

US EPA ARCHIVE DOCUMENT

Appendix C-A
 Johnson & Etchow Model - Data Entry Screen
 Installation of Volatile from 808
 Public Acid Recreational Building - 07
 Southview Properties, Wills O&M Superfund Site, Concrete Unit 2
 Whitway Dam

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

SI-SCREEN
 Version 2.3, 03/01

YES OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Chemical CAS No. Numbers only (no dashes)	Chemical	Initial soil concentration (ug/kg)	Depth below grade to bottom of envelope (ft or 30.5 cm)	Depth below grade to top of contamination (ft or 30.5 cm)	Average soil temperature (°C)	Volatile zone soil vapor permeability OR Note	User-defined volatile zone soil vapor permeability (cm ² /sec)	Volatile zone soil bulk density (g/cc)	Volatile zone soil total porosity (unitless)	Volatile zone soil water-filled porosity (unitless)	Volatile zone soil organic carbon fraction (unitless)	Averaging time for carcinogens (HR)	Averaging time for noncarcinogens (DC)	Exposure duration (ED) (hr)	Exposure frequency (EF) (days/yr)	Exposure time (ET) (hr/day)	Conversion factor (CF) (24/365)	Target soil for carcinogens (TR) (ug/kg)	Target soil for noncarcinogens (THQ) (ug/kg)				
8404	Trimethylbenzene, 1,2,4-		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
84060	Dichloroethylene, 1,2- (total)		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
90670	Trimethylbenzene, 1,3,5-		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
10614	n-Butylbenzene		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
11203	Naphthalene	2.74E+03	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
16616	Isopropyltoluene, 4-		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
16660	Butylbenzene, sec-		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
14474	Chloromethane	2.40E+02	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
76014	Vinyl chloride	2.81E+02	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
14426	Bromomethane		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
76050	Ethyl chloride	8.06E+01	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
75024	1,1-Dichloroethylene	8.34E+01	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
75131	Trichloro-1,2,2-trifluoroethane, 1,1,2-		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
62841	Acetone	3.24E+02	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
75190	Carbon disulfide		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
75280	Methyl acetate		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
75292	Methylene chloride	7.27E+02	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
106664	trans-1,2-Dichloroethane	7.33E+01	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
75043	Methyl Tertiary-Butyl Ether, 1-(1,2-Dichloroethane)	6.73E+01	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
10662	cis-1,2-Dichloroethane	3.58E+02	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
76033	Butanone, 2- (MEK)	1.80E+02	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
71396	1,1,1-Trichloroethane		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
11067	Cyclohexane		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
71432	Benzene	8.06E+01	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
76016	Trichloroethylene	2.81E+02	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
10477	Methyl cyclohexane	4.45E+02	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
10443	Toluene	5.82E+02	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
12714	Tetrachloroethylene	1.47E+02	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
10462	Chlorobenzene	3.11E+02	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
76014	Ethylbenzene	1.84E+02	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
120067	Xylenes		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
10426	Styrene		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
8629	Isopropylbenzene		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
77048	1,1,2,2-Tetrachloroethane		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
84771	Dichlorobenzene, 1,3-	1.00E+02	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
10667	1,4-Dichlorobenzene	2.60E+02	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
8881	1,2-Dichlorobenzene	5.10E+01	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
10621	1,2,4-Trichlorobenzene		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
10627	Benzaldehyde		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
6174	Methylnaphthalene, 2-	6.41E+03	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
8324	Biphenyl, 1,1'-		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
30664	Acenaphthylene	4.00E+02	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
12649	Chrysene		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
8177	Fluorene	1.70E+03	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
8016	Phenanthrene	3.99E+04	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
18017	Anthracene		16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
04-08	CS-C8 Aliphatics	9.43E+04	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
04-12	CS-C12 Aliphatics	8.11E+04	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
04-10	CS-C10 Aliphatics	4.31E+05	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
04-16	CS-C16 Aliphatics	9.29E+03	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				
01-02	C11-C22 Aromatics	9.24E+06	16	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8760	1.0E-06	1				

Note: 1) Default soil parameters from table 7 of Users Guide for Evaluating Subsurface Vapor Infiltration into Buildings (U.S. EPA June 19, 2003) were used for soil water filled porosity (n_w), soil organic carbon fraction (f_{oc}), soil total porosity (n_t) and soil dry bulk density (ρ_b).

Appendix C.4

Johnson & Ettinger Model - Data Entry Screen

Inhalation of Volatiles from Soil

Future Adult Recreational Scenario - CT

Southwest Properties, Wells G&H Superfund Site, Operable Unit 2

Whitney Barrel

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, D _a (cm ² /s)	Diffusivity in water, D _w (cm ² /s)	Henry's law constant at reference temperature, H (atm·m ³ /mol)	Henry's law constant reference temperature, T _R (°C)	Enthalpy of vaporization at the normal boiling point, ΔH _{v,b} (cal/mol)	Normal boiling point, T _B (°K)	Critical temperature, T _C (°K)	Organic carbon partition coefficient, K _{oc} (cm ³ /g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)	Physical state at soil temperature, (S,L,G)
85636	Trimethylbenzene, 1,2,4-	7.80E-02	9.03E-06	5.70E-03	25	1.25E+03	442.30	649.11	3.72E+03	5.70E+01	N/A	6.0E-03	L
540590	Dichloroethylene, 1,2- (total)	5.59E-02	6.47E-06	4.30E-04	20	1.32E+03	585.00	877.50	1.28E+02	1.30E+00	#N/A	#N/A	0.0E+00
108678	Trimethylbenzene, 1,3,5-	6.48E-02	7.88E-06	7.81E-03	25	1.25E+03	442.30	649.11	1.67E+03	2.00E+01	N/A	6.0E-03	L
104518	n-Butylbenzene	7.25E-02	8.39E-06	1.25E-02	25	1.23E+03	456.00	684.00	2.51E+03	1.26E+00	#N/A	#N/A	L
91203	Naphthalene	5.90E-02	7.50E-06	4.83E-04	25	1.04E+04	491.14	748.40	2.00E+03	3.10E+01	N/A	3.0E-03	S
99876	Isopropyltoluene, 4-	7.25E-02	8.39E-06	8.60E+00	25	1.24E+03	450.10	652.04	1.58E+03	2.34E+01	N/A	4.0E-01	L
135988	Butylbenzene, sec-	8.00E-02	8.00E-06	1.67E-02	25	1.24E+03	446.65	669.98	3.11E+04	1.76E+01	#N/A	#N/A	0.0E+00
74873	Chloromethane	1.26E-01	6.50E-06	8.67E-03	25	1.35E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	9.0E-02	0.0E+00
75014	Vinyl chloride	1.06E-01	1.23E-05	2.71E-02	25	5.25E+03	259.25	432.00	1.86E+01	2.76E+03	8.8E-06	1.0E-01	L
74839	Bromomethane	7.28E-02	1.21E-05	6.22E-03	25	5.49E+03	276.50	414.75	1.43E+01	1.52E+04	N/A	5.0E-03	0.0E+00
75003	Ethyl Chloride	1.26E-01	6.50E-06	8.67E-03	25	1.36E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	1.0E+01	L
75354	1,1-Dichloroethane	9.00E-02	1.04E-05	2.61E-02	25	6.25E+03	304.75	578.05	5.89E+01	2.25E+03	N/A	2.0E-01	L
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	2.88E-02	8.07E-06	5.17E-01	25	1.33E+03	320.70	481.05	2.25E+02	1.70E+02	N/A	3.0E+01	0.0E+00
67641	Acetone	1.24E-01	1.14E-05	3.88E-05	25	6.86E+03	329.20	508.10	5.75E-01	1.00E+06	N/A	N/A	L
75150	Carbon Disulfide	1.04E-01	1.29E-05	1.27E-02	26	6.39E+03	319.00	552.00	5.14E+01	2.67E+03	N/A	7.0E-01	L
79209	Methyl Acetate	1.04E-01	1.00E-05	1.13E-04	25	1.31E+03	365.00	547.50	3.32E+00	2.43E+05	#N/A	#N/A	0.0E+00
75092	Methylene chloride	1.01E-01	1.17E-05	2.19E-03	25	6.71E+03	313.00	510.00	1.17E+01	1.30E+04	4.7E-07	3.0E+00	L
156605	trans-1,2-Dichloroethylene	7.07E-02	1.19E-05	9.39E-03	25	1.33E+03	320.85	516.50	5.25E+01	6.30E+03	N/A	2.0E-01	L
1634044	Methyl-Tertiary-Butyl Ether	1.02E-01	1.05E-05	5.87E-04	25	1.32E+03	328.36	497.11	3.84E+01	5.10E+04	N/A	3.0E+00	L
75343	1,1-Dichloroethane	7.42E-02	1.05E-05	5.61E-03	25	6.90E+03	330.55	523.00	3.16E+01	5.06E+03	N/A	5.0E-01	L
156592	cis-1,2-Dichloroethylene	7.38E-02	1.13E-05	4.07E-03	25	7.19E+03	333.65	544.00	3.55E+01	3.50E+03	N/A	2.0E-01	L
78933	Butanone, 2- (MEK)	8.08E-02	9.80E-06	5.60E-05	25	1.31E+03	352.50	528.75	3.63E+00	2.23E+05	N/A	N/A	0.0E+00
71556	1,1,1-Trichloroethane	7.80E-02	8.80E-06	1.72E-02	25	7.14E+03	347.24	545.00	1.10E+02	1.33E+03	N/A	2.2E+00	L
110827	Cyclohexane	8.00E-02	9.00E-06	2.00E+00	25	1.31E+03	353.85	530.78	1.60E+02	5.50E+01	#N/A	#N/A	0.0E+00
71432	Benzene	8.80E-02	9.80E-06	5.56E-03	25	7.34E+03	353.24	562.16	5.86E+01	1.75E+03	7.8E-06	3.0E-02	L
79016	Trichloroethylene	7.90E-02	9.10E-06	1.03E-02	25	7.51E+03	360.36	544.20	1.66E+02	1.10E+03	1.1E-04	4.0E-02	L
108872	Methyl cyclohexane	9.66E-02	8.52E-06	4.23E-01	25	1.30E+03	373.90	560.85	2.68E+02	1.40E+01	N/A	3.0E+00	L
108883	Toluene	8.70E-02	8.60E-06	6.63E-03	25	7.93E+03	383.78	591.79	1.82E+02	5.26E+02	N/A	4.0E-01	L
127184	Tetrachloroethylene	7.20E-02	8.20E-06	1.84E-02	25	8.29E+03	394.40	620.20	1.55E+02	2.00E+02	5.9E-08	N/A	L
108907	Chlorobenzene	7.30E-02	8.70E-06	3.71E-03	25	8.41E+03	404.87	632.40	2.19E+02	4.72E+02	N/A	6.0E-02	L
100414	Ethylbenzene	7.50E-02	7.80E-06	7.88E-03	25	8.50E+03	409.34	617.20	3.63E+02	1.68E+02	N/A	1.0E+00	L
1330207	Xylenes	7.69E-02	8.44E-06	6.73E-06	25	1.26E+03	417.40	616.21	2.41E+02	2.20E+02	N/A	1.0E-01	L
100425	Styrene	7.10E-02	8.00E-06	2.76E-03	25	8.74E+03	418.31	636.00	7.76E+02	3.10E+02	#N/A	#N/A	L
98828	Isopropylbenzene	6.50E-02	7.83E-06	1.47E-02	25	1.28E+03	425.40	631.01	9.31E+03	5.60E+01	N/A	4.0E-01	L
79345	1,1,2,2-Tetrachloroethane	7.10E-02	7.60E-06	3.44E-04	25	9.00E+03	419.60	661.15	9.33E+01	2.97E+03	#N/A	#N/A	L
541731	Dichlorobenzene, 1,3-	4.14E-02	8.85E-06	4.70E-03	25	1.24E+03	446.00	683.96	1.70E+02	6.88E+01	N/A	N/A	L
106487	1,4-Dichlorobenzene	6.90E-02	7.90E-06	2.43E-03	25	9.27E+03	447.21	684.75	6.17E+02	7.38E+01	N/A	8.0E-01	S
95501	1,2-Dichlorobenzene	6.88E-02	9.41E-06	1.62E-06	25	9.70E+03	465.00	697.50	5.34E+01	2.77E+04	N/A	N/A	S
120821	1,2,4-Trichlorobenzene	3.00E-02	8.23E-06	1.42E-03	25	1.05E+04	486.15	725.00	1.78E+03	3.00E+02	N/A	2.0E-01	L
100627	Benzaldehyde	7.30E-02	9.07E-06	2.62E-05	25	1.24E+03	452.00	678.00	3.27E+01	6.57E+03	#N/A	#N/A	0.0E+00
91576	Methylnaphthalene, 2-	4.84E-02	7.75E-06	1.01E-03	25	1.17E+03	514.05	781.01	8.51E+03	2.46E+01	N/A	3.0E-03	S
92524	Biphenyl, 1,1'-	4.04E-02	8.15E-06	3.03E-04	25	1.15E+03	529.10	793.65	6.25E+03	6.94E+00	N/A	N/A	0.0E+00
208968	Acenaphthylene	4.43E-02	7.44E-06	2.80E-04	25	1.12E+03	553.00	792.01	4.79E+03	3.93E+00	N/A	3.0E-03	S
83329	Acenaphthene	4.21E-02	7.69E-06	1.55E-04	25	1.22E+04	550.54	803.15	7.08E+03	4.24E+00	N/A	3.0E-03	S
132649	Dibenzofuran	2.87E-02	5.93E-06	4.00E-03	25	1.11E+03	559.00	824.01	8.13E+03	1.00E+01	N/A	N/A	S
86737	Fluorene	3.63E-02	7.88E-06	9.41E-08	25	1.27E+04	570.44	870.00	7.71E+03	1.90E+00	N/A	3.0E-03	S
85018	Phenanthrene	3.30E-02	7.47E-06	1.30E-04	25	1.08E+03	613.00	869.01	1.41E+04	1.28E+00	N/A	3.0E-03	S
120127	Anthracene	3.24E-02	7.74E-06	6.51E-05	25	1.31E+04	615.18	873.00	2.95E+04	4.34E-02	N/A	3.0E-03	S
C5-C8	C5-C8 Aliphatics	6.00E-02	1.00E-05	1.30E+00	25	NA	NA	NA	2.27E+03	1.10E+04	N/A	2.0E-01	S
C9-C12	C9-C12 Aliphatics	6.00E-02	1.00E-05	1.56E+00	25	NA	NA	NA	1.50E+05	7.00E+01	N/A	2.0E-01	S
C9-C10	C9-C10 Aromatics	6.00E-02	1.00E-05	7.92E-03	25	NA	NA	NA	1.78E+03	5.10E+04	N/A	5.0E-02	S
C9-C18	C9-C18 Aliphatics	6.00E-02	1.00E-05	1.66E+00	25	NA	NA	NA	6.80E+05	1.00E+01	N/A	2.0E-01	S
C11-C22	C11-C22 Aromatics	6.00E-02	1.00E-05	7.32E-04	25	NA	NA	NA	5.00E+03	5.80E+03	N/A	5.0E-02	S

Appendix C.4
 Johnson & Ellinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Adult Recreational Scenario - CT
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2
 Whitney Barral

Chemical CAS No. (numbers only, no dashes)	Chemical	Source-building separation, LT (cm)	Vadose zone soil air-filled porosity, δ_v (cm ³ /cm ³)	Vadose zone effective total fluid saturation, S_w (cm ³ /cm ³)	Vadose zone soil intrinsic permeability, k_i (cm ²)	Vadose zone soil relative air permeability, k_{ra} (cm ²)	Vadose zone soil effective vapor permeability, k_v (cm ²)	Floor-wall seam perimeter, X _{crack} (cm)	Initial soil concentration, CR (μ g/kg)	Bldg. ventilation rate, Q _{vent} (cm ³ /s)	Area of enclosed space below grade, A _g (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z _{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,Ts}$ (cal/mol)	Henry's law constant at ave. soil temperature, H _g (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, HTS (unitless)	Vapor viscosity at ave. soil temperature, μ_{vg} (p/cm-s)	Vadose zone effective diffusion coefficient, D _v ^{eff} (cm ² /s)
95636	Trimethylbenzene, 1,2,4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	4.36E+05	2.52E+06	9.50E+06	1.30E-04	15	1.55E+03	4.96E-03	2.13E-01	1.75E-04	4.77E-04
540590	Dichloroethylene, 1,2- (total)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	5.96E+02	2.52E+06	9.50E+06	1.30E-04	15	1.73E+03	3.87E-04	1.07E-02	1.75E-04	3.77E-04
106678	Trimethylbenzene, 1,3,5-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	7.13E+04	2.52E+06	9.50E+06	1.30E-04	15	1.55E+03	6.80E-03	2.92E-02	1.75E-04	3.95E-04
104518	n-Butylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	6.63E+03	2.52E+06	9.50E+06	1.30E-04	15	1.53E+03	1.06E-02	4.85E-01	1.75E-04	4.41E-04
91203	Naphthalene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	2.74E+03	2.52E+06	9.50E+06	1.30E-04	15	1.29E+04	1.52E-04	6.55E-03	1.75E-04	4.70E-04
96679	Isopropylbenzene, 4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	7.31E+05	2.52E+06	9.50E+06	1.30E-04	15	1.57E+03	7.45E+00	3.22E-02	1.75E-04	4.39E-04
135988	Butylbenzene, sec-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.10E+06	2.52E+06	9.50E+06	1.30E-04	15	1.53E+03	1.48E-02	6.27E-01	1.75E-04	4.86E-04
74873	Chloromethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	2.49E+02	2.52E+06	9.50E+06	1.30E-04	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04	7.66E-04
75014	Vinyl chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	2.61E+02	2.52E+06	9.50E+06	1.30E-04	15	5.00E+03	1.73E-02	7.46E-01	1.75E-04	6.44E-04
74839	Bromomethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	3.69E+06	2.52E+06	9.50E+06	1.30E-04	15	5.39E+03	3.64E-03	1.05E-01	1.75E-04	4.48E-04
75003	Ethyl Chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	8.60E+01	2.52E+06	9.50E+06	1.30E-04	15	1.20E+03	7.78E-03	3.35E-01	1.75E-04	7.66E-04
75354	1,1-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	6.34E+01	2.52E+06	9.50E+06	1.30E-04	15	6.39E+03	1.47E-02	6.34E-01	1.75E-04	5.47E-04
76131	Trichloro-1,2,2-Trifluoroethane, 1,1,2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	3.69E+06	2.52E+06	9.50E+06	1.30E-04	15	1.44E+03	4.55E-01	1.96E+01	1.75E-04	1.75E-04
87641	Acetone	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	3.24E+02	2.52E+06	9.50E+06	1.30E-04	15	7.56E+03	1.97E-05	8.50E-04	1.75E-04	2.07E-04
75150	Carbon Disulfide	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	8.78E+06	2.52E+06	9.50E+06	1.30E-04	15	6.68E+03	6.99E-03	3.01E-01	1.75E-04	6.34E-04
79209	Methyl Acetate	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	5.03E+07	2.52E+06	9.50E+06	1.30E-04	15	1.50E+03	9.88E-05	4.25E-03	1.75E-04	6.61E-04
75062	Methylene chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	7.27E+02	2.52E+06	9.50E+06	1.30E-04	15	7.03E+03	1.17E-03	5.03E-02	1.75E-04	6.35E-04
156605	trans-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	7.73E+01	2.52E+06	9.50E+06	1.30E-04	15	1.42E+03	8.27E-03	3.56E-01	1.75E-04	4.32E-04
1834044	Methyl-Tertiary-Butyl Ether	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	5.75E+01	2.52E+06	9.50E+06	1.30E-04	15	1.46E+03	5.16E-04	2.22E-02	1.75E-04	6.87E-04
76343	1,1-Dichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	3.58E+02	2.52E+06	9.50E+06	1.30E-04	15	7.45E+03	2.83E-03	1.24E-01	1.75E-04	4.59E-04
156592	cis-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.80E+02	2.52E+06	9.50E+06	1.30E-04	15	7.73E+03	2.04E-03	8.77E-02	1.75E-04	4.59E-04
78933	Butanone, 2- (MEK)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	4.83E+07	2.52E+06	9.50E+06	1.30E-04	15	1.49E+03	4.89E-03	2.11E-03	1.75E-04	9.46E-04
71556	1,1,1-Trichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	6.01E+05	2.52E+06	9.50E+06	1.30E-04	15	7.88E+03	8.59E-03	3.66E-01	1.75E-04	4.75E-04
110827	Cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	3.89E+05	2.52E+06	9.50E+06	1.30E-04	15	1.49E+03	1.75E+00	7.54E-01	1.75E-04	4.85E-04
71432	Benzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	8.08E+01	2.52E+06	9.50E+06	1.30E-04	15	8.12E+03	2.89E-03	1.10E-01	1.75E-04	5.42E-04
78016	Trichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	2.01E+02	2.52E+06	9.50E+06	1.30E-04	15	8.58E+03	4.79E-03	2.06E-01	1.75E-04	4.83E-04
106872	Methyl cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	4.45E+02	2.52E+06	9.50E+06	1.30E-04	15	1.51E+03	3.70E-01	1.68E+01	1.75E-04	5.99E-04
106883	Toluene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	5.85E+02	2.52E+06	9.50E+06	1.30E-04	16	9.15E+03	2.92E-03	1.26E-01	1.75E-04	5.34E-04
127184	Tetrachloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.47E+02	2.52E+06	9.50E+06	1.30E-04	15	9.55E+03	7.83E-03	3.37E-01	1.75E-04	4.39E-04
106907	Chlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	3.11E+02	2.52E+06	9.50E+06	1.30E-04	15	9.80E+03	1.64E-03	6.65E-02	1.75E-04	4.65E-04
100414	Ethylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.84E+02	2.52E+06	9.50E+06	1.30E-04	15	1.02E+04	3.18E-03	1.37E-01	1.75E-04	4.60E-04
1330207	Xylenes	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.50E+05	2.52E+06	9.50E+06	1.30E-04	15	1.54E+03	6.88E-06	2.52E-04	1.75E-04	3.75E-03
100426	Styrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	5.44E+05	2.52E+06	9.50E+06	1.30E-04	15	1.05E+04	1.08E-03	4.67E-02	1.75E-04	4.47E-04
88828	Isopropylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.06E+06	2.52E+06	9.50E+06	1.30E-04	15	1.54E+03	1.28E-02	5.61E-01	1.75E-04	3.85E-04
79345	1,1,2,2-Tetrachloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.15E+06	2.52E+06	9.50E+06	1.30E-04	15	1.05E+04	1.34E-04	5.77E-03	1.75E-04	6.65E-04
541731	Dichlorobenzene, 1,3-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.00E+02	2.52E+06	9.50E+06	1.30E-04	15	1.50E+03	4.11E-03	1.77E-01	1.75E-04	2.58E-04
106487	1,4-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	2.50E+02	2.52E+06	9.50E+06	1.30E-04	15	1.12E+04	8.89E-04	3.89E-02	1.75E-04	4.39E-04
96501	1,2-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	5.10E+01	2.52E+06	9.50E+06	1.30E-04	15	1.21E+04	5.61E-07	2.37E-06	1.75E-04	3.94E-02
120821	1,2,4-Trichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.13E+06	2.52E+06	9.50E+06	1.30E-04	15	1.31E+04	4.35E-04	1.87E-02	1.75E-04	2.25E-04
100627	Benzaldehyde	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.74E+06	2.52E+06	9.50E+06	1.30E-04	15	1.63E+03	2.29E-05	9.84E-04	1.75E-04	1.36E-03
91578	Methylnaphthalene, 2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	5.41E+03	2.52E+06	9.50E+06	1.30E-04	15	1.51E+03	6.88E-04	3.81E-02	1.75E-04	3.13E-04
92524	Biphenyl, 1,1'-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	8.81E+04	2.52E+06	9.50E+06	1.30E-04	15	1.47E+03	2.65E-04	1.14E-02	1.75E-04	3.15E-04
208956	Azarethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	4.09E+02	2.52E+06	9.50E+06	1.30E-04	15	1.51E+03	2.45E-04	1.05E-02	1.75E-04	3.38E-04
83329	Azorethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	8.09E+04	2.52E+06	9.50E+06	1.30E-04	15	1.61E+04	3.67E-05	1.66E-03	1.75E-04	7.33E-04
132849	Dibenzofuran	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	1.79E+03	2.52E+06	9.50E+06	1.30E-04	15	1.47E+03	3.51E-03	1.61E-01	1.75E-04	1.68E-04
96797	Fluorene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	2.97E+04	2.52E+06	9.50E+06	1.30E-04	15	1.62E+04	2.20E-06	9.48E-07	1.75E-04	6.18E-01
85018	Phenanthrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	3.84E+04	2.52E+06	9.50E+06	1.30E-04	15	1.48E+03	1.14E-04	4.90E-03	1.75E-04	3.50E-04
120127	Anthracene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	2.67E+03	2.52E+06	9.50E+06	1.30E-04	15	1.64E+04	1.28E-06	6.43E-04	1.75E-04	1.60E-03
C5-C8	C5-C8 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	8.83E+04	2.52E+06	9.50E+06	1.30E-04	15	NA	6.48E-01	2.79E+01	1.75E-04	3.64E-04
C9-C12	C9-C12 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	6.11E+04	2.52E+06	9.50E+06	1.30E-04	15	NA	7.80E-01	3.38E+01	1.75E-04	3.64E-04
C9-C10	C9-C10 Aromatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	4.31E+05	2.52E+06	9.50E+06	1.30E-04	15	NA	3.86E-03	1.70E-01	1.75E-04	3.69E-04
C9-C18	C9-C18 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	1.72E+04	9.25E+05	2.52E+06	9.50E+06	1.30E-04	15	NA	8.28E-01	3.58E+01	1.75E-04	3.

Appendix C.4
 Johnson & Eltinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Adult Recreational Scenario - CT
 Southwest Properties, Wells G&H Superfund Site, Operable
 Whitney Barrel

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusion path length, L _d (cm)	Convection path length, L _c (cm)	Soil-water partition coefficient, K _d (cm ³ /g)	Source vapor conc., C _{soil} (µg/m ³)	Crack radius, r _{crack} (cm)	Average vapor flow rate into bldg., Q _{air} (cm ³ /s)	Crack effective diffusion coefficient, D _{crack} (cm ² /s)	Area of crack, A _{crack} (cm ²)	Exponent of equivalent foundation Peclet number, exp(Pe _f) (unitless)	Infinita source indoor attenuation coefficient, α (unitless)	Infinita source bldg. conc., C _{soil,bldg} (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
95638	Trimethylbenzene, 1,2,4-	1	15	7.49E+00	N/A	0.10	2.74E+01	4.77E-04	1.23E+03	2.75E+303	1.08E-05	N/A	N/A	6.0E-03
540690	Dichloroethylene, 1,2 (total)	1	15	2.67E-01	N/A	0.10	2.74E+01	3.77E-04	1.23E+03	#NUM!	1.08E-05	N/A	#N/A	#N/A
108078	Trimethylbenzene, 1,3,5-	1	15	3.34E+00	N/A	0.10	2.74E+01	3.95E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	6.0E-03
104516	n-Butylbenzene	1	15	5.02E+00	N/A	0.10	2.74E+01	4.41E-04	1.23E+03	#NUM!	1.08E-05	N/A	#N/A	#N/A
01203	Naphthalene	1	15	4.00E+00	4.27E+03	0.10	2.74E+01	4.70E-04	1.23E+03	0.67E+307	1.08E-05	4.61E-02	N/A	3.0E-03
99878	Isopropyltoluene, 4-	1	15	3.18E+00	N/A	0.10	2.74E+01	4.39E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	4.0E-01
135988	Butylbenzene, sec.	1	15	6.22E+01	N/A	0.10	2.74E+01	4.86E-04	1.23E+03	6.47E+297	1.08E-05	N/A	#N/A	#N/A
74873	Chloromethane	1	15	2.86E-02	3.24E+05	0.10	2.74E+01	7.88E-04	1.23E+03	1.14E+189	1.08E-05	3.51E+00	N/A	9.0E-02
75014	Vinyl chloride	1	15	3.72E-02	6.48E+05	0.10	2.74E+01	8.44E-04	1.23E+03	6.27E+224	1.08E-05	6.99E+00	8.8E-06	1.0E-01
74839	Bromomethane	1	15	2.86E-02	N/A	0.10	2.74E+01	4.48E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	5.0E-03
75003	Ethyl Chloride	1	15	2.86E-02	1.12E+05	0.10	2.74E+01	7.88E-04	1.23E+03	1.14E+189	1.08E-05	1.21E+00	N/A	1.0E+01
75354	1,1-Dichloroethylene	1	15	1.19E-01	1.08E+05	0.10	2.74E+01	6.47E-04	1.23E+03	3.02E+294	1.08E-05	1.17E+00	N/A	2.0E-01
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	15	6.50E-01	N/A	0.10	2.74E+01	1.75E-04	1.23E+03	#NUM!	1.07E-05	N/A	N/A	3.0E+01
67841	Acetone	1	15	1.15E-03	1.37E+03	0.10	2.74E+01	2.07E-03	1.23E+03	9.18E+89	1.08E-05	1.48E-02	N/A	N/A
75150	Carbon Disulfide	1	15	1.03E-01	N/A	0.10	2.74E+01	8.34E-04	1.23E+03	1.25E+228	1.08E-05	N/A	N/A	7.0E-01
79209	Methyl Acetate	1	15	8.64E-03	N/A	0.10	2.74E+01	8.81E-04	1.23E+03	1.17E+189	1.08E-05	N/A	#N/A	#N/A
75092	Methylene chloride	1	15	2.34E-02	1.60E+06	0.10	2.74E+01	9.35E-04	1.23E+03	8.55E+227	1.08E-05	1.73E+00	4.7E-07	3.0E+00
166606	trans-1,2-Dichloroethylene	1	15	1.06E-01	8.20E+04	0.10	2.74E+01	4.32E-04	1.23E+03	#NUM!	1.08E-05	8.85E-01	N/A	2.0E-01
1634044	Methyl-Tertiary-Butyl Ether	1	15	7.98E-02	4.58E+03	0.10	2.74E+01	6.67E-04	1.23E+03	9.48E+216	1.08E-05	4.98E-02	N/A	3.0E+00
75343	1,1-Dichloroethane	1	15	6.32E-02	1.82E+06	0.10	2.74E+01	4.58E-04	1.23E+03	#NUM!	1.08E-05	1.75E+00	N/A	5.0E-01
169592	cis-1,2-Dichloroethylene	1	15	7.10E-02	5.66E+04	0.10	2.74E+01	4.59E-04	1.23E+03	#NUM!	1.08E-05	6.12E-01	N/A	2.0E-01
76933	Butanone, 2- (MEK)	1	15	7.60E-03	N/A	0.10	2.74E+01	9.45E-04	1.23E+03	1.18E+153	1.08E-05	N/A	N/A	N/A
71556	1,1,1-Trichloroethane	1	15	2.20E-01	N/A	0.10	2.74E+01	4.75E-04	1.23E+03	4.38E+304	1.08E-05	N/A	N/A	2.2E+00
110627	Cyclohexane	1	15	3.20E-01	N/A	0.10	2.74E+01	4.85E-04	1.23E+03	3.18E+298	1.08E-05	N/A	#N/A	#N/A
71432	Benzene	1	15	1.18E-01	2.85E+04	0.10	2.74E+01	5.42E-04	1.23E+03	1.81E+287	1.08E-05	3.08E-01	7.8E-06	3.0E-02
79018	Trichloroethylene	1	15	3.32E-01	1.09E+05	0.10	2.74E+01	4.83E-04	1.23E+03	3.77E+290	1.08E-05	1.18E+00	1.1E-04	4.0E-02
106872	Methyl cyclohexane	1	15	6.38E-01	3.35E+06	0.10	2.74E+01	5.98E-04	1.23E+03	1.60E+242	1.08E-05	3.62E+01	N/A	3.0E+00
106863	Toluene	1	15	3.84E-01	1.28E+05	0.10	2.74E+01	5.34E-04	1.23E+03	1.10E+271	1.08E-05	1.38E+00	N/A	4.0E-01
127184	Tetrachloroethylene	1	15	3.10E-01	8.13E+04	0.10	2.74E+01	4.39E-04	1.23E+03	#NUM!	1.08E-05	8.92E-01	5.9E-06	N/A
108907	Chlorobenzene	1	15	4.35E-01	3.21E+04	0.10	2.74E+01	4.85E-04	1.23E+03	#NUM!	1.08E-05	3.48E-01	N/A	8.0E-02
100414	Ethylbenzene	1	15	7.26E-01	2.88E+04	0.10	2.74E+01	4.60E-04	1.23E+03	#NUM!	1.08E-05	2.90E-01	N/A	1.0E+00
1332027	Xylene	1	15	4.82E-01	N/A	0.10	2.74E+01	3.75E-03	1.23E+03	4.03E+38	1.08E-05	N/A	N/A	1.0E-01
100425	Styrene	1	15	1.55E+00	N/A	0.10	2.74E+01	4.47E-04	1.23E+03	#NUM!	1.08E-05	N/A	#N/A	#N/A
99828	Isopropylbenzene	1	15	1.86E+01	N/A	0.10	2.74E+01	3.95E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	4.0E-01
78346	1,1,2,2-Tetrachloroethane	1	15	1.87E-01	N/A	0.10	2.74E+01	5.66E-04	1.23E+03	1.88E+256	1.08E-05	N/A	#N/A	#N/A
594731	Dichlorobenzene, 1,3-	1	15	3.40E-01	3.18E+04	0.10	2.74E+01	2.58E-04	1.23E+03	#NUM!	1.07E-05	3.42E-01	N/A	N/A
109487	1,4-Dichlorobenzene	1	15	1.23E+00	6.66E+03	0.10	2.74E+01	4.38E-04	1.23E+03	#NUM!	1.08E-05	7.18E-02	N/A	8.0E-01
95501	1,2-Dichlorobenzene	1	15	1.07E-01	3.94E+00	0.10	2.74E+01	3.94E-02	1.23E+03	4.74E+03	1.09E-05	4.28E-05	N/A	N/A
120821	1,2,4-Trichlorobenzene	1	15	3.59E+00	N/A	0.10	2.74E+01	2.25E-04	1.23E+03	#NUM!	1.07E-05	N/A	N/A	2.0E-01
100527	Benzaldehyde	1	15	6.54E-02	N/A	0.10	2.74E+01	1.35E-03	1.23E+03	2.80E+107	1.08E-05	N/A	#N/A	#N/A
91678	Methylnaphthalene, 2-	1	15	1.70E+01	1.20E+04	0.10	2.74E+01	3.13E-04	1.23E+03	#NUM!	1.08E-05	1.29E-01	N/A	3.0E-03
92624	Biphenyl, 1,1'	1	15	1.28E+01	N/A	0.10	2.74E+01	3.15E-04	1.23E+03	#NUM!	1.08E-05	N/A	N/A	N/A
206988	Acenaphthylene	1	15	8.57E+00	4.31E+02	0.10	2.74E+01	3.38E-04	1.23E+03	#NUM!	1.08E-05	4.64E-03	N/A	3.0E-03
83329	Acenaphthene	1	15	1.42E+01	N/A	0.10	2.74E+01	7.33E-04	1.23E+03	2.13E+197	1.08E-05	N/A	N/A	3.0E-03
132949	Dioxosulfuran	1	15	1.83E+01	1.84E+04	0.10	2.74E+01	1.08E-04	1.23E+03	#NUM!	1.07E-06	1.75E-01	N/A	N/A
89737	Fluorene	1	15	1.54E+01	N/A	0.10	2.74E+01	8.18E-01	1.23E+03	1.50E+00	3.24E-06	N/A	N/A	3.0E-03
85018	Phenanthrene	1	15	2.83E+01	8.27E+03	0.10	2.74E+01	3.74E-01	1.23E+03	#NUM!	1.08E-05	N/A	N/A	3.0E-03
120127	Anthracene	1	15	5.90E+01	N/A	0.10	2.74E+01	1.80E-03	1.23E+03	5.14E+00	1.08E-05	N/A	N/A	3.0E-03
CS-C8	CS-C8 Aliphatics	1	15	4.53E+00	3.94E+08	0.10	2.74E+01	3.84E-04	1.23E+03	#NUM!	1.08E-05	4.14E-03	N/A	2.0E-01
CS-C12	CS-C12 Aliphatics	1	15	3.00E+02	6.78E+08	0.10	2.74E+01	3.84E-04	1.23E+03	#NUM!	1.08E-05	7.29E-01	N/A	2.0E-01
CS-C10	CS-C10 Aromatics	1	15	3.68E+00	1.66E+07	0.10	2.74E+01	3.89E-04	1.23E+03	#NUM!	1.08E-05	2.10E-02	N/A	5.0E-02
CS-C18	CS-C18 Aliphatics	1	15	1.38E+03	2.42E+07	0.10	2.74E+01	3.84E-04	1.23E+03	#NUM!	1.08E-05	2.81E-02	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	1	15	1.00E+01	1.40E+06	0.10	2.74E+01	4.27E-04	1.23E+03	#NUM!	1.08E-05	1.51E-01	N/A	5.0E-02

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

BL-SCREEN
 Version 2.3, 03/91

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER Chemical	ENTER Depth below surface (15 or 200 cm)	ENTER Depth below ground to top of contamination, L1 (cm)	ENTER Average soil temperature, T2 (°C)	ENTER Vadose zone S/C soil type (used to estimate soil vapor permeability)	ENTER User-defined vadose zone soil vapor permeability, Kv (cm ² /s)	ENTER Vadose zone soil dry bulk density, ρd (g/cm ³)	ENTER Vadose zone soil total porosity, n (unitless)	ENTER Vadose zone soil organic carbon fraction, foc (unitless)	ENTER Average time for contaminant migration, ATC (yrs)	ENTER Average time for noncontaminant migration, ATNC (yrs)	ENTER Exposure duration, ED (days)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure time ET (hr/day)	ENTER Conversion factor CF (Pa ² /s)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)		
																		ENTER Mean soil conc. Cm (ug/g)	ENTER Depth below ground to top of vadose zone, L2 (cm)
9009	Trimethylbenzene, 1,2,4-	0.37E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
9009	Chlorobenzene, 1,2- (total)	1.19E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
9009	Trimethylbenzene, 1,3,5-	4.00E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10411	n-Butylbenzene	4.00E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
9100	Naphthalene	3.18E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
9009	Isopropylbenzene, 4-	2.00E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10066	Bulfolene, sec-	1.5	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
14173	Chloroethane	15	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10014	Vinyl chloride	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
74420	Bromomethane	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
75003	Ethyl chloride	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
75364	1,1-Dichloroethane	1.80E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
9111	Trichloro-1,2,3-trifluoroethane, 1,1,2-	1.27E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
9111	Acetone	15	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
9190	Carbon Dioxide	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
70300	Methyl acetate	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
70302	Methylene chloride	2.01E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10066	trans-1,2-Dichloroethane	3.14E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10066	Methyl Tertiary Butyl Ether	15	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
70304	1,1,1-Trichloroethane	3.28E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10062	cis-1,2-Dichloroethane	1.00E+04	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10062	Butane, 2- (NEX)	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
71049	1,1,1-Trichloroethane	3.72E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
110427	Cyclohexane	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
71433	Benzene	2.48E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
70306	Trichloroethylene	2.22E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10017	Methyl cyclohexane	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10043	Toluene	8.55E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
12714	Tetrahydrofuran	3.00E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10007	Chlorobenzene	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10014	Ethylbenzene	8.70E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
12020	Xylenes	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10018	Styrene	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
9009	Isopropylbenzene	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
70308	1,1,2,2-Tetrachloroethane	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
14174	Dichlorobenzene, 1,3-	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10007	1,4-Dichlorobenzene	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10007	1,2-Dichlorobenzene	2.23E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10007	1,2,4-Trichlorobenzene	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10007	Benzaldehyde	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
14078	Methylnaphthalene, 2-	8.81E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10018	Biphenyl, 1,1'	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10009	Acenaphthylene	1.30E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10009	Acenaphthene	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
12048	Dibenzofuran	3.90E+01	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10027	Fluorene	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
9016	Phenanthrene	1.72E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10027	Anthracene	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10018	Ch-C11 Aliphatics	1.00E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10018	Ch-C12 Aliphatics	1.00E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10018	Ch-C10 Aromatics	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10018	Ch-C18 Aliphatics	15	15	10	LB	1	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1
10018	C11-C22 Aromatics	8.44E+06	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	25	25	250	5	5760	1.0E-06	1

Note: 1) Default soil permeability from Table 7 of User's Guide for Estimating Subsurface Vapor Migration into Buildings (U.S. EPA June 18, 2002) were used for soil vapor flux capacity (Kv), soil organic carbon fraction (foc), and soil dry bulk density (ρd).

Appendix C.4
 Johnson & Etlinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Commercial Scenario - RME
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2
 Murphy Waste Oil

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, D _a (cm ² /s)	Diffusivity in water, D _w (cm ² /s)	Henry's law constant at reference temperature, H (atm·m ³ /mol)	Henry's law constant reference temperature, T _R (°C)	Enthalpy of vaporization at the normal boiling point, ΔH _{v,b} (cal/mol)	Normal boiling point, T _B (°K)	Critical temperature, T _C (°K)	Organic carbon partition coefficient, K _{oc} (cm ³ /g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)	Physical state at soil temperature, (S,L,G)
95636	Trimethylbenzene, 1,2,4-	7.80E-02	9.03E-06	5.70E-03	25	1.25E+03	442.30	649.11	3.72E+03	5.70E+01	N/A	6.0E-03	L
540590	Dichloroethylene, 1,2- (total)	5.59E-02	6.47E-06	4.30E-04	20	1.32E+03	585.00	877.50	1.28E+02	1.30E+00	#N/A	#N/A	0.0E+00
108678	Trimethylbenzene, 1,3,5-	6.48E-02	7.86E-06	7.81E-03	25	1.25E+03	442.30	649.11	1.67E+03	2.00E+01	N/A	6.0E-03	L
104518	n-Butylbenzene	7.25E-02	8.39E-06	1.25E-02	25	1.23E+03	456.00	684.00	2.51E+03	1.26E+00	#N/A	#N/A	L
91203	Naphthalene	5.90E-02	7.50E-06	4.83E-04	25	1.04E+04	491.14	748.40	2.00E+03	3.10E+01	N/A	3.0E-03	S
99876	Isopropyltoluene, 4-	7.25E-02	8.39E-06	8.60E+00	25	1.24E+03	450.10	652.04	1.58E+03	2.34E+01	N/A	4.0E-01	L
135988	Butylbenzene, sec-	8.00E-02	8.00E-06	1.67E-02	25	1.24E+03	446.65	669.98	3.11E+04	1.76E+01	#N/A	#N/A	0.0E+00
74873	Chloromethane	1.26E-01	6.50E-06	8.67E-03	25	1.35E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	9.0E-02	0.0E+00
75014	Vinyl chloride	1.06E-01	1.23E-05	2.71E-02	25	5.25E+03	259.25	432.00	1.86E+01	2.76E+03	8.8E-06	1.0E-01	L
74839	Bromomethane	7.28E-02	1.21E-05	6.22E-03	25	5.49E+03	276.50	414.75	1.43E+01	1.52E+04	N/A	5.0E-03	0.0E+00
75003	Ethyl Chloride	1.26E-01	6.50E-06	8.67E-03	25	1.36E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	1.0E+01	L
75354	1,1-Dichloroethylene	9.00E-02	1.04E-05	2.81E-02	25	6.25E+03	304.75	576.05	5.89E+01	2.25E+03	N/A	2.0E-01	L
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	2.88E-02	8.07E-06	5.17E-01	25	1.33E+03	320.70	481.05	2.25E+02	1.70E+02	N/A	3.0E+01	0.0E+00
67641	Acetone	1.24E-01	1.14E-05	3.88E-05	25	6.96E+03	329.20	508.10	5.75E-01	1.00E+06	N/A	N/A	L
75150	Carbon Disulfide	1.04E-01	1.29E-05	1.27E-02	25	6.39E+03	319.00	552.00	5.14E+01	2.87E+03	N/A	7.0E-01	L
79209	Methyl Acetate	1.04E-01	1.00E-05	1.13E-04	25	1.31E+03	365.00	547.50	3.32E+00	2.43E+05	#N/A	#N/A	0.0E+00
75082	Methylene chloride	1.01E-01	1.17E-05	2.19E-03	25	6.71E+03	313.00	510.00	1.17E+01	1.30E+04	4.7E-07	3.0E+00	L
156605	trans-1,2-Dichloroethylene	7.07E-02	1.19E-05	9.39E-03	25	1.33E+03	320.85	516.50	5.25E+01	6.30E+03	N/A	2.0E-01	L
1634044	Methyl-Tertiary-Butyl Ether	1.02E-01	1.05E-05	5.87E-04	25	1.32E+03	328.36	497.11	3.84E+01	5.10E+04	N/A	3.0E+00	L
75343	1,1-Dichloroethane	7.42E-02	1.05E-05	5.61E-03	25	6.90E+03	330.65	523.00	3.16E+01	5.06E+03	N/A	5.0E-01	L
156592	cis-1,2-Dichloroethylene	7.36E-02	1.13E-05	4.07E-03	25	7.19E+03	333.65	544.00	3.55E+01	3.50E+03	N/A	2.0E-01	L
78933	Butanone, 2- (MEK)	8.08E-02	9.80E-06	5.60E-05	25	1.31E+03	352.50	528.75	3.83E+00	2.23E+05	N/A	N/A	0.0E+00
71556	1,1,1-Trichloroethane	7.80E-02	8.80E-06	1.72E-02	25	7.14E+03	347.24	545.00	1.10E+02	1.33E+03	N/A	2.2E+00	L
110827	Cyclohexane	8.00E-02	9.00E-06	2.00E+00	25	1.31E+03	353.85	530.79	1.80E+02	5.50E+01	#N/A	#N/A	0.0E+00
71432	Benzene	8.80E-02	9.80E-06	5.56E-03	25	7.34E+03	353.24	562.16	5.89E+01	1.75E+03	7.8E-08	3.0E-02	L
78016	Trichloroethylene	7.90E-02	9.10E-06	1.03E-02	25	7.51E+03	360.36	544.20	1.86E+02	1.10E+03	1.1E-04	4.0E-02	L
108872	Methyl cyclohexane	9.86E-02	8.52E-06	4.23E-01	25	1.30E+03	373.90	560.85	2.68E+02	1.40E+01	N/A	3.0E+00	L
108883	Toluene	8.70E-02	8.60E-06	6.83E-03	25	7.93E+03	383.78	591.79	1.82E+02	5.26E+02	N/A	4.0E-01	L
127184	Tetrachloroethylene	7.20E-02	8.20E-06	1.84E-02	25	8.29E+03	394.40	620.20	1.55E+02	2.00E+02	5.9E-06	N/A	L
108907	Chlorobenzene	7.30E-02	8.70E-06	3.71E-03	25	8.41E+03	404.87	632.40	2.19E+02	4.72E+02	N/A	6.0E-02	L
100414	Ethylbenzene	7.50E-02	7.80E-06	7.98E-03	25	8.50E+03	409.34	617.20	3.63E+02	1.69E+02	N/A	1.0E+00	L
1330207	Xylenes	7.69E-02	8.44E-06	6.73E-06	25	1.26E+03	417.40	618.21	2.41E+02	2.20E+02	N/A	1.0E-01	L
100425	Styrene	7.10E-02	8.00E-06	2.76E-03	25	8.74E+03	418.31	636.00	7.76E+02	3.10E+02	#N/A	#N/A	L
99828	Isopropylbenzene	6.50E-02	7.83E-06	1.47E-02	25	1.26E+03	425.40	631.01	9.31E+03	5.60E+01	N/A	4.0E-01	L
79345	1,1,2,2-Tetrachloroethane	7.10E-02	7.90E-06	3.44E-04	25	9.00E+03	419.60	661.15	9.33E+01	2.97E+03	#N/A	#N/A	L
541731	Dichlorobenzene, 1,3-	4.14E-02	8.85E-06	4.70E-03	25	1.24E+03	446.00	683.96	1.70E+02	6.88E+01	N/A	N/A	L
106467	1,4-Dichlorobenzene	6.90E-02	7.90E-06	2.43E-03	25	9.27E+03	447.21	684.75	6.17E+02	7.38E+01	N/A	8.0E-01	S
95501	1,2-Dichlorobenzene	6.88E-02	9.41E-06	1.62E-06	25	9.70E+03	465.00	697.50	5.34E+01	2.77E+04	N/A	N/A	S
120821	1,2,4-Trichlorobenzene	3.00E-02	8.23E-06	1.42E-03	25	1.05E+04	486.15	725.00	1.78E+03	3.00E+02	N/A	2.0E-01	L
100527	Benzaldehyde	7.30E-02	9.07E-06	2.62E-05	25	1.24E+03	452.00	678.00	3.27E+01	6.57E+03	#N/A	#N/A	0.0E+00
91576	Methylnaphthalene, 2-	4.84E-02	7.75E-06	1.01E-03	25	1.17E+03	514.05	761.01	8.51E+03	2.46E+01	N/A	3.0E-03	S
92524	Biphenyl, 1,1'-	4.04E-02	8.15E-06	3.03E-04	25	1.15E+03	529.10	793.65	6.25E+03	6.94E+00	N/A	N/A	0.0E+00
208968	Acenaphthylene	4.43E-02	7.44E-06	2.80E-04	25	1.12E+03	553.00	792.01	4.79E+03	3.93E+00	N/A	3.0E-03	S
83329	Acenaphthene	4.21E-02	7.69E-06	1.55E-04	25	1.22E+04	550.54	803.15	7.08E+03	4.24E+00	N/A	3.0E-03	S
132649	Dibenzofuran	2.67E-02	5.93E-06	4.00E-03	25	1.11E+03	559.00	824.01	8.13E+03	1.00E+01	N/A	N/A	S
86737	Fluorene	3.63E-02	7.88E-06	9.41E-08	25	1.27E+04	570.44	870.00	7.71E+03	1.90E+00	N/A	3.0E-03	S
85018	Phenanthrene	3.30E-02	7.47E-06	1.30E-04	25	1.06E+03	613.00	869.01	1.41E+04	1.28E+00	N/A	3.0E-03	S
120127	Anthracene	3.24E-02	7.74E-06	6.51E-05	25	1.31E+04	615.18	873.00	2.95E+04	4.34E-02	N/A	3.0E-03	S
C5-C8	C5-C8 Aliphatics	6.00E-02	1.00E-05	1.30E+00	25	NA	NA	NA	2.27E+03	1.10E+04	N/A	2.0E-01	S
C9-C12	C9-C12 Aliphatics	6.00E-02	1.00E-05	1.56E+00	25	NA	NA	NA	1.50E+05	7.00E+01	N/A	2.0E-01	S
C9-C10	C9-C10 Aromatics	6.00E-02	1.00E-05	7.92E-03	25	NA	NA	NA	1.78E+03	5.10E+04	N/A	5.0E-02	S
C9-C18	C9-C18 Aliphatics	6.00E-02	1.00E-05	1.66E+00	25	NA	NA	NA	6.80E+05	1.00E+01	N/A	2.0E-01	S
C11-C22	C11-C22 Aromatics	6.00E-02	1.00E-05	7.32E-04	25	NA	NA	NA	5.00E+03	5.80E+03	N/A	5.0E-02	S

Appendix C.4
 Johnson & Ellinger Model - Data Entry Screen
 Initialization of Volatiles from Soil
 Future Remedial Scenario - RME
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2
 Murphy Waste Oil

Chemical CAS No. (numbers only, no dashes)	Chemical	Source-building separation, LT (cm)	Vadose zone soil air-filled porosity, θ_v (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_w (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{ra} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, Xcrack (cm)	Initial soil concentration used, CR ($\mu\text{g}/\text{kg}$)	Bldg. ventilation rate, Q_{vent} (cm^3/s)	Area of enclosed space below grade, A_g (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Zcrack (cm)	Enthalpy of vaporization of ave. soil temperature, ΔH_{v} (cal/mol)	Henry's law constant at ave. soil temperature, H_{HS} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, HTS (unitless)	Vapor viscosity at ave. soil temperature, μ_{HS} (g/cm-s)	Vadose zone effective diffusion coefficient, D_{eff}^v (cm^2/s)
85638	Trimethylbenzene, 1,2,4-	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	0.37E+03	6.93E+05	2.60E+06	2.48E-04	15	1.55E+03	4.06E-03	2.13E-01	1.75E-04	4.77E-04
540590	Dichloromethane, 1,2-(Total)	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	5.96E+02	6.93E+05	2.60E+06	2.48E-04	15	1.73E+03	3.67E-04	1.87E-02	1.75E-04	3.77E-04
106676	Trimethylbenzene, 1,3,5-	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	4.00E+03	6.93E+05	2.60E+06	2.48E-04	15	1.65E+03	6.80E-03	2.93E-01	1.75E-04	3.95E-04
104618	n-Butylbenzene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	4.00E+02	6.93E+05	2.60E+06	2.48E-04	15	1.63E+03	1.09E-02	4.89E-01	1.75E-04	4.41E-04
91203	Naphthalene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	3.16E+03	6.93E+05	2.60E+06	2.48E-04	15	1.29E+04	1.52E-04	6.55E-03	1.75E-04	4.70E-04
99676	Isopropyltoluene, 4-	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	2.00E+02	6.93E+05	2.60E+06	2.48E-04	15	1.67E+03	7.48E+00	3.22E+02	1.75E-04	4.39E-04
135698	Butylbenzene, sec-	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.10E+06	6.93E+05	2.60E+06	2.48E-04	15	1.63E+03	1.49E-02	6.27E-01	1.75E-04	4.88E-04
74873	Chloromethane	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.37E+08	6.93E+05	2.60E+06	2.48E-04	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04	7.06E-04
76014	Vinyl chloride	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	3.89E+08	6.93E+05	2.60E+06	2.48E-04	15	5.00E+03	1.73E-02	7.46E-01	1.75E-04	8.44E-04
74839	Bromomethane	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.80E+00	6.93E+05	2.60E+06	2.48E-04	15	5.39E+03	3.84E-03	1.65E-01	1.75E-04	4.48E-04
75003	Ethyl Chloride	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.37E+08	6.93E+05	2.60E+06	2.48E-04	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04	7.06E-04
76354	1,1-Dichloroethylene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.80E+00	6.93E+05	2.60E+06	2.48E-04	15	5.39E+03	3.84E-03	1.65E-01	1.75E-04	4.48E-04
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	3.99E+05	6.93E+05	2.60E+06	2.48E-04	15	1.44E+03	4.55E-01	1.95E+01	1.75E-04	5.47E-04
67841	Acetone	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.27E+03	6.93E+05	2.60E+06	2.48E-04	15	7.59E+03	1.97E-05	5.50E-04	1.75E-04	2.07E-03
75150	Carbon Disulfide	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	8.76E+06	6.93E+05	2.60E+06	2.48E-04	15	6.68E+03	5.99E-03	3.01E-01	1.75E-04	8.34E-04
75029	Methyl Acetate	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	5.03E+07	6.93E+05	2.60E+06	2.48E-04	15	1.50E+03	9.98E-05	4.25E-03	1.75E-04	8.61E-04
158606	Methylene chloride	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	2.01E+03	6.93E+05	2.60E+06	2.48E-04	15	7.03E+03	1.17E-03	6.03E-02	1.75E-04	6.35E-04
163404A	Methyl-Tert-butyl Ether	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	3.14E+02	6.93E+05	2.60E+06	2.48E-04	15	1.42E+03	8.27E-03	3.56E-01	1.75E-04	4.32E-04
75343	1,1-Dichloroethane	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.42E+07	6.93E+05	2.60E+06	2.48E-04	15	1.45E+03	5.16E-04	2.22E-02	1.75E-04	6.67E-04
156582	di-1,2-Dichloroethylene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	3.29E+02	6.93E+05	2.60E+06	2.48E-04	15	7.45E+03	2.88E-03	1.24E-01	1.75E-04	4.58E-04
76833	Butanone, 2- (MEK)	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.00E+04	6.93E+05	2.60E+06	2.48E-04	15	7.73E+03	2.04E-03	8.77E-02	1.75E-04	4.56E-04
71656	1,1,1-Trichloroethane	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	4.83E+07	6.93E+05	2.60E+06	2.48E-04	15	1.48E+03	4.00E-05	2.11E-03	1.75E-04	4.76E-04
710527	Cyclohexane	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	3.73E+02	6.93E+05	2.60E+06	2.48E-04	15	7.88E+03	6.60E-03	3.68E-01	1.75E-04	4.75E-04
71432	Benzene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	3.88E+05	6.93E+05	2.60E+06	2.48E-04	15	1.49E+03	1.75E+00	7.54E+01	1.75E-04	4.85E-04
79018	Trichloroethylene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	2.45E+02	6.93E+05	2.60E+06	2.48E-04	15	8.12E+03	2.89E-03	1.16E-01	1.75E-04	5.42E-04
108872	Methyl cyclohexane	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	2.23E+02	6.93E+05	2.60E+06	2.48E-04	15	8.56E+03	4.79E-03	2.06E-01	1.75E-04	4.83E-04
108883	Toluene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	2.98E+04	6.93E+05	2.60E+06	2.48E-04	15	8.15E+03	3.70E-01	1.59E+01	1.75E-04	5.08E-04
127184	Tetrachloroethylene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	3.00E+02	6.93E+05	2.60E+06	2.48E-04	15	8.15E+03	2.62E-03	1.29E-01	1.75E-04	5.34E-04
108907	Chlorobenzene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	3.04E+05	6.93E+05	2.60E+06	2.48E-04	15	8.80E+03	7.82E-03	3.37E-01	1.75E-04	4.39E-04
100416	Ethylbenzene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	8.70E+02	6.93E+05	2.60E+06	2.48E-04	15	8.80E+03	1.54E-03	6.85E-02	1.75E-04	4.55E-04
133207	Xylenes	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	3.04E+05	6.93E+05	2.60E+06	2.48E-04	15	8.80E+03	1.54E-03	6.85E-02	1.75E-04	4.55E-04
100425	Styrene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	5.44E+06	6.93E+05	2.60E+06	2.48E-04	15	1.05E+04	1.09E-03	4.87E-02	1.75E-04	4.47E-04
98828	Isopropylbenzene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.08E+05	6.93E+05	2.60E+06	2.48E-04	15	1.64E+03	1.28E-02	5.51E-01	1.75E-04	3.95E-04
78345	1,1,2,2-Tetrachloroethane	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.15E+06	6.93E+05	2.60E+06	2.48E-04	15	1.05E+04	1.34E-04	5.77E-03	1.75E-04	6.65E-04
641731	Dichlorobenzene, 1,3-	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	3.82E+04	6.93E+05	2.60E+06	2.48E-04	15	1.50E+03	4.11E-03	1.77E-01	1.75E-04	2.56E-04
106487	1,4-Dichlorobenzene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.09E+06	6.93E+05	2.60E+06	2.48E-04	15	1.12E+04	8.89E-04	3.83E-02	1.75E-04	4.38E-04
96501	1,2-Dichlorobenzene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	2.23E+03	6.93E+05	2.60E+06	2.48E-04	15	1.21E+04	5.51E-07	2.37E-05	1.75E-04	3.94E-02
120821	1,2,4-Trichlorobenzene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.13E+06	6.93E+05	2.60E+06	2.48E-04	15	1.32E+04	4.35E-04	1.87E-02	1.75E-04	2.25E-04
106627	Benzaldehyde	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.74E+06	6.93E+05	2.60E+06	2.48E-04	15	1.63E+03	2.29E-05	9.84E-04	1.75E-04	1.35E-03
91576	Methylnaphthalene, 2-	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	8.51E+02	6.93E+05	2.60E+06	2.48E-04	15	1.81E+03	8.96E-04	3.81E-02	1.75E-04	3.13E-04
92524	Biphenyl, 1,1'	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	8.51E+02	6.93E+05	2.60E+06	2.48E-04	15	1.47E+03	2.86E-04	1.14E-02	1.75E-04	3.15E-04
208968	Acenaphthylene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.99E+03	6.93E+05	2.60E+06	2.48E-04	15	1.81E+04	3.57E-06	1.58E-03	1.75E-04	7.33E-04
83326	Acenaphthene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	6.09E+04	6.93E+05	2.60E+06	2.48E-04	15	1.47E+03	2.20E-03	9.48E-01	1.75E-04	1.86E-04
132849	Dibenzofuran	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	3.50E+01	6.93E+05	2.60E+06	2.48E-04	15	1.62E+04	2.20E-03	9.48E-01	1.75E-04	3.60E-04
88737	Fluorene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	2.97E+04	6.93E+05	2.60E+06	2.48E-04	15	1.48E+03	1.14E-04	4.90E-03	1.75E-04	1.80E-03
85018	Phenanthrene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.72E+03	6.93E+05	2.60E+06	2.48E-04	15	1.84E+04	1.25E-05	5.43E-04	1.75E-04	3.64E-04
120127	Anthracene	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	2.57E+03	6.93E+05	2.60E+06	2.48E-04	15	NA	6.48E-01	2.79E+01	1.75E-04	3.84E-04
CS-C8	CS-C8 Aliphatics	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.00E+03	6.93E+05	2.60E+06	2.48E-04	15	NA	7.80E-01	3.39E+01	1.75E-04	3.04E-04
CS-C12	CS-C12 Aliphatics	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.00E+03	6.93E+05	2.60E+06	2.48E-04	15	NA	3.99E-03	1.70E-01	1.75E-04	3.99E-04
CS-C10	CS-C10 Aromatics	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.92E+08	6.93E+05	2.60E+06	2.48E-04	15	NA	8.25E-01	3.59E+01	1.75E-04	3.94E-04
CS-C18	CS-C18 Aliphatics	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	1.92E+07	6.93E+05	2.60E+06	2.48E-04	15	NA	8.25E-01	3.59E+01	1.75E-04	3.94E-04
C11-C22	C11-C22 Aromatics	1	0.130	0.859	1.82E-08	0.390	6.33E-09	6.55E+03	5.44E+06	6.93E+05	2.60E+06	2.48E-04	15	NA	3.80E-04	1.55E-02	1.75	

Appendix C.4
 Johnson & Ertzinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Commercial Scenario - RME
 Southwest Properties, Wells G&H Superfund Site, Operable
 Murphy Waste Cell

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusion path length, L _d (cm)	Convection path length, L _c (cm)	Soil-water partition coefficient, K _d (cm ³ /g)	Source vapor conc., C _{soil} (µg/m ³)	Crack radius, r _{crack} (cm)	Average vapor flow rate into bldg., Q _{avg} (cm ³ /s)	Crack effective diffusion coefficient, D ^{eff} (cm ² /s)	Area of crack, A _{crack} (cm ²)	Exponent of equivalent porosity number, exp(Por)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bleg. conc., C _{soil,inf} (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
96636	Trimethylbenzene, 1,2,4-	1	15	7.43E+00	2.82E+06	0.10	1.04E+01	4.77E-04	6.45E+02	1.29E+220	1.49E-05	3.89E+00	N/A	8.0E-03
540590	Dichlorobenzene, 1,2- (total)	1	15	2.67E-01	2.17E+04	0.10	1.04E+01	3.77E-04	6.45E+02	3.28E+278	1.49E-05	3.21E-01	#N/A	#N/A
108878	Trimethylbenzene, 1,3,5-	1	15	3.34E+00	3.29E+05	0.10	1.04E+01	3.86E-04	6.45E+02	3.48E+265	1.49E-05	4.88E+00	N/A	6.0E-03
104616	m-Xylylene	1	15	6.02E+00	3.67E+04	0.10	1.04E+01	4.41E-04	6.45E+02	1.13E+238	1.49E-05	6.30E-01	#N/A	#N/A
91203	Naphthalene	1	15	4.00E+00	4.93E+03	0.10	1.04E+01	4.70E-04	6.45E+02	2.68E+223	1.49E-05	7.33E-02	N/A	3.0E-03
98876	Isopropyltoluene, 4-	1	15	3.16E+00	2.06E+06	0.10	1.04E+01	4.39E-04	6.45E+02	1.01E+239	1.49E-05	3.08E+01	N/A	4.0E-01
135986	Butylbenzene, sec-	1	15	6.22E+01	N/A	0.10	1.04E+01	4.86E-04	6.45E+02	9.44E+215	1.49E-05	N/A	#N/A	#N/A
74873	Chloromethane	1	15	2.86E-02	N/A	0.10	1.04E+01	7.88E-04	6.45E+02	1.38E+137	1.49E-05	N/A	N/A	8.0E-02
76014	Vinyl chloride	1	15	3.72E-02	N/A	0.10	1.04E+01	6.44E-04	6.45E+02	1.02E+183	1.49E-05	N/A	8.8E-08	1.0E-01
74838	Bromomethane	1	15	2.86E-02	N/A	0.10	1.04E+01	4.48E-04	6.45E+02	1.36E+234	1.49E-05	N/A	N/A	5.0E-03
75003	Ethyl chloride	1	15	2.86E-02	N/A	0.10	1.04E+01	7.66E-04	6.45E+02	1.38E+187	1.49E-05	N/A	N/A	1.0E-01
76364	1,1-Dichloroethylene	1	15	1.18E-01	2.72E+03	0.10	1.04E+01	6.47E-04	6.45E+02	1.38E+137	1.49E-05	N/A	N/A	2.0E-01
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	15	4.90E-01	N/A	0.10	1.04E+01	1.78E-04	6.45E+02	#NUM!	1.47E-06	N/A	N/A	3.0E+01
87841	Acetone	1	15	1.16E-03	6.38E+09	0.10	1.04E+01	2.97E-03	6.45E+02	5.83E+50	1.50E-05	8.05E-02	N/A	N/A
76160	Carbon disulfide	1	15	1.03E-01	N/A	0.10	1.04E+01	6.34E-04	6.45E+02	2.67E+166	1.49E-05	N/A	N/A	7.0E-01
78206	Methyl acetate	1	15	6.84E-03	N/A	0.10	1.04E+01	8.61E-04	6.45E+02	8.20E+121	1.49E-05	N/A	#N/A	#N/A
75062	Methylene chloride	1	15	2.34E-02	4.44E+06	0.10	1.04E+01	6.55E-04	6.45E+02	2.18E+166	1.49E-05	6.82E+00	4.7E-07	3.0E+00
138605	trans-1,2-Dichloroethylene	1	15	1.05E-01	3.33E+06	0.10	1.04E+01	4.32E-04	6.45E+02	1.43E+243	1.49E-05	4.95E+00	N/A	2.0E-01
133404	Methyl tert-butyl Ether	1	15	7.88E-02	N/A	0.10	1.04E+01	6.87E-04	6.45E+02	2.47E+157	1.49E-05	N/A	N/A	3.0E+00
75343	1,1-Dichloroethane	1	15	6.32E-02	1.47E+06	0.10	1.04E+01	4.68E-04	6.45E+02	1.67E+229	1.49E-05	2.10E+00	N/A	6.0E-01
156592	cis-1,2-Dichloroethylene	1	15	7.10E-02	3.15E+06	0.10	1.04E+01	4.69E-04	6.45E+02	7.49E+228	1.49E-05	4.68E+01	N/A	2.0E-01
78933	Butanone, 2- (MEK)	1	15	7.96E-03	N/A	0.10	1.04E+01	8.45E-04	6.45E+02	1.09E+111	1.49E-05	N/A	N/A	N/A
71566	1,1,1-Trichloroethane	1	15	2.20E-01	3.02E+05	0.10	1.04E+01	4.75E-04	6.45E+02	9.88E+220	1.49E-05	4.45E+00	N/A	2.2E+00
110827	Cyclohexane	1	15	3.20E-01	N/A	0.10	1.04E+01	4.65E-04	6.45E+02	3.37E+216	1.49E-05	N/A	#N/A	#N/A
71432	Benzene	1	15	1.18E-01	8.80E+04	0.10	1.04E+01	6.42E-04	6.45E+02	6.73E+193	1.49E-05	1.31E+00	7.8E-06	3.0E-02
76015	Trichloroethylene	1	15	3.32E-01	8.38E+04	0.10	1.04E+01	4.83E-04	6.45E+02	2.03E+217	1.49E-05	1.25E+00	1.1E-04	4.0E-02
108872	Methyl cyclohexane	1	15	5.36E-01	N/A	0.10	1.04E+01	5.98E-04	6.45E+02	4.88E+175	1.49E-05	N/A	N/A	3.0E+00
108883	Toluene	1	15	3.64E-01	1.87E+06	0.10	1.04E+01	5.34E-04	6.45E+02	4.07E+198	1.49E-05	2.79E+00	N/A	4.0E-01
127184	Tetrachloroethylene	1	15	3.10E-01	1.88E+06	0.10	1.04E+01	4.39E-04	6.45E+02	1.92E+239	1.49E-05	N/A	N/A	N/A
108907	Chlorobenzene	1	15	4.38E-01	N/A	0.10	1.04E+01	4.55E-04	6.45E+02	3.97E+230	1.49E-05	N/A	N/A	6.0E-02
100414	Ethylbenzene	1	15	7.25E-01	8.78E+04	0.10	1.04E+01	4.80E-04	6.45E+02	1.44E+228	1.49E-05	1.45E+00	N/A	1.0E+00
1330207	Xylenes	1	15	4.83E-01	N/A	0.10	1.04E+01	3.75E-03	6.45E+02	1.01E+238	1.50E-06	N/A	N/A	1.0E-01
100426	Styrene	1	15	1.85E+00	N/A	0.10	1.04E+01	4.47E-04	6.45E+02	6.29E+234	1.49E-05	N/A	#N/A	#N/A
98828	Isopropylbenzene	1	15	1.26E+01	N/A	0.10	1.04E+01	3.95E-04	6.45E+02	3.76E+265	1.49E-05	N/A	N/A	4.0E-01
78346	1,1,2,2-Tetrachloroethane	1	15	1.87E-01	N/A	0.10	1.04E+01	6.65E-04	6.45E+02	8.21E+185	1.49E-05	N/A	#N/A	#N/A
541731	Dichlorobenzene, 1,3-	1	15	3.40E-01	N/A	0.10	1.04E+01	2.56E-04	6.45E+02	#NUM!	1.49E-05	N/A	N/A	N/A
108487	1,4-Dichlorobenzene	1	15	1.23E+00	N/A	0.10	1.04E+01	4.38E-04	6.45E+02	2.83E+239	1.49E-05	N/A	N/A	8.0E-01
85501	1,2-Dichlorobenzene	1	15	1.07E-01	1.72E+02	0.10	1.04E+01	3.94E-02	6.45E+02	4.84E+02	1.50E-05	2.59E-03	N/A	N/A
120821	1,2,4-Trichlorobenzene	1	15	3.58E+00	N/A	0.10	1.04E+01	2.25E-04	6.45E+02	#NUM!	1.47E-05	N/A	N/A	2.0E-01
100527	Benzaldehyde	1	15	6.64E-02	N/A	0.10	1.04E+01	1.35E-03	6.45E+02	8.27E+77	1.50E-05	N/A	#N/A	#N/A
91578	Methylnaphthalene, 2-	1	15	1.70E+01	1.88E+03	0.10	1.04E+01	3.13E-04	6.45E+02	#NUM!	1.48E-05	2.79E-02	N/A	3.0E-03
92524	Biphenyl, 1,1'-	1	15	1.25E+01	N/A	0.10	1.04E+01	3.15E-04	6.45E+02	#NUM!	1.48E-05	N/A	N/A	N/A
208968	Acenaphthylene	1	15	9.57E+00	1.60E+03	0.10	1.04E+01	3.88E-04	6.45E+02	#NUM!	1.48E-05	2.22E-02	N/A	3.0E-03
83329	Acenaphthene	1	15	1.42E+01	N/A	0.10	1.04E+01	7.33E-04	6.45E+02	1.38E+143	1.49E-05	N/A	N/A	3.0E-03
132649	Dibenzofuran	1	15	1.83E+01	3.21E+02	0.10	1.04E+01	1.06E-04	6.45E+02	#NUM!	1.49E-05	N/A	N/A	3.0E-03
88737	Fluorene	1	15	1.54E+01	N/A	0.10	1.04E+01	8.18E-01	6.45E+02	1.34E+00	5.85E-05	N/A	N/A	3.0E-03
85018	Phenanthrene	1	15	2.83E+01	2.98E+02	0.10	1.04E+01	3.50E-04	6.45E+02	2.10E+300	1.49E-05	4.40E-03	N/A	3.0E-03
120127	Anthracene	1	15	5.99E+01	N/A	0.10	1.04E+01	1.80E-03	6.45E+02	6.33E+85	1.50E-05	N/A	N/A	3.0E-03
C5-C8	C5-C8 Aliphatics	1	15	4.93E+00	3.80E+06	0.10	1.04E+01	3.64E-04	6.45E+02	4.81E+288	1.49E-05	5.79E+01	N/A	2.0E-01
C9-C12	C9-C12 Aliphatics	1	15	3.00E+02	1.11E+05	0.10	1.04E+01	3.64E-04	6.45E+02	4.87E+288	1.49E-05	1.84E+00	N/A	2.0E-01
C9-C10	C9-C10 Aromatics	1	15	3.59E+00	N/A	0.10	1.04E+01	3.66E-04	6.45E+02	1.62E+284	1.48E-05	N/A	N/A	5.0E-02
C9-C18	C9-C18 Aromatics	1	15	1.36E+03	N/A	0.10	1.04E+01	3.64E-04	6.45E+02	4.88E+288	1.48E-05	N/A	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	1	15	1.00E+01	8.28E+06	0.10	1.04E+01	4.27E-04	6.45E+02	7.52E+245	1.49E-05	1.23E+02	N/A	5.0E-02

Appendix C.4
Johnson & Estinger Model - Data Entry Screen
Inhalation of Volatiles from Soil
Future Commercial Scenario - RME
Southwest Properties, Walter G&H Superfund Site, Operable Unit 2
Murphy Waste Oil

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

INCREMENTAL RISK CALCULATIONS:

Chemical CAS No. (numbers only, no dashes)	Chemical	Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C _{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)	Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
90839	Trimethylbenzene, 1,2,4-	NA	NA	NA	4.38E+05	NA	NA	1.3E-01
540590	Dichloroethylene, 1,2- (total)	NA	NA	NA	5.26E+02	NA	NA	NA
108676	Trimethylbenzene, 1,3,5-	NA	NA	NA	7.13E+04	NA	NA	1.9E-01
104518	n-Butylbenzene	NA	NA	NA	8.93E+05	NA	NA	NA
91203	Naphthalene	NA	NA	NA	1.30E+05	NA	NA	5.6E-03
99876	Isopropyltoluene, 4-	NA	NA	NA	7.31E+05	NA	NA	1.7E-02
135988	Butylbenzene, sec-	NA	NA	NA	1.10E+06	NA	NA	NA
74873	Chloromethane	NA	NA	NA	1.37E+06	NA	NA	NA
75014	Vinyl chloride	NA	NA	NA	8.33E+05	NA	NA	NA
74839	Bromomethane	NA	NA	NA	3.09E+06	NA	NA	NA
75003	Ethyl Chloride	NA	NA	NA	1.37E+06	NA	NA	NA
75354	1,1-Dichloroethylene	NA	NA	NA	6.38E+05	NA	NA	4.6E-05
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	NA	NA	NA	3.99E+05	NA	NA	NA
67841	Acetone	NA	NA	NA	2.91E+06	NA	NA	NA
75150	Carbon Disulfide	NA	NA	NA	8.78E+05	NA	NA	NA
79209	Methyl Acetate	NA	NA	NA	5.03E+07	NA	NA	NA
75092	Methylene chloride	NA	NA	NA	2.98E+06	NA	2.5E-07	5.0E-04
156805	trans-1,2-Dichloroethylene	NA	NA	NA	2.12E+06	NA	NA	5.6E-03
1634044	Methyl-Tertiary-Butyl Ether	NA	NA	NA	1.42E+07	NA	NA	NA
75343	1,1-Dichloroethane	NA	NA	NA	1.39E+06	NA	NA	1.0E-03
156592	cis-1,2-Dichloroethylene	NA	NA	NA	9.75E+05	NA	NA	5.3E-02
78933	Butane, 2- (MEK)	NA	NA	NA	4.83E+07	NA	NA	NA
71556	1,1,1-Trichloroethane	NA	NA	NA	6.01E+05	NA	NA	4.7E-04
10427	Cyclohexane	NA	NA	NA	3.88E+05	NA	NA	NA
71432	Benzene	NA	NA	NA	5.74E+05	NA	8.3E-07	1.0E-02
79016	Trichloroethylene	NA	NA	NA	6.05E+05	NA	1.1E-05	7.1E-03
108872	Methyl cyclohexane	NA	NA	NA	2.98E+04	NA	NA	NA
108853	Toluene	NA	NA	NA	3.02E+05	NA	NA	1.6E-03
127184	Tetrachloroethylene	NA	NA	NA	1.08E+05	NA	1.3E-06	NA
108907	Chlorobenzene	NA	NA	NA	3.04E+05	NA	NA	NA
100414	Ethylbenzene	NA	NA	NA	1.58E+05	NA	NA	3.3E-04
1330207	Xylene	NA	NA	NA	1.50E+05	NA	NA	NA
100425	Styrene	NA	NA	NA	3.44E+05	NA	NA	NA
95826	Isopropylbenzene	NA	NA	NA	1.06E+06	NA	NA	NA
79345	1,1,2,2-Tetrachloroethane	NA	NA	NA	1.15E+06	NA	NA	NA
541731	Dichlorobenzene, 1,3-	NA	NA	NA	3.82E+04	NA	NA	NA
106467	1,4-Dichlorobenzene	NA	NA	NA	1.06E+05	NA	NA	NA
95501	1,2-Dichlorobenzene	NA	NA	NA	8.50E+06	NA	NA	NA
120821	1,2,4-Trichlorobenzene	NA	NA	NA	1.13E+06	NA	NA	NA
100527	Benzaldehyde	NA	NA	NA	1.74E+06	NA	NA	NA
91576	Methylnaphthalene, 2-	NA	NA	NA	4.24E+05	NA	NA	2.1E-03
92524	Biphenyl, 1,1'-	NA	NA	NA	8.81E+04	NA	NA	NA
200908	Acephenanthylene	NA	NA	NA	3.80E+04	NA	NA	1.7E-03
83329	Acephenanthrene	NA	NA	NA	8.09E+04	NA	NA	NA
132649	Dibenzofuran	NA	NA	NA	1.85E+05	NA	NA	NA
86787	Fluorene	NA	NA	NA	2.87E+04	NA	NA	NA
85018	Phenanthrene	NA	NA	NA	3.64E+04	NA	NA	3.9E-04
120127	Anthracene	NA	NA	NA	2.57E+03	NA	NA	NA
C5-C8	C5-C8 Aliphatics	NA	NA	NA	7.88E+07	NA	NA	8.8E-02
C9-C12	C9-C12 Aliphatics	NA	NA	NA	2.12E+07	NA	NA	1.8E-03
C9-C10	C9-C10 Aromatics	NA	NA	NA	1.92E+08	NA	NA	NA
C9-C18	C9-C18 Aliphatics	NA	NA	NA	1.36E+07	NA	NA	NA
C11-C22	C11-C22 Aromatics	NA	NA	NA	5.92E+07	NA	NA	5.8E-01

95% UCL Cancer Risk 1E-05
95% UCL HI 1E+00
TOTAL: 1E-05 1E+00
= Cancer risk > 1E-05 or HQ/HI>1E+00

Trimethylbenzene, 1,2,4-
Dichloroethylene, 1,2- (total)
Trimethylbenzene, 1,3,5-
n-Butylbenzene
Naphthalene
Isopropyltoluene, 4-
Butylbenzene, sec-
Chloromethane
Vinyl chloride
Bromomethane
Ethyl Chloride
1,1-Dichloroethylene
Trichloro-1,2,2-trifluoroethane, 1,1,2-
MESSAGE: Soil conc. >= saturation (C_{sat}). Risk/HQ calculated at C_{sat}.
MESSAGE: Soil conc. >= saturation (C_{sat}). Risk/HQ calculated at C_{sat}.
MESSAGE: Soil conc. >= saturation (C_{sat}). Risk/HQ calculated at C_{sat}.
MESSAGE: Soil conc. >= saturation (C_{sat}). Risk/HQ calculated at C_{sat}.
MESSAGE: Soil conc. >= saturation (C_{sat}). Risk/HQ calculated at C_{sat}.
MESSAGE: Soil conc. >= saturation (C_{sat}). Risk/HQ calculated at C_{sat}.

Appendix C.4
 Johnson & Johnson Model - Data Entry Screen
 Revision of Volatile from E1
 Facility Commented: Rowley, CT
 Southeast Pharmacy, Walk DMH Superfund Site, Oasdale Unit 2
 Murphy Waste CA

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

SL-SCREEN
 Version 2.3-03/01

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and listed soil conc. below)

YES

ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER	ENTER
Chemical CAS No. (numbers only)	Chemical	Mean soil conc. OR (µg/g)	Depth below grade to bottom of undisturbed soil floor. (1.5 or 2.0 cm) (ft)	Depth below grade to top of contamination. (ft)	Average soil temperature. (°C)	Volatile zone SCS soil loss (used to estimate soil vapor permeability)	Use-defined volatile zone soil vapor permeability. (cm ² /sec)	Volatile zone soil bulk density. (g/cm ³)	Volatile zone soil porosity. (%)	Volatile zone soil water-filled porosity. (%)	Volatile zone and organic carbon fraction. (µg/g)	Averaging time for carcinogens. ATC (yr)	Averaging time for noncarcinogens. ATNC (yr)	Exposure duration. ED (yr)	Exposure frequency. EF (days/yr)	Exposure time. ET (hr/day)	Conversion factor. CF (µg/L)	Risk for carcinogens. TR (10 ⁻⁶ /yr)	Target hazard quotient for noncarcinogens. THQ (10 ⁻⁶ /yr)
95938	Trimethylbenzene, 1,2,4-	1.85E+00	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
540590	Dichlorobenzene, 1,2- (total)	1.19E+00	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
108878	Trimethylbenzene, 1,3,5-	4.00E+00	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
104818	n-Butylbenzene	1.88E+02	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
91203	Naphthalene	9.18E+00	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
98976	Isopropylbenzene, 4-	1.66E+02	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
135888	Butylbenzene, sec-	1.6	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
74873	Chlorobenzene	15	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
75014	Vinyl chloride	15	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
74829	Bromobenzene	15	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
75003	Ethyl chloride	15	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
75334	1,1-Dichloroethylene	1.60E+00	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
72121	1,1,2,2-Tetrachloroethane, 1,1,2,2-	1.27E+00	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
67841	Acetone	1.27E+00	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
75150	Carbon disulfide	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
78208	Methyl acetate	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
75092	Methylene chloride	2.01E+00	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
158605	trans-1,2-Dichloroethylene	3.14E+02	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
141344	Methyl tert-butyl ether	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
75343	1,1-Dichloroethane	3.28E+02	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
159592	cis-1,2-Dichloroethylene	3.82E+02	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
78913	Butanone, 2- (MEK)	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
71558	1,1,1-Trichloroethane	3.70E+02	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
110627	Cyclohexane	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
71432	Benzene	2.48E+02	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
75018	Trichloroethylene	2.78E+02	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
108872	Methyl cyclohexane	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
108883	Toluene	8.95E+02	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
127184	Tetrahydrofuran	8.82E+01	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
108907	Chlorobenzene	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
100414	Ethylbenzene	6.70E+02	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
1330207	Xylenes	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
100425	Styrene	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
98828	Isopropylbenzene	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
78345	1,1,2,2-Tetrachloroethane	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
541731	Dichlorobenzene, 1,3-	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
106487	1,4-Dichlorobenzene	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
85501	1,2-Dichlorobenzene	2.22E+00	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
120821	1,2,4-Trichlorobenzene	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
100527	Benzaldehyde	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
91578	Methyl methacrylate, 2-	6.81E+02	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
22524	Biphenyl, 1,1'	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
206968	Acenaphthylene	1.30E+00	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
83329	Acenaphthene	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
132649	Dibenzofuran	3.50E+01	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
88737	Fluorene	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
85018	Phenanthrene	1.72E+00	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
120137	Anthracene	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
CS-C3	CS-C3 Aliphatics	1.00E+03	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
CS-C12	CS-C12 Aliphatics	1.00E+03	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
CS-C10	CS-C10 Aromatics	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
CS-C18	CS-C18 Aliphatics	1.5	15	10	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1
C11-C22	C11-C22 Aromatics	8.44E+08	15	15	10	LB	1	1.8	0.43	0.3	0.002	70	9	9	219	8	8780	1.0E-08	1

Note:
 1) Default soil parameters from Table 7 of User's Guide for Estimating Subsurface Vapor Intrusion into Buildings (U.S. EPA, June 18, 2002) were used for soil water filled porosity (f_w) and organic carbon fraction (f_{oc}), soil total porosity (f_t) and soil bulk density (ρ_b).

Appendix C.4

Johnson & Ettinger Model - Data Entry Screen

Inhalation of Volatiles from Soil

Future Commercial Scenario - CT

Southwest Properties, Wells G&H Superfund Site, Operable Unit 2

Murphy Waste Oil

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, D _a (cm ² /s)	Diffusivity in water, D _w (cm ² /s)	Henry's law constant at reference temperature, H (atm·m ³ /mol)	Henry's law constant reference temperature, T _R (°C)	Enthalpy of vaporization at the normal boiling point, ΔH _{v,b} (cal/mol)	Normal boiling point, T _b (°K)	Critical temperature, T _c (°K)	Organic carbon partition coefficient, K _{oc} (cm ³ /g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)	Physical state at soil temperature, (S,L,G)
95636	Trimethylbenzene, 1,2,4-	7.80E-02	9.03E-06	5.70E-03	25	1.25E+03	442.30	649.11	3.72E+03	5.70E+01	N/A	6.0E-03	L
540590	Dichloroethylene, 1,2- (total)	5.59E-02	6.47E-06	4.30E-04	20	1.32E+03	565.00	877.50	1.28E+02	1.30E+00	#N/A	#N/A	0.0E+00
108678	Trimethylbenzene, 1,3,5-	6.48E-02	7.86E-06	7.81E-03	25	1.25E+03	442.30	649.11	1.67E+03	2.00E+01	N/A	6.0E-03	L
104518	n-Butylbenzene	7.25E-02	8.39E-06	1.25E-02	25	1.23E+03	456.00	684.00	2.51E+03	1.26E+00	#N/A	#N/A	L
91203	Naphthalene	5.90E-02	7.50E-06	4.83E-04	25	1.04E+04	491.14	748.40	2.00E+03	3.10E+01	N/A	3.0E-03	S
99876	Isopropyltoluene, 4-	7.25E-02	8.39E-06	8.60E+00	25	1.24E+03	450.10	652.04	1.58E+03	2.34E+01	N/A	4.0E-01	L
135988	Butylbenzene, sec-	8.00E-02	8.00E-06	1.67E-02	25	1.24E+03	446.65	669.98	3.11E+04	1.76E+01	#N/A	#N/A	0.0E+00
74873	Chloromethane	1.26E-01	6.50E-06	8.67E-03	25	1.35E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	9.0E-02	0.0E+00
75014	Vinyl chloride	1.08E-01	1.23E-05	2.71E-02	25	5.25E+03	259.25	432.00	1.86E+01	2.76E+03	8.8E-08	1.0E-01	L
74839	Bromomethane	7.28E-02	1.21E-05	6.22E-03	25	5.49E+03	276.50	414.75	1.43E+01	1.52E+04	N/A	5.0E-03	0.0E+00
75003	Ethyl Chloride	1.28E-01	6.50E-06	8.67E-03	25	1.36E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	1.0E+01	L
75354	1,1-Dichloroethylene	9.00E-02	1.04E-05	2.61E-02	25	6.25E+03	304.75	576.05	5.89E+01	2.25E+03	N/A	2.0E-01	L
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	2.88E-02	8.07E-06	5.17E-01	25	1.33E+03	320.70	481.05	2.25E+02	1.70E+02	N/A	3.0E+01	0.0E+00
67541	Acetone	1.24E-01	1.14E-05	3.88E-05	25	6.98E+03	329.20	508.10	5.75E-01	1.00E+06	N/A	N/A	L
75150	Carbon Disulfide	1.04E-01	1.29E-05	1.27E-02	25	6.39E+03	319.00	552.00	5.14E+01	2.67E+03	N/A	7.0E-01	L
79209	Methyl Acetate	1.04E-01	1.00E-05	1.13E-04	25	1.31E+03	365.00	547.50	3.32E+00	2.43E+05	#N/A	#N/A	0.0E+00
75092	Methylene chloride	1.01E-01	1.17E-05	2.19E-03	25	6.71E+03	313.00	510.00	1.17E+01	1.30E+04	4.7E-07	3.0E+00	L
156605	trans-1,2-Dichloroethylene	7.07E-02	1.19E-05	9.39E-03	25	1.33E+03	320.85	516.60	5.25E+01	6.30E+03	N/A	2.0E-01	L
163404	Methyl-Tertiary-Butyl Ether	1.02E-01	1.05E-05	5.87E-04	25	1.32E+03	328.36	497.11	3.84E+01	5.10E+04	N/A	3.0E+00	L
75343	1,1-Dichloroethane	7.42E-02	1.05E-05	5.61E-03	25	6.90E+03	330.55	523.00	3.18E+01	5.06E+03	N/A	5.0E-01	L
156592	cis-1,2-Dichloroethylene	7.36E-02	1.13E-05	4.07E-03	25	7.19E+03	333.65	544.00	3.58E+01	3.50E+03	N/A	2.0E-01	L
78933	Butanone, 2- (MEK)	8.08E-02	9.80E-06	5.60E-05	25	1.31E+03	352.50	528.75	3.83E+00	2.23E+05	N/A	N/A	0.0E+00
71556	1,1,1-Trichloroethane	7.80E-02	8.80E-06	1.72E-02	25	7.14E+03	347.24	545.00	1.10E+02	1.33E+03	N/A	2.2E+00	L
110827	Cyclohexane	8.00E-02	9.00E-06	2.00E+00	25	1.31E+03	353.85	530.78	1.60E+02	5.50E+01	#N/A	#N/A	0.0E+00
71432	Benzene	8.80E-02	9.80E-06	5.56E-03	25	7.34E+03	353.24	562.16	5.89E+01	1.75E+03	7.8E-06	3.0E-02	L
79016	Trichloroethylene	7.90E-02	9.10E-06	1.03E-02	25	7.51E+03	360.36	544.20	1.66E+02	1.10E+03	1.1E-04	4.0E-02	L
108872	Methyl cyclohexane	9.88E-02	8.52E-06	4.23E-01	25	1.30E+03	373.90	560.85	2.68E+02	1.40E+01	N/A	3.0E+00	L
108883	Toluene	8.70E-02	8.60E-06	6.63E-03	25	7.93E+03	383.78	591.79	1.82E+02	5.26E+02	N/A	4.0E-01	L
127184	Tetrachloroethylene	7.20E-02	8.20E-06	1.84E-02	25	8.29E+03	394.40	620.20	1.55E+02	2.00E+02	5.9E-06	N/A	L
108907	Chlorobenzene	7.30E-02	8.70E-06	3.71E-03	25	8.41E+03	404.87	632.40	2.19E+02	4.72E+02	N/A	6.0E-02	L
100414	Ethylbenzene	7.50E-02	7.80E-06	7.88E-03	25	8.50E+03	409.34	617.20	3.63E+02	1.89E+02	N/A	1.0E+00	L
1330207	Xylenes	7.69E-02	8.44E-06	6.73E-06	25	1.26E+03	417.40	616.21	2.41E+02	2.20E+02	N/A	1.0E-01	L
100425	Styrene	7.10E-02	8.00E-06	2.76E-03	25	8.74E+03	418.31	636.00	7.76E+02	3.10E+02	#N/A	#N/A	L
98828	Isopropylbenzene	6.50E-02	7.83E-06	1.47E-02	25	1.28E+03	425.40	631.01	9.31E+03	5.60E+01	N/A	4.0E-01	L
79345	1,1,2,2-Tetrachloroethane	7.10E-02	7.90E-06	3.44E-04	25	9.00E+03	419.60	661.15	9.33E+01	2.97E+03	#N/A	#N/A	L
541731	Dichlorobenzene, 1,3-	4.14E-02	8.65E-06	4.70E-03	25	1.24E+03	446.00	683.96	1.70E+02	6.88E+01	N/A	N/A	L
106467	1,4-Dichlorobenzene	6.90E-02	7.90E-06	2.43E-03	25	9.27E+03	447.21	684.75	6.17E+02	7.38E+01	N/A	8.0E-01	S
95501	1,2-Dichlorobenzene	6.88E-02	9.41E-06	1.62E-06	25	9.70E+03	465.00	697.50	5.34E+01	2.77E+04	N/A	N/A	S
120521	1,2,4-Trichlorobenzene	3.00E-02	8.23E-06	1.42E-03	25	1.05E+04	486.15	725.00	1.78E+03	3.00E+02	N/A	2.0E-01	L
100527	Benzaldehyde	7.30E-02	9.07E-06	2.82E-05	25	1.24E+03	452.00	678.00	3.27E+01	6.57E+03	#N/A	#N/A	0.0E+00
91576	Methylnaphthalene, 2-	4.84E-02	7.76E-06	1.01E-03	25	1.17E+03	514.05	761.01	6.51E+03	2.46E+01	N/A	3.0E-03	S
92524	Biphenyl, 1,1'-	4.04E-02	8.15E-06	3.03E-04	25	1.18E+03	529.10	793.65	6.25E+03	6.94E+00	N/A	N/A	0.0E+00
208968	Acenaphthylene	4.43E-02	7.44E-06	2.80E-04	25	1.12E+03	553.00	792.01	4.79E+03	3.93E+00	N/A	3.0E-03	S
83329	Acenaphthene	4.21E-02	7.69E-06	1.55E-04	25	1.22E+04	550.54	803.15	7.08E+03	4.24E+00	N/A	3.0E-03	S
132649	Dibenzofuran	2.67E-02	5.93E-06	4.00E-03	25	1.11E+03	559.00	824.01	8.13E+03	1.00E+01	N/A	N/A	S
86737	Fluorene	3.63E-02	7.88E-06	9.41E-08	25	1.27E+04	570.44	870.00	7.71E+03	1.90E+00	N/A	3.0E-03	S
85018	Phenanthrene	3.30E-02	7.47E-06	1.30E-04	25	1.06E+03	613.00	869.01	1.41E+04	1.28E+00	N/A	3.0E-03	S
120127	Anthracene	3.24E-02	7.74E-06	6.51E-05	25	1.31E+04	615.18	873.00	2.95E+04	4.34E-02	N/A	3.0E-03	S
C5-C8	C5-C8 Aliphatics	6.00E-02	1.00E-05	1.30E+00	25	NA	NA	NA	2.27E+03	1.10E+04	N/A	2.0E-01	S
C9-C12	C9-C12 Aliphatics	6.00E-02	1.00E-05	1.56E+00	25	NA	NA	NA	1.50E+05	7.00E+01	N/A	2.0E-01	S
C9-C10	C9-C10 Aromatics	6.00E-02	1.00E-05	7.92E-03	25	NA	NA	NA	1.78E+03	5.10E+04	N/A	5.0E-02	S
C9-C18	C9-C18 Aliphatics	6.00E-02	1.00E-05	1.66E+00	25	NA	NA	NA	6.80E+05	1.00E+01	N/A	2.0E-01	S
C11-C22	C11-C22 Aromatics	6.00E-02	1.00E-05	7.32E-04	25	NA	NA	NA	5.00E+03	5.80E+03	N/A	5.0E-02	S

Appendix C.4
 Johnson & Ettinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Commercial Scenario - CT
 Southwest Paperless, Walla G&H Superfund Site, Operable Unit 2
 Murphy Waste Oil

Chemical CAS No.	Source-building separation, LT (cm)	Vadose zone soil se-filled porosity, R _v ^v (cm ³ /cm ³)	Vadose zone effective total fluid saturation, S _e (cm ³ /cm ³)	Vadose zone soil intrinsic permeability, K _i (cm ²)	Vadose zone soil relative air permeability, K _{ra} (cm ²)	Vadose zone soil effective vapor permeability, K _v (cm ²)	Floor-wall seam perimeter, X _{orack} (cm)	Initial soil concentration used, CR (ug/kg)	Bldg ventilation rate, Q _{vent} (cm ³ /s)	Area of enclosed space below grade, A _g (cm ²)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z _{max} (cm)	Enthalpy of vaporization of ave. soil temperature, ΔH _v (cal/mol)	Henry's law constant at ave. soil temperature, H ₁₀ (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, HTS (unitless)	Vapor viscosity at ave. soil temperature, μ ₁₀ (g/cm-s)	Vadose zone effective diffusion coefficient, D _v ^v (cm ² /s)	
(Numbers only, no dashes)	Chemical	(cm)	(cm ³ /cm ³)	(cm ³ /cm ³)	(cm ²)	(cm ²)	(cm)	(ug/kg)	(cm ³ /s)	(cm ²)	(unitless)	(cm)	(cal/mol)	(atm-m ³ /mol)	(unitless)	(g/cm-s)	(cm ² /s)	
05838	Trimethylbenzene, 1,2,4	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.85E+03	6.93E+05	2.60E+06	2.48E-04	15	1.55E+03	4.99E-03	2.13E-01	1.75E-04	4.77E-04
540590	Dichloroethylene, 1,2 (total)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	5.98E+02	6.93E+05	2.60E+06	2.48E-04	15	1.73E+03	3.87E-04	1.67E-02	1.75E-04	3.77E-04
108678	Trimethylbenzene, 1,3,5	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	4.00E+03	6.93E+05	2.60E+06	2.48E-04	15	1.55E+03	8.80E-03	2.93E-01	1.75E-04	3.95E-04
104518	n-Butylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.88E+02	6.93E+05	2.60E+06	2.48E-04	15	1.53E+03	1.09E-02	4.69E-01	1.75E-04	4.41E-04
81203	Naphthalene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.15E+03	6.93E+05	2.60E+06	2.48E-04	15	1.29E+04	1.52E-04	6.55E-03	1.75E-04	4.70E-04
99976	Isopropyltoluene, 4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.10E+06	6.93E+05	2.60E+06	2.48E-04	15	1.67E+03	7.48E+00	3.22E+02	1.75E-04	4.39E-04
135986	Butylbenzene, sec-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.10E+06	6.93E+05	2.60E+06	2.48E-04	15	1.53E+03	1.46E-02	6.27E-01	1.75E-04	4.86E-04
74873	Chloromethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.37E+06	6.93E+05	2.60E+06	2.48E-04	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04	7.99E-04
76014	Vinyl chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	8.33E+05	6.93E+05	2.60E+06	2.48E-04	15	5.00E+03	1.73E-02	7.48E-01	1.75E-04	6.44E-04
74839	Bromomethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.69E+06	6.93E+05	2.60E+06	2.48E-04	15	5.39E+03	3.84E-03	1.65E-01	1.75E-04	4.19E-04
76003	Ethyl Chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.37E+06	6.93E+05	2.60E+06	2.48E-04	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04	7.99E-04
75354	1,1-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.60E+00	6.93E+05	2.60E+06	2.48E-04	15	5.39E+03	1.47E-02	6.34E-01	1.75E-04	5.47E-04
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.99E+05	6.93E+05	2.60E+06	2.48E-04	15	1.44E+03	4.55E-01	1.06E+01	1.75E-04	1.75E-04
67841	Acetone	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.27E+03	6.93E+05	2.60E+06	2.48E-04	15	7.56E+03	1.97E-05	8.60E-04	1.75E-04	2.07E-03
76160	Carbon Dioxide	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	8.79E+06	6.93E+05	2.60E+06	2.48E-04	15	9.88E+03	6.99E-03	3.01E-01	1.75E-04	6.36E-04
78209	Methyl Acetate	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	5.03E+07	6.93E+05	2.60E+06	2.48E-04	15	1.60E+03	9.89E-05	4.25E-03	1.75E-04	8.81E-04
75022	Methylene chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	2.01E+03	6.93E+05	2.60E+06	2.48E-04	15	7.03E+03	1.17E-03	5.63E-02	1.75E-04	6.35E-04
156805	trans-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.14E+02	6.93E+05	2.60E+06	2.48E-04	15	1.42E+03	8.27E-03	3.65E-01	1.75E-04	4.32E-04
1834044	Methyl Tertiary-Butyl Ether	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.42E+07	6.93E+05	2.60E+06	2.48E-04	15	1.46E+03	5.18E-04	2.22E-02	1.75E-04	6.07E-04
75343	1,1-Dichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.29E+02	6.93E+05	2.60E+06	2.48E-04	15	7.45E+03	2.88E-03	1.24E-01	1.75E-04	4.58E-04
156502	cis-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.82E+02	6.93E+05	2.60E+06	2.48E-04	15	7.73E+03	2.04E-03	8.77E-02	1.75E-04	4.59E-04
78033	Butanone, 2 (MEK)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	4.63E+07	6.93E+05	2.60E+06	2.48E-04	15	1.48E+03	4.90E-05	2.11E-03	1.75E-04	9.45E-04
71598	1,1,1-Trichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.73E+02	6.93E+05	2.60E+06	2.48E-04	15	7.88E+03	8.60E-03	3.66E-01	1.75E-04	4.75E-04
110627	Cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	2.49E+02	6.93E+05	2.60E+06	2.48E-04	15	1.49E+03	1.75E+00	7.94E+01	1.75E-04	4.85E-04
71432	Benzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	2.23E+02	6.93E+05	2.60E+06	2.48E-04	15	8.12E+03	2.89E-03	1.16E-01	1.75E-04	5.42E-04
79016	Trichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.89E+05	6.93E+05	2.60E+06	2.48E-04	15	8.66E+03	4.79E-03	2.05E-01	1.75E-04	4.83E-04
108872	Methyl cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	2.82E+04	6.93E+05	2.60E+06	2.48E-04	15	1.51E+03	3.70E-01	1.59E+01	1.75E-04	3.69E-04
108883	Toluene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	8.55E+02	6.93E+05	2.60E+06	2.48E-04	15	9.16E+03	8.92E-03	1.26E-01	1.75E-04	5.34E-04
127184	Tetrachloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	9.62E+01	6.93E+05	2.60E+06	2.48E-04	15	9.55E+03	6.33E-01	3.37E-01	1.75E-04	4.39E-04
108907	Chlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.04E+05	6.93E+05	2.60E+06	2.48E-04	15	9.80E+03	1.64E-03	6.65E-02	1.75E-04	4.55E-04
100414	Ethylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	6.70E+02	6.93E+05	2.60E+06	2.48E-04	15	1.02E+04	3.18E-01	1.37E-01	1.75E-04	4.80E-04
1330207	Xylenes	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.50E+06	6.93E+05	2.60E+06	2.48E-04	15	1.54E+03	5.86E-05	2.52E-04	1.75E-04	3.75E-03
100425	Styrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	5.44E+05	6.93E+05	2.60E+06	2.48E-04	15	1.05E+04	1.08E-03	4.67E-02	1.75E-04	4.47E-04
98828	Isopropylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.06E+06	6.93E+05	2.60E+06	2.48E-04	15	1.54E+03	1.28E-02	5.51E-01	1.75E-04	3.85E-04
70345	1,1,2,2-Tetrachloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.16E+06	6.93E+05	2.60E+06	2.48E-04	15	1.06E+04	1.34E-04	5.77E-03	1.75E-04	5.65E-04
541791	Dichlorobenzene, 1,3-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.82E+04	6.93E+05	2.60E+06	2.48E-04	15	1.60E+03	4.11E-03	1.77E-01	1.75E-04	2.56E-04
108487	1,4-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.06E+05	6.93E+05	2.60E+06	2.48E-04	15	1.12E+04	8.89E-04	3.63E-02	1.75E-04	4.39E-04
95501	1,2-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	2.23E+03	6.93E+05	2.60E+06	2.48E-04	15	1.21E+04	5.61E-07	2.37E-05	1.75E-04	3.94E-02
120821	1,2,4-Trichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.13E+08	6.93E+05	2.60E+06	2.48E-04	15	1.32E+04	4.35E-04	1.87E-02	1.75E-04	2.25E-04
100527	Benzaldehyde	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.74E+06	6.93E+05	2.60E+06	2.48E-04	15	1.53E+03	2.29E-05	9.84E-04	1.75E-04	1.35E-03
81876	Methylsulfonamide, 2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	8.51E+02	6.93E+05	2.60E+06	2.48E-04	15	1.47E+03	2.89E-04	1.14E-02	1.75E-04	3.15E-04
82524	Biphenyl, 1,1'-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	8.81E+04	6.93E+05	2.60E+06	2.48E-04	15	1.61E+04	3.87E-06	1.58E-03	1.75E-04	1.69E-04
208988	Acenaphthylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.39E+03	6.93E+05	2.60E+06	2.48E-04	15	1.47E+03	2.89E-04	1.14E-02	1.75E-04	3.15E-04
83329	Acenaphthene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	6.09E+04	6.93E+05	2.60E+06	2.48E-04	15	1.61E+04	3.87E-06	1.58E-03	1.75E-04	1.69E-04
133249	Dibenzofuran	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.50E+01	6.93E+05	2.60E+06	2.48E-04	15	1.47E+03	3.61E-03	1.51E-01	1.75E-04	8.19E-01
86797	Fluorene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	2.97E+04	6.93E+05	2.60E+06	2.48E-04	15	1.67E+04	2.70E-08	9.48E-07	1.75E-04	9.48E-07
86018	Phenanthrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.72E+03	6.93E+05	2.60E+06	2.48E-04	15	1.48E+03	1.14E-04	4.90E-03	1.75E-04	3.50E-04
120127	Anthracene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	2.57E+03	6.93E+05	2.60E+06	2.48E-04	15	1.84E+04	1.28E-05	5.43E-04	1.75E-04	1.80E-03
C5-C8	C5-C8 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.00E+03	6.93E+05	2.60E+06	2.48E-04	15	NA	6.48E-01	2.79E+01	1.75E-04	3.84E-04
C9-C12	C9-C12 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.00E+03	6.93E+05	2.60E+06	2.48E-04	15	NA	7.80E-01	3.38E+01	1.75E-04	3.64E-04
C9-C10	C9-C10 Aromatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.87E+06	6.93E+05	2.60E+06	2.48E-04	15	NA	3.99E-03	1.70E-01	1.75E-04	1.69E-04
C9-C18	C9-C18																	

Appendix C.4
 Johnson & Ettinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Commercial Scenario - CT
 Southwest Properties, Walls G&H Superfund Site, Operable
 Murphy Waste Oil

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusion path length, L _p (cm)	Convection path length, L _c (cm)	Soil-water partition coefficient, K _d (cm ³ /g)	Source vapor conc., C _{source} (µg/m ³)	Crack radius, r _{crack} (cm)	Average vapor flow rate into bldg., Q _{avg} (cm ³ /s)	Crack effective diffusion coefficient, D _{crack} (m ² /s)	Area of crack, A _{crack} (cm ²)	Exponent of equivalent foundation Pielat number, exp(Pe) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., C _{bldg} (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
96836	Trimethylbenzene, 1,2,4-	1	15	7.43E+02	5.15E+04	0.10	1.04E+01	4.77E-04	8.45E+02	1.29E+220	1.49E-05	7.68E-01	N/A	8.05E-03
54090	Dichloroethane, 1,2- (total)	1	15	2.57E-01	2.17E+04	0.10	1.04E+01	3.77E-04	8.45E+02	3.28E+278	1.49E-05	3.21E-01	#N/A	#N/A
109678	Trimethylbenzene, 1,3,5-	1	15	3.34E+00	3.29E+06	0.10	1.04E+01	3.96E-04	8.45E+02	3.45E+285	1.49E-05	4.88E+00	N/A	6.0E-03
104518	n-Butylbenzene	1	15	5.02E+00	1.48E+04	0.10	1.04E+01	4.41E-04	8.45E+02	1.13E+238	1.49E-05	2.19E-01	#N/A	#N/A
91203	Naphthalene	1	15	4.00E+00	4.83E+03	0.10	1.04E+01	4.70E-04	8.45E+02	2.56E+223	1.49E-05	7.33E-02	N/A	3.0E-03
99676	Isopropyltoluene, 4-	1	15	3.16E+00	1.83E+06	0.10	1.04E+01	4.39E-04	8.45E+02	1.01E+239	1.49E-05	2.42E+01	N/A	4.0E-01
135688	Butylbenzene, sec-	1	15	6.22E+01	N/A	0.10	1.04E+01	4.88E-04	8.45E+02	9.44E+215	1.49E-05	N/A	#N/A	#N/A
74873	Chloromethane	1	15	2.86E-02	N/A	0.10	1.04E+01	7.66E-04	8.45E+02	1.38E+137	1.49E-05	N/A	N/A	9.0E-02
75014	Vinyl chloride	1	15	3.72E-02	N/A	0.10	1.04E+01	8.44E-04	8.45E+02	1.02E+183	1.49E-05	N/A	8.8E-06	1.0E-01
74839	Bromomethane	1	15	2.86E-02	N/A	0.10	1.04E+01	4.48E-04	8.45E+02	1.36E+234	1.49E-05	N/A	N/A	5.0E-03
75003	Ethyl Chloride	1	15	2.86E-02	N/A	0.10	1.04E+01	7.66E-04	8.45E+02	1.38E+137	1.49E-05	N/A	N/A	1.0E+01
75354	1,1-Dichloroethane	1	15	1.18E-01	2.72E+03	0.10	1.04E+01	5.47E-04	8.45E+02	8.08E+191	1.49E-05	4.05E-02	N/A	2.0E-01
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	15	4.50E-01	N/A	0.10	1.04E+01	1.75E-04	8.45E+02	#NUM!	1.47E-05	N/A	N/A	3.0E+01
67641	Acetone	1	15	1.15E-03	5.38E+03	0.10	1.04E+01	2.07E-03	8.45E+02	5.83E+50	1.50E-06	8.05E-02	N/A	N/A
78150	Carbon Disulfide	1	15	1.03E-01	N/A	0.10	1.04E+01	6.34E-04	8.45E+02	2.87E+185	1.49E-05	N/A	N/A	7.0E-01
78209	Methyl Acetate	1	15	6.84E-03	N/A	0.10	1.04E+01	8.61E-04	8.45E+02	8.20E+121	1.49E-05	N/A	N/A	N/A
75022	Methylvine chloride	1	15	2.34E-02	4.43E+06	0.10	1.04E+01	6.35E-04	8.45E+02	2.18E+186	1.49E-05	8.02E+00	4.7E-07	3.0E+00
168805	trans-1,2-Dichloroethane	1	15	1.05E-01	3.33E+06	0.10	1.04E+01	4.32E-04	8.45E+02	1.43E+243	1.49E-05	4.95E+00	N/A	2.0E-01
1834044	Methyl-Tertiary-Butyl Ether	1	15	7.88E-02	N/A	0.10	1.04E+01	8.67E-04	8.45E+02	2.47E+167	1.49E-05	N/A	N/A	3.0E+00
75343	1,1-Dichloroethane	1	15	6.32E-02	1.47E+06	0.10	1.04E+01	4.58E-04	8.45E+02	1.87E+229	1.49E-05	2.19E+00	N/A	5.0E-01
168582	cis-1,2-Dichloroethylene	1	15	7.10E-02	1.20E+06	0.10	1.04E+01	4.59E-04	8.45E+02	7.49E+228	1.49E-05	1.79E+00	N/A	2.0E-01
78833	Butanone, 2- (MEK)	1	15	7.88E-03	N/A	0.10	1.04E+01	9.45E-04	8.45E+02	1.09E+111	1.49E-05	N/A	N/A	N/A
71556	1,1,1-Trichloroethane	1	15	2.20E-01	3.02E+06	0.10	1.04E+01	4.76E-04	8.45E+02	8.68E+220	1.49E-05	4.49E+00	N/A	2.2E+00
110427	Cyclohexane	1	15	3.20E-01	N/A	0.10	1.04E+01	4.85E-04	8.45E+02	3.37E+216	1.49E-05	N/A	#N/A	#N/A
71432	Benzene	1	15	1.18E-01	8.80E+04	0.10	1.04E+01	5.42E-04	8.45E+02	8.73E+193	1.49E-05	1.31E+00	7.8E-06	3.0E-02
79018	Trichloroethylene	1	15	3.32E-01	8.38E+04	0.10	1.04E+01	4.83E-04	8.45E+02	2.03E+217	1.49E-05	1.25E+00	1.1E-04	4.0E-02
108872	Methyl cyclohexane	1	15	5.38E-01	N/A	0.10	1.04E+01	5.08E-04	8.45E+02	4.68E+175	1.49E-05	N/A	N/A	3.0E+00
108883	Toluene	1	15	3.84E-01	1.87E+06	0.10	1.04E+01	5.94E-04	8.45E+02	4.07E+186	1.49E-05	2.79E+00	N/A	4.0E-01
127184	Tetrachloroethylene	1	15	3.10E-01	6.01E+04	0.10	1.04E+01	4.39E-04	8.45E+02	1.82E+238	1.49E-05	5.93E-01	5.9E-06	N/A
108907	Chlorobenzene	1	15	4.38E-01	N/A	0.10	1.04E+01	4.66E-04	8.45E+02	3.97E+230	1.49E-05	N/A	N/A	6.0E-02
100414	Ethylbenzene	1	15	7.28E-01	9.78E+04	0.10	1.04E+01	4.80E-04	8.45E+02	1.44E+228	1.49E-05	1.45E+00	N/A	1.0E+00
1330207	Xylenes	1	15	4.82E-01	N/A	0.10	1.04E+01	3.75E-03	8.45E+02	1.01E+228	1.50E-05	N/A	N/A	1.0E-01
100425	Styrene	1	15	1.55E+00	N/A	0.10	1.04E+01	4.47E-04	8.45E+02	8.20E+234	1.49E-05	N/A	#N/A	#N/A
98928	Isopropylbenzene	1	15	1.88E+01	N/A	0.10	1.04E+01	3.95E-04	8.45E+02	3.76E+285	1.49E-05	N/A	N/A	4.0E-01
78345	1,1,2,2-Tetrachloroethane	1	15	1.87E-01	N/A	0.10	1.04E+01	5.85E-04	8.45E+02	8.21E+186	1.49E-05	N/A	#N/A	#N/A
641731	Dichlorobenzene, 1,3-	1	15	3.40E-01	N/A	0.10	1.04E+01	2.58E-04	8.45E+02	#NUM!	1.48E-05	N/A	N/A	N/A
106487	1,4-Dichlorobenzene	1	15	1.23E+00	N/A	0.10	1.04E+01	4.38E-04	8.45E+02	2.83E+238	1.49E-05	N/A	N/A	8.0E-01
95501	1,2-Dichlorobenzene	1	15	1.07E-01	1.72E+02	0.10	1.04E+01	3.94E-02	8.45E+02	4.64E+02	1.50E-05	2.59E-03	N/A	N/A
120821	1,2,4-Trichlorobenzene	1	15	3.58E+00	N/A	0.10	1.04E+01	2.25E-04	8.45E+02	#NUM!	1.47E-05	N/A	N/A	2.0E-01
106527	Benzaldehyde	1	15	8.54E-02	N/A	0.10	1.04E+01	1.35E-03	8.45E+02	8.27E+77	1.50E-05	N/A	#N/A	#N/A
91578	Methylnaphthalene, 2-	1	15	1.70E+01	1.88E+03	0.10	1.04E+01	3.13E-04	8.45E+02	#NUM!	1.48E-06	2.79E-02	N/A	3.0E-03
82624	Biphenyl, 1,1'-	1	15	1.28E+01	N/A	0.10	1.04E+01	3.15E-04	8.45E+02	#NUM!	1.48E-05	N/A	N/A	N/A
208688	Acenaphthylene	1	15	9.67E+00	1.50E+03	0.10	1.04E+01	3.39E-04	8.45E+02	#NUM!	1.48E-05	2.22E-02	N/A	3.0E-03
83329	Acenaphthene	1	15	1.42E+01	N/A	0.10	1.04E+01	7.33E-04	8.45E+02	1.38E+143	1.49E-05	N/A	N/A	3.0E-03
132649	Dibenzofuran	1	15	1.63E+01	3.21E+02	0.10	1.04E+01	1.68E-04	8.45E+02	#NUM!	1.48E-06	4.70E-03	N/A	N/A
86737	Fluorene	1	15	1.54E+01	N/A	0.10	1.04E+01	8.18E-01	8.45E+02	1.34E+00	5.65E-05	N/A	N/A	3.0E-03
89018	Phenanthrene	1	15	2.83E+01	2.96E+02	0.10	1.04E+01	3.50E-04	8.45E+02	2.10E+300	1.48E-05	4.40E-03	N/A	3.0E-03
120127	Anthracene	1	15	5.90E+01	N/A	0.10	1.04E+01	1.60E-03	8.45E+02	8.32E+85	1.50E-05	N/A	N/A	3.0E-03
C5-C8	C5-C8 Aliphatics	1	15	4.53E+00	3.80E+06	0.10	1.04E+01	3.84E-04	8.45E+02	4.81E+288	1.49E-05	5.79E+01	N/A	2.0E-01
C9-C12	C9-C12 Aliphatics	1	15	3.00E-02	1.11E+05	0.10	1.04E+01	3.84E-04	8.45E+02	4.87E+288	1.49E-05	1.84E+00	N/A	2.0E-01
C9-C10	C9-C10 Aromatics	1	15	3.56E+00	N/A	0.10	1.04E+01	3.89E-04	8.45E+02	1.82E+284	1.48E-05	N/A	N/A	5.0E-02
C8-C18	C8-C18 Aliphatics	1	15	1.38E+03	N/A	0.10	1.04E+01	3.84E-04	8.45E+02	4.88E+288	1.48E-05	N/A	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	1	15	1.00E+01	8.20E+06	0.10	1.04E+01	4.27E-04	8.45E+02	7.52E+245	1.49E-05	1.23E+02	N/A	5.0E-02

RESULTS SHEET

Appendix C.4
 Johnson & Estinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Commercial Scenario - CT
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2
 Murphy Waste Oil

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

INCREMENTAL RISK CALCULATIONS:

Chemical CAS No. (numbers only; no dashes)	Chemical	Indoor exposure soil conc. carcinogen (µg/kg)	Indoor exposure soil conc. noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc. (µg/kg)	Soil saturation conc. C _s (µg/kg)	Final indoor exposure soil conc. (µg/kg)
95838	Trimethylbenzene, 1,2,4-	NA	NA	NA	4.39E+05	NA
540590	Dichloroethylene, 1,2- (total)	NA	NA	NA	5.96E+02	NA
104678	Trimethylbenzene, 1,3,5-	NA	NA	NA	7.13E+04	NA
104518	n-Butylbenzene	NA	NA	NA	8.63E+03	NA
91203	Naphthalene	NA	NA	NA	1.30E+05	NA
99878	Isopropyltoluene, 4-	NA	NA	NA	7.31E+05	NA
135888	Butylbenzene, sec-	NA	NA	NA	1.10E+08	NA
74873	Chloromethane	NA	NA	NA	1.37E+08	NA
75014	Vinyl chloride	NA	NA	NA	8.33E+05	NA
74839	Bromomethane	NA	NA	NA	3.69E+08	NA
75003	Ethyl Chloride	NA	NA	NA	1.37E+08	NA
75354	1,1-Dichloroethylene	NA	NA	NA	8.39E+05	NA
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	NA	NA	NA	3.99E+05	NA
87841	Acetone	NA	NA	NA	2.01E+08	NA
75150	Carbon Disulfide	NA	NA	NA	8.78E+05	NA
79209	Methyl Acetate	NA	NA	NA	5.03E+07	NA
75092	Methylene chloride	NA	NA	NA	2.89E+08	NA
158605	trans-1,2-Dichloroethylene	NA	NA	NA	2.12E+08	NA
1834044	Methyl-Tertiary-Butyl Ether	NA	NA	NA	1.42E+07	NA
75343	1,1-Dichloroethane	NA	NA	NA	1.39E+08	NA
158592	cis-1,2-Dichloroethylene	NA	NA	NA	9.75E+05	NA
78933	Butanone, 2- (MEK)	NA	NA	NA	4.63E+07	NA
71566	1,1,1-Trichloroethane	NA	NA	NA	6.01E+08	NA
110827	Cyclohexane	NA	NA	NA	3.88E+05	NA
71482	Benzene	NA	NA	NA	5.74E+03	NA
79016	Trichloroethylene	NA	NA	NA	6.05E+06	NA
108872	Methyl cyclohexane	NA	NA	NA	2.80E+04	NA
109863	Toluene	NA	NA	NA	3.02E+05	NA
127184	Tetraethylbenzene	NA	NA	NA	1.09E+03	NA
108907	Chlorobenzene	NA	NA	NA	3.94E+05	NA
100414	Ethylbenzene	NA	NA	NA	1.25E+05	NA
1330207	Xylenes	NA	NA	NA	1.50E+05	NA
100425	Styrene	NA	NA	NA	5.44E+05	NA
98828	Isopropylbenzene	NA	NA	NA	1.09E+06	NA
79345	1,1,2,2-Tetrachloroethane	NA	NA	NA	1.15E+06	NA
541731	Dichlorobenzene, 1,3-	NA	NA	NA	3.82E+04	NA
106467	1,4-Dichlorobenzene	NA	NA	NA	1.08E+05	NA
95501	1,2-Dichlorobenzene	NA	NA	NA	6.20E+06	NA
120821	1,2,4-Trichlorobenzene	NA	NA	NA	1.13E+06	NA
100527	Benzaldehyde	NA	NA	NA	1.74E+08	NA
91578	Methylnaphthalene, 2-	NA	NA	NA	4.24E+03	NA
92524	Biphenyl, 1,1'	NA	NA	NA	8.81E+04	NA
208968	Acenaphthylene	NA	NA	NA	3.84E+04	NA
83329	Acenaphthene	NA	NA	NA	6.09E+04	NA
132649	Dibenzofuran	NA	NA	NA	1.65E+05	NA
88737	Fluorene	NA	NA	NA	2.87E+04	NA
85018	Phenanthrene	NA	NA	NA	3.94E+04	NA
120127	Anthracene	NA	NA	NA	2.57E+03	NA
C5-C8	C5-C8 Aliphatics	NA	NA	NA	7.86E+07	NA
C9-C12	C9-C12 Aliphatics	NA	NA	NA	2.12E+07	NA
C9-C10	C9-C10 Aromatics	NA	NA	NA	1.92E+08	NA
C9-C16	C9-C16 Alcohols	NA	NA	NA	1.35E+07	NA
C11-C22	C11-C22 Aromatics	NA	NA	NA	5.92E+07	NA

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	2.6E-02
NA	1.6E-01
NA	NA
NA	4.9E-03
NA	1.2E-02
NA	NA
NA	4.1E-05
NA	NA
8.0E-08	4.4E-04
NA	4.9E-03
NA	NA
NA	8.8E-04
NA	1.8E-03
NA	4.1E-04
NA	NA
2.8E-07	8.7E-03
3.5E-08	6.2E-03
NA	NA
NA	1.4E-03
1.4E-07	NA
NA	NA
NA	2.9E-04
NA	NA
NA	2.9E-04
NA	NA
NA	NA
NA	5.8E-02
NA	1.8E-03
NA	NA
NA	1.5E-05
NA	NA
NA	NA
NA	2.9E-04
NA	NA
NA	4.9E-01

95% UCL Cancer Risk 4E-06
 95% UCL HI 7.8E-01
 TOTAL: 4E-06 = Cancer risk > 1E-05 or HQ/HI > 1E+00

Trimethylbenzene, 1,2,4-
 Dichloroethylene, 1,2- (total)
 Trimethylbenzene, 1,3,5-
 n-Butylbenzene
 Naphthalene
 Isopropyltoluene, 4-
 Butylbenzene, sec-
 Chloromethane
 Vinyl chloride
 Bromomethane
 Ethyl Chloride
 1,1-Dichloroethylene
 Trichloro-1,2,2-trifluoroethane, 1,1,2-
 MESSAGE: Soil conc. >= saturation (Csat). Risk/HQ calculated at Csat.
 MESSAGE: Soil conc. >= saturation (Csat). Risk/HQ calculated at Csat.
 MESSAGE: Soil conc. >= saturation (Csat). Risk/HQ calculated at Csat.
 MESSAGE: Soil conc. >= saturation (Csat). Risk/HQ calculated at Csat.
 MESSAGE: Soil conc. >= saturation (Csat). Risk/HQ calculated at Csat.
 MESSAGE: Soil conc. >= saturation (Csat). Risk/HQ calculated at Csat.
 MESSAGE: Soil conc. >= saturation (Csat). Risk/HQ calculated at Csat.

Appendix C.4
 Johnson & Etlinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Child Recreational Scenario - RME
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2
 Murphy Waste Oil

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, D _a (cm ² /s)	Diffusivity in water, D _w (cm ² /s)	Henry's law constant at reference temperature, H (atm·m ³ /mol)	Henry's law constant reference temperature, T _R (°C)	Enthalpy of vaporization at the normal boiling point, ΔH _{v,b} (cal/mol)	Normal boiling point, T _B (°K)	Critical temperature, T _C (°K)	Organic carbon partition coefficient, K _{oc} (cm ³ /g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)	Physical state at soil temperature, (S,L,G)
95636	Trimethylbenzene, 1,2,4-	7.80E-02	9.03E-06	5.70E-03	25	1.25E+03	442.30	649.11	3.72E+03	5.70E+01	N/A	6.0E-03	L
540590	Dichloroethylene, 1,2- (total)	5.59E-02	6.47E-06	4.30E-04	20	1.32E+03	585.00	877.50	1.28E+02	1.30E+00	#N/A	#N/A	0.0E+00
108678	Trimethylbenzene, 1,3,5-	6.48E-02	7.86E-06	7.81E-03	25	1.25E+03	442.30	649.11	1.67E+03	2.00E+01	N/A	6.0E-03	L
104518	n-Butylbenzene	7.25E-02	8.39E-06	1.25E-02	25	1.23E+03	456.00	684.00	2.51E+03	1.26E+00	#N/A	#N/A	L
91203	Naphthalene	5.90E-02	7.50E-06	4.83E-04	25	1.04E+04	491.14	748.40	2.00E+03	3.10E+01	N/A	3.0E-03	S
99876	Isopropyltoluene, 4-	7.25E-02	8.39E-06	8.60E+00	25	1.24E+03	450.10	652.04	1.58E+03	2.34E+01	N/A	4.0E-01	L
135988	Butylbenzene, sec-	8.00E-02	8.00E-06	1.67E-02	25	1.24E+03	446.65	669.98	3.11E+04	1.76E+01	#N/A	#N/A	0.0E+00
74873	Chloromethane	1.26E-01	6.50E-06	8.67E-03	25	1.35E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	9.0E-02	0.0E+00
75014	Vinyl chloride	1.06E-01	1.23E-05	2.71E-02	25	5.25E+03	259.25	432.00	1.86E+01	2.76E+03	6.6E-06	1.0E-01	L
74839	Bromomethane	7.28E-02	1.21E-05	6.22E-03	25	5.49E+03	276.50	414.75	1.43E+01	1.52E+04	N/A	5.0E-03	0.0E+00
75003	Ethyl Chloride	1.26E-01	6.50E-06	8.67E-03	25	1.36E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	1.0E+01	L
75354	1,1-Dichloroethylene	9.00E-02	1.04E-05	2.61E-02	25	6.25E+03	304.75	576.05	5.89E+01	2.25E+03	N/A	2.0E-01	L
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	2.88E-02	8.07E-06	5.17E-01	25	1.33E+03	320.70	481.05	2.25E+02	1.70E+02	N/A	3.0E+01	0.0E+00
67641	Acetone	1.24E-01	1.14E-05	3.88E-05	25	6.96E+03	329.20	508.10	5.75E-01	1.00E+06	N/A	N/A	L
75150	Carbon Disulfide	1.04E-01	1.29E-05	1.27E-02	25	6.39E+03	319.00	552.00	5.14E+01	2.67E+03	N/A	7.0E-01	L
78209	Methyl Acetate	1.04E-01	1.00E-05	1.13E-04	25	1.31E+03	365.00	547.50	3.32E+00	2.43E+05	#N/A	#N/A	0.0E+00
75092	Methylene chloride	1.01E-01	1.17E-05	2.19E-03	25	6.71E+03	313.00	510.00	1.17E+01	1.30E+04	4.7E-07	3.0E+00	L
156605	trans-1,2-Dichloroethylene	7.07E-02	1.19E-05	9.39E-03	25	1.33E+03	320.85	516.50	5.25E+01	6.30E+03	N/A	2.0E-01	L
1634044	Methyl-Tertiary-Butyl Ether	1.02E-01	1.05E-05	5.87E-04	25	1.32E+03	328.36	497.11	3.84E+01	5.10E+04	N/A	3.0E+00	L
75343	1,1-Dichloroethane	7.42E-02	1.05E-05	5.61E-03	25	6.90E+03	330.55	523.00	3.16E+01	5.06E+03	N/A	5.0E-01	L
156592	cis-1,2-Dichloroethylene	7.36E-02	1.13E-05	4.07E-03	25	7.19E+03	333.65	544.00	3.56E+01	3.50E+03	N/A	2.0E-01	L
78933	Butanone, 2- (MEK)	8.08E-02	9.80E-06	6.60E-05	25	1.31E+03	352.50	528.75	3.83E+00	2.23E+05	N/A	N/A	0.0E+00
71556	1,1,1-Trichloroethane	7.60E-02	8.80E-06	1.72E-02	25	7.14E+03	347.24	545.00	1.10E+02	1.33E+03	N/A	2.2E+00	L
110827	Cyclohexane	8.00E-02	9.00E-06	2.00E+00	25	1.31E+03	353.85	530.78	1.80E+02	5.50E+01	#N/A	#N/A	0.0E+00
71432	Benzene	8.80E-02	9.80E-06	5.56E-03	25	7.34E+03	353.24	562.16	5.89E+01	1.75E+03	7.8E-06	3.0E-02	L
79016	Trichloroethylene	7.90E-02	9.10E-06	1.03E-02	25	7.51E+03	360.36	544.20	1.68E+02	1.10E+03	1.1E-04	4.0E-02	L
108972	Methyl cyclohexane	9.88E-02	8.52E-06	4.23E-01	25	1.30E+03	373.90	560.85	2.68E+02	1.40E+01	N/A	3.0E+00	L
108883	Toluene	8.70E-02	8.60E-06	6.63E-03	25	7.93E+03	383.78	591.79	1.82E+02	5.26E+02	N/A	4.0E-01	L
127184	Tetrachloroethylene	7.20E-02	8.20E-06	1.84E-02	25	8.29E+03	394.40	620.20	1.55E+02	2.00E+02	5.9E-06	N/A	L
108907	Chlorobenzene	7.30E-02	8.70E-06	3.71E-03	25	8.41E+03	404.87	632.40	2.19E+02	4.72E+02	N/A	6.0E-02	L
100414	Ethylbenzene	7.50E-02	7.80E-06	7.88E-03	25	8.50E+03	409.34	617.20	3.63E+02	1.69E+02	N/A	1.0E+00	L
1330207	Xylenes	7.69E-02	8.44E-06	6.73E-06	25	1.28E+03	417.40	616.21	2.41E+02	2.20E+02	N/A	1.0E-01	L
100425	Styrene	7.10E-02	8.00E-06	2.76E-03	25	8.74E+03	419.31	636.00	7.76E+02	3.10E+02	#N/A	#N/A	L
98828	Isopropylbenzene	6.50E-02	7.83E-06	1.47E-02	25	1.26E+03	425.40	631.01	9.31E+03	5.60E+01	N/A	4.0E-01	L
79345	1,1,2,2-Tetrachloroethane	7.10E-02	7.90E-06	3.44E-04	25	9.00E+03	419.60	661.15	9.33E+01	2.97E+03	#N/A	#N/A	L
541731	Dichlorobenzene, 1,3-	4.14E-02	8.85E-06	4.70E-03	25	1.24E+03	446.00	683.96	1.70E+02	6.88E+01	N/A	N/A	L
106467	1,4-Dichlorobenzene	6.90E-02	7.90E-06	2.43E-03	25	9.27E+03	447.21	684.75	6.17E+02	7.38E+01	N/A	8.0E-01	S
95501	1,2-Dichlorobenzene	6.88E-02	9.41E-06	1.82E-06	25	9.70E+03	465.00	697.50	5.34E+01	2.77E+04	N/A	N/A	S
120821	1,2,4-Trichlorobenzene	3.00E-02	8.23E-06	1.42E-03	25	1.05E+04	486.15	725.00	1.78E+03	3.00E+02	N/A	2.0E-01	L
100527	Benzaldehyde	7.30E-02	9.07E-06	2.62E-05	25	1.24E+03	452.00	678.00	3.27E+01	6.57E+03	#N/A	#N/A	0.0E+00
91576	Methylnaphthalene, 2-	4.84E-02	7.75E-06	1.01E-03	25	1.17E+03	514.05	761.01	8.51E+03	2.46E+01	N/A	3.0E-03	S
92524	Biphenyl, 1,1'-	4.04E-02	8.15E-06	3.03E-04	25	1.15E+03	529.10	793.65	6.25E+03	6.94E+00	N/A	N/A	0.0E+00
208968	Acenaphthylene	4.43E-02	7.44E-06	2.80E-04	25	1.12E+03	553.00	792.01	4.79E+03	3.93E+00	N/A	3.0E-03	S
83329	Acenaphthene	4.21E-02	7.69E-06	1.55E-04	25	1.22E+04	550.54	803.15	7.08E+03	4.24E+00	N/A	3.0E-03	S
132649	Dibenzofuran	2.67E-02	5.93E-06	4.00E-03	25	1.11E+03	559.00	824.01	8.13E+03	1.00E+01	N/A	N/A	S
86737	Fluorene	3.63E-02	7.88E-06	9.41E-08	25	1.27E+04	570.44	870.00	7.71E+03	1.90E+00	N/A	3.0E-03	S
85018	Phenanthrene	3.30E-02	7.47E-06	1.30E-04	25	1.06E+03	613.00	869.01	1.41E+04	1.28E+00	N/A	3.0E-03	S
120127	Anthracene	3.24E-02	7.74E-06	6.51E-05	25	1.31E+04	615.18	873.00	2.95E+04	4.34E-02	N/A	3.0E-03	S
C5-C8	C5-C8 Aliphatics	6.00E-02	1.00E-05	1.30E+00	25	NA	NA	NA	2.27E+03	1.10E+04	N/A	2.0E-01	S
C9-C12	C9-C12 Aliphatics	6.00E-02	1.00E-05	1.56E+00	25	NA	NA	NA	1.50E+05	7.00E+01	N/A	2.0E-01	S
C9-C10	C9-C10 Aromatics	6.00E-02	1.00E-05	7.92E-03	25	NA	NA	NA	1.78E+03	5.10E+04	N/A	5.0E-02	S
C9-C18	C9-C18 Aliphatics	6.00E-02	1.00E-05	1.68E+00	25	NA	NA	NA	6.80E+05	1.00E+01	N/A	2.0E-01	S
C11-C22	C11-C22 Aromatics	6.00E-02	1.00E-05	7.32E-04	25	NA	NA	NA	5.00E+03	5.80E+03	N/A	5.0E-02	S

Appendix C.4
 Johnson & Ettinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Child Recreational Scenario - RME
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2
 Murphy Waste Cell

Chemical CAS No. (numbers only, no dashes)	Chemical	Source- building separation, LT	Vadose zone soil air-filled porosity, θ_a^v (cm ³ /cm ³)	Vadose zone effective total fluid saturation, $S_{e,v}$ (cm ³ /cm ³)	Vadose zone soil intrinsic permeability, k_i (cm ²)	Vadose zone soil relative air permeability, k_{ra} (cm ²)	Vadose zone soil effective vapor permeability, k_e (cm ²)	Floor- wall seam perimeter, Xcrack (cm)	Initial soil concentration used, CR (ug/kg)	Bldg. ventilation rate, Q_{vent} (cm ³ /s)	Area of enclosed space below grade, A_g (cm ²)	Crack- to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization & ave. soil temperature, ΔH_{vap} (cal/mol)	Henry's law constant at ave. soil temperature, H_{ts} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, HTS (unitless)	Vapor viscosity at ave. soil temperature, μ_{ts} (g/cm-s)	Vadose zone effective diffusion coefficient, D_{eff}^v (cm ² /s)
85536	Trimethylbenzene, 1,2,4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	9.37E+03	6.93E+05	2.80E+08	2.48E-04	15	1.56E+03	4.28E-03	2.13E+01	1.75E-04	4.77E-04
540590	Dichloroethylene, 1,2- (total)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	5.98E+02	6.93E+05	2.80E+08	2.48E-04	15	1.73E+08	3.37E-04	1.67E-02	1.75E-04	3.77E-04
106878	Trimethylbenzene, 1,3,5-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	4.00E+03	6.93E+05	2.80E+08	2.48E-04	15	1.55E+03	6.80E-03	2.62E+01	1.75E-04	3.85E-04
104510	n-Butylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	4.00E+02	6.93E+05	2.80E+08	2.48E-04	15	1.53E+03	1.09E-02	4.69E+01	1.75E-04	4.41E-04
91203	Naphthalene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.18E+03	6.93E+05	2.80E+08	2.48E-04	15	1.29E+04	1.52E-04	6.55E-03	1.75E-04	2.70E-04
99876	Isopropyltoluene, 4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	2.00E+02	6.93E+05	2.80E+08	2.48E-04	15	1.57E+03	7.48E+00	3.22E+02	1.75E-04	4.39E-04
135668	Butylbenzene, sec-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.10E+06	6.93E+05	2.80E+08	2.48E-04	15	1.53E+03	1.48E-02	6.27E+01	1.75E-04	4.86E-04
74873	Chloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.37E+06	6.93E+05	2.80E+08	2.48E-04	15	1.20E+03	7.79E-03	3.36E+01	1.75E-04	7.60E-04
75014	Vinyl chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	8.33E+05	6.93E+05	2.80E+08	2.48E-04	15	5.00E+03	1.73E-02	7.49E+01	1.75E-04	6.44E-04
74839	Bromomethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.69E+06	6.93E+05	2.80E+08	2.48E-04	15	5.39E+03	3.84E-03	1.65E+01	1.75E-04	4.48E-04
75033	Ethyl Chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.37E+06	6.93E+05	2.80E+08	2.48E-04	15	1.20E+03	7.78E-03	3.36E+01	1.75E-04	7.60E-04
75354	1,1-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.80E+06	6.93E+05	2.80E+08	2.48E-04	15	6.39E+03	1.47E-02	6.34E+01	1.75E-04	5.47E-04
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.99E+06	6.93E+05	2.80E+08	2.48E-04	15	1.44E+03	4.55E-01	1.98E+01	1.75E-04	1.75E-04
67841	Acetone	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.27E+03	6.93E+05	2.80E+08	2.48E-04	15	7.58E+03	1.97E-05	8.50E+04	1.75E-04	2.07E-03
75150	Carbon Dioxide	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	6.78E+05	6.93E+05	2.80E+08	2.48E-04	15	6.68E+03	6.96E-03	3.07E+01	1.75E-04	6.34E-04
78209	Methyl Acetate	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	5.03E+07	6.93E+05	2.80E+08	2.48E-04	15	1.50E+03	9.89E-05	4.25E+03	1.75E-04	8.81E-04
75092	Methylene chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	2.01E+03	6.93E+05	2.80E+08	2.48E-04	15	7.03E+03	1.17E-03	5.03E-02	1.75E-04	6.35E-04
156605	trans-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.14E+02	6.93E+05	2.80E+08	2.48E-04	15	1.42E+03	8.27E-03	3.58E+01	1.75E-04	4.32E-04
1634044	Methyl-Tertiary-Butyl Ether	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.42E+07	6.93E+05	2.80E+08	2.48E-04	15	1.45E+03	6.16E-04	2.22E-02	1.75E-04	6.67E-04
75343	1,1-Dichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.28E+02	6.93E+05	2.80E+08	2.48E-04	15	7.45E+03	2.88E-03	1.24E+01	1.75E-04	4.58E-04
156582	cis-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.00E+04	6.93E+05	2.80E+08	2.48E-04	15	7.73E+03	2.04E-03	6.77E-02	1.75E-04	4.69E-04
78933	Bulaxone, 2- (MEK)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	4.03E+07	6.93E+05	2.80E+08	2.48E-04	15	1.49E+03	4.30E-05	2.11E+03	1.75E-04	8.45E-04
71558	1,1,1-Trichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.73E+02	6.93E+05	2.80E+08	2.48E-04	15	7.89E+03	8.50E-03	3.66E+01	1.75E-04	4.75E-04
110827	Cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.68E+05	6.93E+05	2.80E+08	2.48E-04	15	1.49E+03	1.75E+00	7.54E+01	1.75E-04	4.85E-04
71432	Benzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	2.49E+02	6.93E+05	2.80E+08	2.48E-04	15	8.12E+03	2.69E-03	1.18E+01	1.75E-04	5.42E-04
79016	Trichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	2.23E+02	6.93E+05	2.80E+08	2.48E-04	15	8.58E+03	4.70E-03	2.08E+01	1.75E-04	4.83E-04
108872	Methyl cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	2.98E+04	6.93E+05	2.80E+08	2.48E-04	15	1.51E+03	3.70E-01	1.69E+01	1.75E-04	5.66E-04
108883	Toluene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	8.55E+02	6.93E+05	2.80E+08	2.48E-04	15	9.15E+03	2.32E-03	1.26E+01	1.75E-04	5.34E-04
127184	Tetrachloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.00E+02	6.93E+05	2.80E+08	2.48E-04	15	9.55E+03	7.93E-03	3.37E+01	1.75E-04	4.39E-04
108607	Chlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.04E+05	6.93E+05	2.80E+08	2.48E-04	15	8.80E+03	1.54E-03	6.85E-02	1.75E-04	4.55E-04
100414	Ethylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	6.70E+02	6.93E+05	2.80E+08	2.48E-04	15	1.02E+04	1.18E-03	1.37E+01	1.75E-04	4.80E-04
133207	Xylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.60E+05	6.93E+05	2.80E+08	2.48E-04	15	1.54E+03	5.98E-08	2.52E+04	1.75E-04	3.75E-03
100425	Styrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	5.44E+05	6.93E+05	2.80E+08	2.48E-04	15	1.05E+04	1.08E-03	4.67E-02	1.75E-04	4.47E-04
98828	Isopropylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.08E+06	6.93E+05	2.80E+08	2.48E-04	15	1.54E+03	1.28E-02	5.67E+01	1.75E-04	3.95E-04
70945	1,1,2,2-Tetrachloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.15E+06	6.93E+05	2.80E+08	2.48E-04	15	1.05E+04	1.34E-04	5.77E-03	1.75E-04	6.95E-04
641791	Dichlorobenzene, 1,3-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.82E+04	6.93E+05	2.80E+08	2.48E-04	15	1.80E+03	4.11E-03	1.77E+01	1.75E-04	2.56E-04
106487	1,4-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.09E+05	6.93E+05	2.80E+08	2.48E-04	15	1.12E+04	8.99E-04	3.83E-02	1.75E-04	4.38E-04
65601	1,2-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	2.23E+03	6.93E+05	2.80E+08	2.48E-04	15	1.21E+04	5.51E-07	2.37E-05	1.75E-04	3.94E-02
120821	1,2,4-Trichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.13E+06	6.93E+05	2.80E+08	2.48E-04	15	1.32E+04	4.32E-04	1.87E-02	1.75E-04	2.25E-04
100527	Benzaldehyde	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.74E+06	6.93E+05	2.80E+08	2.48E-04	15	1.53E+03	2.29E-05	6.64E-04	1.76E-04	1.35E-03
91576	Methylnaphthalene, 2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	8.51E+02	6.93E+05	2.80E+08	2.48E-04	15	1.51E+03	8.96E-04	3.61E-02	1.76E-04	3.13E-04
92624	Biphenyl, 1,1'	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	8.81E+04	6.93E+05	2.80E+08	2.48E-04	15	1.47E+03	2.96E-04	1.14E-02	1.76E-04	3.15E-04
208968	Acenaphthylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.39E+03	6.93E+05	2.80E+08	2.48E-04	15	1.61E+03	2.45E-04	1.09E-02	1.76E-04	3.38E-04
83324	Acenaphthene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	6.06E+04	6.93E+05	2.80E+08	2.48E-04	15	1.61E+04	3.67E-06	1.58E-03	1.75E-04	7.33E-04
132649	Dibenzofuran	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	3.50E+01	6.93E+05	2.80E+08	2.48E-04	15	1.47E+03	3.51E-03	1.61E+01	1.75E-04	1.60E-04
98737	Fluorene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	2.97E+04	6.93E+05	2.80E+08	2.48E-04	15	1.62E+04	2.20E-08	9.48E-07	1.75E-04	6.10E-01
65018	Phenanthrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.72E+03	6.93E+05	2.80E+08	2.48E-04	15	1.48E+03	1.14E-04	4.90E-03	1.75E-04	3.60E-04
120127	Anthracene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	2.57E+03	6.93E+05	2.80E+08	2.48E-04	15	1.84E+04	1.28E-05	5.43E-04	1.76E-04	1.60E-03
CS-C8	CS-C8 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.00E+03	6.93E+05	2.80E+08	2.48E-04	15	NA	8.48E-01	2.79E+01	1.76E-04	3.84E-04
CS-C12	CS-C12 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.00E+03	6.93E+05	2.80E+08	2.48E-04	15	NA	7.80E-01	3.38E+01	1.76E-04	3.84E-04
CS-C10	CS-C10 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	6.55E+03	1.92E+08	6.93E+05	2.80E+08	2.48E-04	15	NA	3.90E-03	1.70E-01	1.75E-04	3.69E-04
CS-C18	CS-C18 Aliphatics	1	0.130															

Appendix C.4
 Johnson & Etlinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Child Recreational Scenario - RME
 Southwest Property, Waia G&H Superfund Site, Operable
 Murphy Waste Oil

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusion path length, L _d (cm)	Convection path length, L _c (cm)	Soil-water partition coefficient, K _{ow} (cm ³ /g)	Source vapor conc., C _{source} (µg/m ³)	Crack radius, r _{crack} (cm)	Average vapor flow rate into bldg., Q _{avg} (cm ³ /s)	Crack effective diffusion coefficient, D _{crack} (m ² /s)	Area of crack, A _{crack} (cm ²)	Exponent of equivalent foundation P _{soil} exp(P _{soil}) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., C _{avg,bldg} (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
95636	Trimethylbenzene, 1,2,4-	1	15	7.43E+00	2.82E+06	0.10	1.04E+01	4.77E-04	8.46E+02	1.20E+220	1.49E-06	3.89E+00	N/A	8.0E-03
640990	Dichloroethylene, 1,2- (total)	1	15	2.67E+01	2.17E+04	0.10	1.04E+01	3.77E-04	8.46E+02	3.28E+278	1.48E-06	3.21E-01	#N/A	#N/A
106978	Trimethylbenzene, 1,3,5-	1	15	3.34E+00	3.20E+06	0.10	1.04E+01	3.95E-04	8.46E+02	3.48E+285	1.48E-06	4.88E+00	N/A	8.0E-03
104518	n-Butylbenzene	1	15	5.02E+00	3.87E+04	0.10	1.04E+01	4.41E-04	8.46E+02	1.13E+238	1.49E-06	5.30E-01	#N/A	#N/A
91203	Naphthalene	1	15	4.00E+00	4.93E+03	0.10	1.04E+01	4.70E-04	8.46E+02	2.58E+223	1.49E-06	7.33E-02	N/A	3.0E-03
90678	Isopropyltoluene, 4-	1	15	3.18E+00	2.06E+06	0.10	1.04E+01	4.30E-04	8.46E+02	1.01E+239	1.49E-06	3.05E+01	N/A	4.0E-01
135988	Butylbenzene, sec-	1	15	8.22E+01	N/A	0.10	1.04E+01	4.88E-04	8.46E+02	9.44E+215	1.49E-06	N/A	#N/A	#N/A
74873	Chloromethane	1	15	2.86E-02	N/A	0.10	1.04E+01	7.98E-04	8.46E+02	1.38E+137	1.49E-06	N/A	N/A	9.0E-02
75014	Vinyl chloride	1	15	3.72E-02	N/A	0.10	1.04E+01	8.44E-04	8.46E+02	1.02E+183	1.49E-06	N/A	N/A	1.0E-01
74839	Bromomethane	1	15	2.80E-02	N/A	0.10	1.04E+01	4.48E-04	8.46E+02	1.38E+234	1.49E-06	N/A	N/A	8.0E-03
75033	Ethyl Chloride	1	15	2.86E-02	N/A	0.10	1.04E+01	7.98E-04	8.46E+02	1.38E+137	1.49E-06	N/A	N/A	1.0E+01
75354	1,1-Dichloroethylene	1	15	1.18E-01	2.72E+03	0.10	1.04E+01	6.47E-04	8.46E+02	8.08E+191	1.49E-06	4.05E-02	N/A	2.0E-01
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	15	4.80E-01	N/A	0.10	1.04E+01	1.78E-04	8.46E+02	#NUM!	1.47E-06	N/A	N/A	3.0E+01
87841	Acetone	1	15	1.16E-03	5.35E+03	0.10	1.04E+01	2.07E-03	8.46E+02	5.83E+50	1.50E-05	8.05E-02	N/A	N/A
75150	Carbon Dioxide	1	15	1.03E-01	N/A	0.10	1.04E+01	8.34E-04	8.46E+02	2.87E+186	1.49E-06	N/A	N/A	7.0E-01
78209	Methyl Acetate	1	15	6.64E-03	N/A	0.10	1.04E+01	8.61E-04	8.46E+02	8.20E+121	1.49E-06	N/A	#N/A	#N/A
75092	Methylene chloride	1	15	2.34E-02	4.44E+06	0.10	1.04E+01	6.35E-04	8.46E+02	2.18E+165	1.49E-06	6.82E+00	4.7E-07	3.0E+00
156805	trans-1,2-Dichloroethylene	1	15	1.06E-01	3.33E+05	0.10	1.04E+01	4.32E-04	8.46E+02	1.43E+243	1.49E-06	4.95E+00	N/A	2.0E-01
1834044	Methyl-Tertiary-Butyl Ether	1	15	7.68E-02	N/A	0.10	1.04E+01	6.67E-04	8.46E+02	2.47E+157	1.49E-06	N/A	N/A	3.0E+00
75343	1,1-Dichloroethane	1	15	8.32E-02	1.47E+05	0.10	1.04E+01	4.58E-04	8.46E+02	1.87E+229	1.49E-06	2.19E+00	N/A	5.0E-01
156502	cis-1,2-Dichloroethylene	1	15	7.10E-02	3.15E+08	0.10	1.04E+01	4.59E-04	8.46E+02	7.49E+228	1.49E-06	4.88E+01	N/A	2.0E-01
78933	Butanone, 2- (MEK)	1	15	7.66E-03	N/A	0.10	1.04E+01	8.45E-04	8.46E+02	1.09E+111	1.49E-06	N/A	N/A	N/A
71666	1,1,1-Trichloroethane	1	15	2.20E-01	3.02E+06	0.10	1.04E+01	4.75E-04	8.46E+02	9.68E+220	1.49E-06	4.49E+00	N/A	2.2E+00
110827	Cyclohexane	1	15	3.20E-01	N/A	0.10	1.04E+01	4.85E-04	8.46E+02	3.37E+216	1.49E-06	N/A	#N/A	#N/A
71432	Benzene	1	15	1.18E-01	8.80E+04	0.10	1.04E+01	5.42E-04	8.46E+02	8.73E+183	1.49E-06	1.31E+00	7.8E-08	3.0E-02
79016	Trichloroethylene	1	15	3.32E-01	8.38E+04	0.10	1.04E+01	4.83E-04	8.46E+02	2.03E+217	1.49E-06	1.25E+00	1.1E-04	4.0E-02
108872	Methyl cyclohexane	1	15	5.93E-01	N/A	0.10	1.04E+01	5.98E-04	8.46E+02	4.88E+175	1.49E-06	N/A	N/A	3.0E+00
108883	Toluene	1	15	3.84E-01	1.87E+06	0.10	1.04E+01	5.34E-04	8.46E+02	4.07E+199	1.49E-06	2.79E+00	N/A	4.0E-01
127184	Tetrachloroethylene	1	15	3.10E-01	1.98E+05	0.10	1.04E+01	4.39E-04	8.46E+02	1.92E+239	1.49E-06	2.79E+00	5.9E-06	N/A
108907	Chlorobenzene	1	15	4.38E-01	N/A	0.10	1.04E+01	4.55E-04	8.46E+02	3.97E+230	1.49E-06	N/A	N/A	8.0E-02
100414	Ethylbenzene	1	15	7.28E-01	9.78E+04	0.10	1.04E+01	4.60E-04	8.46E+02	1.44E+228	1.49E-06	1.45E+00	N/A	1.0E+00
1330207	Xylene	1	15	4.82E-01	N/A	0.10	1.04E+01	3.75E-03	8.46E+02	1.01E+28	1.50E-06	N/A	N/A	1.0E-01
100426	Styrene	1	15	1.56E+00	N/A	0.10	1.04E+01	4.47E-04	8.46E+02	6.29E+234	1.49E-06	N/A	#N/A	#N/A
95828	Isopropylbenzene	1	15	1.86E+01	N/A	0.10	1.04E+01	3.95E-04	8.46E+02	3.75E+285	1.48E-06	N/A	N/A	4.0E-01
78345	1,1,2,2-Tetrachloroethane	1	15	1.87E-01	N/A	0.10	1.04E+01	6.65E-04	8.46E+02	8.21E+185	1.49E-06	N/A	#N/A	#N/A
541731	Dichlorobenzene, 1,3-	1	15	3.40E-01	N/A	0.10	1.04E+01	2.58E-04	8.46E+02	#NUM!	1.48E-06	N/A	N/A	N/A
106467	1,4-Dichlorobenzene	1	15	1.29E+00	N/A	0.10	1.04E+01	4.38E-04	8.46E+02	2.83E+239	1.49E-06	N/A	N/A	8.0E-01
96501	1,2-Dichlorobenzene	1	15	1.07E-01	1.72E+02	0.10	1.04E+01	3.94E-02	8.46E+02	4.04E+02	1.50E-05	2.59E-03	N/A	N/A
120821	1,2,4-Trichlorobenzene	1	15	3.58E+00	N/A	0.10	1.04E+01	2.25E-04	8.46E+02	#NUM!	1.47E-06	N/A	N/A	2.0E-01
100627	Benzaldehyde	1	15	8.94E-02	N/A	0.10	1.04E+01	1.38E-03	8.46E+02	8.27E+77	1.50E-05	N/A	#N/A	#N/A
81576	Methylnaphthalene, 2-	1	15	1.70E+01	1.89E+03	0.10	1.04E+01	3.13E-04	8.46E+02	#NUM!	1.48E-06	2.79E-02	N/A	3.0E-03
82824	Biphenyl, 1,1'-	1	15	1.29E+01	N/A	0.10	1.04E+01	3.16E-04	8.46E+02	#NUM!	1.48E-06	N/A	N/A	N/A
209598	Acenaphthylene	1	15	9.57E+00	1.50E+03	0.10	1.04E+01	3.36E-04	8.46E+02	#NUM!	1.48E-06	2.23E-02	N/A	3.0E-03
83349	Acenaphthene	1	15	1.42E+01	N/A	0.10	1.04E+01	7.33E-04	8.46E+02	1.33E+143	1.49E-06	N/A	N/A	3.0E-03
133849	Di-benzofuran	1	15	1.83E+01	3.21E+02	0.10	1.04E+01	1.88E-04	8.46E+02	#NUM!	1.48E-06	4.70E-03	N/A	N/A
98737	Fluorene	1	15	1.84E+01	N/A	0.10	1.04E+01	8.18E-01	8.46E+02	1.34E+00	5.85E-05	N/A	N/A	3.0E-03
95018	Phenanthrene	1	15	2.83E+01	2.88E+02	0.10	1.04E+01	3.50E-04	8.46E+02	2.19E+300	1.48E-06	4.40E-03	N/A	3.0E-03
120127	Anthracene	1	15	5.90E+01	N/A	0.10	1.04E+01	1.80E-03	8.46E+02	6.32E+85	1.60E-06	N/A	N/A	3.0E-03
C5-C8	C5-C8 Aliphatics	1	15	4.53E+00	3.90E+08	0.10	1.04E+01	3.64E-04	8.46E+02	4.81E+288	1.48E-06	5.79E+01	N/A	2.0E-01
C9-C12	C9-C12 Aliphatics	1	15	3.00E+02	1.11E+06	0.10	1.04E+01	3.84E-04	8.46E+02	4.87E+288	1.48E-06	1.84E+00	N/A	2.0E-01
C9-C10	C9-C10 Aromatics	1	15	3.86E+00	N/A	0.10	1.04E+01	3.89E-04	8.46E+02	1.62E+284	1.48E-06	N/A	N/A	5.0E-02
C9-C18	C9-C18 Aliphatics	1	15	1.38E+03	N/A	0.10	1.04E+01	3.84E-04	8.46E+02	4.88E+288	1.48E-06	N/A	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	1	15	1.00E+01	8.20E+06	0.10	1.04E+01	4.27E-04	8.46E+02	7.52E+245	1.49E-06	1.23E+02	N/A	6.0E-02

Appendix C-4
Johnson & Etlinger Model - Data Entry Screen
Input on of Volatiles from Soil
Fugate Gas Fractional Deviation - GT
Soil/water Properties, Wells GSH-Bowling 98s, Combs Unit 2
Marsh Waste 08

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

SL-SCREEN
Version 2.3.03.01

YES

OR

CALCULATE INCREMENTAL RISK FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and fill in soil conc. below)

YES

ENTER CAS No. (numbers only, no dashes)	ENTER Chemical	ENTER Depth below grade to bottom of unexcavated space foot. L _u (ft or 300 cm)	ENTER Depth below grade to base of contamination, L _c (ft)	ENTER Average soil temperature, T _s (°C)	ENTER Volatile zone SCS soil type used to estimate soil vapor permeability, Note	ENTER User-defined volatile zone soil vapor permeability, OR K ₁ (cm ² /s)	ENTER Volatile zone soil bulk density, ρ _b (g/cm ³)	ENTER Volatile zone soil water content, W ₁ (wt%)	ENTER Volatile zone soil organic carbon fraction, f _{oc} (wt%)	ENTER Average time for contaminant, A _{TO} (hr)	ENTER Average time for noncarcinogens, A _{TC} (hr)	ENTER Exposure duration, ED (hr/yr)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure time ET (hr/yr)	ENTER Conversion factor CF (hr/yr)	ENTER Target risk for carcinogens, TR _C (yr/life)	ENTER Target risk for noncarcinogens, TR _{NC} (yr/life)		
95336	Trimethylbenzene, 1,2,4-	1.56E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
540500	Dichloroethylene, 1,2- (total)	1.18E+00	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
106876	Trimethylbenzene, 1,3,5-	4.00E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
104616	m-Dibromobenzene	1.06E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
81203	Naphthalene	2.18E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
88776	Isopropyltoluene, 4-	1.36E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
135608	Bromobenzene, sec	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
74873	Chloromethane	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
75014	Vinyl chloride	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
74839	Bromomethane	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
75003	Ethyl chloride	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
75354	1,1-Dichloroethylene	1.60E+00	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
78131	Trichloro-1,2,2-trifluoroethylene, 1,1,2-	1.27E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
67841	Acetone	1.27E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
75150	Carbon disulfide	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
79200	Methyl acetate	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
79202	Methylene chloride	2.01E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
158605	trans-1,2-Dichloroethylene	3.14E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
6534044	Methyl Tertiary-Butyl Ether	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
75343	1,1-Dichloroethane	3.28E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
158582	cis-1,2-Dichloroethylene	3.02E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
79833	Bromoacetylene, 2- (MEX)	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
71556	1,1,1-Trichloroethane	3.75E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
110827	Cyclohexane	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
71832	Benzene	3.48E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
78018	Trichloroethylene	2.72E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
106672	Methyl cyclohexane	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
108853	Toluene	8.89E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
127184	Tetrahydrofuran	8.82E+01	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
109907	Chlorobenzene	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
100414	Ethylbenzene	8.70E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
1330207	Xylenes	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
100425	Styrene	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
89826	Isopropylbenzene	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
79345	1,1,2,2-Tetrachloroethane	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
541731	Dichlorobenzene, 1,3-	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
106487	1,4-Dichlorobenzene	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
94501	1,2-Dichlorobenzene	2.23E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
120821	1,2,4-Trichlorobenzene	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
100527	Benzaldehyde	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
91979	Methylnaphthalene, 2-	8.81E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
92324	Ethylene, 1,1'	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
208868	Acenaphthylene	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
83328	Acenaphthene	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
132848	Dibenzofuran	3.80E+01	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
80737	Fluorene	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
85016	Phenanthrene	1.72E+03	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
120127	Anthracene	1.56E+02	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
CS-C8	CS-C8 Aliphatics	1.00E+08	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
CS-C12	CS-C12 Aliphatics	1.00E+08	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
CS-C10	CS-C10 Aromatics	1.00E+08	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
CS-C18	CS-C18 Aliphatics	1.00E+08	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1
G11-C22	G11-C22 Aromatics	5.44E+08	15	15	10	LB	1	1.5	0.43	0.3	0.002	70	2	2	25	2.5	8780	1.0E-08	1

Note:
1) Default soil permeability from Table T of User's Guide for Evaluating Subsurface Vapor Intrusion into Building (U.S. EPA June 16, 2003) were used for soil vapor flow velocity (K₁), soil water content (W₁), and soil dry bulk density (ρ_b).

Appendix C.4
 Johnson & Ettinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Child Recreational Scenario - CT
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2
 Murphy Waste Oil

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, D _a (cm ² /s)	Diffusivity in water, D _w (cm ² /s)	Henry's law constant at reference temperature, H (atm-m ³ /mol)	Henry's law constant reference temperature, T _R (°C)	Enthalpy of vaporization at the normal boiling point, ΔH _{v,b} (cal/mol)	Normal boiling point, T _B (°K)	Critical temperature, T _C (°K)	Organic carbon partition coefficient, K _{oc} (cm ³ /g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)	Physical state at soil temperature, (S,L,G)
95636	Trimethylbenzene, 1,2,4-	7.80E-02	9.03E-06	5.70E-03	25	1.25E+03	442.30	649.11	3.72E+03	5.70E+01	N/A	6.0E-03	L
540590	Dichloroethylene, 1,2- (total)	5.59E-02	6.47E-06	4.30E-04	20	1.32E+03	585.00	677.50	1.28E+02	1.30E+00	#N/A	#N/A	0.0E+00
108678	Trimethylbenzene, 1,3,5-	6.48E-02	7.86E-06	7.81E-03	25	1.25E+03	442.30	649.11	1.67E+03	2.00E+01	N/A	6.0E-03	L
104518	n-Butylbenzene	7.25E-02	8.39E-06	1.25E-02	25	1.23E+03	456.00	684.00	2.51E+03	1.26E+00	#N/A	#N/A	L
91203	Naphthalene	5.90E-02	7.50E-06	4.83E-04	25	1.04E+04	491.14	748.40	2.00E+03	3.10E+01	N/A	3.0E-03	S
99878	Isopropyltoluene, 4-	7.25E-02	8.39E-06	8.60E+00	25	1.24E+03	450.10	652.04	1.58E+03	2.34E+01	N/A	4.0E-01	L
135988	Butylbenzene, sec-	8.00E-02	8.00E-06	1.67E-02	25	1.24E+03	446.65	669.98	3.11E+04	1.76E+01	#N/A	#N/A	0.0E+00
74873	Chloromethane	1.26E-01	6.50E-06	8.67E-03	25	1.35E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	9.0E-02	0.0E+00
75014	Vinyl chloride	1.06E-01	1.23E-05	2.71E-02	25	5.25E+03	259.25	432.00	1.86E+01	2.76E+03	8.8E-06	1.0E-01	L
74839	Bromomethane	7.28E-02	1.21E-05	6.22E-03	25	5.49E+03	276.50	414.75	1.43E+01	1.52E+04	N/A	5.0E-03	0.0E+00
75003	Ethyl Chloride	1.26E-01	6.50E-06	8.67E-03	25	1.36E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	1.0E+01	L
75354	1,1-Dichloroethylene	9.00E-02	1.04E-05	2.61E-02	25	6.25E+03	304.75	576.05	5.89E+01	2.25E+03	N/A	2.0E-01	L
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	2.88E-02	8.07E-06	5.17E-01	25	1.33E+03	320.70	481.05	2.25E+02	1.70E+02	N/A	3.0E+01	0.0E+00
67641	Acetone	1.24E-01	1.14E-05	3.88E-05	25	6.96E+03	329.20	508.10	5.75E-01	1.00E+06	N/A	N/A	L
75150	Carbon Disulfide	1.04E-01	1.29E-05	1.27E-02	25	6.39E+03	319.00	552.00	5.14E+01	2.67E+03	N/A	7.0E-01	L
79209	Methyl Acetate	1.04E-01	1.00E-05	1.13E-04	25	1.31E+03	365.00	547.50	3.32E+00	2.43E+05	#N/A	#N/A	0.0E+00
75092	Methylene chloride	1.01E-01	1.17E-05	2.19E-03	25	6.71E+03	313.00	510.00	1.17E+01	1.30E+04	4.7E-07	3.0E+00	L
156605	trans-1,2-Dichloroethylene	7.07E-02	1.19E-05	9.39E-03	25	1.33E+03	320.85	516.50	5.25E+01	6.30E+03	N/A	2.0E-01	L
1634044	Methyl-Tertiary-Butyl Ether	1.02E-01	1.05E-05	5.87E-04	25	1.32E+03	326.36	497.11	3.64E+01	5.10E+04	N/A	3.0E+00	L
75343	1,1-Dichloroethane	7.42E-02	1.05E-05	5.61E-03	25	6.90E+03	330.55	523.00	3.16E+01	5.06E+03	N/A	5.0E-01	L
156592	cis-1,2-Dichloroethylene	7.38E-02	1.13E-05	4.07E-03	25	7.19E+03	333.65	544.00	3.55E+01	3.50E+03	N/A	2.0E-01	L
78933	Butanone, 2- (MEK)	8.08E-02	9.80E-06	5.60E-05	25	1.31E+03	352.50	528.75	3.83E+00	2.23E+05	N/A	N/A	0.0E+00
71556	1,1,1-Trichloroethane	7.80E-02	8.80E-06	1.72E-02	25	7.14E+03	347.24	545.00	1.10E+02	1.33E+03	N/A	2.2E+00	L
110827	Cyclohexane	8.00E-02	9.00E-06	2.00E+00	25	1.31E+03	353.85	530.78	1.60E+02	5.50E+01	#N/A	#N/A	0.0E+00
71432	Benzene	8.80E-02	9.80E-06	5.56E-03	25	7.34E+03	353.24	562.16	5.89E+01	1.75E+03	7.8E-06	3.0E-02	L
79016	Trichloroethylene	7.90E-02	9.10E-06	1.03E-02	25	7.51E+03	360.36	544.20	1.66E+02	1.10E+03	1.1E-04	4.0E-02	L
108872	Methyl cyclohexane	9.86E-02	8.52E-06	4.23E-01	25	1.30E+03	373.90	560.85	2.68E+02	1.40E+01	N/A	3.0E+00	L
108883	Toluene	8.70E-02	8.60E-06	6.63E-03	25	7.93E+03	383.78	591.79	1.82E+02	5.26E+02	N/A	4.0E-01	L
127184	Tetrachloroethylene	7.20E-02	8.20E-06	1.84E-02	25	8.29E+03	394.40	620.20	1.55E+02	2.00E+02	5.9E-06	N/A	L
108907	Chlorobenzene	7.30E-02	8.70E-06	3.71E-03	25	8.41E+03	404.87	632.40	2.19E+02	4.72E+02	N/A	6.0E-02	L
100414	Ethylbenzene	7.50E-02	7.80E-06	7.88E-03	25	8.50E+03	409.34	617.20	3.63E+02	1.69E+02	N/A	1.0E+00	L
1330207	Xylenes	7.69E-02	8.44E-06	6.73E-06	25	1.26E+03	417.40	616.21	2.41E+02	2.20E+02	N/A	1.0E-01	L
100425	Styrene	7.10E-02	8.00E-06	2.76E-03	25	8.74E+03	418.31	636.00	7.76E+02	3.10E+02	#N/A	#N/A	L
98828	Isopropylbenzene	6.50E-02	7.83E-06	1.47E-02	25	1.26E+03	425.40	631.01	9.31E+03	5.60E+01	N/A	4.0E-01	L
79345	1,1,2,2-Tetrachloroethane	7.10E-02	7.90E-06	3.44E-04	25	9.00E+03	419.60	661.15	9.33E+01	2.97E+03	#N/A	#N/A	L
541731	Dichlorobenzene, 1,3-	4.14E-02	8.85E-06	4.70E-03	25	1.24E+03	446.00	683.96	1.70E+02	6.88E+01	N/A	N/A	L
106467	1,4-Dichlorobenzene	6.90E-02	7.90E-06	2.43E-03	25	9.27E+03	447.21	684.75	6.17E+02	7.38E+01	N/A	8.0E-01	S
95501	1,2-Dichlorobenzene	6.88E-02	9.41E-06	1.62E-06	25	9.70E+03	465.00	697.50	5.34E+01	2.77E+04	N/A	N/A	S
120821	1,2,4-Trichlorobenzene	3.00E-02	8.23E-06	1.42E-03	25	1.05E+04	486.15	725.00	1.78E+03	3.00E+02	N/A	2.0E-01	L
100527	Benzaldehyde	7.30E-02	9.07E-06	2.62E-05	25	1.24E+03	452.00	678.00	3.27E+01	6.57E+03	#N/A	#N/A	0.0E+00
91576	Methylnaphthalene, 2-	4.84E-02	7.75E-06	1.01E-03	25	1.17E+03	514.05	761.01	8.51E+03	2.46E+01	N/A	3.0E-03	S
92524	Biphenyl, 1,1'-	4.04E-02	8.15E-06	3.03E-04	25	1.15E+03	529.10	793.85	6.25E+03	6.94E+00	N/A	N/A	0.0E+00
208968	Acenaphthylene	4.43E-02	7.44E-06	2.80E-04	25	1.12E+03	553.00	792.01	4.79E+03	3.93E+00	N/A	3.0E-03	S
83329	Acenaphthene	4.21E-02	7.69E-06	1.55E-04	25	1.22E+04	550.54	803.15	7.08E+03	4.24E+00	N/A	3.0E-03	S
132649	Dibenzofuran	2.67E-02	5.93E-06	4.00E-03	25	1.11E+03	559.00	824.01	8.13E+03	1.00E+01	N/A	N/A	S
86737	Fluorene	3.63E-02	7.88E-06	9.41E-08	25	1.27E+04	570.44	870.00	7.71E+03	1.90E+00	N/A	3.0E-03	S
85018	Phenanthrene	3.30E-02	7.47E-06	1.30E-04	25	1.06E+03	613.00	869.01	1.41E+04	1.28E+00	N/A	3.0E-03	S
120127	Anthracene	3.24E-02	7.74E-06	6.51E-05	25	1.31E+04	615.18	873.00	2.95E+04	4.34E-02	N/A	3.0E-03	S
C6-C8	C5-C8 Aliphatics	6.00E-02	1.00E-05	1.30E+00	25	NA	NA	NA	2.27E+03	1.10E+04	N/A	2.0E-01	S
C9-C12	C9-C12 Aliphatics	6.00E-02	1.00E-05	1.56E+00	25	NA	NA	NA	1.50E+05	7.00E+01	N/A	2.0E-01	S
C9-C10	C9-C10 Aromatics	6.00E-02	1.00E-05	7.92E-03	25	NA	NA	NA	1.78E+03	5.10E+04	N/A	5.0E-02	S
C9-C18	C9-C18 Aliphatics	6.00E-02	1.00E-05	1.66E+00	25	NA	NA	NA	6.80E+05	1.00E+01	N/A	2.0E-01	S
C11-C22	C11-C22 Aromatics	6.00E-02	1.00E-05	7.32E-04	25	NA	NA	NA	5.00E+03	5.80E+03	N/A	5.0E-02	S

Chemical CAS No. (numbers only, no dashes)	Chemical	Source- building separation, LT (cm)	Vadose zone soil air-filled porosity, θ_a^* (cm ³ /cm ³)	Vadose zone total fluid saturation, S_w (cm ³ /cm ³)	Vadose zone soil intrinsic permeability, k_i (cm ²)	Vadose zone soil relative air permeability, k_{ra} (cm ²)	Vadose zone soil effective vapor permeability, k_e (cm ²)	Floor- wall seam perimeter, X _w crack (cm)	Initial soil concentration used, C _R (ug/kg)	Bldg. ventilation rate, Q _{vent} (cm ³ /s)	Area of exposed space below grade, A _g (cm ²)	Crack- to-total area ratio, η (unitless)	Crack depth below grade, Z _{max} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,ts}$ (cal/mol)	Henry's law constant at ave. soil temperature, H _{ts} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, HTS (unitless)	Vapor viscosity at ave. soil temperature, μ_{ts} (g/cm-s)	Vadose zone effective diffusion coefficient, D _v ^o (cm ² /s)
95636	Trimethylbenzene, 1,2,4-	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.55E+03	6.93E+05	2.60E+06	2.48E-04	15	1.55E+03	4.09E-03	2.13E-01	1.75E-04	4.77E-04
540690	Dichloroethylene, 1,2-(total)	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	6.96E+02	6.93E+05	2.60E+06	2.48E-04	15	1.73E+03	3.87E-04	1.87E-02	1.75E-04	3.77E-04
108678	Trimethylbenzene, 1,3,5-	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	4.00E+03	6.93E+05	2.60E+06	2.48E-04	15	1.55E+03	6.80E-03	2.93E-01	1.75E-04	3.95E-04
104518	n-Butylbenzene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.86E+02	6.93E+05	2.60E+06	2.48E-04	15	1.53E+03	1.09E-02	4.69E-01	1.75E-04	4.41E-04
91203	Naphthalene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	3.16E+03	6.93E+05	2.60E+06	2.48E-04	15	1.29E+04	1.52E-04	6.55E-03	1.75E-04	4.70E-04
99979	Isopropyltoluene, 4-	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.56E+02	6.93E+05	2.60E+06	2.48E-04	15	1.97E+03	7.48E+00	3.22E+02	1.75E-04	4.39E-04
113598B	Bulkybenzene, sec-	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.10E+06	6.93E+05	2.60E+06	2.48E-04	15	1.53E+03	1.46E-02	6.27E-01	1.75E-04	4.86E-04
74879	Chloromethane	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.37E+06	6.93E+05	2.60E+06	2.48E-04	15	1.20E+03	7.78E-03	3.35E-01	1.75E-04	7.69E-04
75014	Vinyl chloride	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	6.33E+05	6.93E+05	2.60E+06	2.48E-04	15	5.00E+03	1.73E-02	7.49E-01	1.75E-04	6.44E-04
74839	Bromomethane	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	3.69E+06	6.93E+05	2.60E+06	2.48E-04	15	5.39E+03	3.64E-03	1.65E-01	1.75E-04	4.48E-04
75003	Ethyl Chloride	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.37E+06	6.93E+05	2.60E+06	2.48E-04	15	1.20E+03	7.78E-03	3.35E-01	1.75E-04	7.69E-04
75354	1,1-Dichloroethylene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.60E+03	6.93E+05	2.60E+06	2.48E-04	15	6.39E+03	1.47E-02	6.34E-01	1.75E-04	5.47E-04
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	3.69E+05	6.93E+05	2.60E+06	2.48E-04	15	1.44E+03	4.55E-01	1.96E+01	1.75E-04	1.75E-04
67841	Acetone	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.27E+03	6.93E+05	2.60E+06	2.48E-04	15	7.56E+03	1.97E-05	8.50E-04	1.75E-04	2.07E-03
75150	Carbon Disulfide	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	8.78E+05	6.93E+05	2.60E+06	2.48E-04	15	6.88E+03	6.99E-03	3.01E-01	1.75E-04	6.34E-04
79208	Methyl Acetate	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	5.03E+07	6.93E+05	2.60E+06	2.48E-04	15	1.50E+03	9.88E-06	4.25E-03	1.75E-04	8.61E-04
75062	Methylene chloride	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	2.01E+03	6.93E+05	2.60E+06	2.48E-04	15	7.03E+03	1.17E-03	5.03E-02	1.75E-04	8.35E-04
158805	trans-1,2-Dichloroethylene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	3.14E+02	6.93E+05	2.60E+06	2.48E-04	15	1.42E+03	8.27E-03	3.56E-01	1.75E-04	4.32E-04
1834044	Methyl-Tertiary-Butyl Ether	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.42E+07	6.93E+05	2.60E+06	2.48E-04	15	1.45E+03	5.18E-04	2.22E-02	1.75E-04	6.67E-04
75343	1,1-Dichloroethane	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	3.20E+02	6.93E+05	2.60E+06	2.48E-04	15	7.45E+03	2.86E-03	1.24E-01	1.75E-04	4.58E-04
158582	cis-1,2-Dichloroethylene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	3.82E+02	6.93E+05	2.60E+06	2.48E-04	15	7.73E+03	2.04E-03	8.77E-02	1.75E-04	4.58E-04
78933	Butanone, 2-(MEK)	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	4.63E+07	6.93E+05	2.60E+06	2.48E-04	15	1.49E+03	4.90E-05	2.11E-03	1.75E-04	9.45E-04
71550	1,1,1-Trichloroethane	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	3.79E+02	6.93E+05	2.60E+06	2.48E-04	15	7.58E+03	8.50E-03	3.86E-01	1.75E-04	4.75E-04
110827	Cyclohexane	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	3.68E+05	6.93E+05	2.60E+06	2.48E-04	15	1.49E+03	1.75E+00	7.54E+01	1.75E-04	4.76E-04
71432	Benzene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	2.48E+02	6.93E+05	2.60E+06	2.48E-04	15	6.12E+03	2.69E-03	1.16E-01	1.75E-04	3.47E-04
79018	Trichloroethylene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	2.23E+02	6.93E+05	2.60E+06	2.48E-04	15	6.56E+03	4.79E-03	2.06E-01	1.75E-04	4.83E-04
108872	Methyl cyclohexane	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	2.96E+04	6.93E+05	2.60E+06	2.48E-04	15	1.51E+03	3.70E-01	1.59E+01	1.75E-04	5.98E-04
108883	Toluene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	8.55E+02	6.93E+05	2.60E+06	2.48E-04	15	9.15E+03	2.92E-03	1.26E-01	1.75E-04	5.34E-04
127184	Tetrachloroethylene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	9.62E+01	6.93E+05	2.60E+06	2.48E-04	15	9.55E+03	7.83E-03	3.37E-01	1.75E-04	4.36E-04
108907	Chlorobenzene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	3.04E+05	6.93E+05	2.60E+06	2.48E-04	15	9.80E+03	1.54E-03	6.65E-02	1.75E-04	4.65E-04
100414	Ethylbenzene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	8.70E+02	6.93E+05	2.60E+06	2.48E-04	15	1.02E+04	3.18E-03	1.37E-01	1.75E-04	4.60E-04
1330207	Xylenes	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.60E+05	6.93E+05	2.60E+06	2.48E-04	15	1.54E+03	5.98E-06	2.52E-04	1.75E-04	3.75E-03
100425	Styrene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	5.44E+06	6.93E+05	2.60E+06	2.48E-04	15	1.05E+04	1.08E-03	4.67E-02	1.75E-04	4.47E-04
98828	Isopropylbenzene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.06E+06	6.93E+05	2.60E+06	2.48E-04	15	1.54E+03	1.28E-02	5.51E-01	1.75E-04	3.95E-04
79345	1,1,2,2-Tetrachloroethane	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.15E+06	6.93E+05	2.60E+06	2.48E-04	15	1.09E+04	1.34E-04	5.77E-01	1.75E-04	6.85E-04
541731	Dichlorobenzene, 1,3-	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	3.82E+04	6.93E+05	2.60E+06	2.48E-04	15	1.50E+03	4.11E-03	1.77E-01	1.75E-04	2.56E-04
108487	1,4-Dichlorobenzene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.08E+06	6.93E+05	2.60E+06	2.48E-04	15	1.12E+04	8.69E-04	3.83E-02	1.75E-04	4.38E-04
85501	1,2-Dichlorobenzene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	2.23E+03	6.93E+05	2.60E+06	2.48E-04	15	1.21E+04	5.61E-07	2.37E-05	1.75E-04	3.94E-02
120621	1,2,4-Trichlorobenzene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.13E+06	6.93E+05	2.60E+06	2.48E-04	15	1.32E+04	4.35E-04	1.87E-02	1.75E-04	2.25E-04
100627	Benzaldehyde	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.74E+06	6.93E+05	2.60E+06	2.48E-04	15	1.53E+03	2.29E-05	9.84E-04	1.75E-04	1.39E-03
91579	Methylnaphthalene, 2-	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	8.51E+02	6.93E+05	2.60E+06	2.48E-04	15	1.51E+03	6.69E-04	3.81E-02	1.75E-04	3.13E-04
92524	Biphenyl, 1,1'	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	8.81E+04	6.93E+05	2.60E+06	2.48E-04	15	1.47E+03	2.65E-04	1.14E-02	1.75E-04	3.15E-04
208998	Acenaphthylene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.99E+03	6.93E+05	2.60E+06	2.48E-04	15	1.51E+03	2.45E-04	1.05E-02	1.75E-04	3.38E-04
83320	Acenaphthene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	6.09E+04	6.93E+05	2.60E+06	2.48E-04	15	1.81E+04	3.87E-05	1.58E-03	1.75E-04	7.33E-04
132648	Orthoforman	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	3.50E+01	6.93E+05	2.60E+06	2.48E-04	15	1.47E+03	3.51E-03	1.51E-01	1.75E-04	1.68E-04
85737	Fluorene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	2.97E+04	6.93E+05	2.60E+06	2.48E-04	15	1.82E+04	2.23E-06	9.44E-07	1.75E-04	6.19E-01
85016	Phenanthrene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.72E+03	6.93E+05	2.60E+06	2.48E-04	15	1.48E+03	1.14E-04	4.90E-03	1.75E-04	3.50E-04
120127	Anthracene	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	2.57E+03	6.93E+05	2.60E+06	2.48E-04	15	1.84E+04	1.28E-05	5.43E-04	1.75E-04	1.50E-03
CB-C8	CB-C8 Aliphatics	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.00E+03	6.93E+05	2.60E+06	2.48E-04	15	NA	8.48E-01	2.79E+01	1.75E-04	3.64E-04
CB-C12	CB-C12 Aliphatics	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.00E+03	6.93E+05	2.60E+06	2.48E-04	15	NA	7.50E-01	3.36E+01	1.75E-04	3.64E-04
CB-C10	CB-C10 Aromatics	1	0.130	0.859	1.62E-06	0.390	8.33E-09	6.55E+03	1.62E+06	6.93E+05	2.60E+06	2.48E-04	15	NA	3.98E-03	1.70E-01	1.75E-04	3.69E-04
CB-C18	CB-C18 Aliphatics</																	

Appendix C 4
 Johnson & Ettinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Child Recreational Scenario - CT
 Southwest Properties, Walla G&H Superfund Site, Operable
 Murphy Waste Oil

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusion path length, L _d (cm)	Convection path length, L _p (cm)	Soil-water partition coefficient, K _{oc} (cm ³ /g)	Source vapor conc., C _{source} (ug/m ³)	Crack radius, r _{crack} (cm)	Average vapor flow rate into bldg., Q _{avg} (cm ³ /s)	Crack effective diffusion coefficient, D _{crack} (cm ² /s)	Area of crack, A _{crack} (cm ²)	Exponent of equivalent foundation Porel number, exp(Por) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., C _{avg,bldg} (ug/m ³)	Unit risk factor, URF (ug/m ³) ⁻¹	Reference, RfC (mg/m ³)
95636	Trimethylbenzene, 1,2,4-	1	15	7.43E+00	6.16E+04	0.10	1.04E+01	4.77E-04	9.45E+02	1.29E+220	1.49E-05	7.86E-01	N/A	6.0E-03
540690	Dichloroethane, 1,2- (total)	1	15	2.57E-01	2.17E+04	0.10	1.04E+01	3.77E-04	8.45E+02	3.26E+278	1.49E-05	3.21E-01	N/A	N/A
106678	Trimethylbenzene, 1,3,5-	1	15	3.34E+00	3.29E+05	0.10	1.04E+01	3.95E-04	8.45E+02	3.48E+286	1.49E-05	4.85E+00	N/A	6.0E-03
104516	n-Butylbenzene	1	15	6.02E+00	1.48E+04	0.10	1.04E+01	4.41E-04	8.45E+02	1.13E+238	1.49E-05	2.19E-01	N/A	N/A
91203	Naphthalene	1	15	4.00E+00	4.90E+03	0.10	1.04E+01	4.70E-04	8.45E+02	2.69E+223	1.49E-05	7.33E-02	N/A	3.0E-03
99678	Isopropyltoluene, 4-	1	15	3.18E+00	1.63E+06	0.10	1.04E+01	4.39E-04	8.45E+02	1.01E+239	1.49E-05	2.42E+01	N/A	4.0E-01
135988	Bulbenzene, sec.	1	15	6.22E+01	N/A	0.10	1.04E+01	4.66E-04	8.45E+02	8.44E+215	1.49E-05	N/A	N/A	N/A
74873	Chloroethane	1	15	2.86E-02	N/A	0.10	1.04E+01	7.68E-04	8.45E+02	1.38E+137	1.49E-05	N/A	N/A	8.0E-02
75014	Vinyl chloride	1	15	3.72E-02	N/A	0.10	1.04E+01	6.44E-04	8.45E+02	1.02E+163	1.49E-05	N/A	N/A	8.8E-06
74839	Bromomethane	1	15	2.86E-02	N/A	0.10	1.04E+01	4.48E-04	8.45E+02	1.30E+234	1.49E-05	N/A	N/A	5.0E-03
75009	Ethyl chloride	1	15	2.86E-02	N/A	0.10	1.04E+01	7.68E-04	8.45E+02	1.38E+137	1.49E-05	N/A	N/A	1.0E+01
75354	1,1-Dichloroethylene	1	15	1.19E-01	2.72E+03	0.10	1.04E+01	6.47E-04	8.45E+02	8.08E+191	1.49E-05	4.05E-02	N/A	2.0E-01
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	15	4.50E-01	N/A	0.10	1.04E+01	1.75E-04	8.45E+02	#NUM!	1.47E-05	N/A	N/A	3.0E+01
87841	Acetone	1	15	1.15E-03	5.38E+03	0.10	1.04E+01	2.07E-03	8.45E+02	5.83E+50	1.50E-05	6.05E-02	N/A	N/A
75150	Carbon Disulfide	1	15	1.03E-01	N/A	0.10	1.04E+01	6.34E-04	8.45E+02	3.87E+165	1.49E-05	N/A	N/A	7.0E-01
79208	Methyl Acetate	1	15	6.64E-03	N/A	0.10	1.04E+01	8.01E-04	8.45E+02	6.20E+121	1.49E-05	N/A	N/A	N/A
75092	Methylene chloride	1	15	2.34E-02	4.44E+06	0.10	1.04E+01	6.35E-04	8.45E+02	2.18E+185	1.49E-05	8.67E+00	4.7E-07	3.0E+00
156605	trans-1,2-Dichloroethylene	1	15	1.05E-01	3.33E+05	0.10	1.04E+01	4.32E-04	8.45E+02	1.43E+243	1.49E-05	4.95E+00	N/A	2.0E-01
1634044	Methyl-Tertiary-Butyl Ether	1	15	7.68E-02	N/A	0.10	1.04E+01	8.07E-04	8.45E+02	2.47E+167	1.49E-05	N/A	N/A	3.0E+00
75343	1,1-Dichloroethane	1	15	6.32E-02	1.47E+05	0.10	1.04E+01	4.68E-04	8.45E+02	1.87E+220	1.49E-05	2.19E+00	N/A	5.0E-01
156582	cis-1,2-Dichloroethylene	1	15	7.10E-02	1.20E+05	0.10	1.04E+01	4.50E-04	8.45E+02	7.49E+228	1.49E-05	1.79E+00	N/A	2.0E-01
78833	Butanone, 2- (MEK)	1	15	7.88E-03	N/A	0.10	1.04E+01	9.45E-04	8.45E+02	1.09E+111	1.49E-05	N/A	N/A	N/A
71856	1,1,1-Trichloroethane	1	15	2.20E-01	3.02E+05	0.10	1.04E+01	4.76E-04	8.45E+02	6.68E+220	1.49E-05	4.49E+00	N/A	2.2E+00
110827	Cyclohexane	1	15	3.20E-01	N/A	0.10	1.04E+01	4.85E-04	8.45E+02	3.37E+216	1.49E-05	N/A	N/A	N/A
71432	Benzene	1	15	1.18E-01	8.80E+04	0.10	1.04E+01	5.42E-04	8.45E+02	5.73E+193	1.49E-05	1.31E+00	7.8E-06	3.0E-02
79016	Trichloroethylene	1	15	3.32E-01	8.38E+04	0.10	1.04E+01	4.83E-04	8.45E+02	2.03E+217	1.49E-05	1.25E+00	1.1E-04	4.0E-02
108872	Methyl cyclohexane	1	15	5.38E-01	N/A	0.10	1.04E+01	5.88E-04	8.45E+02	4.88E+175	1.49E-05	N/A	N/A	3.0E+00
108883	Toluene	1	15	3.84E-01	1.87E+05	0.10	1.04E+01	3.34E-04	8.45E+02	4.07E+198	1.49E-05	2.79E+00	N/A	4.0E-01
127184	Tetrachloroethylene	1	15	3.10E-01	6.01E+04	0.10	1.04E+01	4.39E-04	8.45E+02	1.82E+239	1.49E-05	6.83E-01	5.9E-06	N/A
108907	Chlorobenzene	1	15	4.38E-01	N/A	0.10	1.04E+01	4.55E-04	8.45E+02	3.97E+233	1.49E-05	N/A	N/A	8.0E-02
100414	Ethylbenzene	1	15	7.28E-01	9.78E+04	0.10	1.04E+01	4.80E-04	8.45E+02	1.44E+228	1.49E-05	1.45E+00	N/A	1.0E+00
1330207	Xylenes	1	15	4.82E-01	N/A	0.10	1.04E+01	3.75E-03	8.45E+02	1.01E+28	1.50E-05	N/A	N/A	1.0E-01
100426	Styrene	1	15	1.55E+00	N/A	0.10	1.04E+01	4.47E-04	8.45E+02	6.29E+284	1.49E-05	N/A	N/A	N/A
98628	Isopropylbenzene	1	15	1.86E+01	N/A	0.10	1.04E+01	3.95E-04	8.45E+02	3.75E+285	1.49E-05	N/A	N/A	4.0E-01
79345	1,1,2,2-Tetrachloroethane	1	15	1.87E-01	N/A	0.10	1.04E+01	5.85E-04	8.45E+02	8.21E+185	1.49E-05	N/A	N/A	N/A
541731	Dichlorobenzene, 1,3-	1	15	3.40E-01	N/A	0.10	1.04E+01	2.56E-04	8.45E+02	#NUM!	1.49E-05	N/A	N/A	N/A
108467	1,4-Dichlorobenzene	1	15	1.23E+00	N/A	0.10	1.04E+01	4.38E-04	8.45E+02	2.83E+239	1.49E-05	N/A	N/A	8.0E-01
85501	1,2-Dichlorobenzene	1	15	1.07E-01	1.72E+02	0.10	1.04E+01	3.94E-02	8.45E+02	4.64E+02	1.50E-05	2.59E-03	N/A	N/A
120821	1,2,4-Trichlorobenzene	1	15	3.58E+00	N/A	0.10	1.04E+01	2.25E-04	8.45E+02	#NUM!	1.47E-05	N/A	N/A	2.0E-01
100527	Benzaldehyde	1	15	6.54E-02	N/A	0.10	1.04E+01	1.35E-03	8.45E+02	8.27E+77	1.50E-05	N/A	N/A	N/A
91576	Methylsulphide, 2-	1	15	1.70E+01	1.88E+03	0.10	1.04E+01	3.13E-04	8.45E+02	#NUM!	1.48E-05	2.79E-02	N/A	3.0E-03
92504	Biphenyl, 1,1'	1	15	1.26E+01	N/A	0.10	1.04E+01	3.15E-04	8.45E+02	#NUM!	1.48E-05	N/A	N/A	N/A
208968	Acenaphthylene	1	15	9.57E+00	1.50E+03	0.10	1.04E+01	3.38E-04	8.45E+02	#NUM!	1.48E-05	2.22E-02	N/A	3.0E-03
83329	Acenaphthene	1	15	1.42E+01	N/A	0.10	1.04E+01	7.33E-04	8.45E+02	1.39E+143	1.49E-05	N/A	N/A	3.0E-03
132849	Dibenzofuran	1	15	1.83E+01	3.21E+02	0.10	1.04E+01	1.08E-04	8.45E+02	#NUM!	1.48E-05	4.70E-03	N/A	N/A
86737	Fluorene	1	15	1.64E+01	N/A	0.10	1.04E+01	8.16E-01	8.45E+02	1.34E+00	6.95E-05	N/A	N/A	3.0E-03
85018	Phenanthrene	1	15	2.83E+01	2.98E+02	0.10	1.04E+01	3.92E-04	8.45E+02	2.10E+300	1.48E-05	4.40E-03	N/A	3.0E-03
120127	Anthracene	1	15	5.90E+01	N/A	0.10	1.04E+01	1.92E-03	8.45E+02	6.32E+85	1.50E-05	N/A	N/A	3.0E-03
CB-C8	CB-C8 Aliphatics	1	15	4.53E+00	3.90E+00	0.10	1.04E+01	3.64E-04	8.45E+02	4.81E+283	1.49E-05	5.79E+01	N/A	2.0E-01
CB-C12	CB-C12 Aliphatics	1	15	3.00E+02	1.11E+05	0.10	1.04E+01	3.64E-04	8.45E+02	4.87E+283	1.49E-05	1.64E+00	N/A	2.0E-01
CB-C10	CB-C10 Aromatics	1	15	3.56E+00	N/A	0.10	1.04E+01	3.89E-04	8.45E+02	1.62E+284	1.49E-05	N/A	N/A	5.0E-02
CB-C16	CB-C16 Aliphatics	1	15	1.36E+03	N/A	0.10	1.04E+01	3.64E-04	8.45E+02	4.88E+288	1.49E-05	N/A	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	1	15	1.00E+01	8.28E+08	0.10	1.04E+01	4.27E-04	8.45E+02	7.52E+245	1.49E-05	1.23E+02	N/A	5.0E-02

RESULTS SHEET

Appendix C.4
Johnson & Etlinger Model - Data Entry Screen
Inhalation of Volatiles from Soil
Future Child Recreational Scenario - CT
Southwest Properties, Wells G&H Superfund Site, Operable Unit 2
Murphy Waste Oil

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

Chemical CAS No. (numbers only, no dashes)	Chemical	Indoor exposure soil conc., carcinogen (ug/kg)	Indoor exposure soil conc., noncarcinogen (ug/kg)	Risk-based indoor exposure soil conc., (ug/kg)	Soil saturation conc., C _{sat} (ug/kg)	Final indoor exposure soil conc., (ug/kg)
95838	Trimethylbenzene, 1,2,4-	NA	NA	NA	4.39E+05	NA
540590	Dichloroethylene, 1,2- (total)	NA	NA	NA	5.99E+02	NA
105878	Trimethylbenzene, 1,3,5-	NA	NA	NA	7.13E+04	NA
104518	n-Butylbenzene	NA	NA	NA	8.83E+03	NA
91205	Naphthalene	NA	NA	NA	1.93E+05	NA
96578	Isopropyltoluene, 4-	NA	NA	NA	7.31E+05	NA
135888	Butylbenzene, sec-	NA	NA	NA	1.10E+06	NA
74873	Chloromethane	NA	NA	NA	1.37E+08	NA
75014	Vinyl chloride	NA	NA	NA	8.33E+05	NA
74839	Bromomethane	NA	NA	NA	3.89E+09	NA
75003	Ethyl chloride	NA	NA	NA	1.37E+08	NA
73354	1,1-Dichloroethylene	NA	NA	NA	8.39E+05	NA
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	NA	NA	NA	3.99E+05	NA
67841	Acetone	NA	NA	NA	2.01E+08	NA
75150	Carbon Disulfide	NA	NA	NA	8.78E+05	NA
79209	Methyl Acetate	NA	NA	NA	5.03E+07	NA
75092	Methylene chloride	NA	NA	NA	2.99E+06	NA
156605	trans-1,2-Dichloroethylene	NA	NA	NA	2.12E+08	NA
1834044	Methyl-Tert-butyl Ether	NA	NA	NA	1.42E+07	NA
75343	1,1-Dichloroethane	NA	NA	NA	1.39E+08	NA
158592	cis-1,2-Dichloroethylene	NA	NA	NA	8.79E+05	NA
78933	Butanone, 2- (MEK)	NA	NA	NA	4.83E+07	NA
71556	1,1,1-Trichloroethane	NA	NA	NA	8.01E+05	NA
110827	Cyclohexane	NA	NA	NA	3.89E+05	NA
71432	Benzene	NA	NA	NA	3.74E+03	NA
78016	Trichloroethylene	NA	NA	NA	8.05E+05	NA
108872	Methyl cyclohexane	NA	NA	NA	2.95E+04	NA
108883	Toluene	NA	NA	NA	3.02E+05	NA
127184	Tetrachloroethylene	NA	NA	NA	1.08E+05	NA
108907	Chlorobenzene	NA	NA	NA	3.04E+05	NA
100414	Ethylbenzene	NA	NA	NA	1.58E+05	NA
1330207	Xylenes	NA	NA	NA	1.50E+05	NA
100425	Styrene	NA	NA	NA	5.44E+05	NA
88828	Isopropylbenzene	NA	NA	NA	1.06E+06	NA
79345	1,1,2,2-Tetrachloroethane	NA	NA	NA	1.15E+06	NA
941731	Dichlorobenzene, 1,3-	NA	NA	NA	3.82E+04	NA
108487	1,4-Dichlorobenzene	NA	NA	NA	1.09E+05	NA
95501	1,2-Dichlorobenzene	NA	NA	NA	8.50E+06	NA
120821	1,2,4-Trichlorobenzene	NA	NA	NA	1.13E+08	NA
100527	Benzaldehyde	NA	NA	NA	1.74E+06	NA
91576	Methylnaphthalene, 2-	NA	NA	NA	4.94E+05	NA
92524	Biphenyl, 1,1'-	NA	NA	NA	8.81E+04	NA
208988	Acenaphthylene	NA	NA	NA	3.84E+04	NA
83329	Acenaphthene	NA	NA	NA	5.09E+04	NA
132849	Diisobenzofuran	NA	NA	NA	1.85E+05	NA
88737	Fluorene	NA	NA	NA	2.27E+04	NA
85019	Phenanthrene	NA	NA	NA	3.84E+04	NA
120127	Anthracene	NA	NA	NA	2.57E+03	NA
CS-C8	CS-C8 Aliphatics	NA	NA	NA	7.88E+07	NA
C9-C12	C9-C12 Aliphatics	NA	NA	NA	2.12E+07	NA
C9-C10	C9-C10 Aromatics	NA	NA	NA	1.82E+08	NA
C9-C18	C9-C18 Aliphatics	NA	NA	NA	1.36E+07	NA
C11-C22	C11-C22 Aromatics	NA	NA	NA	5.82E+07	NA

INCREMENTAL RISK CALCULATIONS:

Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
NA	9.5E-04
NA	8.0E-03
NA	1.8E-04
NA	4.5E-04
NA	NA
NA	NA
NA	NA
NA	1.5E-06
NA	NA
NA	NA
NA	NA
6.8E-10	1.6E-05
NA	1.8E-04
NA	NA
NA	3.3E-05
NA	6.6E-05
NA	NA
NA	1.3E-05
NA	NA
2.2E-09	3.2E-04
2.9E-08	2.3E-04
NA	NA
NA	5.2E-05
1.1E-09	NA
NA	NA
NA	1.1E-05
NA	NA
NA	6.9E-05
NA	NA
NA	5.5E-05
NA	NA
NA	NA
NA	1.1E-06
NA	NA
NA	2.1E-09
NA	6.1E-05
NA	NA
NA	NA
NA	1.8E-02

85% UCL
Cancer
Risk
3E-08

85% UCL
HI
2.9E-02

TOTAL:

☐ = Cancer risk > 1E-05
or HQ/Hi > 1E+00

Trimethylbenzene, 1,2,4-
Dichloroethylene, 1,2- (total)
Trimethylbenzene, 1,3,5-
n-Butylbenzene
Naphthalene
Isopropyltoluene, 4-
Butylbenzene, sec-
Chloromethane
Vinyl chloride
Bromomethane
Ethyl chloride
1,1-Dichloroethylene
Trichloro-1,2,2-trifluoroethane, 1,1,2-

MESSAGE: Soil conc. >= saturation (C_{sat}). Risk/HQ calculated at C_{sat}.

MESSAGE: Soil conc. >= saturation (C_{sat}). Risk/HQ calculated at C_{sat}.
MESSAGE: Soil conc. >= saturation (C_{sat}). Risk/HQ calculated at C_{sat}.
MESSAGE: Soil conc. >= saturation (C_{sat}). Risk/HQ calculated at C_{sat}.
MESSAGE: Soil conc. >= saturation (C_{sat}). Risk/HQ calculated at C_{sat}.
MESSAGE: Soil conc. >= saturation (C_{sat}). Risk/HQ calculated at C_{sat}.

MESSAGE: Soil conc. >= saturation (C_{sat}). Risk/HQ calculated at C_{sat}.

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

BL-SCREEN
 (Version 2.3, 03/01)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER Chemical CAS No. Number only	ENTER Depth below grade to bottom of finished soil floor, L _s (ft or 200 cm)	ENTER Depth below grade to top of contamination, L _t (cm)	ENTER Average soil temperature, T _a (°C)	ENTER Vadose zone SO ₂ and base (used to estimate soil vapor permeability) OR	ENTER Unsaturated vadose zone soil vapor permeability, k _v (cm ²)	ENTER Vadose zone soil dry bulk density, ρ _b (g/cm ³)	ENTER Vadose zone soil total porosity, n [*] (unitless)	ENTER Vadose zone soil water-filled porosity, h _w (unitless)	ENTER Vadose zone soil organic carbon fraction, f _{oc} (unitless)	ENTER Average time for carcinogens, ATC (yr)	ENTER Average time for noncarcinogens, ATNC (yr)	ENTER Exposure duration, ED (yr)	ENTER Exposure frequency, EF (hr/yr)	ENTER Exposure time ET (hr)	ENTER Conversion factor CF (unitless)	ENTER Target TR (unitless)	ENTER Target hazard quotient for carcinogens (unitless)	ENTER Target hazard quotient for noncarcinogens (unitless)
1000	0.37E+03	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10000	1.19E+03	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10001	4.00E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10010	4.00E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10100	3.18E+03	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10101	2.00E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10102	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10103	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10104	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10105	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10106	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10107	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10108	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10109	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10110	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10111	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10112	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10113	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10114	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10115	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10116	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10117	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10118	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10119	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10120	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10121	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10122	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10123	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10124	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10125	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10126	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10127	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10128	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10129	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10130	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10131	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10132	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10133	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10134	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10135	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10136	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10137	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10138	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10139	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10140	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10141	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10142	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10143	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10144	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10145	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10146	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10147	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10148	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10149	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10150	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10151	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10152	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10153	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10154	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10155	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10156	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10157	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10158	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10159	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10160	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10161	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10162	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10163	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10164	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10165	1.50E+02	15	15	15	LR	1	1.5	0.43	0.3	0.002	70	24	24	70	2.5	8700	1.0E-06	1
10166	1.50E+02	15	15	15	LR	1	1.5	0.43	0									

Appendix C.4
 Johnson & Ellinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Futura Adult Recreational - RME
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2
 Murphy Waste Oil

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, D _a (cm ² /s)	Diffusivity in water, D _w (cm ² /s)	Henry's law constant at reference temperature, H (atm·m ³ /mol)	Henry's law constant reference temperature, T _R (°C)	Enthalpy of vaporization at the normal boiling point, ΔH _{v,b} (cal/mol)	Normal boiling point, T _B (°K)	Critical temperature, T _C (°K)	Organic carbon partition coefficient, K _{oc} (cm ³ /g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF (ug/m ³) ⁻¹	Reference conc., R/C (mg/m ³)	Physical state at soil temperature, (S,L,G)
95636	Trimethylbenzene, 1,2,4-	7.80E-02	9.03E-06	5.70E-03	25	1.25E+03	442.30	649.11	3.72E+03	5.70E+01	N/A	6.0E-03	L
540590	Dichloroethylene, 1,2- (total)	5.59E-02	6.47E-06	4.30E-04	20	1.32E+03	585.00	877.50	1.28E+02	1.30E+00	#N/A	#N/A	0.0E+00
108678	Trimethylbenzene, 1,3,5-	6.48E-02	7.86E-06	7.81E-03	25	1.25E+03	442.30	649.11	1.87E+03	2.00E+01	N/A	6.0E-03	L
104518	n-Butylbenzene	7.25E-02	8.39E-06	1.25E-02	25	1.23E+03	456.00	684.00	2.51E+03	1.26E+00	#N/A	#N/A	L
91203	Naphthalene	5.90E-02	7.50E-06	4.83E-04	25	1.04E+04	491.14	748.40	2.00E+03	3.10E+01	N/A	3.0E-03	S
99876	Isopropyltoluene, 4-	7.25E-02	8.39E-06	8.60E+00	25	1.24E+03	450.10	652.04	1.58E+03	2.34E+01	N/A	4.0E-01	L
135988	Butylbenzene, sec-	8.00E-02	8.00E-06	1.67E-02	25	1.24E+03	446.65	669.98	3.11E+04	1.76E+01	#N/A	#N/A	0.0E+00
74873	Chloromethane	1.26E-01	6.50E-06	8.67E-03	25	1.35E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	9.0E-02	0.0E+00
75014	Vinyl chloride	1.06E-01	1.23E-05	2.71E-02	25	5.25E+03	259.25	432.00	1.86E+01	2.76E+03	8.8E-06	1.0E-01	L
74839	Bromomethane	7.26E-02	1.21E-05	6.22E-03	25	5.49E+03	276.50	414.75	1.43E+01	1.52E+04	N/A	5.0E-03	0.0E+00
75003	Ethyl Chloride	1.26E-01	6.50E-06	8.67E-03	25	1.36E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	1.0E+01	L
75354	1,1-Dichloroethylene	9.00E-02	1.04E-05	2.61E-02	25	6.25E+03	304.75	576.05	5.89E+01	2.25E+03	N/A	2.0E-01	L
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	2.88E-02	8.07E-06	5.17E-01	25	1.33E+03	320.70	481.05	2.25E+02	1.70E+02	N/A	3.0E+01	0.0E+00
67841	Acetone	1.24E-01	1.14E-05	3.88E-05	25	6.96E+03	329.20	508.10	5.75E-01	1.00E+06	N/A	N/A	L
75150	Carbon Disulfide	1.04E-01	1.29E-05	1.27E-02	25	6.39E+03	319.00	552.00	5.14E+01	2.67E+03	N/A	7.0E-01	L
79209	Methyl Acetate	1.04E-01	1.00E-05	1.13E-04	25	1.31E+03	365.00	547.50	3.32E+00	2.43E+05	#N/A	#N/A	0.0E+00
75092	Methylene chloride	1.01E-01	1.17E-05	2.19E-03	25	6.71E+03	313.00	510.00	1.17E+01	1.30E+04	4.7E-07	3.0E+00	L
156605	trans-1,2-Dichloroethylene	7.07E-02	1.19E-05	9.39E-03	25	1.33E+03	320.85	516.50	5.25E+01	6.30E+03	N/A	2.0E-01	L
1634044	Methyl-Tertiary-Butyl Ether	1.02E-01	1.05E-05	5.87E-04	25	1.32E+03	328.36	497.11	3.84E+01	5.10E+04	N/A	3.0E+00	L
75343	1,1-Dichloroethane	7.42E-02	1.05E-05	5.61E-03	25	6.90E+03	330.55	523.00	3.16E+01	5.06E+03	N/A	5.0E-01	L
156592	cis-1,2-Dichloroethylene	7.36E-02	1.13E-05	4.07E-03	25	7.19E+03	333.65	544.00	3.55E+01	3.50E+03	N/A	2.0E-01	L
78933	Butanone, 2- (MEK)	8.08E-02	9.80E-06	5.60E-05	25	1.31E+03	352.50	528.75	3.83E+00	2.23E+05	N/A	N/A	0.0E+00
71556	1,1,1-Trichloroethane	7.80E-02	8.80E-06	1.72E-02	25	7.14E+03	347.24	545.00	1.10E+02	1.33E+03	N/A	2.2E+00	L
110827	Cyclohexane	8.00E-02	9.00E-06	2.00E+00	25	1.31E+03	353.85	530.78	1.60E+02	5.50E+01	#N/A	#N/A	0.0E+00
71432	Benzene	8.80E-02	9.80E-06	5.56E-03	25	7.34E+03	353.24	562.16	5.89E+01	1.75E+03	7.8E-06	3.0E-02	L
79016	Trichloroethylene	7.90E-02	9.10E-06	1.03E-02	25	7.51E+03	360.36	544.20	1.66E+02	1.10E+03	1.1E-04	4.0E-02	L
108872	Methyl cyclohexane	9.88E-02	8.52E-06	4.23E-01	25	1.30E+03	373.90	560.85	2.68E+02	1.40E+01	N/A	3.0E+00	L
108893	Toluene	8.70E-02	8.60E-06	6.63E-03	25	7.93E+03	383.78	591.79	1.82E+02	5.28E+02	N/A	4.0E-01	L
127184	Tetrachloroethylene	7.20E-02	8.20E-06	1.84E-02	25	8.29E+03	394.40	620.20	1.55E+02	2.00E+02	5.9E-06	N/A	L
108907	Chlorobenzene	7.30E-02	8.70E-06	3.71E-03	25	8.41E+03	404.87	632.40	2.19E+02	4.72E+02	N/A	6.0E-02	L
100414	Ethylbenzene	7.50E-02	7.80E-06	7.88E-03	25	8.50E+03	409.34	617.20	3.63E+02	1.69E+02	N/A	1.0E+00	L
1330207	Xylenes	7.69E-02	8.44E-06	6.73E-06	25	1.26E+03	417.40	616.21	2.41E+02	2.20E+02	N/A	1.0E-01	L
100425	Styrene	7.10E-02	8.00E-06	2.76E-03	25	8.74E+03	418.31	636.00	7.76E+02	3.10E+02	#N/A	#N/A	L
99828	Isopropylbenzene	6.50E-02	7.83E-06	1.47E-02	25	1.26E+03	425.40	631.01	9.31E+03	5.60E+01	N/A	4.0E-01	L
79345	1,1,2,2-Tetrachloroethane	7.10E-02	7.90E-06	3.44E-04	25	9.00E+03	419.80	681.15	9.33E+01	2.97E+03	#N/A	#N/A	L
541731	Dichlorobenzene, 1,3-	4.14E-02	8.85E-06	4.70E-03	25	1.24E+03	446.00	683.96	1.70E+02	6.88E+01	N/A	N/A	L
106467	1,4-Dichlorobenzene	6.90E-02	7.90E-06	2.43E-03	25	9.27E+03	447.21	684.75	6.17E+02	7.38E+01	N/A	8.0E-01	S
95501	1,2-Dichlorobenzene	6.88E-02	9.41E-06	1.62E-08	25	9.70E+03	465.00	697.50	5.13E+01	2.77E+04	N/A	N/A	S
120821	1,2,4-Trichlorobenzene	3.00E-02	8.23E-06	1.42E-03	25	1.05E+04	486.15	725.00	1.78E+03	3.00E+02	N/A	2.0E-01	L
100527	Benzaldehyde	7.30E-02	9.07E-06	2.62E-05	25	1.24E+03	452.00	678.00	3.27E+01	6.57E+03	#N/A	#N/A	0.0E+00
91576	Methylnaphthalene, 2-	4.84E-02	7.75E-06	1.01E-03	25	1.17E+03	514.05	761.01	8.51E+03	2.46E+01	N/A	3.0E-03	S
92524	Biphenyl, 1,1'-	4.04E-02	8.15E-06	3.03E-04	25	1.15E+03	529.10	793.65	6.25E+03	6.94E+00	N/A	N/A	0.0E+00
208968	Acenaphthylene	4.43E-02	7.44E-06	2.80E-04	25	1.12E+03	553.00	792.01	4.79E+03	3.93E+00	N/A	3.0E-03	S
83329	Acenaphthene	4.21E-02	7.69E-06	1.55E-04	25	1.22E+04	550.54	803.15	7.08E+03	4.24E+00	N/A	3.0E-03	S
132649	Dibenzofuran	2.67E-02	5.93E-06	4.00E-03	25	1.11E+03	559.00	824.01	8.13E+03	1.00E+01	N/A	N/A	S
86737	Fluorene	3.63E-02	7.88E-06	9.41E-08	25	1.27E+04	570.44	870.00	7.71E+03	1.90E+00	N/A	3.0E-03	S
85018	Phenanthrene	3.30E-02	7.47E-06	1.30E-04	25	1.06E+03	613.00	869.01	1.41E+04	1.28E+00	N/A	3.0E-03	S
120127	Anthracene	3.24E-02	7.74E-06	6.51E-05	25	1.31E+04	615.18	873.00	2.95E+04	4.34E-02	N/A	3.0E-03	S
C5-C8	C5-C8 Aliphatics	6.00E-02	1.00E-05	1.30E+00	25	NA	NA	NA	2.27E+03	1.10E+04	N/A	2.0E-01	S
C9-C12	C9-C12 Aliphatics	6.00E-02	1.00E-05	1.56E+00	25	NA	NA	NA	1.50E+05	7.00E+01	N/A	2.0E-01	S
C9-C10	C9-C10 Aromatics	6.00E-02	1.00E-05	7.92E-03	25	NA	NA	NA	1.78E+03	5.10E+04	N/A	5.0E-02	S
C9-C18	C9-C18 Aliphatics	6.00E-02	1.00E-05	1.66E+00	25	NA	NA	NA	6.80E+05	1.00E+01	N/A	2.0E-01	S
C11-C22	C11-C22 Aromatics	6.00E-02	1.00E-05	7.32E-04	25	NA	NA	NA	5.00E+03	5.80E+03	N/A	5.0E-02	S

Appendix C.4
 Johnson & Ellinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Adult Recreational - RME
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2
 Murphy Waste Cell

Chemical CAS No. (numbers only, no dashes)	Chemical	Source- building separation, LT (cm)	Vadose zone soil air-filled porosity, θ_a^v (cm ³ /cm ³)	Vadose zone effective total fluid saturation, S_w (cm ³ /cm ³)	Vadose zone soil intrinsic permeability, k_i (cm ²)	Vadose zone soil relative air permeability, k_{ra} (cm ²)	Vadose zone soil effective vapor permeability, k_v (cm ²)	Floor- wall seam perimeter, X _{crack} (cm)	Initial soil concentration used, CR (µg/kg)	Bldg. ventilation rate, Q_{vent} (cm ³ /s)	Area of enclosed space below grade, A_g (cm ²)	Crack- to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, $\Delta H_{v,ave}$ (cal/mol)	Henry's law constant at ave. soil temperature, $H_{T,ave}$ (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, HTS (unitless)	Vapor viscosity at ave. soil temperature, $\mu_{T,ave}$ (g/cm-s)	Vadose zone effective diffusion coefficient, D_{eff}^v (cm ² /s)
06596	Trimethylbenzene, 1,2,4-	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	9.37E+09	6.93E+05	2.90E+06	2.48E-04	15	1.55E+03	4.96E-03	2.13E-01	1.75E-04	4.77E-04
543690	Dichlorobenzene, 1,2- (ortho)	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	5.85E+02	6.93E+05	2.90E+06	2.48E-04	15	1.79E+03	6.67E-04	1.67E-02	1.75E-04	3.77E-04
109678	Dichlorobenzene, 1,3,5-	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	4.00E+03	6.93E+05	2.90E+06	2.48E-04	15	1.55E+03	6.02E-03	2.93E-01	1.75E-04	3.96E-04
104518	Triethylbenzene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	4.00E+02	6.93E+05	2.90E+06	2.48E-04	15	1.53E+03	1.09E-02	4.89E-01	1.75E-04	4.41E-04
91203	Naphthalene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	3.18E+03	6.93E+05	2.90E+06	2.48E-04	15	1.29E+04	1.52E-04	8.55E-03	1.75E-04	4.70E-04
90976	Isopropyltoluene, 4-	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	2.00E+02	6.93E+05	2.90E+06	2.48E-04	15	1.57E+03	7.48E+00	3.22E+02	1.75E-04	4.39E-04
135988	Bulbimbenzene, sec-	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.10E+06	6.93E+05	2.90E+06	2.48E-04	15	1.53E+03	1.48E-02	1.48E-01	1.75E-04	4.89E-04
74873	Chloromethane	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.37E+06	6.93E+05	2.90E+06	2.48E-04	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04	7.68E-04
75014	Vinyl chloride	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	8.33E+05	6.93E+05	2.90E+06	2.48E-04	15	6.00E+03	1.73E-02	7.48E-01	1.75E-04	6.44E-04
74819	Bromomethane	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	3.89E+06	6.93E+05	2.90E+06	2.48E-04	15	5.39E+03	3.84E-03	1.65E-01	1.75E-04	4.48E-04
75003	Ethyl chloride	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.37E+06	6.93E+05	2.90E+06	2.48E-04	15	1.20E+03	7.78E-03	3.35E-01	1.75E-04	7.68E-04
75354	1,1-Dichloroethane	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.60E+06	6.93E+05	2.90E+06	2.48E-04	15	6.39E+03	1.47E-02	8.34E-01	1.75E-04	5.47E-04
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	6.93E+06	6.93E+05	2.90E+06	2.48E-04	15	1.44E+03	4.65E-01	1.98E+01	1.75E-04	1.75E-04
67841	Acetone	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.27E+03	6.93E+05	2.90E+06	2.48E-04	15	7.99E+03	1.97E-06	8.50E-04	1.75E-04	2.07E-03
75190	Carbon Disulfide	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	8.78E+05	6.93E+05	2.90E+06	2.48E-04	15	6.88E+03	6.96E-03	3.07E-01	1.75E-04	3.24E-04
76206	Methyl Acetate	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	5.03E+07	6.93E+05	2.90E+06	2.48E-04	15	1.60E+03	9.85E-05	4.25E-03	1.75E-04	8.91E-04
76092	Methylene chloride	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	2.01E+03	6.93E+05	2.90E+06	2.48E-04	15	7.03E+03	1.17E-03	5.03E-02	1.75E-04	6.35E-04
169506	trans-1,2-Dichloroethylene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	3.14E+02	6.93E+05	2.90E+06	2.48E-04	15	7.03E+03	1.17E-03	5.03E-02	1.75E-04	6.35E-04
1634044	Methyl-Tertiary-Butyl Ether	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	3.14E+02	6.93E+05	2.90E+06	2.48E-04	15	1.45E+03	5.16E-04	2.72E-02	1.75E-04	6.87E-04
75343	1,1-Dichloroethane	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	3.28E+02	6.93E+05	2.90E+06	2.48E-04	15	7.45E+03	2.88E-03	1.24E-01	1.75E-04	4.68E-04
116582	cis-1,2-Dichloroethylene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.00E+04	6.93E+05	2.90E+06	2.48E-04	15	7.73E+03	2.04E-05	8.77E-02	1.75E-04	4.59E-04
76933	Butanone, 2- (MEK)	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	4.63E+07	6.93E+05	2.90E+06	2.48E-04	15	1.49E+03	4.60E-06	2.11E-03	1.75E-04	6.45E-04
71566	1,1,1-Trichloroethane	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	3.73E+02	6.93E+05	2.90E+06	2.48E-04	15	7.88E+03	8.50E-03	3.86E-01	1.75E-04	4.75E-04
110427	Cyclohexane	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	3.89E+05	6.93E+05	2.90E+06	2.48E-04	15	1.49E+03	1.75E+00	7.54E+01	1.75E-04	4.85E-04
71432	Benzene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	2.49E+02	6.93E+05	2.90E+06	2.48E-04	15	8.12E+03	2.89E-03	1.18E-01	1.75E-04	5.42E-04
79016	Trichloroethylene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	2.29E+02	6.93E+05	2.90E+06	2.48E-04	15	8.58E+03	4.79E-03	2.08E-01	1.75E-04	4.83E-04
108872	Methyl cyclohexane	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	2.29E+04	6.93E+05	2.90E+06	2.48E-04	15	1.51E+03	3.70E-01	1.69E-01	1.75E-04	5.98E-04
108883	Toluene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	8.59E+02	6.93E+05	2.90E+06	2.48E-04	15	9.15E+03	2.92E-03	1.26E-01	1.75E-04	5.34E-04
127184	Tetrachloroethylene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	3.00E+02	6.93E+05	2.90E+06	2.48E-04	15	9.55E+03	7.83E-03	3.37E-01	1.75E-04	4.39E-04
108907	Chlorobenzene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	3.04E+05	6.93E+05	2.90E+06	2.48E-04	15	9.80E+03	1.54E-03	6.65E-02	1.75E-04	4.65E-04
100414	Ethylbenzene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	6.70E+02	6.93E+05	2.90E+06	2.48E-04	15	1.02E+04	3.18E-03	1.37E-01	1.75E-04	4.80E-04
1330207	Xylenes	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.50E+05	6.93E+05	2.90E+06	2.48E-04	15	1.54E+03	6.86E-06	2.52E-04	1.75E-04	3.75E-03
100425	Styrene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	5.44E+05	6.93E+05	2.90E+06	2.48E-04	15	1.05E+04	1.08E-03	4.87E-02	1.75E-04	4.47E-04
86826	Isopropylbenzene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.08E+08	6.93E+05	2.90E+06	2.48E-04	15	1.54E+03	1.28E-02	6.51E-01	1.75E-04	3.86E-04
79345	1,1,2,2-Tetrachloroethane	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.19E+08	6.93E+05	2.90E+06	2.48E-04	15	1.05E+04	1.34E-04	5.77E-03	1.75E-04	5.85E-04
641731	Dichlorobenzene, 1,3-	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	3.62E+04	6.93E+05	2.90E+06	2.48E-04	15	1.50E+03	4.11E-03	1.77E-01	1.75E-04	2.58E-04
100467	1,4-Dichlorobenzene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.06E+05	6.93E+05	2.90E+06	2.48E-04	15	1.12E+04	8.89E-04	3.83E-02	1.75E-04	4.38E-04
85501	1,2-Dichlorobenzene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	2.73E+03	6.93E+05	2.90E+06	2.48E-04	15	1.21E+04	6.51E-07	2.37E-05	1.75E-04	3.94E-02
120221	1,2,4-Trichlorobenzene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.13E+08	6.93E+05	2.90E+06	2.48E-04	15	1.32E+04	4.35E-04	1.87E-02	1.75E-04	2.25E-04
100527	Benzaldehyde	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.74E+08	6.93E+05	2.90E+06	2.48E-04	15	1.53E+03	2.79E-05	9.84E-04	1.75E-04	1.95E-03
91576	Methylmaphthalene, 2-	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	8.61E+02	6.93E+05	2.90E+06	2.48E-04	15	1.51E+03	8.95E-04	3.81E-02	1.75E-04	3.13E-04
92524	Biphenyl, 1,1'	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	8.81E+04	6.93E+05	2.90E+06	2.48E-04	15	1.47E+03	2.85E-04	1.14E-02	1.75E-04	3.15E-04
206986	Acenaphthylene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.38E+03	6.93E+05	2.90E+06	2.48E-04	15	1.61E+03	2.45E-04	1.05E-02	1.75E-04	3.38E-04
83328	Acenaphthene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	8.09E+04	6.93E+05	2.90E+06	2.48E-04	15	1.61E+04	3.67E-06	1.89E-03	1.75E-04	7.33E-04
132949	Dibenzofuran	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	3.60E+01	6.93E+05	2.90E+06	2.48E-04	15	1.47E+03	3.51E-03	1.51E-01	1.75E-04	1.68E-04
86737	Fluorene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	2.97E+04	6.93E+05	2.90E+06	2.48E-04	15	1.62E+04	2.20E-08	8.48E-07	1.75E-04	8.18E-01
85018	Phenanthrene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.72E+03	6.93E+05	2.90E+06	2.48E-04	15	1.48E+03	1.14E-04	4.90E-03	1.75E-04	3.50E-04
120127	Anthracene	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	2.57E+03	6.93E+05	2.90E+06	2.48E-04	15	1.84E+04	1.78E-05	5.43E-04	1.75E-04	1.60E-03
CS-C8	CS-C8 Aliphatics	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.00E+03	6.93E+05	2.90E+06	2.48E-04	15	NA	6.48E-01	2.79E+01	1.75E-04	3.84E-04
CB-C12	CB-C12 Aliphatics	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.00E+03	6.93E+05	2.90E+06	2.48E-04	15	NA	7.80E-01	3.38E+01	1.75E-04	3.84E-04
CB-C10	CB-C10 Aromatics	1	0.130	0.659	1.82E-08	0.390	6.33E-09	6.55E+03	1.92E+06	6.93E+05	2.90E+06	2.48E-04	15	NA	3.98E-03	1.70E-01	1.75E-04	3.86E-04
CB-C18	CB-C18																	

Appendix C.4
 Johnson & Ettinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Adult Recreational - RME
 Southwest Properties, Wells G&H Superfund Site, Operate
 Murphy Waste Oil

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusion path length, L _d (cm)	Convection path length, L _c (cm)	Soil-water partition coefficient, K _d (cm ³ /g)	Source vapor conc., C _{soil} (µg/m ³)	Crack radius, r _{crack} (cm)	Average vapor flow rate into bldg., Q _{avg} (cm ³ /s)	Crack effective diffusion coefficient, D _{crack} (cm ² /s)	Area of crack, A _{crack} (cm ²)	Exponent of equivalent foundation Pavel number, exp(PaF)	Infinite source indoor attenuation coefficient, α (unitless)	Initial source bldg. conc., C _{soil} (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
96938	Trimethylbenzene, 1,2,4-	1	15	7.43E+00	2.82E+05	0.10	1.04E+01	4.77E-04	6.45E+02	1.29E+220	1.49E-05	3.89E+00	N/A	8.0E-03
540590	Dichloroethylene, 1,2- (total)	1	15	2.57E-01	2.17E+04	0.10	1.04E+01	3.77E-04	6.45E+02	3.28E+278	1.49E-05	3.21E-01	#N/A	#N/A
108878	Trimethylbenzene, 1,3,5-	1	15	3.34E+00	3.28E+05	0.10	1.04E+01	3.95E-04	6.45E+02	3.48E+265	1.49E-05	4.88E+00	N/A	6.0E-03
104518	n-Butylbenzene	1	15	5.02E+00	3.57E+04	0.10	1.04E+01	4.41E-04	6.45E+02	1.13E+238	1.49E-05	5.30E-01	#N/A	#N/A
91203	Naphthalene	1	15	4.00E+00	4.83E+03	0.10	1.04E+01	4.70E-04	6.45E+02	2.68E+223	1.49E-05	7.33E-02	N/A	3.0E-03
98878	Isopropyltoluene, 4-	1	15	3.18E+00	2.09E+06	0.10	1.04E+01	4.39E-04	6.45E+02	1.01E+239	1.49E-05	3.09E+01	N/A	4.0E-01
135988	Butylbenzene, sec-	1	15	6.22E+01	N/A	0.10	1.04E+01	4.88E-04	6.45E+02	8.44E+218	1.49E-05	N/A	#N/A	#N/A
74873	Chloromethane	1	15	2.86E-02	N/A	0.10	1.04E+01	7.89E-04	6.45E+02	1.39E+137	1.49E-05	N/A	N/A	8.0E-02
75014	Vinyl chloride	1	15	3.72E-02	N/A	0.10	1.04E+01	6.44E-04	6.45E+02	1.02E+183	1.49E-05	N/A	8.8E-06	1.0E-01
74839	Bromomethane	1	15	2.80E-02	N/A	0.10	1.04E+01	4.48E-04	6.45E+02	1.36E+234	1.49E-05	N/A	N/A	5.0E-03
75003	Ethyl Chloride	1	15	2.86E-02	N/A	0.10	1.04E+01	7.89E-04	6.45E+02	1.39E+137	1.49E-05	N/A	N/A	1.0E+01
75354	1,1-Dichloroethylene	1	15	1.18E-01	2.72E+03	0.10	1.04E+01	5.47E-04	6.45E+02	8.08E+191	1.49E-05	4.05E-02	N/A	2.0E-01
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	15	4.50E-01	N/A	0.10	1.04E+01	1.75E-04	6.45E+02	#NUM!	1.47E-06	N/A	N/A	3.0E+01
87841	Acetone	1	15	1.15E-03	6.38E+03	0.10	1.04E+01	2.07E-03	6.45E+02	6.83E+50	1.50E-05	8.05E-02	N/A	N/A
75150	Carbon Disulfide	1	15	1.03E-01	N/A	0.10	1.04E+01	6.34E-04	6.45E+02	2.87E+166	1.49E-05	N/A	N/A	7.0E-01
78209	Methyl Acetate	1	15	6.84E-03	N/A	0.10	1.04E+01	8.81E-04	6.45E+02	8.20E+121	1.49E-05	N/A	#N/A	#N/A
75082	Methylene chloride	1	15	2.34E-02	4.44E+05	0.10	1.04E+01	6.35E-04	6.45E+02	2.18E+165	1.49E-05	8.82E+00	4.7E-07	3.0E+00
156905	trans-1,2-Dichloroethylene	1	15	1.05E-01	3.33E+05	0.10	1.04E+01	4.32E-04	6.45E+02	1.43E+243	1.49E-05	4.95E+00	N/A	2.0E-01
1634044	Methyl-Tertiary-Butyl Ether	1	15	7.88E-02	N/A	0.10	1.04E+01	6.87E-04	6.45E+02	2.47E+157	1.49E-05	N/A	N/A	3.0E+00
75343	1,1-Dichloroethane	1	15	6.32E-02	1.47E+05	0.10	1.04E+01	4.68E-04	6.45E+02	1.67E+229	1.49E-05	2.19E+00	N/A	5.0E-01
156892	cis-1,2-Dichloroethylene	1	15	7.10E-02	3.15E+08	0.10	1.04E+01	4.69E-04	6.45E+02	7.49E+228	1.49E-05	4.88E+01	N/A	2.0E-01
78933	Butanone, 2- (MEK)	1	15	7.08E-03	N/A	0.10	1.04E+01	6.85E-04	6.45E+02	1.09E+111	1.49E-05	N/A	N/A	N/A
71698	1,1,1-Trichloroethane	1	15	2.20E-01	3.02E+05	0.10	1.04E+01	4.75E-04	6.45E+02	9.58E+220	1.49E-05	4.49E+00	N/A	2.2E+00
110827	Cyclohexane	1	15	3.20E-01	N/A	0.10	1.04E+01	4.85E-04	6.45E+02	3.37E+218	1.49E-05	N/A	#N/A	#N/A
71432	Benzene	1	15	1.18E-01	8.80E+04	0.10	1.04E+01	5.42E-04	6.45E+02	6.73E+183	1.49E-05	1.31E+00	7.8E-08	3.0E-02
78018	Trichloroethylene	1	15	3.82E-01	8.88E+04	0.10	1.04E+01	4.83E-04	6.45E+02	2.03E+217	1.49E-05	1.28E+00	1.1E-04	4.0E-02
108872	Methyl cyclohexane	1	15	6.38E-01	N/A	0.10	1.04E+01	6.98E-04	6.45E+02	4.68E+175	1.49E-05	N/A	N/A	3.0E+00
108883	Toluene	1	15	3.84E-01	1.87E+06	0.10	1.04E+01	6.34E-04	6.45E+02	4.07E+196	1.49E-05	2.78E+00	N/A	4.0E-01
127184	TetraChloroethylene	1	15	3.10E-01	1.85E+06	0.10	1.04E+01	4.39E-04	6.45E+02	1.82E+239	1.49E-05	2.79E+00	N/A	N/A
108907	Chlorobenzene	1	15	4.38E-01	N/A	0.10	1.04E+01	4.55E-04	6.45E+02	3.97E+230	1.49E-05	N/A	N/A	6.0E-02
100414	Ethylbenzene	1	15	7.26E-01	9.78E+04	0.10	1.04E+01	4.80E-04	6.45E+02	1.44E+228	1.49E-05	1.45E+00	N/A	1.0E+00
1330207	Xylenes	1	15	4.82E-01	N/A	0.10	1.04E+01	3.75E-03	6.45E+02	1.01E+28	1.50E-05	N/A	N/A	1.0E-01
100425	Styrene	1	15	1.65E+00	N/A	0.10	1.04E+01	4.47E-04	6.45E+02	6.29E+234	1.49E-05	N/A	#N/A	#N/A
98528	Isopropylbenzene	1	15	1.86E+01	N/A	0.10	1.04E+01	3.95E-04	6.45E+02	3.76E+285	1.49E-05	N/A	N/A	4.0E-01
79345	1,1,2,2-Tetrachloroethane	1	15	1.87E-01	N/A	0.10	1.04E+01	5.65E-04	6.45E+02	6.21E+185	1.49E-05	N/A	#N/A	#N/A
541731	Dichlorobenzene, 1,3-	1	15	3.40E-01	N/A	0.10	1.04E+01	2.56E-04	6.45E+02	#NUM!	1.48E-05	N/A	N/A	N/A
106467	1,4-Dichlorobenzene	1	15	1.23E+00	N/A	0.10	1.04E+01	4.39E-04	6.45E+02	2.83E+239	1.49E-05	N/A	N/A	8.0E-01
96501	1,2-Dichlorobenzene	1	15	1.07E-01	1.72E+02	0.10	1.04E+01	3.94E-02	6.45E+02	4.64E+02	1.50E-05	2.59E-03	N/A	N/A
120821	1,2,4-Trichlorobenzene	1	15	3.66E+00	N/A	0.10	1.04E+01	2.25E-04	6.45E+02	#NUM!	1.47E-05	N/A	N/A	2.0E-01
100627	Benzaldehyde	1	15	8.54E-02	N/A	0.10	1.04E+01	1.35E-03	6.45E+02	8.27E+77	1.50E-05	N/A	#N/A	#N/A
91578	Methylnaphthalene, 2-	1	15	1.70E+01	1.88E+03	0.10	1.04E+01	3.18E-04	6.45E+02	#NUM!	1.48E-05	2.79E-02	N/A	3.0E-03
92524	Biphenyl, 1,1'-	1	15	1.26E+01	N/A	0.10	1.04E+01	3.15E-04	6.45E+02	#NUM!	1.48E-05	N/A	N/A	N/A
205628	Azarnaphthene	1	15	9.37E+00	1.50E+03	0.10	1.04E+01	3.36E-04	6.45E+02	#NUM!	1.48E-05	2.22E-02	N/A	3.0E-03
83320	Azarnaphthene	1	15	1.42E+01	N/A	0.10	1.04E+01	7.33E-04	6.45E+02	1.38E+143	1.49E-05	N/A	N/A	3.0E-03
132848	Dibenzofuran	1	15	1.83E+01	3.21E+32	0.10	1.04E+01	1.69E-04	6.45E+02	#NUM!	1.48E-05	4.70E-03	N/A	N/A
98737	Fluorene	1	15	1.54E+01	N/A	0.10	1.04E+01	8.18E-01	6.45E+02	1.34E+30	5.85E-05	N/A	N/A	3.0E-03
85018	Phenanthrene	1	15	2.83E+01	2.98E+02	0.10	1.04E+01	3.50E-04	6.45E+02	2.10E+300	1.48E-05	4.42E-03	N/A	3.0E-03
120127	Anthracene	1	15	5.90E+01	N/A	0.10	1.04E+01	1.80E-03	6.45E+02	6.32E+85	1.60E-05	N/A	N/A	3.0E-03
CS-C6	CS-C6 Aliphatics	1	15	4.53E+00	3.90E+06	0.10	1.04E+01	3.84E-04	6.45E+02	4.61E+288	1.48E-05	5.78E+01	N/A	2.0E-01
CB-C12	CB-C12 Aliphatics	1	15	3.00E+02	1.11E+05	0.10	1.04E+01	3.84E-04	6.45E+02	4.87E+288	1.48E-05	1.84E+00	N/A	2.0E-01
CB-C10	CB-C10 Aromatics	1	15	3.58E+00	N/A	0.10	1.04E+01	3.95E-04	6.45E+02	1.62E+284	1.48E-05	N/A	N/A	6.0E-02
CB-C18	CB-C18 Aliphatics	1	15	1.38E+03	N/A	0.10	1.04E+01	3.84E-04	6.45E+02	4.88E+288	1.48E-05	N/A	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	1	15	1.00E+01	8.26E+08	0.10	1.04E+01	4.27E-04	6.45E+02	7.62E+245	1.49E-05	1.23E+02	N/A	6.0E-02

Appendix C.4
Johnson & Ettinger Model - Data Entry Screen
Inhalation of Volatiles from Soil
Future Adult Recreational - RME
Southwest Properties, Wells G&H Superfund Site, Operable Unit 2
Murphy Waste Oil

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

INCREMENTAL RISK CALCULATIONS:

Chemical CAS No. (numbers only, no dashes)	Chemical	Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C _{soil} (µg/kg)	Final indoor exposure soil conc., (µg/kg)	Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
95836	Trimethylbenzene, 1,2,4-	NA	NA	NA	4.36E+03	NA	NA	1.4E-02
540590	Dichloroethylene, 1,2- (total)	NA	NA	NA	5.98E+02	NA	NA	NA
108678	Trimethylbenzene, 1,3,5-	NA	NA	NA	7.13E+04	NA	NA	1.8E-02
104518	n-Butylbenzene	NA	NA	NA	6.63E+03	NA	NA	NA
91203	Naphthalene	NA	NA	NA	1.30E+05	NA	NA	5.4E-04
99878	Isopropyltoluene, 4-	NA	NA	NA	7.31E+03	NA	NA	1.7E-03
135988	Butylbenzene, sec-	NA	NA	NA	1.10E+09	NA	NA	NA
74873	Chloromethane	NA	NA	NA	1.37E+08	NA	NA	NA
75014	Vinyl chloride	NA	NA	NA	8.33E+05	NA	NA	NA
74839	Bromomethane	NA	NA	NA	3.69E+06	NA	NA	NA
75003	Ethyl Chloride	NA	NA	NA	1.37E+06	NA	NA	NA
75354	1,1-Dichloroethylene	NA	NA	NA	8.39E+05	NA	NA	4.5E-06
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	NA	NA	NA	3.89E+05	NA	NA	NA
87641	Acetone	NA	NA	NA	2.01E+08	NA	NA	NA
73150	Carbon Dioxide	NA	NA	NA	8.78E+05	NA	NA	NA
78209	Methyl Acetate	NA	NA	NA	3.03E+07	NA	NA	NA
75082	Methylene chloride	NA	NA	NA	2.99E+06	NA	2.4E-08	4.8E-05
156805	trans-1,2-Dichloroethylene	NA	NA	NA	2.13E+08	NA	NA	5.5E-04
1634044	Methyl-Tertiary-Butyl Ether	NA	NA	NA	1.42E+07	NA	NA	NA
75343	1,1-Dichloroethane	NA	NA	NA	1.39E+06	NA	NA	9.8E-05
156592	cis-1,2-Dichloroethylene	NA	NA	NA	9.75E+05	NA	NA	3.2E-03
78933	Bulaxone, 2- (MEK)	NA	NA	NA	4.63E+07	NA	NA	NA
71556	1,1,1-Trichloroethane	NA	NA	NA	8.01E+05	NA	NA	4.5E-05
110827	Cyclohexane	NA	NA	NA	3.88E+05	NA	NA	NA
71432	Benzene	NA	NA	NA	5.74E+09	NA	7.8E-08	9.7E-04
78016	Trichloroethylene	NA	NA	NA	8.05E+05	NA	1.0E-06	8.0E-04
108972	Methyl cyclohexane	NA	NA	NA	2.95E+04	NA	NA	NA
108883	Toluene	NA	NA	NA	3.02E+09	NA	NA	1.6E-04
127184	Tetrachloroethylene	NA	NA	NA	1.08E+05	NA	1.3E-07	NA
108907	Chlorobenzene	NA	NA	NA	3.04E+05	NA	NA	NA
100414	Ethylbenzene	NA	NA	NA	1.58E+05	NA	NA	3.2E-05
1330207	Xylenes	NA	NA	NA	1.50E+05	NA	NA	NA
100425	Styrene	NA	NA	NA	5.44E+05	NA	NA	NA
98828	Isopropylbenzene	NA	NA	NA	1.06E+06	NA	NA	NA
78345	1,1,2,2-Tetrachloroethane	NA	NA	NA	1.15E+06	NA	NA	NA
541731	Dichlorobenzene, 1,3-	NA	NA	NA	3.82E+04	NA	NA	NA
108487	1,4-Dichlorobenzene	NA	NA	NA	1.08E+05	NA	NA	NA
95501	1,2-Dichlorobenzene	NA	NA	NA	8.53E+06	NA	NA	NA
120821	1,2,4-Trichlorobenzene	NA	NA	NA	1.13E+06	NA	NA	NA
100527	Benzaldehyde	NA	NA	NA	1.74E+06	NA	NA	NA
91576	Methylnaphthalene, 2-	NA	NA	NA	4.24E+05	NA	NA	2.1E-04
92524	Biphenyl, 1,1'-	NA	NA	NA	8.81E+04	NA	NA	NA
208988	Acenaphthylene	NA	NA	NA	3.84E+04	NA	NA	1.6E-04
93329	Acenaphthene	NA	NA	NA	8.09E+04	NA	NA	NA
152849	Dibenzofuran	NA	NA	NA	1.85E+05	NA	NA	NA
88737	Fluorene	NA	NA	NA	2.87E+04	NA	NA	NA
85018	Phenanthrene	NA	NA	NA	3.84E+04	NA	NA	3.3E-05
120127	Anthracene	NA	NA	NA	2.57E+03	NA	NA	NA
CS-C8	CS-C8 Aliphatics	NA	NA	NA	7.86E+07	NA	NA	8.4E-03
C9-C12	C9-C12 Aliphatics	NA	NA	NA	2.12E+07	NA	NA	1.8E-04
C9-C10	C9-C10 Aromatics	NA	NA	NA	1.82E+08	NA	NA	NA
C9-C18	C9-C18 Aliphatics	NA	NA	NA	1.98E+07	NA	NA	NA
C11-C22	C11-C22 Aromatics	NA	NA	NA	5.82E+07	NA	NA	5.5E-02

95% UCL
Cancer Risk
TOTAL: 1E-06

95% UCL
HI
1E-01

☐ = Cancer risk > 1E-05
or HQ/HI > 1E+00

Trimethylbenzene, 1,2,4-
Dichloroethylene, 1,2- (total)
Trimethylbenzene, 1,3,5-
n-Butylbenzene
Naphthalene
Isopropyltoluene, 4-
Butylbenzene, sec-
Chloromethane
Vinyl chloride
Bromomethane
Ethyl Chloride
1,1-Dichloroethylene
Trichloro-1,2,2-trifluoroethane, 1,1,2-
MESSAGE: Soil conc. >= saturation (C_{soil}). Risk/HQ calculated at C_{soil}.
MESSAGE: Soil conc. >= saturation (C_{soil}). Risk/HQ calculated at C_{soil}.
MESSAGE: Soil conc. >= saturation (C_{soil}). Risk/HQ calculated at C_{soil}.
MESSAGE: Soil conc. >= saturation (C_{soil}). Risk/HQ calculated at C_{soil}.
MESSAGE: Soil conc. >= saturation (C_{soil}). Risk/HQ calculated at C_{soil}.
MESSAGE: Soil conc. >= saturation (C_{soil}). Risk/HQ calculated at C_{soil}.
MESSAGE: Soil conc. >= saturation (C_{soil}). Risk/HQ calculated at C_{soil}.

Appendix C.4
Johnson & Johnson Model - Class Entry Screen
Inhalation of Volatiles from Soil
Future Adult Recreational Scenario - CF
Boulevard Promenade, Wells 24M Superfund Site, Operable Unit 2
Marsh Water 04

CALCULATE RISK-BASED SOIL CONCENTRATION (enter "X" in "YES" box)

SL-SCREEN
Version 2.3 (03/01)

YES

OR

CALCULATE INCREMENTAL RISKS FROM ACTUAL SOIL CONCENTRATION (enter "X" in "YES" box and initial soil conc. below)

YES

ENTER Chemical CAS No. (numbers only, no dashes)	ENTER CAS No. (numbers only, no dashes)	ENTER Soil conc. CR (µg/g)	ENTER Soil depth to bottom of unexcavated soils floor (ft or 300 cm)	ENTER Depth below grade to top of contamination L1 (ft)	ENTER Average soil temperature T _a (°C)	ENTER Volume zone EGZ used to estimate soil vapor concentration L _v (m ³)	ENTER Use-adjusted volume zone and vapor density L _v (m ³)	ENTER Volume zone EGZ bulk density ρ _b (g/cm ³)	ENTER Volume zone soil total porosity τ _v (unitless)	ENTER Volume zone soil water-filled porosity τ _w (unitless)	ENTER Volume zone soil organic carbon fraction f _{oc} (unitless)	ENTER Air volume time for contaminants ATD (hr)	ENTER Exposure duration ED (hr)	ENTER Exposure frequency EF (days/yr)	ENTER Exposure time ET (hr/yr)	ENTER Conversion factor CF (µg/L)	ENTER Risk factor for carcinogens TR (unitless)	ENTER Target Risk value for carcinogens TR ₀ (unitless)
95636	1828-03	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
540900	119E+03	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
100678	430E+03	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
104518	130E+03	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
81203	319E+03	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
99878	169E+02	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
135880	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
74873	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
75014	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
74839	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
75023	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
75354	169E+00	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
78131	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
87841	127E+03	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
79180	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
79209	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
79209	301E+03	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
15995	314E+02	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
163404	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
75343	329E+02	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
156592	383E+02	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
78933	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
71528	372E+02	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
110337	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
71432	249E+02	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
79018	223E+02	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
108872	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
108883	866E+02	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
127184	839E+01	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
108907	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
109414	870E+02	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
133207	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
100428	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
99320	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
79345	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
541731	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
106487	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
95501	323E+03	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
120821	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
100027	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
81978	851E+02	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
82524	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
206968	138E+03	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
83328	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
130648	190E+01	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
80737	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
82514	179E+03	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
120127	18	10	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
CS-C8	100E+03	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
CS-C12	100E+03	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
CS-C10	100E+03	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
CS-C18	100E+03	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1
G11-G22	844E+03	18	10	10	10	1.0	1.0	0.43	0.3	0.002	70	7	7	28	2.8	8700	1.0E-08	1

Note: 1) Default soil parameters from table 7 of Users Guide for Evaluating Subsurface Vapor Intrusion into Buildings (U.S. EPA, June 16, 2003) were used for soil water-filled porosity (τ_w), soil organic carbon fraction (f_{oc}), soil total porosity (τ_v), and soil dry bulk density (ρ_b).

Appendix C.4
 Johnson & Ettinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Adult Recreational Scenario - CT
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2
 Murphy Waste Oil

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, D _a (cm ² /s)	Diffusivity in water, D _w (cm ² /s)	Henry's law constant at reference temperature, H (atm·m ³ /mol)	Henry's law constant reference temperature, T _R (°C)	Enthalpy of vaporization at the normal boiling point, ΔH _{v,b} (cal/mol)	Normal boiling point, T _B (°K)	Critical temperature, T _C (°K)	Organic carbon partition coefficient, K _{oc} (cm ³ /g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF (μg/m ³) ⁻¹	Reference conc., R/C (mg/m ³)	Physical state at soil temperature, (S,L,G)
95636	Trimethylbenzene, 1,2,4-	7.80E-02	9.03E-06	5.70E-03	25	1.25E+03	442.30	649.11	3.72E+03	5.70E+01	N/A	6.0E-03	L
540590	Dichloroethylene, 1,2- (total)	5.59E-02	6.47E-06	4.30E-04	20	1.32E+03	585.00	877.50	1.28E+02	1.30E+00	#N/A	#N/A	0.0E+00
106678	Trimethylbenzene, 1,3,5-	6.48E-02	7.86E-06	7.81E-03	25	1.25E+03	442.30	649.11	1.67E+03	2.00E+01	N/A	6.0E-03	L
104518	n-Butylbenzene	7.25E-02	8.39E-06	1.25E-02	25	1.23E+03	456.00	684.00	2.51E+03	1.26E+00	#N/A	#N/A	L
91203	Naphthalene	5.90E-02	7.50E-06	4.83E-04	25	1.04E+04	491.14	748.40	2.00E+03	3.10E+01	N/A	3.0E-03	S
99876	Isopropyltoluene, 4-	7.25E-02	8.39E-06	8.60E+00	25	1.24E+03	450.10	652.04	1.58E+03	2.34E+01	N/A	4.0E-01	L
135988	Butylbenzene, sec-	8.00E-02	8.00E-06	1.67E-02	25	1.24E+03	446.65	669.98	3.11E+04	1.78E+01	#N/A	#N/A	0.0E+00
74873	Chloromethane	1.26E-01	6.50E-06	8.67E-03	25	1.35E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	9.0E-02	0.0E+00
75014	Vinyl chloride	1.06E-01	1.23E-05	2.71E-02	25	5.25E+03	259.25	432.00	1.86E+01	2.78E+03	8.8E-06	1.0E-01	L
74839	Bromomethane	7.28E-02	1.21E-05	6.22E-03	25	5.49E+03	276.50	414.75	1.43E+01	1.52E+04	N/A	5.0E-03	0.0E+00
76003	Ethyl Chloride	1.26E-01	6.50E-06	8.67E-03	25	1.36E+03	249.00	373.50	1.43E+01	5.32E+03	N/A	1.0E+01	L
75354	1,1-Dichloroethylene	9.00E-02	1.04E-05	2.61E-02	25	6.25E+03	304.75	576.05	5.89E+01	2.25E+03	N/A	2.0E-01	L
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	2.88E-02	8.07E-06	5.17E-01	25	1.33E+03	320.70	481.05	2.25E+02	1.70E+02	N/A	3.0E+01	0.0E+00
67641	Acetone	1.24E-01	1.14E-05	3.88E-05	25	6.96E+03	329.20	508.10	5.75E-01	1.00E+06	N/A	N/A	L
75150	Carbon Disulfide	1.04E-01	1.29E-05	1.27E-02	25	6.39E+03	319.00	552.00	5.14E+01	2.67E+03	N/A	7.0E-01	L
79209	Methyl Acetate	1.04E-01	1.00E-05	1.13E-04	25	1.31E+03	365.00	547.50	3.32E+00	2.43E+05	#N/A	#N/A	0.0E+00
75092	Methylene chloride	1.01E-01	1.17E-05	2.19E-03	25	6.71E+03	313.00	510.00	1.17E+01	1.30E+04	4.7E-07	3.0E+00	L
156605	trans-1,2-Dichloroethylene	7.07E-02	1.19E-05	9.39E-03	25	1.33E+03	320.85	516.50	5.25E+01	6.30E+03	N/A	2.0E-01	L
1634044	Methyl-Tertiary-Butyl Ether	1.02E-01	1.05E-05	5.87E-04	25	1.32E+03	328.36	497.11	3.84E+01	5.10E+04	N/A	3.0E+00	L
76343	1,1-Dichloroethane	7.42E-02	1.05E-05	5.81E-03	25	6.90E+03	330.55	523.00	3.16E+01	5.06E+03	N/A	5.0E-01	L
156592	cis-1,2-Dichloroethylene	7.36E-02	1.13E-05	4.07E-03	25	7.19E+03	333.65	544.00	3.55E+01	3.50E+03	N/A	2.0E-01	L
78933	Butanone, 2- (MEK)	8.08E-02	9.80E-06	5.60E-05	25	1.31E+03	352.50	528.75	3.83E+00	2.23E+05	N/A	N/A	0.0E+00
71556	1,1,1-Trichloroethane	7.80E-02	8.80E-06	1.72E-02	25	7.14E+03	347.24	545.00	1.10E+02	1.33E+03	N/A	2.2E+00	L
110827	Cyclohexane	8.00E-02	9.00E-06	2.00E+00	25	1.31E+03	353.85	530.78	1.60E+02	5.50E+01	#N/A	#N/A	0.0E+00
71432	Benzene	8.80E-02	9.80E-06	5.56E-03	25	7.34E+03	353.24	562.16	5.89E+01	1.75E+03	7.8E-06	3.0E-02	L
79016	Trichloroethylene	7.90E-02	9.10E-06	1.03E-02	25	7.51E+03	360.36	544.20	1.68E+02	1.10E+03	1.1E-04	4.0E-02	L
108872	Methyl cyclohexane	9.86E-02	8.52E-06	4.23E-01	25	1.30E+03	373.90	560.85	2.68E+02	1.40E+01	N/A	3.0E+00	L
108983	Toluene	8.70E-02	8.60E-06	6.63E-03	25	7.93E+03	383.78	591.79	1.82E+02	5.26E+02	N/A	4.0E-01	L
127184	Tetrachloroethylene	7.20E-02	8.20E-06	1.84E-02	25	8.29E+03	394.40	620.20	1.55E+02	2.00E+02	5.9E-06	N/A	L
108907	Chlorobenzene	7.30E-02	8.70E-06	3.71E-03	25	8.41E+03	404.87	632.40	2.19E+02	4.72E+02	N/A	6.0E-02	L
100414	Ethylbenzene	7.50E-02	7.80E-06	7.88E-03	25	8.50E+03	409.34	617.20	3.63E+02	1.69E+02	N/A	1.0E+00	L
1330207	Xylenes	7.69E-02	8.44E-06	6.73E-06	25	1.26E+03	417.40	616.21	2.41E+02	2.20E+02	N/A	1.0E-01	L
100425	Styrene	7.10E-02	8.00E-06	2.76E-03	25	8.74E+03	418.31	636.00	7.76E+02	3.10E+02	#N/A	#N/A	L
98828	Isopropylbenzene	6.50E-02	7.83E-06	1.47E-02	25	1.26E+03	425.40	631.01	9.31E+03	5.60E+01	N/A	4.0E-01	L
79345	1,1,2,2-Tetrachloroethane	7.10E-02	7.90E-06	3.44E-04	25	9.00E+03	419.60	661.15	9.33E+01	2.97E+03	#N/A	#N/A	L
541731	Dichlorobenzene, 1,3-	4.14E-02	8.85E-06	4.70E-03	25	1.24E+03	446.00	683.96	1.70E+02	6.88E+01	N/A	N/A	L
106467	1,4-Dichlorobenzene	6.90E-02	7.80E-06	2.43E-03	25	9.27E+03	447.21	684.75	6.17E+02	7.38E+01	N/A	8.0E-01	S
95501	1,2-Dichlorobenzene	6.88E-02	9.41E-06	1.62E-06	25	9.70E+03	465.00	697.50	5.34E+01	2.77E+04	N/A	N/A	S
120821	1,2,4-Trichlorobenzene	3.00E-02	8.23E-06	1.42E-03	25	1.05E+04	486.15	725.00	1.78E+03	3.00E+02	N/A	2.0E-01	L
100527	Benzaldehyde	7.30E-02	9.07E-06	2.62E-05	25	1.24E+03	452.00	678.00	3.27E+01	6.57E+03	#N/A	#N/A	0.0E+00
91576	Methylnaphthalene, 2-	4.84E-02	7.75E-06	1.01E-03	25	1.17E+03	514.05	761.01	8.51E+03	2.46E+01	N/A	3.0E-03	S
92524	Biphenyl, 1,1'-	4.04E-02	8.15E-06	3.03E-04	25	1.15E+03	529.10	793.65	6.25E+03	6.94E+00	N/A	N/A	0.0E+00
208968	Acenaphthylene	4.43E-02	7.44E-06	2.80E-04	25	1.12E+03	553.00	792.01	4.79E+03	3.93E+00	N/A	3.0E-03	S
83329	Acenaphthene	4.21E-02	7.69E-06	1.55E-04	25	1.22E+04	550.54	803.15	7.08E+03	4.24E+00	N/A	3.0E-03	S
132649	Dibenzofuran	2.67E-02	5.93E-06	4.00E-03	25	1.11E+03	559.00	824.01	8.13E+03	1.00E+01	N/A	N/A	S
86737	Fluorene	3.63E-02	7.88E-06	9.41E-08	25	1.27E+04	570.44	870.00	7.71E+03	1.90E+00	N/A	3.0E-03	S
85018	Phenanthrene	3.30E-02	7.47E-06	1.30E-04	25	1.06E+03	613.00	869.01	1.41E+04	1.28E+00	N/A	3.0E-03	S
120127	Anthracene	3.24E-02	7.74E-06	6.51E-05	25	1.31E+04	615.18	873.00	2.95E+04	4.34E-02	N/A	3.0E-03	S
C5-C8	C5-C8 Aliphatics	6.00E-02	1.00E-05	1.30E+00	25	NA	NA	NA	NA	2.27E+03	1.10E+04	2.0E-01	S
C9-C12	C9-C12 Aliphatics	6.00E-02	1.00E-05	1.58E+00	25	NA	NA	NA	1.50E+05	7.00E+01	N/A	2.0E-01	S
C9-C10	C9-C10 Aromatics	6.00E-02	1.00E-05	7.92E-03	25	NA	NA	NA	1.78E+03	5.10E+04	N/A	5.0E-02	S
C9-C18	C9-C18 Aliphatics	6.00E-02	1.00E-05	1.66E+00	25	NA	NA	NA	6.80E+05	1.00E+01	N/A	2.0E-01	S
C11-C22	C11-C22 Aromatics	6.00E-02	1.00E-05	7.32E-04	25	NA	NA	NA	5.00E+03	5.80E+03	N/A	5.0E-02	S

Chemical CAS No. (numbers only, no dashes)	Chemical	Source-building separation, LT (cm)	Vadose zone soil air-filled porosity, θ_v (cm^3/cm^3)	Vadose zone effective total fluid saturation, S_w (cm^3/cm^3)	Vadose zone soil intrinsic permeability, k_i (cm^2)	Vadose zone soil relative air permeability, k_{ra} (cm^2)	Vadose zone soil effective vapor permeability, k_v (cm^2)	Floor-wall seam perimeter, Xcrack (cm)	Initial soil concentration used, CR ($\mu\text{g}/\text{kg}$)	Bldg ventilation rate, Q_{vent} (cm^3/s)	Area of enclosed space below grade, A_g (cm^2)	Crack-to-total area ratio, η (unitless)	Crack depth below grade, Z_{crack} (cm)	Enthalpy of vaporization at ave. soil temperature, ΔH_{T_s} (cal/mol)	Henry's law constant at ave. soil temperature, H_{T_s} (atm-m ³ /mol)	Henry's law constant at ave. soil temperature, HTS (unitless)	Vapor viscosity at ave. soil temperature, μ_{T_s} (g/cm-s)	Vadose zone effective diffusion coefficient, D_{eff} (cm^2/s)
95636	Trimethylbenzene, 1,2,4-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.85E+03	8.93E+06	2.60E+06	2.48E-04	15	1.56E+03	4.98E-03	2.13E-01	1.76E-04	4.77E-04
940590	Dichloroethylene, 1,2- (total)	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	6.96E+02	8.93E+06	2.60E+06	2.48E-04	15	1.73E+03	3.87E-04	1.07E-02	1.75E-04	3.77E-04
109676	Trimethylbenzene, 1,3,5-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	4.00E+03	8.93E+06	2.60E+06	2.48E-04	15	1.56E+03	6.50E-03	2.03E-01	1.75E-04	3.95E-04
104616	n-Butylbenzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.89E+02	8.93E+06	2.60E+06	2.48E-04	15	1.53E+03	1.06E-02	4.69E-01	1.75E-04	4.41E-04
91203	Naphthalene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	3.18E+03	8.93E+06	2.60E+06	2.48E-04	15	1.29E+04	1.62E-04	6.56E-03	1.75E-04	4.70E-04
96976	Isopropyltoluene, 4-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.58E+02	8.93E+06	2.60E+06	2.48E-04	15	1.57E+03	7.48E+00	3.22E+02	1.75E-04	4.39E-04
135998	Butylbenzene, sec-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.10E+06	8.93E+06	2.60E+06	2.48E-04	15	1.53E+03	1.46E-02	6.27E-01	1.75E-04	4.86E-04
74873	Chloromethane	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.37E+00	8.93E+06	2.60E+06	2.48E-04	15	1.53E+03	1.46E-02	6.27E-01	1.75E-04	4.86E-04
75014	Vinyl chloride	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	8.33E+05	8.93E+06	2.60E+06	2.48E-04	15	1.20E+03	7.78E-03	3.36E-01	1.75E-04	7.86E-04
74839	Bromomethane	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	3.89E+06	4.93E+05	2.60E+06	2.48E-04	15	6.00E+03	1.73E-02	7.49E-01	1.75E-04	6.44E-04
75003	Ethyl Chloride	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.37E+06	8.93E+06	2.60E+06	2.48E-04	15	6.39E+03	3.64E-03	1.85E-01	1.75E-04	4.45E-04
75354	1,1-Dichloroethylene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.60E+00	8.93E+06	2.60E+06	2.48E-04	15	1.20E+03	7.78E-03	3.36E-01	1.75E-04	7.86E-04
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.60E+00	8.93E+06	2.60E+06	2.48E-04	15	8.39E+03	1.47E-02	8.34E-01	1.75E-04	5.47E-04
87841	Acetone	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	3.99E+06	8.93E+06	2.60E+06	2.48E-04	15	1.44E+03	4.66E-01	1.9E+01	1.75E-04	1.75E-04
75150	Carbon Disulfide	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.27E+03	8.93E+06	2.60E+06	2.48E-04	15	7.66E+03	1.07E+05	8.50E-04	1.75E-04	2.07E-03
79209	Methyl Acetate	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	8.78E+06	8.93E+06	2.60E+06	2.48E-04	15	6.08E+03	6.99E-03	3.01E-01	1.75E-04	6.34E-04
75092	Methylene chloride	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	6.03E+07	8.93E+06	2.60E+06	2.48E-04	15	1.60E+03	9.88E-05	4.25E-03	1.75E-04	6.16E-04
156606	trans-1,2-Dichloroethylene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	2.01E+03	8.93E+06	2.60E+06	2.48E-04	15	7.03E+03	1.17E-03	6.03E-02	1.75E-04	6.35E-04
163404	Methyl-Tertiary-Butyl Ether	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	3.14E+02	8.93E+06	2.60E+06	2.48E-04	15	1.42E+03	8.27E-03	3.66E-01	1.75E-04	4.38E-04
76343	1,1-Dichloroethane	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.42E+07	8.93E+06	2.60E+06	2.48E-04	15	1.45E+03	5.16E-04	2.22E-02	1.75E-04	6.07E-04
166582	cis-1,2-Dichloroethylene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	3.82E+02	8.93E+06	2.60E+06	2.48E-04	15	7.45E+03	2.88E-03	1.24E-01	1.75E-04	4.58E-04
78833	Butanone, 2- (MEK)	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	4.83E+07	8.93E+06	2.60E+06	2.48E-04	15	7.73E+03	2.04E-03	8.77E-02	1.75E-04	4.59E-04
71556	1,1,1-Trichloroethane	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	3.73E+02	8.93E+06	2.60E+06	2.48E-04	15	1.49E+03	4.30E-05	2.11E-03	1.75E-04	9.45E-04
110827	Cyclohexane	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	3.86E+05	8.93E+06	2.60E+06	2.48E-04	15	1.49E+03	8.50E-03	3.66E-01	1.75E-04	2.75E-04
71432	Benzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	2.49E+02	8.93E+06	2.60E+06	2.48E-04	15	1.40E+03	1.75E+00	7.64E+01	1.75E-04	9.95E-04
79016	Trichloroethylene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	2.23E+02	8.93E+06	2.60E+06	2.48E-04	15	7.88E+03	2.69E-03	1.18E-01	1.75E-04	5.42E-04
109872	Methyl cyclohexane	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	2.96E+04	8.93E+06	2.60E+06	2.48E-04	15	8.56E+03	4.79E-03	2.05E-01	1.75E-04	4.83E-04
109883	Toluene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	2.96E+04	8.93E+06	2.60E+06	2.48E-04	15	1.51E+03	3.70E-01	1.59E+01	1.75E-04	6.96E-04
127124	Tetrachloroethylene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	8.55E+02	8.93E+06	2.60E+06	2.48E-04	15	9.15E+03	2.92E-03	1.26E-01	1.75E-04	5.34E-04
109907	Chlorobenzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	9.82E+01	8.93E+06	2.60E+06	2.48E-04	15	9.55E+03	7.83E-03	3.37E-01	1.75E-04	3.98E-04
100414	Ethylbenzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	3.04E+05	8.93E+06	2.60E+06	2.48E-04	15	9.80E+03	1.54E-03	6.85E-02	1.75E-04	4.55E-04
1330207	Xylenes	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	6.70E+02	8.93E+06	2.60E+06	2.48E-04	15	1.02E+04	3.16E-03	1.37E-01	1.75E-04	4.60E-04
190425	Styrene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.60E+06	8.93E+06	2.60E+06	2.48E-04	15	1.54E+03	6.88E-06	2.52E-04	1.75E-04	3.75E-03
96823	Isopropylbenzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	5.44E+05	8.93E+06	2.60E+06	2.48E-04	15	1.05E+04	1.06E-03	4.87E-02	1.75E-04	4.47E-04
79345	1,1,2,2-Tetrachloroethane	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.08E+06	8.93E+06	2.60E+06	2.48E-04	15	1.54E+03	1.28E-02	5.61E-01	1.75E-04	3.95E-04
841731	Dichlorobenzene, 1,3-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.15E+08	8.93E+06	2.60E+06	2.48E-04	15	1.06E+04	1.34E-04	5.77E-03	1.75E-04	6.95E-04
106407	1,4-Dichlorobenzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	3.82E+04	8.93E+06	2.60E+06	2.48E-04	15	1.50E+03	4.11E-03	1.77E-01	1.75E-04	2.56E-04
95501	1,2-Dichlorobenzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.06E+06	8.93E+06	2.60E+06	2.48E-04	15	1.12E+04	8.89E-04	3.83E-02	1.75E-04	4.38E-04
120821	1,2,4-Trichlorobenzene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	2.23E+03	8.93E+06	2.60E+06	2.48E-04	15	1.21E+04	5.61E-07	2.37E-05	1.75E-04	3.94E-02
100527	Benzaldehyde	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.13E+06	8.93E+06	2.60E+06	2.48E-04	15	1.53E+03	4.35E-04	1.67E-02	1.75E-04	2.29E-04
91576	Methylnaphthalene, 2-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	8.51E+02	8.93E+06	2.60E+06	2.48E-04	15	1.51E+03	2.28E-05	9.94E-04	1.75E-04	1.35E-03
92524	Biphenyl, 1,1'-	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	8.81E+04	8.93E+06	2.60E+06	2.48E-04	15	1.47E+03	8.85E-04	1.14E-02	1.75E-04	3.15E-04
208988	Acenaphthene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.39E+03	8.93E+06	2.60E+06	2.48E-04	15	1.61E+03	2.45E-04	1.05E-02	1.75E-04	3.39E-04
83329	Acenaphthene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	8.06E+04	8.93E+06	2.60E+06	2.48E-04	15	1.61E+03	3.87E-05	1.58E-03	1.75E-04	7.33E-02
132849	Fluorene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	3.50E+01	8.93E+06	2.60E+06	2.48E-04	15	1.47E+03	3.61E-03	1.61E-01	1.75E-04	1.86E-04
96737	Fluorene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	2.97E+04	8.93E+06	2.60E+06	2.48E-04	15	1.82E+04	2.20E-06	9.48E-07	1.75E-04	1.86E-01
85016	Phenanthrene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.72E+04	8.93E+06	2.60E+06	2.48E-04	15	1.48E+03	1.14E-04	4.90E-03	1.75E-04	3.50E-04
120127	Anthracene	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	2.67E+03	8.93E+06	2.60E+06	2.48E-04	15	1.84E+04	1.26E-05	5.43E-04	1.75E-04	1.80E-03
C5-C8	C5-C8 Aliphatics	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	8.09E+03	8.93E+06	2.60E+06	2.48E-04	15	NA	6.48E-01	2.79E+01	1.75E-04	3.84E-04
C9-C12	C9-C12 Aliphatics	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.00E+03	8.93E+06	2.60E+06	2.48E-04	15	NA	7.80E-01	3.98E+01	1.75E-04	3.64E-04
C9-C10	C9-C10 Aromatics	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.92E+08	8.93E+06	2.60E+06	2.48E-04	15	NA	3.86E-03	1.70E-01	1.75E-04	3.69E-04
C9-C18	C9-C18 Aliphatics	1	0.130	0.859	1.62E-08	0.390	8.33E-09	6.66E+03	1.36E+07	8.93E+06	2.60E+06	2.48E-04	15	NA	8.28E-01	3.89E+0		

Appendix C.4
 Johnson & Ellinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Adult Recreational Scenario - CT
 Southwest Properties, Wells G&H Superfund Site, Operable
 Murphy Waste Cell

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusion path length, L _d (cm)	Convection path length, L _c (cm)	Soil-water partition coefficient, K _d (cm ³ /g)	Source vapor conc., C _{source} (µg/m ³)	Crack radius, r _{crack} (cm)	Average vapor flow rate into bldg., Q _{avg} (cm ³ /s)	Crack effective diffusion coefficient, D _{crack} (cm ² /s)	Area of crack, A _{crack} (cm ²)	Exponent of equivalent foundation Peclet number, exp(Pe) (unitless)	Infinite source indoor attenuation coefficient, α (unitless)	Infinite source bldg. conc., C _{source} (µg/m ³)	Unit risk factor, URF (µg/m ³) ⁻¹	Reference conc., RfC (mg/m ³)
85636	Trimethylbenzene, 1,2,4-	1	15	7.43E+00	5.15E+04	0.10	1.04E+01	4.77E-04	8.45E+02	1.29E+220	1.49E-05	7.89E-01	N/A	6.0E-03
843590	Dichloroethylene, 1,2- (total)	1	15	2.57E-01	2.17E+04	0.10	1.04E+01	3.77E-04	8.45E+02	3.28E+278	1.49E-05	3.21E-01	#N/A	#N/A
100878	Trimethylbenzene, 1,3,5-	1	15	3.34E+00	3.20E+05	0.10	1.04E+01	3.95E-04	8.45E+02	3.48E+285	1.49E-05	4.88E+00	N/A	6.0E-03
104518	n-Butylbenzene	1	15	5.02E+00	1.45E+04	0.10	1.04E+01	4.41E-04	8.45E+02	1.13E+238	1.49E-05	2.19E-01	#N/A	#N/A
91203	Naphthalene	1	15	4.00E+00	4.93E+03	0.10	1.04E+01	4.70E-04	8.45E+02	2.50E+223	1.49E-05	7.33E-02	N/A	3.0E-03
99876	Isopropyltoluene, 4-	1	15	3.18E+00	1.83E+08	0.10	1.04E+01	4.39E-04	8.45E+02	1.01E+239	1.49E-05	2.42E+01	N/A	4.0E-01
135698	Butylbenzene, sec-	1	15	8.22E+01	N/A	0.10	1.04E+01	4.80E-04	8.45E+02	9.44E+215	1.49E-05	N/A	#N/A	#N/A
74873	Chloromethane	1	15	2.89E-02	N/A	0.10	1.04E+01	7.68E-04	8.45E+02	1.38E+137	1.49E-05	N/A	N/A	9.0E-02
76014	Vinyl chloride	1	15	3.72E-02	N/A	0.10	1.04E+01	6.44E-04	8.45E+02	1.02E+183	1.49E-05	N/A	8.8E-08	1.0E-01
74839	Bromomethane	1	15	2.89E-02	N/A	0.10	1.04E+01	4.48E-04	8.45E+02	1.39E+234	1.49E-05	N/A	N/A	5.0E-03
76003	Ethyl Chloride	1	15	2.89E-02	N/A	0.10	1.04E+01	7.68E-04	8.45E+02	1.38E+137	1.49E-05	N/A	N/A	1.0E+01
75354	1,1-Dichloroethylene	1	15	1.18E-01	2.72E+03	0.10	1.04E+01	5.47E-04	8.45E+02	8.08E+191	1.49E-05	4.05E-02	N/A	2.0E+01
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	15	4.60E-01	N/A	0.10	1.04E+01	1.79E-04	8.45E+02	#NUM!	1.47E-05	N/A	N/A	3.0E+01
87841	Acetone	1	15	1.15E-03	5.38E+03	0.10	1.04E+01	2.07E-03	8.45E+02	5.83E+90	1.50E-05	8.95E-02	N/A	N/A
76150	Carbon Disulfide	1	15	1.03E-01	N/A	0.10	1.04E+01	6.34E-04	8.45E+02	8.20E+121	1.49E-05	N/A	N/A	7.0E-01
78209	Methyl Acetate	1	15	8.94E-03	N/A	0.10	1.04E+01	8.61E-04	8.45E+02	8.20E+121	1.49E-05	N/A	N/A	7.0E-01
75092	Methyane chloride	1	15	2.34E-02	4.44E+05	0.10	1.04E+01	8.35E-04	8.45E+02	2.18E+185	1.49E-05	8.82E+00	4.7E-07	3.0E+00
159605	trans-1,2-Dichloroethylene	1	15	1.05E-01	3.33E+05	0.10	1.04E+01	4.32E-04	8.45E+02	1.43E+243	1.49E-05	4.95E+00	N/A	2.0E-01
1834044	Methyl-Tertiary-Butyl Ether	1	15	7.89E-02	N/A	0.10	1.04E+01	8.87E-04	8.45E+02	2.47E+157	1.49E-05	N/A	N/A	3.0E+00
75343	1,1-Dichloroethane	1	15	6.32E-02	1.47E+05	0.10	1.04E+01	4.58E-04	8.45E+02	1.67E+229	1.49E-05	2.19E+00	N/A	5.0E-01
158592	cis-1,2-Dichloroethylene	1	15	7.10E-02	1.20E+05	0.10	1.04E+01	4.69E-04	8.45E+02	7.49E+228	1.49E-05	1.79E+00	N/A	2.0E-01
78933	Butanone, 2- (MEK)	1	15	7.88E-03	N/A	0.10	1.04E+01	8.48E-04	8.45E+02	1.00E+111	1.49E-05	N/A	N/A	N/A
71556	1,1,1-Trichloroethane	1	15	2.20E-01	3.02E+05	0.10	1.04E+01	4.75E-04	8.45E+02	9.68E+220	1.49E-05	4.49E+00	N/A	2.2E+00
110827	Cyclohexane	1	15	3.20E-01	N/A	0.10	1.04E+01	4.85E-04	8.45E+02	3.37E+216	1.49E-05	N/A	N/A	N/A
71432	Benzene	1	15	1.19E-01	8.80E+04	0.10	1.04E+01	5.42E-04	8.45E+02	6.73E+193	1.49E-05	1.31E+00	7.8E-08	3.0E-02
75016	Trichloroethylene	1	15	3.32E-01	8.38E+04	0.10	1.04E+01	4.83E-04	8.45E+02	2.03E+217	1.49E-05	1.25E+00	1.1E-04	4.0E-02
108872	Methyl cyclohexane	1	15	5.38E-01	N/A	0.10	1.04E+01	5.88E-04	8.45E+02	4.88E+176	1.49E-05	N/A	N/A	3.0E+00
108883	Toluene	1	15	3.64E-01	1.87E+06	0.10	1.04E+01	5.34E-04	8.45E+02	4.07E+196	1.49E-05	2.79E+00	N/A	4.0E-01
127184	Tetrachloroethylene	1	15	3.10E-01	6.01E+04	0.10	1.04E+01	4.39E-04	8.45E+02	1.62E+230	1.49E-05	8.93E-01	5.9E-08	N/A
108907	Chlorobenzene	1	15	4.38E-01	N/A	0.10	1.04E+01	4.59E-04	8.45E+02	3.97E+230	1.49E-05	N/A	N/A	6.0E-02
100414	Ethylbenzene	1	15	7.28E-01	8.78E+04	0.10	1.04E+01	4.80E-04	8.45E+02	1.44E+228	1.49E-05	1.45E+00	N/A	1.0E+00
1332207	Xylenes	1	15	4.82E-01	N/A	0.10	1.04E+01	3.75E-03	8.45E+02	1.01E+28	1.50E-05	N/A	N/A	1.0E-01
100426	Styrene	1	15	1.59E+00	N/A	0.10	1.04E+01	4.47E-04	8.45E+02	8.28E+234	1.49E-05	N/A	N/A	N/A
98828	Isopropylbenzene	1	15	1.69E+01	N/A	0.10	1.04E+01	3.05E-04	8.45E+02	3.75E+288	1.49E-05	N/A	N/A	4.0E-01
76945	1,1,2,2-Tetrachloroethane	1	15	1.87E-01	N/A	0.10	1.04E+01	6.05E-04	8.45E+02	8.21E+186	1.49E-05	N/A	N/A	N/A
541731	Dichlorobenzene, 1,3-	1	15	1.23E+00	N/A	0.10	1.04E+01	4.38E-04	8.45E+02	2.83E+239	1.49E-05	N/A	N/A	8.0E-01
109487	1,4-Dichlorobenzene	1	15	1.07E-01	1.72E+02	0.10	1.04E+01	3.94E-02	8.45E+02	4.64E+02	1.50E-05	2.59E-03	N/A	N/A
85501	1,2-Dichlorobenzene	1	15	3.58E+00	N/A	0.10	1.04E+01	2.25E-04	8.45E+02	#NUM!	1.47E-05	N/A	N/A	2.0E-01
120821	1,2,4-Trichlorobenzene	1	15	6.94E-02	N/A	0.10	1.04E+01	1.35E-03	8.45E+02	8.27E+77	1.50E-05	N/A	N/A	N/A
105527	Benzaldehyde	1	15	1.70E+01	1.88E+03	0.10	1.04E+01	3.13E-04	8.45E+02	#NUM!	1.49E-05	2.79E-02	N/A	3.0E-03
91578	Naphthalene, 2-	1	15	1.25E+01	N/A	0.10	1.04E+01	3.15E-04	8.45E+02	#NUM!	1.49E-05	N/A	N/A	N/A
22524	Biphenyl, 1,1'-	1	15	6.57E+00	1.50E+03	0.10	1.04E+01	3.39E-04	8.45E+02	#NUM!	1.49E-05	2.22E-02	N/A	3.0E-03
206968	Acenaphthylene	1	15	1.42E+01	N/A	0.10	1.04E+01	7.33E-04	8.45E+02	1.38E+143	1.49E-05	N/A	N/A	3.0E-03
83299	Acenaphthene	1	15	1.63E+01	3.21E+02	0.10	1.04E+01	1.68E-04	8.45E+02	#NUM!	1.49E-05	4.70E-03	N/A	N/A
132849	Dibenzofuran	1	15	1.54E+01	N/A	0.10	1.04E+01	8.18E-01	8.45E+02	1.34E+00	5.85E-05	N/A	N/A	3.0E-03
85018	Phenanthrene	1	15	2.83E+01	2.98E+02	0.10	1.04E+01	3.50E-04	8.45E+02	2.10E+300	1.49E-05	4.40E-03	N/A	3.0E-03
120127	Anthracene	1	15	5.90E+01	N/A	0.10	1.04E+01	1.80E-03	8.45E+02	8.32E+85	1.50E-05	N/A	N/A	3.0E-03
05-C8	05-C8 Aliphatics	1	15	4.53E+00	3.90E+08	0.10	1.04E+01	3.84E-04	8.45E+02	4.81E+288	1.49E-05	5.79E+01	N/A	2.0E-01
09-C12	09-C12 Aliphatics	1	15	3.00E+02	1.11E+05	0.10	1.04E+01	3.94E-04	8.45E+02	4.87E+288	1.49E-05	1.84E+00	N/A	2.0E-01
09-C10	09-C10 Aromatics	1	15	3.68E+00	N/A	0.10	1.04E+01	3.69E-04	8.45E+02	1.62E+284	1.49E-05	N/A	N/A	5.0E-02
09-C18	09-C18 Aliphatics	1	15	1.39E+03	N/A	0.10	1.04E+01	3.64E-04	8.45E+02	4.89E+288	1.49E-05	N/A	N/A	2.0E-01
G11-C22	G11-C22 Aromatics	1	15	1.05E+01	8.29E+08	0.10	1.04E+01	4.27E-04	8.45E+02	7.52E+245	1.49E-05	1.23E+02	N/A	5.0E-02

RESULTS SHEET

Appendix C 4
 Johnson & Eltinger Model - Data Entry Screen
 Inhalation of Volatiles from Soil
 Future Adult Recreational Scenario - CT
 Southwest Properties, Walls G&H Superfund Site, Operable Unit 2
 Murphy Waste Oil

RISK-BASED SOIL CONCENTRATION CALCULATIONS:

INCREMENTAL RISK CALCULATIONS:

Chemical CAS No. (Numbers only, no dashes)	Chemical	Indoor exposure soil conc., carcinogen (µg/kg)	Indoor exposure soil conc., noncarcinogen (µg/kg)	Risk-based indoor exposure soil conc., (µg/kg)	Soil saturation conc., C _{sat} (µg/kg)	Final indoor exposure soil conc., (µg/kg)	Incremental risk from vapor intrusion to indoor air, carcinogen (unitless)	Hazard quotient from vapor intrusion to indoor air, noncarcinogen (unitless)
95936	Trimethylbenzene, 1,2,4-	NA	NA	NA	4.38E+05	NA	NA	9.5E-04
540590	Dichloroethylene, 1,2- (total)	NA	NA	NA	5.98E+02	NA	NA	6.0E-03
108678	Trimethylbenzene, 1,3,5-	NA	NA	NA	7.13E+04	NA	NA	1.8E-04
104510	n-Butylbenzene	NA	NA	NA	6.83E+03	NA	NA	4.5E-04
61203	Naphthalene	NA	NA	NA	1.30E+05	NA	NA	NA
99876	Isopropyltoluene, 4-	NA	NA	NA	7.31E+05	NA	NA	NA
135986	Butylbenzene, sec-	NA	NA	NA	1.10E+06	NA	NA	NA
74873	Chloromethane	NA	NA	NA	1.37E+06	NA	NA	NA
75014	Vinyl chloride	NA	NA	NA	8.33E+05	NA	NA	NA
74839	Bromomethane	NA	NA	NA	3.89E+06	NA	NA	NA
75003	Ethyl Chloride	NA	NA	NA	1.37E+06	NA	NA	NA
75354	1,1-Dichloroethylene	NA	NA	NA	8.39E+05	NA	NA	1.5E-06
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	NA	NA	NA	3.98E+05	NA	NA	NA
87641	Acetone	NA	NA	NA	2.01E+08	NA	NA	NA
75150	Carbon Disulfide	NA	NA	NA	8.78E+05	NA	NA	NA
79209	Methyl Acetate	NA	NA	NA	5.03E+07	NA	NA	NA
75092	Methylene chloride	NA	NA	NA	2.95E+06	NA	2.3E-09	1.8E-05
156605	trans-1,2-Dichloroethylene	NA	NA	NA	2.12E+06	NA	NA	1.8E-04
1034044	Methyl-Tertiary-Butyl Ether	NA	NA	NA	1.42E+07	NA	NA	NA
78343	1,1-Dichloroethane	NA	NA	NA	1.39E+09	NA	NA	3.3E-05
156592	cis-1,2-Dichloroethylene	NA	NA	NA	9.75E+05	NA	NA	8.6E-05
78933	Butanone, 2- (MEK)	NA	NA	NA	4.63E+07	NA	NA	NA
71856	1,1,1-Trichloroethane	NA	NA	NA	8.01E+05	NA	NA	1.5E-05
110827	Cyclohexane	NA	NA	NA	3.98E+05	NA	NA	NA
71432	Benzene	NA	NA	NA	5.74E+05	NA	7.8E-09	3.2E-04
79016	Trichloroethylene	NA	NA	NA	6.05E+05	NA	1.0E-07	2.8E-04
108872	Methyl cyclohexane	NA	NA	NA	2.96E+04	NA	NA	NA
108883	Toluene	NA	NA	NA	3.02E+05	NA	NA	5.2E-05
127184	Tetrachloroethylene	NA	NA	NA	1.08E+05	NA	3.9E-09	NA
108907	Chlorobenzene	NA	NA	NA	3.04E+05	NA	NA	NA
100414	Ethylbenzene	NA	NA	NA	1.28E+05	NA	NA	1.1E-05
1330207	Xylenes	NA	NA	NA	1.50E+05	NA	NA	NA
100425	Styrene	NA	NA	NA	5.44E+05	NA	NA	NA
98820	Isopropylbenzene	NA	NA	NA	1.06E+06	NA	NA	NA
79345	1,1,2,2-Tetrachloroethane	NA	NA	NA	1.15E+06	NA	NA	NA
541731	Dichlorobenzene, 1,3-	NA	NA	NA	3.82E+04	NA	NA	NA
106487	1,4-Dichlorobenzene	NA	NA	NA	1.08E+05	NA	NA	NA
95501	1,2-Dichlorobenzene	NA	NA	NA	8.50E+06	NA	NA	NA
120821	1,2,4-Trichlorobenzene	NA	NA	NA	1.13E+06	NA	NA	NA
100527	Benzaldehyde	NA	NA	NA	1.74E+06	NA	NA	NA
91576	Methylstyrenes, 2-	NA	NA	NA	4.24E+05	NA	NA	6.9E-05
92524	Biphenyl, 1,1'-	NA	NA	NA	8.51E+04	NA	NA	NA
208985	Acenaphthylene	NA	NA	NA	3.84E+04	NA	NA	5.5E-09
83329	Acenaphthene	NA	NA	NA	6.08E+04	NA	NA	NA
132649	Dibenzofuran	NA	NA	NA	1.85E+05	NA	NA	NA
86737	Fluorene	NA	NA	NA	2.97E+04	NA	NA	NA
85018	Phenanthrene	NA	NA	NA	3.84E+04	NA	NA	1.1E-05
120127	Anthracene	NA	NA	NA	2.97E+03	NA	NA	NA
05-08	05-08 Aliphatics	NA	NA	NA	7.86E+07	NA	NA	2.1E-03
09-C12	09-C12 Aliphatics	NA	NA	NA	2.12E+07	NA	NA	6.1E-06
09-C10	09-C10 Aromatics	NA	NA	NA	1.82E+06	NA	NA	NA
09-C18	09-C18 Aliphatics	NA	NA	NA	1.38E+07	NA	NA	NA
C11-C22	C11-C22 Aromatics	NA	NA	NA	5.92E+07	NA	NA	1.8E-02

TOTAL: 95% UCL Cancer Risk 1E-07 95% UCL HI 2.9E-02

☐ = Cancer risk > 1E-05 or HQ/Hi > 1E+00

Trimethylbenzene, 1,2,4-
 Dichloroethylene, 1,2- (total)
 Trimethylbenzene, 1,3,5-
 n-Butylbenzene
 Naphthalene
 Isopropyltoluene, 4-
 Butylbenzene, sec-
 Chloromethane
 Vinyl chloride
 Bromomethane
 Ethyl Chloride
 1,1-Dichloroethylene
 Trichloro-1,2,2-trifluoroethane, 1,1,2-

MESSAGE: Soil conc. >= saturation (C_{sat}). Risk/HQ calculated at C_{sat}.
 MESSAGE: Soil conc. >= saturation (C_{sat}). Risk/HQ calculated at C_{sat}.
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