	0.0000,	0.0020,	0.2828,	0.2153,
42,	benzene,	0.4900,	0.0472,	0.4428,	0.0000,	0.5807,	0.4820,	0.0016,
39,	benz(a)anthracene,	0.3400,	0.0000,	0.3400,	0.0000,	0.0000,	0.3701,	0.0226,
40,	benzo(a)pyrene,	0.2900,	0.0000,	0.2900,	0.0000,	0.0000,	0.3157,	0.0229,
50,	benzo(b)fluoranthene,	0.3100,	0.0000,	0.3100,	0.0000,	0.0001,	0.3374,	0.0210,
38,	chrysene,	0.3200,	0.0000,	0.3200,	0.0000,	0.0002,	0.3483,	0.4639,
44,	ethylbenzene,	0.0570,	0.0005,	0.0565,	0.0000,	0.0056,	0.0616,	0.0002,
36,	fluoranthene,	0.8700,	0.0002,	0.8698,	0.0000,	0.0025,	0.9468,	0.0580,
33,	9h-fluorene,	0.3100,	0.0004,	0.3096,	0.0000,	0.0046,	0.3370,	0.0131,
28,	naphthalene,	2.4000,	0.0162,	2.3838,	0.0000,	0.1996,	2.5948,	0.0302,
34,	phenanthrene,	1.1000,	0.0007,	1.0993,	0.0000,	0.0085,	1.1966,	0.0410,
37,	pyrene,	0.6000,	0.0001,	0.5999,	0.0000,	0.0017,	0.6530,	0.0624,
43,	toluene,	0.3000,	0.0086,	0.2914,	0.0000,	0.1057,	0.3172,	0.0009,
51,	benzo(k)fluoranthene,	0.1400,	0.0000,	0.1400,	0.0000,	0.0000,	0.1524,	0.0309,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.810000,
Water Volume Frac.(l/l), 0.190000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.190000,

Bulk Density (kg/l), 2.3365,

Dilution Factor (Vol. fac.), 3.7946,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:28:38 PM

Sample Name Identification, BH-SED-13B-00
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.7300,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.1400,	0.0017,	0.1383,	0.0000,	0.0033,	0.2795,	0.0002,
30,	2-methylnaphthalene,	0.2800,	0.0033,	0.2767,	0.0000,	0.0066,	0.5590,	0.0004,
32,	acenapthene,	0.0980,	0.0021,	0.0959,	0.0000,	0.0042,	0.1937,	0.0019,
31,	acenapthylene,	0.2000,	0.0078,	0.1922,	0.0000,	0.0155,	0.3882,	0.0062,
35,	anthracene,	0.2800,	0.0020,	0.2780,	0.0000,	0.0040,	0.5616,	0.1404,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	0.5800,	0.0000,	0.5800,	0.0000,	0.0001,	1.1717,	0.0235,
40,	benzo(a)pyrene,	0.6300,	0.0000,	0.6300,	0.0000,	0.0000,	1.2727,	0.0304,
50,	benzo(b)fluoranthene,	1.5000,	0.0003,	1.4997,	0.0000,	0.0006,	3.0298,	0.0620,
38,	chrysene,	0.6400,	0.0003,	0.6397,	0.0000,	0.0006,	1.2923,	0.5654,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	1.1000,	0.0029,	1.0971,	0.0000,	0.0058,	2.2163,	0.0446,
33,	9h-fluorene,	0.1500,	0.0021,	0.1479,	0.0000,	0.0041,	0.2989,	0.0038,
28,	naphthalene,	1.7000,	0.1237,	1.5763,	0.0000,	0.2450,	3.1845,	0.0122,
34,	phenanthrene,	0.5300,	0.0038,	0.5262,	0.0000,	0.0076,	1.0630,	0.0120,
37,	pyrene,	0.7900,	0.0021,	0.7879,	0.0000,	0.0042,	1.5917,	0.0500,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
51,	benzo(k)fluoranthene,	0.3500,	0.0001,	0.3499,	0.0000,	0.0001,	0.7070,	0.0471,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.270000,
Water Volume Frac.(l/l), 0.730000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.730000,

Bulk Density (kg/l), 1.4455,

Dilution Factor (Vol. fac.), 0.5751,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:32:00 PM

Sample Name Identification, BH-SED-13C-00
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.7800,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.0700,	0.0011,	0.0689,	0.0000,	0.0019,	0.1611,	0.0002,
30,	2-methylnaphthalene,	0.1400,	0.0022,	0.1378,	0.0000,	0.0038,	0.3222,	0.0004,
32,	acenapthene,	0.0590,	0.0017,	0.0573,	0.0000,	0.0029,	0.1340,	0.0022,
31,	acenapthylene,	0.1100,	0.0056,	0.1044,	0.0000,	0.0098,	0.2441,	0.0063,
35,	anthracene,	0.1600,	0.0015,	0.1585,	0.0000,	0.0026,	0.3705,	0.1493,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	0.3100,	0.0000,	0.3100,	0.0000,	0.0001,	0.7247,	0.0234,
40,	benzo(a)pyrene,	0.3200,	0.0000,	0.3200,	0.0000,	0.0000,	0.7481,	0.0288,
50,	benzo(b)fluoranthene,	1.4000,	0.0003,	1.3997,	0.0000,	0.0006,	3.2723,	0.1079,
38,	chrysene,	0.3100,	0.0002,	0.3098,	0.0000,	0.0004,	0.7243,	0.5108,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	0.5900,	0.0021,	0.5879,	0.0000,	0.0036,	1.3745,	0.0446,
33,	9h-fluorene,	0.1000,	0.0018,	0.0982,	0.0000,	0.0031,	0.2296,	0.0047,
28,	naphthalene,	0.7700,	0.0719,	0.6981,	0.0000,	0.1256,	1.6322,	0.0101,
34,	phenanthrene,	0.3100,	0.0029,	0.3071,	0.0000,	0.0051,	0.7179,	0.0130,
37,	pyrene,	0.4300,	0.0015,	0.4285,	0.0000,	0.0026,	1.0018,	0.0507,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
51,	benzo(k)fluoranthene,	0.1900,	0.0000,	0.1900,	0.0000,	0.0001,	0.4441,	0.0477,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.220000,
Water Volume Frac.(l/l), 0.780000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.780000,

Bulk Density (kg/l), 1.3630,

Dilution Factor (Vol. fac.), 1.5390,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:35:20 PM

Sample Name Identification, BH-SED-13C-6
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.4200,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.3400,	0.0011,	0.3389,	0.0000,	0.0051,	0.4315,	0.0003,
30,	2-methylnaphthalene,	0.1800,	0.0006,	0.1794,	0.0000,	0.0027,	0.2285,	0.0002,
32,	acenapthene,	1.1000,	0.0065,	1.0935,	0.0000,	0.0303,	1.3923,	0.0149,
31,	acenapthylene,	0.1400,	0.0015,	0.1385,	0.0000,	0.0071,	0.1763,	0.0030,
35,	anthracene,	0.5700,	0.0011,	0.5689,	0.0000,	0.0052,	0.7243,	0.1933,
42,	benzene,	0.0640,	0.0159,	0.0481,	0.0000,	0.0739,	0.0613,	0.0001,
39,	benz(a)anthracene,	1.0000,	0.0000,	1.0000,	0.0000,	0.0001,	1.2732,	0.0272,
40,	benzo(a)pyrene,	0.7200,	0.0000,	0.7200,	0.0000,	0.0000,	0.9167,	0.0233,
50,	benzo(b)fluoranthene,	0.7800,	0.0000,	0.7800,	0.0000,	0.0002,	0.9931,	0.0217,
38,	chrysene,	0.7700,	0.0001,	0.7699,	0.0000,	0.0005,	0.9803,	0.4577,
44,	ethylbenzene,	0.0044,	0.0001,	0.0043,	0.0000,	0.0005,	0.0055,	0.0000,
36,	fluoranthene,	2.7000,	0.0019,	2.6981,	0.0000,	0.0090,	3.4353,	0.0738,
33,	9h-fluorene,	0.5600,	0.0021,	0.5579,	0.0000,	0.0097,	0.7104,	0.0097,
28,	naphthalene,	8.4000,	0.1729,	8.2271,	0.0000,	0.8058,	10.4752,	0.0427,
34,	phenanthrene,	1.3000,	0.0025,	1.2975,	0.0000,	0.0118,	1.6520,	0.0198,
37,	pyrene,	1.7000,	0.0012,	1.6988,	0.0000,	0.0057,	2.1630,	0.0725,
43,	toluene,	0.0072,	0.0006,	0.0066,	0.0000,	0.0028,	0.0084,	0.0000,
51,	benzo(k)fluoranthene,	0.4400,	0.0000,	0.4400,	0.0000,	0.0001,	0.5602,	0.0398,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.580000,
Water Volume Frac.(l/l), 0.420000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.420000,

Bulk Density (kg/l), 1.9570,

Dilution Factor (Vol. fac.), 0.6809,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:37:09 PM

Sample Name Identification, BH-SED-14-00
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.7600,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.1700,	0.0024,	0.1676,	0.0000,	0.0043,	0.3680,	0.0002,
30,	2-methylnaphthalene,	0.3200,	0.0044,	0.3156,	0.0000,	0.0081,	0.6927,	0.0003,
32,	acenapthene,	0.2400,	0.0061,	0.2339,	0.0000,	0.0112,	0.5135,	0.0035,
31,	acenapthylene,	0.2000,	0.0091,	0.1909,	0.0000,	0.0168,	0.4190,	0.0046,
35,	anthracene,	0.3900,	0.0033,	0.3867,	0.0000,	0.0061,	0.8488,	0.1455,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	0.7700,	0.0001,	0.7699,	0.0000,	0.0001,	1.6900,	0.0232,
40,	benzo(a)pyrene,	0.7300,	0.0000,	0.7300,	0.0000,	0.0000,	1.6023,	0.0262,
50,	benzo(b)fluoranthene,	1.7000,	0.0004,	1.6996,	0.0000,	0.0007,	3.7306,	0.0523,
38,	chrysene,	0.8800,	0.0005,	0.8795,	0.0000,	0.0010,	1.9304,	0.5789,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	1.7000,	0.0053,	1.6947,	0.0000,	0.0098,	3.7197,	0.0513,
33,	9h-fluorene,	0.3200,	0.0052,	0.3148,	0.0000,	0.0095,	0.6911,	0.0060,
28,	naphthalene,	1.5000,	0.1263,	1.3737,	0.0000,	0.2319,	3.0153,	0.0079,
34,	phenanthrene,	0.8600,	0.0073,	0.8527,	0.0000,	0.0134,	1.8717,	0.0144,
37,	pyrene,	1.2000,	0.0038,	1.1962,	0.0000,	0.0069,	2.6257,	0.0565,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
51,	benzo(k)fluoranthene,	0.2900,	0.0001,	0.2899,	0.0000,	0.0001,	0.6364,	0.0291,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.240000,
Water Volume Frac.(l/l), 0.760000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.760000,

Bulk Density (kg/l), 1.3960,

Dilution Factor (Vol. fac.), 0.0796,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:38:51 PM

Sample Name Identification, BH-SED-14-8

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.7000,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.6700,	0.0069,	0.6617,	0.0015,	0.0146,	1.2443,	0.0003,	0.0006,
30,	2-methylnaphthalene,	1.2000,	0.0123,	1.1850,	0.0027,	0.0262,	2.2284,	0.0006,	0.0010,
32,	acenapthene,	0.7700,	0.0140,	0.7311,	0.0249,	0.0299,	1.3748,	0.0057,	0.0087,
31,	acenapthylene,	0.3800,	0.0123,	0.3489,	0.0188,	0.0262,	0.6561,	0.0043,	0.0067,
35,	anthracene,	0.9900,	0.0031,	0.4974,	0.4895,	0.0067,	0.9353,	0.1122,	0.1485,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	2.2000,	0.0001,	1.9981,	0.2017,	0.0003,	3.7575,	0.0463,	0.0478,
40,	benzo(a)pyrene,	2.1000,	0.0000,	1.8535,	0.2465,	0.0001,	3.4855,	0.0565,	0.0528,
50,	benzo(b)fluoranthene,	2.3000,	0.0003,	2.0643,	0.2353,	0.0007,	3.8821,	0.0540,	0.0504,
38,	chrysene,	2.1000,	0.0003,	0.6549,	1.4448,	0.0006,	1.2316,	0.3313,	0.3421,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	5.2000,	0.0110,	4.7610,	0.4279,	0.0236,	8.9533,	0.0981,	0.1144,
33,	9h-fluorene,	0.8100,	0.0092,	0.7649,	0.0359,	0.0197,	1.4385,	0.0082,	0.0117,
28,	naphthalene,	6.1000,	0.3831,	5.6557,	0.0612,	0.8181,	10.6358,	0.0140,	0.0258,
34,	phenanthrene,	2.7000,	0.0162,	2.5700,	0.1138,	0.0345,	4.8330,	0.0261,	0.0345,
37,	pyrene,	3.4000,	0.0069,	2.9757,	0.4174,	0.0147,	5.5959,	0.0957,	0.1116,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
51,	benzo(k)fluoranthene,	0.7500,	0.0001,	0.5469,	0.2030,	0.0002,	1.0285,	0.0465,	0.0435,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.700000,
NAPL Volume Frac.(l/l), 0.000007,
Soil Volume Frac.(l/l), 0.299993,
Porosity (Volume Frac.), 0.700007,

Bulk Density (kg/l), 1.4950,
NAPL Density (kg/l), 0.9000,
~~~~~~~~~~~~~~~~~~~~~~~~~

NAPL Saturation (%), 0.0009,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 6 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:41:02 PM

Sample Name Identification, BH-SED-15-2
Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.4000,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.0970,	0.0003,	0.0967,	0.0000,	0.0014,	0.1210,	0.0001,
30,	2-methylnaphthalene,	0.2400,	0.0007,	0.2393,	0.0000,	0.0035,	0.2995,	0.0002,
32,	acenapthene,	0.0990,	0.0005,	0.0985,	0.0000,	0.0027,	0.1232,	0.0010,
31,	acenapthylene,	0.3400,	0.0034,	0.3366,	0.0000,	0.0169,	0.4213,	0.0055,
35,	anthracene,	0.4600,	0.0008,	0.4592,	0.0000,	0.0041,	0.5747,	0.1168,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	1.1000,	0.0000,	1.1000,	0.0000,	0.0001,	1.3767,	0.0224,
40,	benzo(a)pyrene,	1.5000,	0.0000,	1.5000,	0.0000,	0.0000,	1.8773,	0.0364,
50,	benzo(b)fluoranthene,	1.5000,	0.0001,	1.4999,	0.0000,	0.0003,	1.8773,	0.0312,
38,	chrysene,	1.3000,	0.0002,	1.2998,	0.0000,	0.0008,	1.6268,	0.5784,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	3.0000,	0.0020,	2.9980,	0.0000,	0.0099,	3.7522,	0.0614,
33,	9h-fluorene,	0.2200,	0.0008,	0.2192,	0.0000,	0.0038,	0.2744,	0.0028,
28,	naphthalene,	3.2000,	0.0607,	3.1393,	0.0000,	0.3022,	3.9290,	0.0122,
34,	phenanthrene,	0.6600,	0.0012,	0.6588,	0.0000,	0.0059,	0.8246,	0.0075,
37,	pyrene,	2.0000,	0.0013,	1.9987,	0.0000,	0.0066,	2.5015,	0.0638,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
51,	benzo(k)fluoranthene,	0.8900,	0.0000,	0.8900,	0.0000,	0.0002,	1.1138,	0.0603,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Soil Volume Frac.(l/l), 0.600000,
Water Volume Frac.(l/l), 0.400000,
NAPL Volume Frac.(l/l), 0.000000,
Porosity (Volume Frac.), 0.400000,

Bulk Density (kg/l), 1.9900,

Dilution Factor (Vol. fac.), 0.2800,

No NAPL (i.e., NAPL Saturation Equals Zero)

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS

NAPLANAL Version 1.0.0
Date and Time: 7/28/2009 2:10:43 PM

Sample Name Identification, BH-SED-16-0

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5500,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.1400,	0.0008,	0.1389,	0.0003,	0.0024,	0.2030,	0.0001,	0.0001,
30,	2-methylnaphthalene,	0.3400,	0.0018,	0.3373,	0.0008,	0.0058,	0.4929,	0.0001,	0.0002,
32,	acenapthene,	0.0980,	0.0009,	0.0936,	0.0035,	0.0030,	0.1367,	0.0005,	0.0009,
31,	acenapthylene,	0.8600,	0.0147,	0.7981,	0.0472,	0.0466,	1.1662,	0.0073,	0.0119,
35,	anthracene,	0.8000,	0.0013,	0.3840,	0.4148,	0.0040,	0.5611,	0.0643,	0.0891,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	3.4000,	0.0001,	3.0607,	0.3392,	0.0003,	4.4725,	0.0526,	0.0569,
40,	benzo(a)pyrene,	5.5000,	0.0000,	4.7994,	0.7005,	0.0001,	7.0131,	0.1087,	0.1063,
50,	benzo(b)fluoranthene,	8.3000,	0.0006,	7.3765,	0.9229,	0.0020,	10.7788,	0.1432,	0.1400,
38,	chrysene,	3.1000,	0.0002,	0.9061,	2.1937,	0.0007,	1.3240,	0.3404,	0.3678,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	4.5000,	0.0050,	4.0914,	0.4036,	0.0157,	5.9785,	0.0626,	0.0764,
33,	9h-fluorene,	0.2900,	0.0017,	0.2742,	0.0141,	0.0055,	0.4006,	0.0022,	0.0032,
28,	naphthalene,	1.9000,	0.0644,	1.8141,	0.0215,	0.2039,	2.6508,	0.0033,	0.0064,
34,	phenanthrene,	0.9900,	0.0031,	0.9412,	0.0457,	0.0098,	1.3752,	0.0071,	0.0098,
37,	pyrene,	5.2000,	0.0055,	4.5015,	0.6930,	0.0173,	6.5778,	0.1075,	0.1311,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.550000,
NAPL Volume Frac.(l/l), 0.000011,
Soil Volume Frac.(l/l), 0.449989,
Porosity (Volume Frac.), 0.550011,

Bulk Density (kg/l), 1.7425,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.0020,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with
CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by
Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons
are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid
densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more
accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are
estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties
for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:44:53 PM

Sample Name Identification, BH-SED-17-00

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.5700,

NAPLANAL ANALYSIS RESULTS:
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ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.1800,	0.0010,	0.1781,	0.0009,	0.0031,	0.2672,	0.0001,	0.0001,
30,	2-methylnaphthalene,	0.4100,	0.0024,	0.4056,	0.0020,	0.0072,	0.6085,	0.0002,	0.0003,
32,	acenapthene,	0.1500,	0.0015,	0.1382,	0.0103,	0.0045,	0.2073,	0.0008,	0.0013,
31,	acenapthylene,	1.1000,	0.0193,	0.9663,	0.1144,	0.0580,	1.4497,	0.0093,	0.0148,
35,	anthracene,	1.4000,	0.0016,	0.4423,	0.9561,	0.0047,	0.6636,	0.0776,	0.1053,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	4.2000,	0.0001,	3.4376,	0.7623,	0.0004,	5.1573,	0.0619,	0.0656,
40,	benzo(a)pyrene,	5.0000,	0.0000,	3.8697,	1.1303,	0.0001,	5.8056,	0.0918,	0.0880,
50,	benzo(b)fluoranthene,	6.0000,	0.0004,	4.7983,	1.2013,	0.0013,	7.1987,	0.0975,	0.0935,
38,	chrysene,	3.6000,	0.0002,	0.6159,	2.9840,	0.0005,	0.9240,	0.2422,	0.2567,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	7.5000,	0.0082,	6.2567,	1.2351,	0.0247,	9.3867,	0.1003,	0.1199,
33,	9h-fluorene,	0.5100,	0.0031,	0.4595,	0.0473,	0.0094,	0.6894,	0.0038,	0.0056,
28,	naphthalene,	2.4000,	0.0869,	2.2594,	0.0537,	0.2607,	3.3896,	0.0044,	0.0082,
34,	phenanthrene,	2.8000,	0.0091,	2.5435,	0.2474,	0.0273,	3.8159,	0.0201,	0.0273,
37,	pyrene,	6.9000,	0.0069,	5.2697,	1.6234,	0.0208,	7.9059,	0.1318,	0.1576,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
51,	benzo(k)fluoranthene,	1.6000,	0.0001,	0.8814,	0.7185,	0.0002,	1.3224,	0.0583,	0.0559,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.570000,
NAPL Volume Frac.(l/l), 0.000021,
Soil Volume Frac.(l/l), 0.429979,
Porosity (Volume Frac.), 0.570021,

Bulk Density (kg/l), 1.7095,
NAPL Density (kg/l), 0.9000,
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NAPL Saturation (%), 0.0037,

Numerical Accuracy Information
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS
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NAPLANAL Version 1.0.0
Date and Time: 8/3/2009 1:46:52 PM

Sample Name Identification, BH-SED-18-0

Model used: Liquid saturated & water moisture content known,
Water moisture content (Volume Frac.), 0.7500,

NAPLANAL ANALYSIS RESULTS:

ID#,	Name,	Total, mass, (mg/kg)*,	Mass, in water, (mg/kg)*,	Mass in, in soil, (mg/kg)*,	Mass, in NAPL, (mg/kg)*,	Conc., in water, (mg/L),	Sorbed, in soil, (mg/kg)^,	Conc., in NAPL, (kg/L),	Mole fraction, in NAPL,
29,	1-methylnaphthalene,	0.5600,	0.0072,	0.5390,	0.0138,	0.0135,	1.1494,	0.0003,	0.0005,
30,	2-methylnaphthalene,	1.4000,	0.0179,	1.3470,	0.0351,	0.0338,	2.8723,	0.0008,	0.0013,
32,	acenapthene,	0.2000,	0.0035,	0.1416,	0.0549,	0.0066,	0.3020,	0.0013,	0.0019,
31,	acenapthylene,	0.8100,	0.0221,	0.4886,	0.2993,	0.0417,	1.0419,	0.0070,	0.0106,
35,	anthracene,	2.0000,	0.0013,	0.1640,	1.8347,	0.0025,	0.3497,	0.0426,	0.0555,
42,	benzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
39,	benz(a)anthracene,	6.5000,	0.0002,	3.0265,	3.4732,	0.0005,	6.4539,	0.0807,	0.0820,
40,	benzo(a)pyrene,	7.0000,	0.0001,	2.7870,	4.2129,	0.0001,	5.9432,	0.0979,	0.0900,
50,	benzo(b)fluoranthene,	6.3000,	0.0006,	2.7441,	3.5554,	0.0011,	5.8515,	0.0826,	0.0760,
38,	chrysene,	6.1000,	0.0001,	0.2339,	5.8659,	0.0002,	0.4989,	0.1363,	0.1386,
44,	ethylbenzene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
36,	fluoranthene,	14.0000,	0.0206,	6.9149,	7.0645,	0.0388,	14.7456,	0.1642,	0.1884,
33,	9h-fluorene,	0.9100,	0.0091,	0.5878,	0.3131,	0.0172,	1.2534,	0.0073,	0.0102,
28,	naphthalene,	24.0000,	1.7276,	19.8333,	2.4392,	3.2533,	42.2931,	0.0567,	0.1026,
34,	phenanthrene,	1.8000,	0.0096,	1.1909,	0.5995,	0.0181,	2.5395,	0.0139,	0.0181,
37,	pyrene,	10.0000,	0.0115,	3.8501,	6.1384,	0.0216,	8.2101,	0.1426,	0.1637,
43,	toluene,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,	0.0000,
51,	benzo(k)fluoranthene,	3.5000,	0.0001,	0.6707,	2.8292,	0.0003,	1.4302,	0.0657,	0.0605,

(mg/kg)* --- mg per kg of soil sample (wet soil)
(mg/kg)^ --- mg per kg of solid (dry soil)

Water Volume Frac.(l/l), 0.750000,
NAPL Volume Frac.(l/l), 0.000061,
Soil Volume Frac.(l/l), 0.249939,
Porosity (Volume Frac.), 0.750061,

Bulk Density (kg/l), 1.4124,
NAPL Density (kg/l), 0.9000,

NAPL Saturation (%), 0.0081,

Numerical Accuracy Information
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The solution converged in 2 iterations with residual less than 1.0E-6.

The Thermodynamic Physical Properties of the Chemical Components Used in This Set of Soil Data Analysis

Database Source of Reference:
Combo.dbs (combination of P&jcalc.dbs and aromatic.dbs)
Data for chlorinated compounds are from database of Pankow and Johnson with CALCULATED solubilities as presented in: Dense Chlorinated Solvents... by Pankow and Cherry, Waterloo Press, 1996. Data for (poly)aromatic hydrocarbons are from EPA/600/8-90/003, March 1990, Basics of Pump-and-Treat Tech. Liquid densities of solid phase compounds at 20-25'C are set at 0.9 g/mL though more accurate values can be obtained. Exceptions: Kocs for #49, 52, 53, and 54 are estimated from Eqtn 4-6, W.J. Lyman et al., Handbook... (ACS, 1990); properties for #52-54 are from Howard and Meylan, Handbook...(Lewis, 1997). #30 estimated.

ID#	CAS#	Name	Molecular Weight (g/mol)	Density (kg/l)	Henry's Constant (atm-L/mol)	Water Solubility (mg/L)	Koc (ml/g)
29	90-12-0	1-methylnaphthalene	142.2000	0.9000	0.2600	25.8000	8500.0000
30	91-57-6	2-methylnaphthalene	142.2000	0.9000	0.5180	25.4000	8500.0000
32	83-32-9	acenapthene	154.2100	0.9000	0.0920	3.4200	4600.0000
31	208-96-8	acenapthylene	152.2000	0.9000	1.4800	3.9300	2500.0000
35	120-12-7	anthracene	178.2400	0.9000	1.0200	0.0450	14000.0000
42	71-43-2	benzene	78.1100	0.8740	5.5900	1750.0000	83.0000
39	56-55-3	benz(a)anthracene	228.3000	0.9000	0.0012	0.0057	1380000.0000
40	50-32-8	benzo(a)pyrene	252.3200	0.9000	0.0016	0.0012	5500000.0000
50	205-99-2	benzo(b)fluoranthene	252.3200	0.9000	0.0119	0.0140	550000.0000
38	218-01-9	chrysene	228.3000	0.9000	0.0011	0.0018	200000.0000
44	100-41-4	ethylbenzene	106.1700	0.8670	6.4300	152.0000	1100.0000
36	206-44-0	fluoranthene	202.2600	0.9000	0.0065	0.2060	38000.0000
33	86-73-7	9h-fluorene	166.2200	0.9000	0.0642	1.6900	7300.0000
28	91-20-3	naphthalene	128.1800	0.9000	1.1500	31.7000	1300.0000
34	85-01-8	phenanthrene	178.2400	0.9000	0.1590	1.0000	14000.0000
37	129-00-0	pyrene	202.2600	0.9000	0.0050	0.1320	38000.0000
43	108-88-3	toluene	92.1400	0.8620	6.3700	535.0000	300.0000
51	207-08-9	benzo(k)fluoranthene	252.3200	0.9000	0.0394	0.0043	550000.0000

END OF RECORDS
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MASS DISTRIBUTION CALCULATIONS

CALCULATION OF DISSOLVED HYDROCARBON MASS IN GROUNDWATER
COKE POINT PENINSULA, BALTIMORE, MARYLAND

OBJECTIVE

The objective of the calculation wass to determine mass of hydrocarbons in the groundwater in the ohshore investigation area.

APPROACH

1. Use isocontour maps of benzene and naphthalene concentrations in the shallow and intermediate aquifers to identify highly contaminated regions for each aquifer (Figures C-1 to C-4)
2. Determine the area of each region using a geographic information system (GIS).
3. Calculate geometric mean concentrations for benzene, toluene, and naphthalene from the sample concentrations measured for the applicable aquifer within each region.
4. Calculate the volume of groundwater present in each aquifer in each region, based on the area of the region and the average porosity and thickness of the aquifer.
5. Calculate the mass of benzene, toluene, and naphthalene present in each region, using the estimated concentrations and the calculated water volumes.
6. Concentration values are as listed on isocontour maps in URS 2005a, Tables D-9 and D-13.

CONCENTRATION CALCULATIONS

- Calculate mass of benzene, toluene and naphthalene in the shallow and intermediate aquifers using table below (for regions, see Figures C-1 and C-2).

CALCULATION OF DISSOLVED HYDROCARBON MASS IN GROUNDWATER
COKE POINT PENINSULA, BALTIMORE, MARYLAND

SHALLOW AQUIFER

Section C-1-A			Section C-1-B		
Sample	**Benzene (µg/L)**	**Toluene (µg/L)**	**Sample**	**Benzene (µg/L)**	**Toluene (µg/L)**
CO02PZM006	790,000	48,000	CP07-PZM006	1,800	97
CO03-PZM005	1	1	CP08-PZM008	12,000	3,700
CO07-PZM008	42,000	4,900			
CO08-PZM005	5,500	4,500			
CO15-PZM005	98,000	14,000			
CO16-PZM006	200,000	15,000			
CO17-PZM005	28,000	840			
CO18-PZM006	1,100,000	71,000			
CO19-PZM004	12,000	400			
CO27-PZM012	25,000	5,800			
CO28-PZM010	2,000	130			
CO29-PZM010	25	8			
CO30-PZM015	54,000	6,300			
SW17-PZM007	20,000	2,500			
Geometric Mean	**12,286**	**1,565**	**Geometric Mean**	**4,648**	**599**

Section C-1-C			Section C-1-D		
Sample	**Benzene (µg/L)**	**Toluene (µg/L)**	**Sample**	**Benzene (µg/L)**	**Toluene (µg/L)**
CO25-PZM008	3,000	1,900	CO05PZM006	2,100	1,700
1000 ug/L Benzene Contour	1,000	N/A	1000 ug/L Benzene Contour	1,000	N/A
Geometric Mean	**1,732**	**1,900**	**Geometric Mean**	**1,449**	**1,700**

CALCULATION OF DISSOLVED HYDROCARBON MASS IN GROUNDWATER
COKE POINT PENINSULA, BALTIMORE, MARYLAND

Section C-2-A		Section C-2-B	
Sample	**Naphthalene (µg/L)**	**Sample**	**Naphthalene (µg/L)**
CO15-PZM005	1,200	CO04-PZM004	6,700
SW17-PZM007	1,200	CO05-PZM006	8,100
CO30-PZM015	2,100	CO08-PZM005	1,400
		CO09-PZM007	2,000
		CO10-PZM006	1,100
		CO12-PZM008	2,300
		CO13-PZM008	22,000
		CO20-PZM004	1,700
		CO21-PZM005	2
		CO22-PZM005	2,600
		CO23-PZM008	1,300
		CO24-PZM007	2,500
		CO25-PZM008	12,000
		CO26-PZM007	5,700
		TS08-PPM007	340
Geometric Mean	**1,446**	**Geometric Mean**	**1,861**

INTERMEDIATE AQUIFER

Section C-3-A		
Sample	**Benzene (µg/L)**	**Toluene (µg/L)**
CO28-PZM048	350,000	28,000
CO27-PZM046	390,000	49,000
CO02-PZM041	32,000	30
CO08-PZM036	12,000	10,000
SW17-PZM038	54,000	330
Geometric Mean	**25,456**	**1,817**

Section C-4-A		Section C-4-B		Section C-4-C	
Sample	**Naphthalene (µg/L)**	**Sample**	**Naphthalene (µg/L)**	**Sample**	**Naphthalene (µg/L)**
CO28-PZM048	1,900	CO08-PZM036	3,500	CP05-PZM028	1,300
1000 ug/L contour	1,000	CO13-PZM030	3,100	1000 ug/L contour	1,000
		CO04-PZM048	1,100		
Geometric Mean	**1,378**	**Geometric Mean**	**2,285**	**Geometric Mean**	**1,140**

CALCULATION OF DISSOLVED HYDROCARBON MASS IN GROUNDWATER
COKE POINT PENINSULA, BALTIMORE, MARYLAND

AQUIFER VOLUME CALCULATIONS

- Calculate the volume of each contaminated aquifer section

Section	Aquifer	Area (ft^2)	Average Thickness (ft)	Porosity	Volume (ft^3)
C-1-A	Shallow	3,600,000	30	0.25	6,180,000
C-1-B	Shallow	349,000	30	0.25	2,617,500
C-1-C	Shallow	112,000	30	0.25	840,000
C-1-D	Shallow	92,600	30	0.25	694,500
C-2-A	Shallow	824,000	30	0.25	61,800
C-2-B	Shallow	2,610,000	30	0.25	19,575,000
C-3-A	Intermediate	2,350,000	40	0.3	28,200,000
C-4-A	Intermediate	322,000	40	0.3	3,864,000
C-4-B	Intermediate	1,180,000	40	0.3	14,160,000
C-4-C	Intermediate	108,000	40	0.3	1,296,000

CALCULATION OF DISSOLVED HYDROCARBON MASS IN GROUNDWATER
COKE POINT PENINSULA, BALTIMORE, MARYLAND

CONTAMINANT MASS CALCULATIONS

- Calculate the mass of the contaminants in each aquifer section, and the total mass in all sections

Section	Aquifer	Volume (ft^3)	Mean Concentration (µg/L)	Contaminant Mass (µg)	Contaminant Mass (lb)
Benzene					
C-1-A	Shallow	6,180,000	12,286	2.15E+12	4.74E+03
C-1-B	Shallow	6,180,000	4,648	8.13E+11	1.79E+03
C-1-C	Shallow	6,180,000	1,732	3.03E+11	6.68E+02
C-1-D	Shallow	6,180,000	1,449	2.54E+11	5.59E+02
C-3-A	Intermediate	28,200,000	25,456	2.03E+13	4.48E+04
			Total	**2.38E+13**	**5.26E+04**
Toluene					
C-1-A	Shallow	6,180,000	1,565	2.74E+11	6.04E+02
C-1-B	Shallow	6,180,000	599	1.05E+11	2.31E+02
C-1-C	Shallow	6,180,000	1,900	3.32E+11	7.33E+02
C-1-D	Shallow	6,180,000	1,700	2.97E+11	6.56E+02
C-3-A	Intermediate	28,200,000	1,817	1.45E+12	3.20E+03
			Total	**2.46E+12**	**5.42E+03**
Naphthalene					
C-2-A	Shallow	61,800	1,446	2.53E+09	5.58E+00
C-2-B	Shallow	19,575,000	1,861	1.03E+12	2.27E+03
C-4-A	Intermediate	3,864,000	1,378	1.51E+11	3.33E+02
C-4-B	Intermediate	14,160,000	2,285	9.16E+11	2.02E+03
C-4-C	Intermediate	1,296,000	1,140	4.18E+10	9.23E+01
			Total	**2.14E+12**	**4.73E+03**

Total pounds	6.27E+04

CONCLUSION

The highly contaminated groundwater areas contain approximately 53,000 lb. of benzene, 5,400 lb. of toluene, and 4,700 lb. of naphthalene.

Site Assessment for Proposed Coke Point Dredged Material Containment Facility at Sparrows Point

Legend

Sampling Locations

Area of Concern

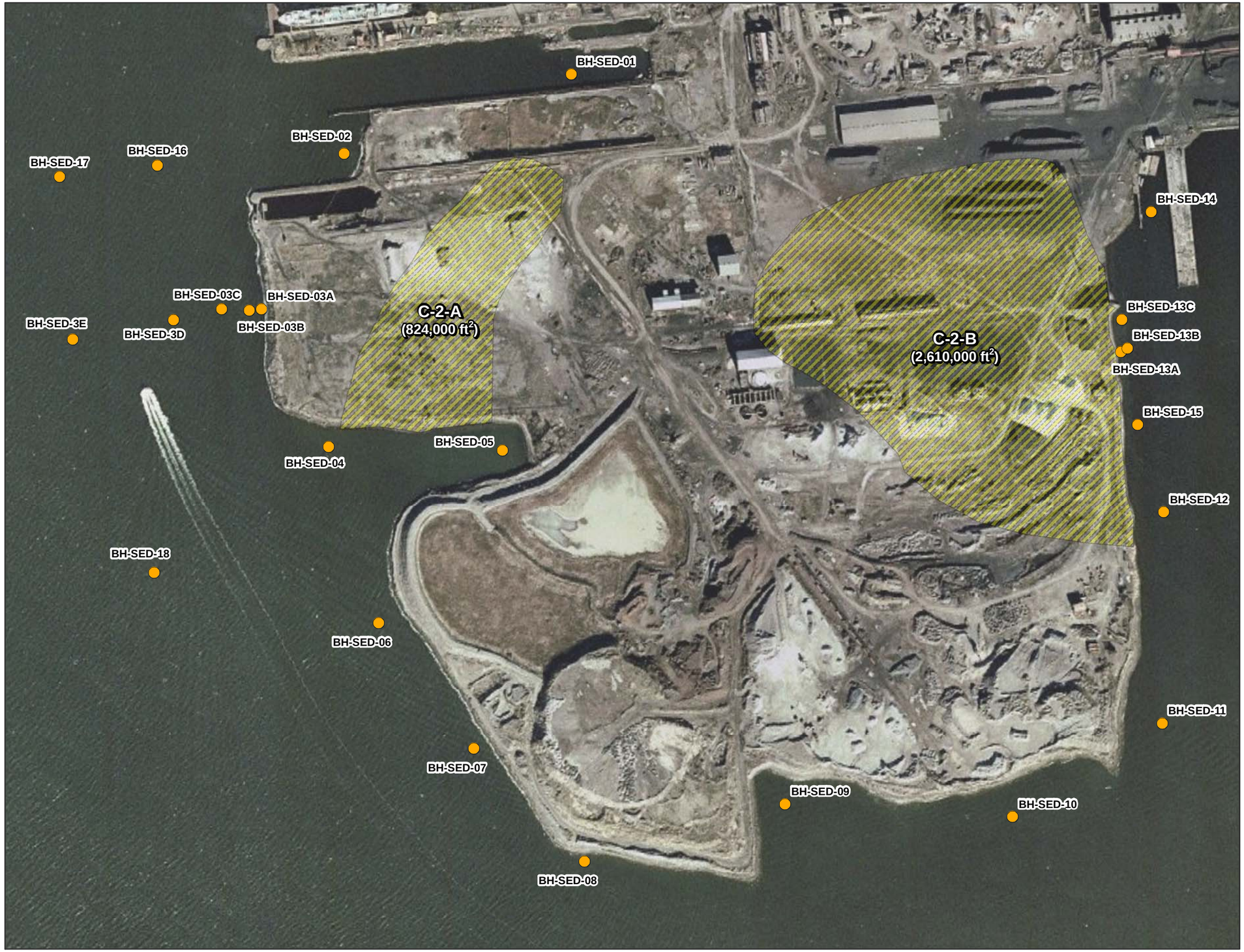
Sources
ESRI, i-cubed, GeoEye, 2009
Tele Atlas North America Inc., ESRI, 2006

Feet
0 500 1,000

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

H:\projects\1453406\MXD\2009_Report\Figure C-1

Figure C-1. Shallow Benzene, Coke Point Peninsula, Baltimore Maryland



Site Assessment for Proposed Coke Point Dredged Material Containment Facility at Sparrows Point

Legend

Sampling Locations

Area of Concern

Sources
ESRI, i-cubed, GeoEye, 2009
Tele Atlas North America Inc., ESRI, 2006

Feet
0 500 1,000

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

H:\projects\1453406\MXD\2009_Report\Figure C-2

Figure C-2. Shallow Naphthalene, Coke Point Peninsula, Baltimore Maryland

Site Assessment for Proposed Coke Point Dredged Material Containment Facility at Sparrows Point

Legend

Sampling Locations

Area of Concern

Sources
ESRI, i-cubed, GeoEye, 2009
Tele Atlas North America Inc., ESRI, 2006

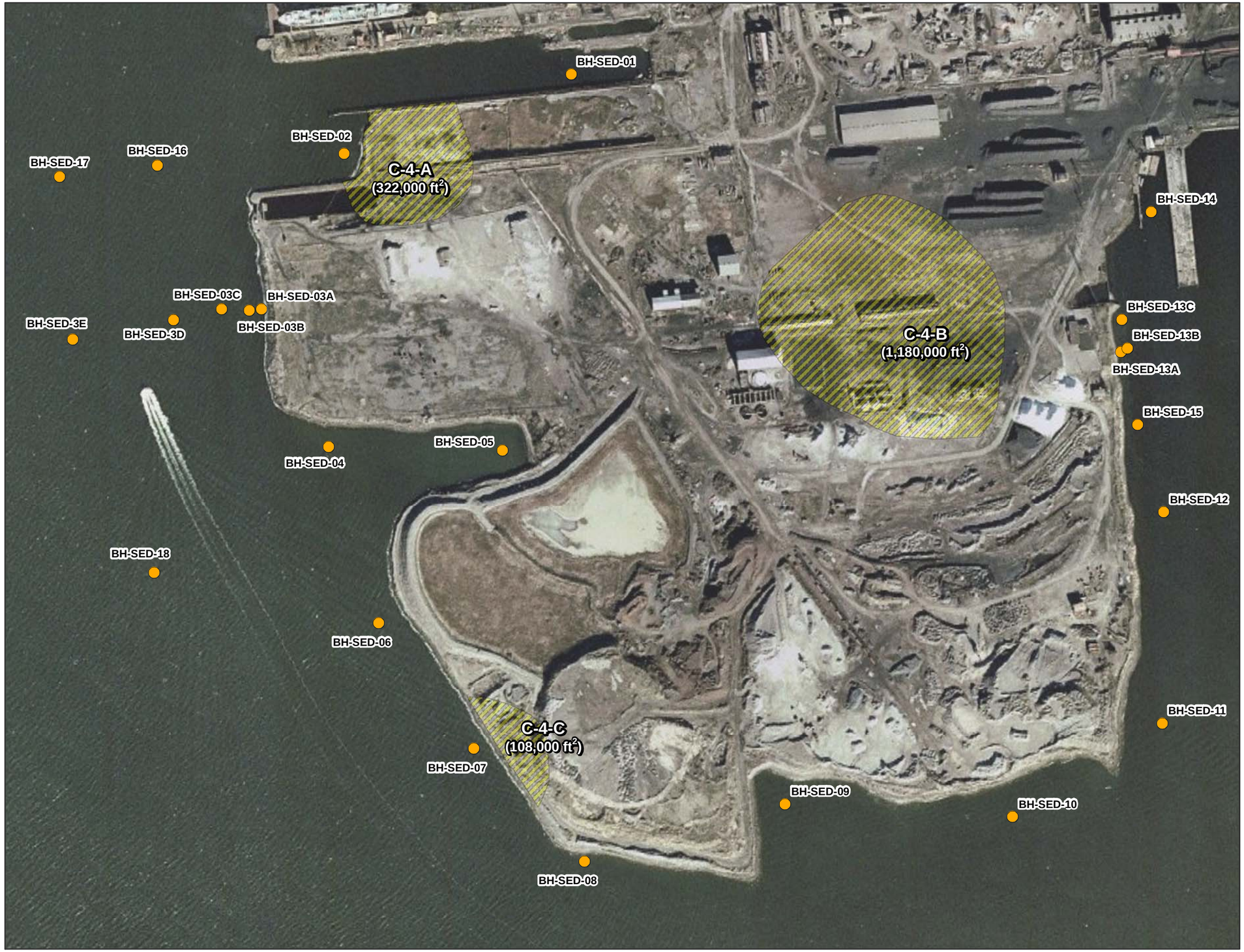
Feet
0 500 1,000

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

H:\projects\1453406\MXD\2009_Report\Figure C-3

Figure C-3. Intermediate Benzene, Coke Point Peninsula, Baltimore Maryland

Site Assessment for Proposed Coke Point Dredged Material Containment Facility at Sparrows Point



Legend

Sampling Locations

Area of Concern

Sources
ESRI, i-cubed, GeoEye, 2009
Tele Atlas North America Inc., ESRI, 2006

Feet
0 500 1,000

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

H:\projects\1453406\MXD\2009_Report\Figure C-4

Figure C-4. Intermediate Naphthalene, Coke Point Peninsula, Baltimore Maryland

CALCULATION OF HYDROCARBON MASS IN ONSHORE SOILS
COKE POINT PENINSULA, BALTIMORE, MARYLAND

OBJECTIVE

The objective of the calculation was to determine volume and mass of hydrocarbons sorbed within the soil matrix for the onshore investigation areas.

APPROACH

1. Estimate an "equivalent thickness" of sorbed hydrocarbon mass using porosity, saturation percent (expressed as a fraction), and thickness of sample interval
2. Calculate volume using geometric mean of equivalent thickness multiplied by the square footage of each area of concern
   - Assumes sorbed mass is log-normally distributed over each area of concern, which were bounded based on groundwater impacts that should correlate with impacted fill
3. Calculate mass using NAPL density (from Table 3-10)
4. Calculations use rounded numbers and conservative assumptions

CALCULATION (BENZOL PROCESSING AREA)

- Calculate equivalent thickness of sorbed hydrocarbons in Benzol Processing Area using table below

Equivalent Thickness of Sorbed Hydrocarbons from NAPL Saturation
Benzol Processing Area

Borehole ID	Sample ID	Estimated Thickness of Impacted Soil[1] (ft)	Hydrocarbon Pore Saturation[2]	Total Porosity	Equivalent Thickness (ft)
BP-B01	BP-SO-B01-8	1	0.0523	0.22	0.0115
	BP-SO-B01-14	4	0.0377	0.25	0.0377
	BP-SO-B01-20	2	0.0009	0.37	0.0007
BP-B02	BP-SO-B02-8	6	0.0002	0.30	0.0004
	BP-SO-B02-20	2	0.0013	0.33	0.0009
BP-B04	BP-SO-B04-24	2	0.0001	0.25	0.0001
BP-B06	BP-SO-B06-8	4	0.0093	0.19	0.0071
	BP-SO-B06-12	4	0.0181	0.26	0.0188
BP-B07	BP-SO-B07-12	5	0.0078	0.16	0.0062
BP-B09	BP-SO-B09-14	3	0.1073	0.18	0.0579
	BP-SO-B09-18	3	0.0582	0.33	0.0576
Geometric Mean Equivalent Thickness (ft)					**0.0046**

[1] Based on interpretations from boring log descriptions

[2] Values from saturation percent in Table 3-13 expressed as a fraction.
Values less than 0.0001 excluded from calculations.

- Benzol Processing area is 424,000 ft^2 (Figure C-5)
  This is based on the previously defined impacted area (440,000 ft^2), with overlapping mobile NAPL area (16,000 ft^2) subtracted.
- Calculate approximate volume of sorbed hydrocarbons (as equivalent NAPL)
  (424,000 ft^2) * 0.0046 ft = 1,950 ft^3
  (1,950 ft^3) * (7.48 gal/ft^3) = 14,600 gal equivalent NAPL

- Convert to pounds of equivalent NAPL
  NAPL specific gravity in Benzol Processing Area is 0.8906 at 70 ^oF
  One gallon of water weighs 8.329 lb at 70 ^oF
  Therefore NAPL weight is (0.8906) * (8.329 lb/gal) = 7.42 lb/gal
  (14,600 gal) * (7.42 lbs/gal) = 108,000 lbs equivalent NAPL

CALCULATION (COAL TAR STORAGE AREA)

- Calculate equivalent thickness of sorbed hydrocarbons in Coal Tar Storage Area using table below

Equivalent Thickness of Sorbed Hydrocarbons from NAPL Saturation
Coal Tar Storage Area

Borehole ID	Sample ID	Estimated Thickness of Impacted Soil[1] (ft)	Hydrocarbon Pore Saturation[2]	Total Porosity	Equivalent Thickness (ft)
CT-B01	CT-SO-B01-18	2	0.0351	0.24	0.0169
CT-B02	CT-SO-B02-16	2	0.0006	0.14	0.0002
	CT-SO-B02-20	2	0.0103	0.20	0.0041
CT-B03	CT-SO-B03-20	2	0.0065	0.16	0.0021
CT-B04	CT-SO-B04-18	2	0.0077	0.24	0.0037
CT-B05	CT-SO-B05-20	2	0.0101	0.20	0.0040
Geometric Mean Equivalent Thickness (ft)					**0.0027**

[1] Based on interpretations from boring log descriptions
[2] Values from saturation percent in Table 3-13 expressed as a fraction.
Values less than 0.001 excluded from calculations.

- Coal Tar Storage area is 398,000 ft^2 (Figure C-5)
- Calculate approximate volume of sorbed hydrocarbons (as equivalent NAPL)
  (398,000 ft^2) * 0.0027 ft = 1,100 ft^3
  (1,100 ft^3) * (7.48 gal/ft^3) = 7,900 gal equivalent NAPL

- Convert to pounds of equivalent NAPL
  NAPL specific gravity in Coal Tar Storage Area is 1.1531 at 70 ^oF
  One gallon of water weighs 8.329 lb at 70 ^oF
  Therefore NAPL weight is (1.1531) * (8.329 lb/gal) = 9.60 lb/gal
  (7,900 gal) * (9.60 lbs/gal) = 76,000 lbs equivalent NAPL

CONCLUSION

The estimated volume of equivalent NAPL within the Benzol Processing area is 14,000 gallons.
The estimated mass of equivalent NAPL is 108,000 pounds.

The estimated volume of equivalent NAPL within the Coal Tar Storage area is 7,900 gallons.
The estimated mass of equivalent NAPL is 76,000 pounds.

This gives a total mass equivalent of 184,000 pounds for the onshore investigation areas.

Site Assessment for Proposed Coke Point Dredged Material Containment Facility at Sparrows Point

Legend

Sampling Locations

Area of Concern

BH-SED-01
BH-SED-02
BH-SED-16
BH-SED-17
BH-SED-14
C-5 (424,000 ft²)
BH-SED-03C
BH-SED-03A
BH-SED-3E
BH-SED-3D
BH-SED-03B
BH-SED-13C
BH-SED-13B
C-5 (398,000 ft²)
BH-SED-13A
BH-SED-15
BH-SED-05
BH-SED-04
BH-SED-12
BH-SED-18
BH-SED-06
BH-SED-11
BH-SED-07
BH-SED-09
BH-SED-10
BH-SED-08

Sources
ESRI, i-cubed, GeoEye, 2009
Tele Atlas North America Inc., ESRI, 2006

Feet
0 500 1,000

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H:\projects\1453406\MXD\2009_Report\Figure C-5

Figure C-5. Estimated Extent of Onshore Residual NAPL, Coke Point Peninsula, Baltimore Maryland

CALCULATION OF NAPL VOLUME AND MASS
BENZOL PROCESSING AREA, COKE POINT PENINSULA, BALTIMORE, MARYLAND

OBJECTIVE

The objective of the calculation was to determine volume and mass of LNAPL within the Benzol Processing area based on NAPL gauging conducted on 23 August 2009.

APPROACH

1. Estimate the footprint of NAPL occurrence from gauging results
2. Obtain the area of the NAPL footprint using a GIS
3. Assume an average NAPL thickness from gauging results
4. Calculate NAPL volume using an assumed soil porosity and NAPL saturation
5. Calculate NAPL mass using gasoline density to approximate NAPL density
6. Calculations use rounded numbers and conservative assumptions

CALCULATION

- Area of NAPL footprint as shown on Figure C-6 is 33,000 ft^2

- Calculate average thickness of NAPL from wells BP-MW-05, -08, and -10
  (3.59 + 4.64 + 0.62) / 3 = 3 ft

- Calculate approximate volume of aquifer material encompassed by NAPL
  (33,000 ft^2) * 3 ft = 99,000 ft^3

- Calculate approximate volume of NAPL
  Assume total porosity of 0.3
  Assume NAPL saturation of 50% of total porosity
  Therefore, NAPL volume = 0.015 times the aquifer volume, or 1,500 ft^3

- Convert NAPL volume from cubic feet to gallons
  Conversion factor is 7.48 gal per ft^3
  (1,500 ft^3) * (7.48 gal/ft^3) = 11,000 gal

- Convert gallons of NAPL into pounds of NAPL
  NAPL specific gravity is 0.8906 at 70 ^oF
  Water density is 8.329 lb/gal at 70 ^oF
  NAPL density is (0.8906) * (8.327 lb/gal) = 7.42 lb/gal
  (11,000 gal) * (7.42 lbs/gal) = 82,000 lbs NAPL

CONCLUSION

The estimated volume of NAPL within the Benzol Processing area is 11,000 gallons.
The estimated mass of NAPL is 82,000 pounds.

Site Assessment for Proposed Coke Point Dredged Material Containment Facility at Sparrows Point

Legend

Sampling Locations

Area of Concern

Sources
ESRI, i-cubed, GeoEye, 2009
Tele Atlas North America Inc., ESRI, 2006

Feet
0 500 1,000

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H:\projects\1453406\MXD\2009_Report\Figure C-6

Figure C-6. Floating Product, Coke Point Peninsula, Baltimore Maryland

CALCULATION OF HYDROCARBON MASS IN OFFSHORE SEDIMENTS
BENZOL PROCESSING AREA, COKE POINT PENINSULA, BALTIMORE, MARYLAND

OBJECTIVE

The objective of the calculation was to determine volume and mass of hydrocarbons sorbed within the surface and subsurface sediment for the offshore investigation area

APPROACH

1. Estimate an "equivalent thickness" of sediment hydrocarbon mass using porosity, saturation percent (expressed as a fraction), and thickness of sample interval
2. Calculate volume using geometric mean equivalent thickness over the approximate areas of impacted sediment (Figure C-7)
   - Assumes sorbed mass is log-normally distributed over the impacted areas
3. Calculate mass using NAPL specific gravity from Table 3-10
4. Calculations use rounded numbers and conservative assumptions

CALCULATION (OFFSHORE INVESTIGATION AREA)

- Calculate equivalent thickness of sorbed hydrocarbons in offshore sediment using table below

Equivalent Thickness of Sorbed Hydrocarbons from NAPL Saturation Surrounding the Coke Point Peninsula

Borehole ID	Sample ID	Estimated Thickness of Impacted Sediment[1] (ft)	Hydrocarbon Pore Saturation[2]	Total Porosity	Equivalent Thickness (ft)
BH-SED-02	BH-SED-02-00	1	0.0009	0.34	0.0003
	BH-SED-02-4	4	0.0017	0.15	0.0010
BH-SED-03A	BH-SED-3A-00	1	0.0002	0.43	0.0001
BH-SED-03B	BH-SED-3B-00	1	0.0201	0.64	0.0129
BH-SED-03C	BH-SED-3C-00	2	0.0005	0.69	0.0006
	BH-SED-3C-2	3	0.0082	0.60	0.0147
	BH-SED-04-8	6	0.0123	0.59	0.0437
BH-SED-05	BH-SED-05-00	1	0.0016	0.38	0.0006
	BH-SED-05-4	5	0.0003	0.46	0.0006
BH-SED-06	BH-SED-06-00	1	0.0003	0.59	0.0002
	BH-SED-06-6	5	0.0025	0.58	0.0073
BH-SED-07	BH-SED-07-00	1	0.0018	0.51	0.0009
BH-SED-08	BH-SED-08-00	1	0.0001	0.64	0.0001
BH-SED-09	BH-SED-09-00	1	0.0002	0.49	0.0001
BH-SED-10	BH-SED-10-00	1	0.0001	0.59	0.0001
BH-SED-11	BH-SED-11-00	1	0.0001	0.58	0.0001
	BH-SED-11-02	2	0.0076	0.54	0.0082
Geometric Mean Equivalent Thickness (ft)					**0.0008**

CALCULATION OF HYDROCARBON MASS IN OFFSHORE SEDIMENTS
BENZOL PROCESSING AREA, COKE POINT PENINSULA, BALTIMORE, MARYLAND

[1] Based on interpretations from boring log descriptions

[2] Values from saturation percent in Table 3-13 expressed as a fraction.
Values less than 0.0001 excluded from calculations.

- offshore impacted areas are 4,004,000 ft^2 (Figure C-7)
  (4,004,000 ft^2) * 0.0008 ft = 3200 ft^3
- Calculate approximate volume of sorbed hydrocarbons (as equivalent NAPL)
  (3,200 ft^3) * (7.48 gal/ft^3) = 24,000 gal equivalent NAPL

- Convert to pounds of equivalent NAPL
  Primary contaminants in sediment are PAHs. Assume NAPL specific gravity is the same as in Coal Tar Storage area (1.1531 at 70 ^oF)
  One gallon of water weighs 8.329 lb at 70 ^oF
  Therefore NAPL weight is (1.1531) * (8.329 lb/gal) = 9.60 lb/gal
  (24,000 gal) * (9.60 lbs/gal) = 230,000 lbs equivalent NAPL

CONCLUSION

The estimated volume of NAPL within the impacted offshore areas is 24,000 gallons.
The estimated mass of NAPL is 230,000 pounds.

Site Assessment for Proposed Coke Point Dredged Material Containment Facility at Sparrows Point

Legend

Sampling Locations

Area of Concern

Sources
ESRI, i-cubed, GeoEye, 2009
Tele Atlas North America Inc., ESRI, 2006

Feet
0 500 1,000

EA ENGINEERING, SCIENCE, AND TECHNOLOGY, INC.

H:\projects\14534061MXD\2009_Report\Figure C-7

Figure C-7. Offshore Areas of Concern, Coke Point Peninsula, Baltimore Maryland