

US EPA ARCHIVE DOCUMENT

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

YES  OR

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

YES

SL-SCREEN  
 Version 2.3. 03/01

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	Mean soil conc., CR (ug/g)	Depth below grade to bottom of enclosed space floor, L <sub>f</sub> (ft or 200 cm)	Depth below grade to top of contamination, L <sub>t</sub> (cm)	Average soil temperature, T <sub>s</sub> (°C)	Vadose zone BG3 soil type (used to estimate soil vapor permeability)	OR	User-defined vadose zone soil vapor permeability, P <sub>v</sub> (cm <sup>2</sup> )	Vadose zone soil dry bulk density, ρ <sub>b</sub> (g/cm <sup>3</sup> )	Vadose zone soil total porosity, n <sub>v</sub> (unitless)	Vadose zone soil water-filled porosity, θ <sub>w</sub> (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone soil organic carbon fraction, f <sub>oc</sub> (unitless)	Averaging time for carcinogens, ATC (yrs)	Averaging time for noncarcinogens, ATNC (yrs)	Exposure duration, ED (yrs)	Exposure frequency, EF (days/yr)	Exposure time ET (hrs/day)	Coveration factor CF (hr/yr)	Target risk for carcinogens, TR (unitless)	Target hazard quotient for noncarcinogens, THQ (unitless)
95638	Trimethylbenzene, 1,2,4-		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
540600	Dichloroethylene, 1,2- (total)		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
108878	Trimethylbenzene, 1,3,5-		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
104518	n-Butylbenzene		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
81203	Naphthalene	5.74E+03	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
99876	Isopropyltoluene, 4-		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
135988	Butylbenzene, sec-		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
74873	Chloromethane		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
75014	Vinyl chloride		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
74839	Bromomethane	2.40E+00	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
75003	Ethyl Chloride		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
75384	1,1-Dichloroethylene	4.80E+00	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
67841	Acetone	1.47E+02	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
75150	Carbon Dioxide		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
78209	Methyl Acetate		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
75092	Methylene chloride		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
156905	trans-1,2-Dichloroethylene		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
1834044	Methyl-Tertiary-Butyl Ether	1.30E+02	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
75343	1,1-Dichloroethane		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
156582	cis-1,2-Dichloroethylene		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
78933	Butanone, 2- (MEK)		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
71556	1,1,1-Trichloroethane		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
410827	Cyclohexane		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
71432	Benzene	1.31E+01	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
79016	Trichloroethylene		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
108872	Methyl cyclohexane		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
108883	Toluene	1.00E+02	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
127184	Tetrachloroethylene		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
108907	Chlorobenzene		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
100414	Ethylbenzene	1.07E+03	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
1330207	Xylenes		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
100425	Styrene		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
99828	Isopropylbenzene		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
78345	1,1,2,2-Tetrachloroethane		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
641731	Dichlorobenzene, 1,3-		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
106467	1,4-Dichlorobenzene		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
95501	1,2-Dichlorobenzene		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
120821	1,2,4-Trichlorobenzene		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
100527	Benzaldehyde		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
91576	Methylnaphthalene, 2-	7.18E+03	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
92524	Biphenyl, 1,1'-		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
208968	Acenaphthylene	1.68E+03	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
83329	Acenaphthene		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
132649	Dibenzofuran	5.42E+02	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
86737	Fluorene		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
83018	Phenanthrene	1.30E+03	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
120127	Anthracene		15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
C5-C8	C5-C8 Aliphatics	1.90E+04	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
C9-C12	C9-C12 Aliphatics	6.10E+04	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
C9-C10	C9-C10 Aromatics	1.77E+05	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
C9-C18	C9-C18 Aliphatics	1.31E+06	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1
C11-C22	C11-C22 Aromatics	1.72E+06	15	15	10	LS	1		1.5	0.43	0.3	0.002	70	25	25	250	8	8760	1.0E-06	1

Note:  
 1) Default soil parameters from table 7 of User's Guide for Evaluating Subsurface Vapor Intrusion into Building (U.S. EPA, June 19, 2003) were used for soil water filled porosity (θ<sub>w</sub>), soil organic carbon fraction (f<sub>oc</sub>), soil total porosity (n), and soil dry bulk density (ρ<sub>b</sub>).

Appendix C.4  
 Johnson & Ettinger Model - Data Entry Screen  
 Inhalation of Volatiles from Soil  
 Future Commercial Scenario - RME  
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2  
 Aberjona Auto Parts

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity In air, D <sub>a</sub> (cm <sup>2</sup> /s)	Diffusivity In water, D <sub>w</sub> (cm <sup>2</sup> /s)	Henry's law constant at reference temperature, H (atm-m <sup>3</sup> /mol)	Henry's law constant reference temperature, T <sub>R</sub> (°C)	Enthalpy of vaporization at the normal boiling point, ΔH <sub>v,b</sub> (cal/mol)	Normal boiling point, T <sub>B</sub> (°K)	Critical temperature, T <sub>C</sub> (°K)	Organic carbon partition coefficient, K <sub>oc</sub> (cm <sup>3</sup> /g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF (μg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RfC (mg/m <sup>3</sup> )	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	0.0E+00
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
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
156505	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	333.85	544.00	3.55E+01	3.50E+03	N/A	2.0E-01	L
78933	Butanone, 2- (MEK)	8.08E-02	9.80E-06	5.80E-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	2.88E+02	1.40E+01	N/A	3.0E+00	0.0E+00
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	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	7.78E+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	5.80E+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
108467	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	NA
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	8.00E-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	7.00E-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	7.00E-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	7.00E-02	5.00E-06	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  
 Future Commercial Scenario - RME  
 Future Commercial Scenario - RME  
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2  
 Aberjona Auto Parts

Chemical CAS No. (Numbers only, no dashes)	Chemical	Source- building separation, LT (cm)	Vadose zone soil air-filled porosity, $\theta_a$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone effective total fluid saturation, $S_{fe}$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone soil intrinsic permeability, $k_i$ (cm <sup>2</sup> )	Vadose zone relative air permeability, $k_{ra}$ (cm <sup>2</sup> )	Vadose zone soil effective vapor permeability, $k_v$ (cm <sup>2</sup> )	Floor- wall seam perimeter, $X_{fws}$ (cm)	Initial soil concentration used, CR (ug/kg)	Bldg. ventilation rate, $Q_{air,bldg}$ (cm <sup>3</sup> /s)	Area of enclosed space below grade, $A_B$ (cm <sup>2</sup> )	Crack- to-total area ratio, $\eta$ (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, $H_{TS}$ (atm-m <sup>3</sup> /mol)	Henry's law constant at ave. soil temperature, HTS (unitless)	Vapor viscosity at ave. soil temperature, $\mu_{ts}$ (g/cm-s)
95838	Trimethylbenzene, 1,2,4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	4.39E+05	1.81E+07	6.67E+07	5.31E-05	15	1.55E+03	4.98E-03	2.13E-01	1.75E-04
540590	Dichloroethylene, 1,2- (total)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.99E+02	1.81E+07	5.67E+07	5.31E-05	15	1.73E+03	3.87E-04	1.67E-02	1.75E-04
108978	Trimethylbenzene, 1,3,5-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.13E+04	1.81E+07	5.67E+07	5.31E-05	15	1.55E+03	6.80E-03	2.93E-01	1.75E-04
104518	n-Butylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.63E+03	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	1.09E-02	4.69E-01	1.75E-04
91203	Naphthalene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.74E+03	1.81E+07	5.67E+07	5.31E-05	15	1.29E+04	1.52E-04	6.55E-03	1.75E-04
99876	Isopropyltoluene, 4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.31E+05	1.81E+07	5.67E+07	5.31E-05	15	1.37E+03	7.48E+00	3.22E+02	1.75E-04
135988	Butylbenzene, sec	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.10E+06	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	1.48E-02	6.27E-01	1.75E-04
74873	Chloromethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.37E+08	1.81E+07	5.67E+07	5.31E-05	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04
75014	Vinyl chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.33E+05	1.81E+07	5.67E+07	5.31E-05	15	5.00E+03	1.73E-02	7.48E-01	1.75E-04
74839	Bromomethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.40E+00	1.81E+07	5.67E+07	5.31E-05	15	5.39E+03	3.84E-03	1.65E-01	1.75E-04
75003	Ethyl Chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.37E+08	1.81E+07	5.67E+07	5.31E-05	15	1.20E+03	7.78E-03	3.35E-01	1.75E-04
75354	1,1-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	4.80E+00	1.81E+07	5.67E+07	5.31E-05	15	6.39E+03	1.47E-02	6.34E-01	1.75E-04
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.99E+05	1.81E+07	5.67E+07	5.31E-05	15	1.44E+03	4.55E-01	1.96E+01	1.75E-04
87841	Acetone	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.47E+02	1.81E+07	5.67E+07	5.31E-05	15	7.58E+03	1.07E-05	8.50E-04	1.75E-04
75150	Carbon Disulfide	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.78E+05	1.81E+07	5.67E+07	5.31E-05	15	6.88E+03	6.99E-03	3.01E-01	1.75E-04
79209	Methyl Acetate	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.03E+07	1.81E+07	5.67E+07	5.31E-05	15	1.50E+03	9.88E-05	4.25E-03	1.75E-04
75092	Methylene chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.98E+06	1.81E+07	5.67E+07	5.31E-05	15	7.03E+03	1.17E-03	5.03E-02	1.75E-04
158905	trans-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.12E+06	1.81E+07	5.67E+07	5.31E-05	15	1.42E+03	8.27E-03	3.58E-01	1.75E-04
1634044	Methyl-Tertiary-Butyl Ether	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.30E+02	1.81E+07	5.67E+07	5.31E-05	15	1.45E+03	5.16E-04	2.22E-02	1.75E-04
75343	1,1-Dichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.39E+06	1.81E+07	5.67E+07	5.31E-05	15	7.45E+03	2.88E-03	1.24E-01	1.75E-04
158592	cis-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	9.75E+05	1.81E+07	5.67E+07	5.31E-05	15	7.73E+03	2.04E-03	8.77E-02	1.75E-04
78933	Butanone, 2- (MEK)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	4.63E+07	1.81E+07	5.67E+07	5.31E-05	15	1.49E+03	4.90E-05	2.11E-03	1.75E-04
71556	1,1,1-Trichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.01E+05	1.81E+07	5.67E+07	5.31E-05	15	7.88E+03	8.50E-03	3.66E-01	1.75E-04
110827	Cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.88E+05	1.81E+07	5.67E+07	5.31E-05	15	1.49E+03	1.75E+00	7.54E+01	1.75E-04
71432	Benzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.31E+01	1.81E+07	5.67E+07	5.31E-05	15	8.12E+03	2.69E-03	1.18E-01	1.75E-04
79016	Trichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.05E+05	1.81E+07	5.67E+07	5.31E-05	15	8.58E+03	4.79E-03	2.08E-01	1.75E-04
108872	Methyl cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.96E+04	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	3.70E-01	1.58E+01	1.75E-04
108883	Toluene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.00E+02	1.81E+07	5.67E+07	5.31E-05	15	8.15E+03	2.92E-03	1.28E-01	1.75E-04
127184	Tetrachloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.08E+05	1.81E+07	5.67E+07	5.31E-05	15	8.55E+03	7.88E-03	3.37E-01	1.75E-04
108907	Chlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.04E+06	1.81E+07	5.67E+07	5.31E-05	15	8.80E+03	1.54E-03	6.66E-02	1.75E-04
100414	Ethylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.07E+03	1.81E+07	5.67E+07	5.31E-05	15	1.02E+04	3.18E-03	1.37E-01	1.75E-04
1330207	Xylenes	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.59E+06	1.81E+07	5.67E+07	5.31E-05	15	1.54E+03	5.89E-06	2.62E-04	1.75E-04
100425	Styrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.44E+05	1.81E+07	5.67E+07	5.31E-05	15	1.05E+04	1.08E-03	4.87E-02	1.75E-04
98828	Isopropylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.08E+08	1.81E+07	5.67E+07	5.31E-05	15	1.54E+03	1.28E-02	8.51E-01	1.75E-04
79345	1,1,2,2-Tetrachloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.15E+06	1.81E+07	5.67E+07	5.31E-05	15	1.05E+04	1.34E-04	5.77E-03	1.75E-04
541731	Dichlorobenzene, 1,3-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.82E+04	1.81E+07	5.67E+07	5.31E-05	15	1.50E+03	4.11E-03	1.77E-01	1.75E-04
106487	1,4-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.08E+05	1.81E+07	5.67E+07	5.31E-05	15	1.12E+04	8.89E-04	3.83E-02	1.75E-04
95501	1,2-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.50E+06	1.81E+07	5.67E+07	5.31E-05	15	1.21E+04	5.51E-07	2.37E-06	1.75E-04
120821	1,2,4-Trichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.13E+08	1.81E+07	5.67E+07	5.31E-05	15	1.32E+04	4.35E-04	1.87E-02	1.75E-04
100527	Benzaldehyde	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.74E+06	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	2.29E-05	9.84E-04	1.75E-04
81576	Methylnaphthalene, 2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.18E+03	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	8.88E-04	3.81E-02	1.75E-04
12524	Biphenyl, 1,1'-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.81E+04	1.81E+07	5.67E+07	5.31E-05	15	1.47E+03	2.68E-04	1.14E-02	1.75E-04
208968	Acenaphthylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.86E+03	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	2.45E-04	1.05E-02	1.75E-04
83329	Acenaphthene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.09E+04	1.81E+07	5.67E+07	5.31E-05	15	1.01E+04	3.67E-05	1.58E-03	1.75E-04
132849	Dibenzofuran	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.42E-02	1.81E+07	5.67E+07	5.31E-05	15	1.47E+03	3.20E-03	1.51E-01	1.75E-04
99737	Fluorene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.97E+04	1.81E+07	5.67E+07	5.31E-05	15	1.62E+04	2.20E-08	9.48E-07	1.75E-04
85018	Phenanthrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.30E+03	1.81E+07	5.67E+07	5.31E-05	15	1.48E+03	1.14E-04	4.90E-03	1.75E-04
120127	Anthracene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.57E+03	1.81E+07	5.67E+07	5.31E-05	15	1.84E+04	1.26E-05	5.43E-04	1.75E-04
CS-C8	CS-C8 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.90E+04	1.81E+07	5.67E+07	5.31E-05	15	NA	6.48E-01	2.79E+01	1.75E-04
C9-C12	C9-C12 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.10E+04	1.81E+07	5.67E+07	5.31E-05	15	NA	7.80E-01	3.38E+01	1.75E-04
C9-C10	C9-C10 Aromatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.77E+05	1.81E+07	5.67E+07	5.31E-05	15	NA	3.96E-03	1.70E-01	1.75E-04
C8-C18	C8-C18 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.31E+08	1.81E+07	5.67E+07	5.31E-05	15	NA	8.28E-01	3.58E+01	1.75E-04
C11-C22	C11-C22 Aromatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.72E+06	1.81E+07	5.67E+07	5.31E-05	15	NA	3.80E-04	1.55E-02	1.75E-04

1.4036E+217

Chemical CAS No. (numbers only, no dashes)	Chemical	Vadose zone effective diffusion coefficient, $D_{eff}^v$ (cm <sup>2</sup> /s)	Diffusion path length, $L_d$ (cm)	Convection path length, $L_c$ (cm)	Soil-water partition coefficient, $K_d$ (cm <sup>3</sup> /g)	Source vapor conc., $C_{source}$ (µg/m <sup>3</sup> )	Crack radius, $r_{crack}$ (cm)	Average vapor flow rate into bldg., $Q_{avg}$ (cm <sup>3</sup> /s)	Crack effective diffusion coefficient, $D_{crack}^{eff}$ (cm <sup>2</sup> /s)	Area of crack, $A_{crack}$ (cm <sup>2</sup> )	Exponent of equivalent foundation Peclet number, exp(Pe <sub>f</sub> ) (unitless)	Infinite source indoor attenuation coefficient, $\alpha$ (unitless)	Infinite source bldg. conc. C <sub>bldg</sub> (µg/m <sup>3</sup> )	Unit risk factor, URF (µg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RIC (mg/m <sup>3</sup> )
95636	Trimethylbenzene, 1,2,4-	4.77E-04	1	15	7.43E+00	N/A	0.10	4.79E+01	4.77E-04	3.01E+03	1.88E+217	2.84E-06	N/A	N/A	6.0E-03
540580	Dichloroethylene, 1,2- (total)	3.77E-04	1	15	2.57E-01	N/A	0.10	4.79E+01	3.77E-04	3.01E+03	7.28E+274	2.84E-06	N/A	N/A	N/A
108678	Trimethylbenzene, 1,3,5-	3.95E-04	1	15	3.34E+00	N/A	0.10	4.79E+01	3.95E-04	3.01E+03	1.15E+282	2.84E-06	N/A	N/A	8.0E-03
104518	n-Butylbenzene	4.41E-04	1	15	5.02E+00	N/A	0.10	4.79E+01	4.41E-04	3.01E+03	8.55E+234	2.84E-06	N/A	N/A	N/A
91203	Naphthalene	4.70E-04	1	15	4.00E+00	8.90E+03	0.10	4.79E+01	4.70E-04	3.01E+03	3.02E+220	2.84E-06	2.37E-02	N/A	3.0E-03
99676	Isopropyltoluene, 4-	4.39E-04	1	15	3.18E+00	N/A	0.10	4.79E+01	4.39E-04	3.01E+03	7.40E+235	2.84E-06	N/A	N/A	4.0E-01
135988	Butylbenzene, sec-	4.86E-04	1	15	6.22E+01	N/A	0.10	4.79E+01	4.86E-04	3.01E+03	1.39E+213	2.84E-06	N/A	N/A	N/A
74873	Chloromethane	7.96E-04	1	15	2.88E-02	N/A	0.10	4.79E+01	7.96E-04	3.01E+03	2.20E+135	2.84E-06	N/A	N/A	9.0E-02
76014	Vinyl chloride	6.44E-04	1	15	3.72E-02	N/A	0.10	4.79E+01	6.44E-04	3.01E+03	7.47E+160	2.84E-06	N/A	8.8E-06	1.0E-01
74839	Bromomethane	4.48E-04	1	15	2.66E-02	1.63E+03	0.10	4.79E+01	4.48E-04	3.01E+03	1.16E+231	2.84E-06	4.31E-03	N/A	5.0E-03
75003	Ethyl Chloride	7.68E-04	1	15	2.66E-02	N/A	0.10	4.79E+01	7.68E-04	3.01E+03	2.19E+135	2.84E-06	N/A	N/A	1.0E+01
75354	1,1-Dichloroethylene	5.47E-04	1	15	1.18E-01	8.17E+03	0.10	4.79E+01	5.47E-04	3.01E+03	2.40E+189	2.84E-06	2.16E-02	N/A	2.0E-01
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1.75E-04	1	15	4.50E-01	N/A	0.10	4.79E+01	1.75E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	3.0E+01
67841	Acetone	2.07E-03	1	15	1.15E-03	6.19E+02	0.10	4.79E+01	2.07E-03	3.01E+03	1.22E+50	2.84E-06	1.84E-03	N/A	N/A
75150	Carbon Disulfide	6.34E-04	1	15	1.03E-01	N/A	0.10	4.79E+01	6.34E-04	3.01E+03	1.95E+163	2.84E-06	N/A	N/A	7.0E-01
79206	Methyl Acetate	8.81E-04	1	15	6.64E-03	N/A	0.10	4.79E+01	8.81E-04	3.01E+03	2.07E+120	2.84E-06	N/A	N/A	N/A
75092	Methylene chloride	6.35E-04	1	15	2.34E-02	N/A	0.10	4.79E+01	6.35E-04	3.01E+03	1.48E+163	2.84E-06	N/A	4.7E-07	3.0E+00
156805	trans-1,2-Dichloroethylene	4.32E-04	1	15	1.05E-01	N/A	0.10	4.79E+01	4.32E-04	3.01E+03	9.26E+239	2.84E-06	N/A	N/A	2.0E-01
1634044	Methyl-Tertiary-Butyl Ether	6.67E-04	1	15	7.88E-02	1.04E+04	0.10	4.79E+01	6.67E-04	3.01E+03	2.13E+155	2.84E-06	2.74E-02	N/A	3.0E+00
75343	1,1-Dichloroethane	4.58E-04	1	15	6.32E-02	N/A	0.10	4.79E+01	4.58E-04	3.01E+03	1.65E+228	2.84E-06	N/A	N/A	5.0E-01
166582	cis-1,2-Dichloroethylene	4.59E-04	1	15	7.10E-02	N/A	0.10	4.79E+01	4.59E-04	3.01E+03	7.48E+225	2.84E-06	N/A	N/A	2.0E-01
78833	Butanone, 2- (MEK)	9.45E-04	1	15	7.68E-03	N/A	0.10	4.79E+01	9.45E-04	3.01E+03	3.81E+109	2.84E-06	N/A	N/A	N/A
71556	1,1,1-Trichloroethane	4.75E-04	1	15	2.20E-01	N/A	0.10	4.79E+01	4.75E-04	3.01E+03	1.21E+218	2.84E-06	N/A	N/A	2.2E+00
110827	Cyclohexane	4.85E-04	1	15	3.20E-01	N/A	0.10	4.79E+01	4.85E-04	3.01E+03	4.99E+213	2.84E-06	N/A	N/A	N/A
71432	Benzene	5.42E-04	1	15	1.18E-01	4.84E+03	0.10	4.79E+01	5.42E-04	3.01E+03	1.94E+191	2.84E-06	1.23E-02	7.8E-06	3.0E-02
79018	Trichloroethylene	4.63E-04	1	15	3.32E-01	N/A	0.10	4.79E+01	4.63E-04	3.01E+03	2.88E+214	2.84E-06	N/A	1.1E-04	4.0E-02
108872	Methyl cyclohexane	5.08E-04	1	15	5.36E-01	N/A	0.10	4.79E+01	5.08E-04	3.01E+03	2.33E+173	2.84E-06	N/A	N/A	3.0E+00
108883	Toluene	5.34E-04	1	15	3.64E-01	2.19E+04	0.10	4.79E+01	5.34E-04	3.01E+03	1.08E+194	2.84E-06	5.78E-02	N/A	4.0E-01
127184	Tetrachloroethylene	4.39E-04	1	15	3.10E-01	N/A	0.10	4.79E+01	4.39E-04	3.01E+03	1.40E+236	2.84E-06	N/A	5.9E-08	N/A
108907	Chlorobenzene	4.55E-04	1	15	4.38E-01	N/A	0.10	4.79E+01	4.55E-04	3.01E+03	3.77E+227	2.84E-06	N/A	N/A	6.0E-02
100414	Ethylbenzene	4.60E-04	1	15	7.28E-01	1.57E+05	0.10	4.79E+01	4.60E-04	3.01E+03	1.47E+225	2.84E-06	4.14E-01	N/A	1.0E+00
1330207	Xylenes	3.75E-03	1	15	4.82E-01	N/A	0.10	4.79E+01	3.75E-03	3.01E+03	4.33E+27	2.85E-06	N/A	N/A	1.0E-01
100425	Styrene	4.47E-04	1	15	1.55E+00	N/A	0.10	4.79E+01	4.47E-04	3.01E+03	5.26E+231	2.84E-06	N/A	N/A	N/A
98828	Isopropylbenzene	3.95E-04	1	15	1.66E+01	N/A	0.10	4.79E+01	3.95E-04	3.01E+03	1.24E+262	2.84E-06	N/A	N/A	4.0E-01
78345	1,1,2,2-Tetrachloroethane	5.65E-04	1	15	1.67E-01	N/A	0.10	4.79E+01	5.65E-04	3.01E+03	3.00E+183	2.84E-06	N/A	N/A	N/A
541731	Dichlorobenzene, 1,3-	2.50E-04	1	15	3.40E-01	N/A	0.10	4.79E+01	2.50E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	N/A
108467	1,4-Dichlorobenzene	4.38E-04	1	15	1.23E+00	N/A	0.10	4.79E+01	4.38E-04	3.01E+03	2.05E+236	2.84E-06	N/A	N/A	8.0E-01
95501	1,2-Dichlorobenzene	3.94E-02	1	15	1.07E-01	N/A	0.10	4.79E+01	3.94E-02	3.01E+03	4.28E+02	2.85E-06	N/A	N/A	N/A
120821	1,2,4-Trichlorobenzene	2.25E-04	1	15	3.56E+00	N/A	0.10	4.79E+01	2.25E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	2.0E-01
100527	Benzaldehyde	1.35E-03	1	15	6.64E-02	N/A	0.10	4.79E+01	1.35E-03	3.01E+03	7.88E+70	2.84E-06	N/A	N/A	N/A
91576	Methylnaphthalene, 2-	3.13E-04	1	15	1.70E+01	1.59E+04	0.10	4.79E+01	3.13E-04	3.01E+03	#NUM!	2.84E-06	4.19E-02	N/A	3.0E-03
92524	Biphenyl, 1,1'-	3.15E-04	1	15	1.25E+01	N/A	0.10	4.79E+01	3.15E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	N/A
206968	Acenaphthylene	3.38E-04	1	15	9.57E+00	1.81E+03	0.10	4.79E+01	3.38E-04	3.01E+03	7.70E+308	2.84E-06	4.78E-03	N/A	3.0E-03
83320	Acenaphthene	7.33E-04	1	15	1.42E+01	N/A	0.10	4.79E+01	7.33E-04	3.01E+03	1.83E+141	2.84E-06	N/A	N/A	3.0E-03
132648	Dibenzofuran	1.66E-04	1	15	1.93E+01	1.30E+03	0.10	4.79E+01	1.66E-04	3.01E+03	#NUM!	2.83E-06	3.49E-03	N/A	N/A
86737	Fluorene	6.16E-01	1	15	1.54E+01	N/A	0.10	4.79E+01	6.16E-01	3.01E+03	1.34E+00	1.04E-05	1.78E+01	N/A	3.0E-03
85018	Phenanthrene	3.50E-04	1	15	2.63E+01	2.23E+02	0.10	4.79E+01	3.50E-04	3.01E+03	2.42E+268	2.84E-06	6.60E-04	N/A	3.0E-03
120127	Anthracene	1.80E-03	1	15	5.90E+01	N/A	0.10	4.79E+01	1.80E-03	3.01E+03	6.67E+84	2.84E-06	N/A	N/A	N/A
CS-C8	CS-C8 Aliphatics	4.65E-04	1	15	4.63E+00	7.41E+07	0.10	4.79E+01	4.77E-04	3.01E+03	4.77E+213	2.84E-06	1.05E+02	N/A	2.0E-01
CB-C12	CB-C12 Aliphatics	4.24E-04	1	15	3.00E+02	8.78E+06	0.10	4.79E+01	4.24E-04	3.01E+03	1.80E+244	2.84E-06	1.78E+01	N/A	2.0E-01
CB-C10	CB-C10 Aromatics	4.30E-04	1	15	3.56E+00	6.00E+06	0.10	4.79E+01	4.30E-04	3.01E+03	8.94E+240	2.84E-06	2.11E+01	N/A	5.0E-02
CB-C16	CB-C16 Aliphatics	4.24E-04	1	15	1.36E+03	3.43E+07	0.10	4.79E+01	4.24E-04	3.01E+03	1.64E+244	2.84E-06	8.05E+01	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	4.27E-04	1	15	1.00E+01	2.81E+06	0.10	4.79E+01	4.27E-04	3.01E+03	4.50E+242	2.84E-06	6.32E+03	N/A	5.0E-02

RESULTS SHEET

Appendix C.4  
 Johnson & Ettinger Model - Data Entry Screen  
 Inhalation of Volatiles from Soil  
 Future Commercial Scenario - RME  
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2  
 Aberjona Auto Parts

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 <sub>sat</sub> (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)
95636	Trimethylbenzene, 1,2,4-	NA	NA	NA	4.38E+05	NA	NA	NA
540590	Dichloroethylene, 1,2- (total)	NA	NA	NA	5.96E+02	NA	NA	NA
108678	Trimethylbenzene, 1,3,5-	NA	NA	NA	7.13E+04	NA	NA	NA
104518	n-Butylbenzene	NA	NA	NA	6.63E+03	NA	NA	NA
91203	Naphthalene	NA	NA	NA	1.30E+05	NA	NA	1.8E-03
99876	Isopropyltoluene, 4-	NA	NA	NA	7.31E+05	NA	NA	NA
135988	Butylbenzene, sec-	NA	NA	NA	1.10E+06	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	3.89E+08	NA	NA	2.0E-04
75003	Ethyl Chloride	NA	NA	NA	1.37E+08	NA	NA	NA
75354	1,1-Dichloroethylene	NA	NA	NA	8.39E+05	NA	NA	2.5E-05
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	NA	NA	NA	3.99E+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	2.96E+08	NA	NA	NA
158605	trans-1,2-Dichloroethylene	NA	NA	NA	2.12E+08	NA	NA	NA
1634044	Methyl-Tertiary-Butyl Ether	NA	NA	NA	1.42E+07	NA	NA	2.1E-06
75343	1,1-Dichloroethane	NA	NA	NA	1.39E+08	NA	NA	NA
156592	cis-1,2-Dichloroethylene	NA	NA	NA	9.75E+05	NA	NA	NA
78933	Butanone, 2- (MEK)	NA	NA	NA	4.63E+07	NA	NA	NA
71556	1,1,1-Trichloroethane	NA	NA	NA	6.01E+05	NA	NA	NA
110827	Cyclohexane	NA	NA	NA	3.89E+05	NA	NA	NA
71432	Benzene	NA	NA	NA	5.74E+05	NA	7.8E-09	9.3E-05
79018	Trichloroethylene	NA	NA	NA	6.05E+05	NA	NA	NA
108872	Methyl cyclohexane	NA	NA	NA	2.96E+04	NA	NA	NA
108883	Toluene	NA	NA	NA	3.02E+05	NA	NA	3.3E-05
127184	Tetrachloroethylene	NA	NA	NA	1.08E+05	NA	NA	NA
108907	Chlorobenzene	NA	NA	NA	3.04E+05	NA	NA	NA
100414	Ethylbenzene	NA	NA	NA	1.58E+05	NA	NA	9.4E-05
1330207	Xylenes	NA	NA	NA	1.50E+05	NA	NA	NA
100425	Styrene	NA	NA	NA	5.44E+05	NA	NA	NA
98826	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
108467	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+08	NA	NA	NA
91576	Methylnaphthalene, 2-	NA	NA	NA	4.24E+05	NA	NA	3.2E-03
92524	Biphenyl, 1,1'-	NA	NA	NA	8.81E+04	NA	NA	NA
208968	Acenaphthylene	NA	NA	NA	3.84E+04	NA	NA	3.6E-04
83329	Acenaphthene	NA	NA	NA	8.09E+04	NA	NA	NA
132649	Dibenzofuran	NA	NA	NA	1.65E+05	NA	NA	NA
86737	Fluorene	NA	NA	NA	2.97E+04	NA	NA	NA
85018	Phenanthrene	NA	NA	NA	3.64E+04	NA	NA	4.5E-05
120127	Anthracene	NA	NA	NA	2.57E+03	NA	NA	NA
C5-C8	C5-C8 Aliphatics	NA	NA	NA	7.88E+07	NA	NA	2.24E-01
C9-C12	C9-C12 Aliphatics	NA	NA	NA	2.12E+07	NA	NA	2.0E-02
C9-C10	C9-C10 Aromatics	NA	NA	NA	1.92E+08	NA	NA	9.647E-02
C9-C18	C9-C18 Aliphatics	NA	NA	NA	1.38E+07	NA	NA	1.033E-01
C11-C22	C11-C22 Aromatics	NA	NA	NA	5.92E+07	NA	NA	3.1E-02

95% UCL  
 Cancer Risk 8E-09  
 95% UCL HI 5E-01  
 TOTAL:

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

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	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)	Initial soil concentration concl. OR Chemical (µg/kg)	ENTER Depth below grade to bottom of enclosed space floor, L <sub>b</sub> (ft or 200 cm)	ENTER Depth below grade to top of contamination, L <sub>t</sub> (cm)	ENTER Average soil temperature, T <sub>a</sub> (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability) OR User-defined vadose zone soil vapor permeability, k <sub>v</sub> (cm <sup>2</sup> ) Note	ENTER Vadose zone soil dry bulk density, ρ <sub>d</sub> (g/cm <sup>3</sup> )	ENTER Vadose zone soil total porosity, n <sup>T</sup> (unitless)	ENTER Vadose zone soil water-filled porosity, θ <sub>v</sub> (cm <sup>3</sup> /cm <sup>3</sup> )	ENTER Vadose zone soil organic carbon fraction, f <sub>oc</sub> (unitless)	ENTER Average dms for carcinogens, ATC (yrs)	ENTER Average time for noncarcinogens, ATNC (yrs)	ENTER Exposure duration, ED (yrs)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure time ET (hrs/day)	ENTER Conversion factor CF (hr/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)	
95838	Trimethylbenzene, 1,2,4-	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
540990	Dichloroethylene, 1,2- (total)	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
106878	Trimethylbenzene, 1,3,5-	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
104518	n-Butylbenzene	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
81203	Naphthalene	6.74E+03	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
99876	Isopropyltoluene, 4-	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
135988	Butylbenzene, sec-	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
74673	Chloromethane	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
75014	Vinyl chloride	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
74839	Bromomethane	2.49E+00	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
75003	Ethyl Chloride	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
75354	1,1-Dichloroethylene	2.22E+00	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
87641	Acetone	1.47E+02	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
75150	Carbon Disulfide	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
79209	Methyl Acetate	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
75002	Methylene chloride	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
156605	trans-1,2-Dichloroethylene	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
1634044	Methyl-Tertiary-Butyl Ether	3.72E+01	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
75343	1,1-Dichloroethane	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
156592	cis-1,2-Dichloroethylene	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
76933	Butanone, 2- (MEK)	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
71558	1,1,1-Trichloroethane	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
110827	Cyclohexane	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
71432	Benzene	1.51E+01	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
79018	Trichloroethylene	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
108872	Methyl cyclohexane	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
108883	Toluene	1.00E+02	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
127184	Tetrachloroethylene	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
108907	Chlorobenzene	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
100414	Ethylbenzene	1.07E+08	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
1330207	Xylenes	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
100425	Styrene	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
98828	Isopropylbenzene	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
79346	1,1,2,2-Tetrachloroethane	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
341731	Dichlorobenzene, 1,3-	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
106487	1,4-Dichlorobenzene	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
95501	1,2-Dichlorobenzene	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
120821	1,2,4-Trichlorobenzene	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
100527	Benzaldehyde	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
91578	Methylnaphthalene, 2-	7.18E+03	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
92524	Biphenyl, 1,1'-	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
209969	Acenaphthylene	1.68E+03	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
83329	Acenaphthene	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
132649	Dibenzofuran	1.42E+02	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
86737	Fluorene	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
85018	Phenanthrene	1.30E+03	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
120127	Anthracene	15	15	10	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
C5-C8	C5-C8 Aliphatics	7.33E+03	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
C9-C12	C9-C12 Aliphatics	2.10E+04	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
C9-C10	C9-C10 Aromatics	1.77E+05	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
C9-C18	C9-C18 Aliphatics	1.31E+06	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	
C11-C22	C11-C22 Aromatics	4.66E+05	15	15	LS	1.5	0.43	0.3	0.002	70	9	9	219	8	8760	1.0E-06	1	

1) Default soil parameters from table 7 of User's Guide for Evaluating Subsurface Vapor Intrusion into Building (U.S. EPA June 19, 2003) were used for soil water filled porosity (θ<sub>v</sub>), soil organic carbon fraction (f<sub>oc</sub>), soil total porosity (n), and soil dry bulk density (ρ<sub>d</sub>).

## Appendix C.4

Johnson &amp; Etlinger Model - Data Entry Screen

Inhalation of Volatiles from Soil

Future Commercial Scenario- CT

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

Aberjona Auto Parts

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, $D_a$ ( $\text{cm}^2/\text{s}$ )	Diffusivity in water, $D_w$ ( $\text{cm}^2/\text{s}$ )	Henry's law constant at reference temperature, H ( $\text{atm}\cdot\text{m}^3/\text{mol}$ )	Henry's law constant reference temperature, $T_R$ ( $^{\circ}\text{C}$ )	Enthalpy of vaporization at the normal boiling point, $\Delta H_{\text{v}}$ ( $\text{cal}/\text{mol}$ )	Normal boiling point, $T_B$ ( $^{\circ}\text{K}$ )	Critical temperature, $T_C$ ( $^{\circ}\text{K}$ )	Organic carbon partition coefficient, $K_{oc}$ ( $\text{cm}^3/\text{g}$ )	Pure component water solubility, S ( $\text{mg}/\text{L}$ )	Unit risk factor, URF ( $\mu\text{g}/\text{m}^3$ ) <sup>-1</sup>	Reference conc., RfC ( $\text{mg}/\text{m}^3$ )	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	1.66E+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	1.28E-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	0.0E+00
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-1,1,2-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	518.50	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	328.38	497.11	3.84E+01	5.10E+04	N/A	3.0E+00	L
75343	1,1-Dichloroethane	7.42E-02	1.05E-05	5.81E-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	3.55E+01	3.50E+03	N/A	2.0E-01	L
78933	Bulanone, 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	6.89E+01	1.75E+03	7.8E-06	3.0E-02	L
79016	Trichloroethylene	7.80E-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	0.0E+00
108883	Toluene	8.70E-02	8.80E-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	7.88E-03	25	8.50E+03	409.34	617.20	3.63E+02	1.69E+02	N/A	1.0E+00	L
1330207	Xylenes	7.89E-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	485.00	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	1.16E+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
132849	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	NA
86737	Fluorene	3.83E-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	889.01	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	0.0E+00
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	0.0E+00
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	0.0E+00
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	0.0E+00
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	0.0E+00

Appendix C.4  
 Johnson & Ettinger Model - Data Entry Screen  
 Inhalation of Volatiles from Soil  
 Futura Commercial Scenario- CT  
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2  
 Aberjona Auto Parts

Chemical CAS No. (numbers only, no dashes)	Chemical	Source- building separation, LT (cm)	Vadose zone soil air-filled porosity, $\theta_a$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone effective total fluid saturation, $S_w$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone intrinsic permeability, $k_i$ (cm <sup>2</sup> )	Vadose zone soil relative air permeability, $k_{ra}$ (cm <sup>2</sup> )	Vadose zone effective vapor permeability, $k_v$ (cm <sup>2</sup> )	Floor- wall seam perimeter, X <sub>crack</sub> (cm)	Initial soil concentration used, CR (µg/kg)	Bldg. ventilation rate, Q <sub>vent</sub> (cm <sup>3</sup> /s)	Area of enclosed space below grade, A <sub>g</sub> (cm <sup>2</sup> )	Crack- to-total area ratio, $\eta$ (unitless)	Crack depth below grade, Z <sub>crack</sub> (cm)	Enthalpy of vaporization ave. soil temperature, $\Delta H_{v,TS}$ (cal/mol)	Henry's law constant at ave. soil temperature, H <sub>TS</sub> (atm-m <sup>3</sup> /mol)	Henry's law constant at ave. soil temperature, HTS (unitless)	Vapor viscosity at ave. soil temperature, $\mu_{TS}$ (g/cm-s)
95636	Trimethylbenzene, 1,2,4-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	4.36E+05	1.81E+07	5.67E+07	5.31E-05	15	1.55E+03	4.99E-03	2.13E-01	1.75E-04
540590	Dichloroethylenes, 1,2- (total)	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	5.96E+02	1.81E+07	5.67E+07	5.31E-05	15	1.73E+03	3.87E-04	1.67E-02	1.75E-04
106870	Trimethylbenzene, 1,3,5-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	7.13E+04	1.81E+07	5.67E+07	5.31E-05	15	1.55E+03	6.80E-03	2.93E-01	1.75E-04
104518	n-Butylbenzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	8.03E+03	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	1.09E-02	4.69E-01	1.75E-04
91203	Naphthalene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	5.74E+03	1.81E+07	5.67E+07	5.31E-05	15	1.29E+04	1.52E-04	6.55E-03	1.75E-04
98976	Isopropyltoluene, 4-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	7.31E+05	1.81E+07	5.67E+07	5.31E-05	15	1.57E+03	7.48E+00	3.22E+02	1.75E-04
135988	Butylbenzene, sec-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.10E+06	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	1.48E-02	6.27E-01	1.75E-04
74873	Chloromethane	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.37E+06	1.81E+07	5.67E+07	5.31E-05	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04
75014	Vinyl chloride	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	8.33E+05	1.81E+07	5.67E+07	5.31E-05	15	5.00E+03	1.73E-02	7.46E-01	1.75E-04
74839	Bromomethane	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	2.40E+00	1.81E+07	5.67E+07	5.31E-05	15	5.39E+03	3.84E-03	1.85E-01	1.75E-04
75003	Ethyl Chloride	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.37E+06	1.81E+07	5.67E+07	5.31E-05	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04
75354	1,1-Dichloroethylene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	2.22E+00	1.81E+07	5.67E+07	5.31E-05	15	6.39E+03	1.47E-02	6.34E-01	1.75E-04
70131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	3.99E+05	1.81E+07	5.67E+07	5.31E-05	15	1.44E+03	4.55E-01	1.06E+01	1.75E-04
67841	Acetone	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.47E+02	1.81E+07	5.67E+07	5.31E-05	15	7.56E+03	1.97E-06	8.50E-04	1.75E-04
75150	Carbon Disulfide	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	6.78E+05	1.81E+07	5.67E+07	5.31E-05	15	6.68E+03	6.99E-03	3.01E-01	1.75E-04
79209	Methyl Acetate	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	5.03E+07	1.81E+07	5.67E+07	5.31E-05	15	1.50E+03	8.88E-06	4.25E-03	1.75E-04
75062	Methylene chloride	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	2.96E+06	1.81E+07	5.67E+07	5.31E-05	15	7.03E+03	1.17E-03	5.03E-02	1.75E-04
156805	trans-1,2-Dichloroethylene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	2.12E+08	1.81E+07	5.67E+07	5.31E-05	15	1.42E+03	8.27E-03	3.56E-01	1.75E-04
1634044	Methyl-Tertiary-Butyl Ether	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	3.72E+01	1.81E+07	5.67E+07	5.31E-05	15	1.45E+03	5.16E-04	2.22E-02	1.75E-04
75343	1,1-Dichloroethane	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.39E+06	1.81E+07	5.67E+07	5.31E-05	15	7.45E+03	2.88E-03	1.24E-01	1.75E-04
156592	cis-1,2-Dichloroethylene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	9.75E+05	1.81E+07	5.67E+07	5.31E-05	15	1.48E+03	4.90E-05	2.11E-03	1.75E-04
78933	Butanone, 2- (MEK)	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	4.83E+07	1.81E+07	5.67E+07	5.31E-05	15	7.88E+03	6.50E-03	3.89E-01	1.75E-04
71556	1,1,1-Trichloroethane	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	6.01E+05	1.81E+07	5.67E+07	5.31E-05	15	1.49E+03	1.75E+00	7.54E+01	1.75E-04
110627	Cyclohexane	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	3.88E+05	1.81E+07	5.67E+07	5.31E-05	15	1.49E+03	1.75E+00	7.54E+01	1.75E-04
71432	Benzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.31E+01	1.81E+07	5.67E+07	5.31E-05	15	8.12E+03	2.69E-03	1.18E-01	1.75E-04
79016	Trichloroethylene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	6.05E+05	1.81E+07	5.67E+07	5.31E-05	15	8.59E+03	4.79E-03	2.06E+01	1.75E-04
106872	Methyl cyclohexane	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	2.96E+04	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	3.70E-01	1.58E+01	1.75E-04
108883	Toluene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.00E+02	1.81E+07	5.67E+07	5.31E-05	15	9.15E+03	2.82E-03	1.28E-01	1.75E-04
127184	Tetrachloroethylene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.08E+05	1.81E+07	5.67E+07	5.31E-05	15	9.55E+03	7.83E-03	3.37E-01	1.75E-04
108907	Chlorobenzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	3.04E+05	1.81E+07	5.67E+07	5.31E-05	15	9.80E+03	1.54E-03	6.85E-02	1.75E-04
100414	Ethylbenzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.07E+03	1.81E+07	5.67E+07	5.31E-05	15	1.02E+04	3.18E-03	1.37E-01	1.75E-04
1330207	Xylenes	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.50E+05	1.81E+07	5.67E+07	5.31E-05	15	1.54E+03	5.88E-06	2.52E-04	1.75E-04
100425	Styrene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	5.44E+05	1.81E+07	5.67E+07	5.31E-05	15	1.05E+04	1.08E-03	4.67E-02	1.75E-04
98528	Isopropylbenzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.09E+06	1.81E+07	5.67E+07	5.31E-05	15	1.54E+03	1.28E-02	5.51E-01	1.75E-04
73345	1,1,2,2-Tetrachloroethane	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.15E+06	1.81E+07	5.67E+07	5.31E-05	15	1.05E+04	1.34E-04	5.77E-03	1.75E-04
541731	Dichlorobenzene, 1,3-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	3.82E+04	1.81E+07	5.67E+07	5.31E-05	15	1.50E+03	4.11E-03	1.77E-01	1.75E-04
106467	1,4-Dichlorobenzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.06E+05	1.81E+07	5.67E+07	5.31E-05	15	1.12E+04	8.89E-04	3.83E-02	1.75E-04
95501	1,2-Dichlorobenzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	8.50E+08	1.81E+07	5.67E+07	5.31E-05	15	1.21E+04	5.51E-07	2.37E-05	1.75E-04
120821	1,2,4-Trichlorobenzene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.13E+08	1.81E+07	5.67E+07	5.31E-05	15	1.32E+04	4.35E-04	1.87E-02	1.75E-04
100527	Benzaldehyde	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.74E+08	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	2.29E-06	8.84E-04	1.75E-04
91576	Methylnaphthalene, 2-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	7.18E+03	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	8.86E-04	3.81E-02	1.75E-04
82524	Biphenyl, 1,1'-	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	8.81E+04	1.81E+07	5.67E+07	5.31E-05	15	1.47E+03	2.86E-04	1.14E-02	1.75E-04
208968	Acanaphthylene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.68E+03	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	2.45E-04	1.05E-02	1.75E-04
83329	Acanaphthene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	6.06E+04	1.81E+07	5.67E+07	5.31E-05	15	1.81E+04	3.67E-05	1.55E-03	1.75E-04
132649	Dibenzofuran	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.42E+02	1.81E+07	5.67E+07	5.31E-05	15	1.47E+03	3.51E-03	1.51E-01	1.75E-04
86737	Fluorene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	2.87E+04	1.81E+07	5.67E+07	5.31E-05	15	1.52E+03	1.14E-04	4.80E-03	1.75E-04
85018	Phenanthrene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.30E+03	1.81E+07	5.67E+07	5.31E-05	15	1.49E+03	2.20E-08	8.48E-07	1.75E-04
120127	Anthracene	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	2.57E+03	1.81E+07	5.67E+07	5.31E-05	15	1.84E+04	1.28E-05	5.43E-04	1.75E-04
CS-C8	CS-C8 Aliphatics	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	7.33E+03	1.81E+07	5.67E+07	5.31E-05	15	NA	6.48E-01	2.79E+01	1.75E-04
CS-C12	CS-C12 Aliphatics	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	2.10E+04	1.81E+07	5.67E+07	5.31E-05	15	NA	7.80E-01	3.36E+01	1.75E-04
CS-C10	CS-C10 Aromatics	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.77E+05	1.81E+07	5.67E+07	5.31E-05	15	NA	3.96E-03	1.70E-01	1.75E-04
CS-C18	CS-C18 Aliphatics	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	1.31E+06	1.81E+07	5.67E+07	5.31E-05	15	NA	8.28E-01	3.59E+01	1.75E-04
C11-C22	C11-C22 Aromatics	1	0.130	0.859	1.62E-08	0.390	6.33E-09	3.01E+04	4.69E+05	1.81E+07	5.67E+07	5.31E-05	15	NA	3.60E-04	1.55E-02	1.75E-04

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  
 Aberjona Auto Parts

Chemical CAS No. (numbers only, no dashes)	Chemical	Vadose zone effective diffusion coefficient, $D_{v}^{eff}$ ( $cm^2/s$ )	Diffusion path length, $L_d$ (cm)	Convection path length, $L_c$ (cm)	Soil-water partition coefficient, $K_d$ ( $cm^3/g$ )	Source vapor conc., $C_{source}$ ( $\mu g/m^3$ )	Crack radius, $r_{crack}$ (cm)	Average vapor flow rate into bldg., $Q_{avg}$ ( $cm^3/s$ )	Crack diffusive coefficient, $D_{crack}^{diff}$ ( $cm^2/s$ )	Area of crack, $A_{crack}$ ( $cm^2$ )	Exponent of equivalent foundation Pecllet number, exp(PeF) (unitless)	Infinite source Indoor attenuation coefficient, $\alpha$ (unitless)	Infinite source bldg. conc., $C_{bldg}$ ( $\mu g/m^3$ )	Unit risk factor, URF ( $\mu g/m^3$ ) <sup>-1</sup>	Reference conc., RIC ( $mg/m^3$ )
95838	Trimethylbenzene, 1,2,4-	4.77E-04	1	15	7.43E+00	N/A	0.10	4.79E+01	4.77E-04	3.01E+03	1.68E+217	2.84E-06	N/A	N/A	6.0E-03
540590	Dichlorobenzene, 1,2- (total)	3.77E-04	1	15	2.57E-01	N/A	0.10	4.79E+01	3.77E-04	3.01E+03	7.28E+274	2.84E-06	N/A	N/A	#N/A
108678	Trimethylbenzene, 1,3,5-	3.85E-04	1	15	3.34E+00	N/A	0.10	4.79E+01	3.95E-04	3.01E+03	1.15E+262	2.84E-06	N/A	N/A	6.0E-03
104318	n-Butylbenzene	4.41E-04	1	15	5.02E+00	N/A	0.10	4.79E+01	4.41E-04	3.01E+03	8.55E+234	2.84E-06	N/A	N/A	#N/A
91203	Naphthalene	4.70E-04	1	15	4.00E+00	8.96E+03	0.10	4.79E+01	4.70E-04	3.01E+03	3.02E+220	2.84E-06	2.37E-02	N/A	3.0E-03
99878	Isopropyltoluene, 4-	4.39E-04	1	15	3.18E+00	N/A	0.10	4.79E+01	4.39E-04	3.01E+03	7.40E+235	2.84E-06	N/A	N/A	4.0E-01
135988	Butylbenzene, sec-	4.89E-04	1	15	6.22E-01	N/A	0.10	4.79E+01	4.89E-04	3.01E+03	1.39E+213	2.84E-06	N/A	N/A	#N/A
74873	Chloromethane	7.68E-04	1	15	2.89E-02	N/A	0.10	4.79E+01	7.68E-04	3.01E+03	2.20E+135	2.84E-06	N/A	N/A	9.0E-02
75014	Vinyl chloride	6.44E-04	1	15	3.72E-02	N/A	0.10	4.79E+01	6.44E-04	3.01E+03	7.47E+180	2.84E-06	N/A	N/A	8.8E-06
74839	Bromomethane	4.48E-04	1	15	2.99E-02	1.63E+03	0.10	4.79E+01	4.48E-04	3.01E+03	1.18E+231	2.84E-06	4.31E-03	N/A	1.0E-01
75003	Ethyl Chloride	7.68E-04	1	15	2.89E-02	N/A	0.10	4.79E+01	7.68E-04	3.01E+03	2.19E+135	2.84E-06	N/A	N/A	5.0E-03
75354	1,1-Dichloroethylene	5.47E-04	1	15	1.18E-01	3.78E+03	0.10	4.79E+01	5.47E-04	3.01E+03	2.49E+189	2.84E-06	9.88E-03	N/A	1.0E+01
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1.75E-04	1	15	4.50E-01	N/A	0.10	4.79E+01	1.75E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	2.0E-01
67641	Acetone	2.07E-03	1	15	1.15E-03	6.19E+02	0.10	4.79E+01	2.07E-03	3.01E+03	1.22E+50	2.84E-06	1.64E-03	N/A	3.0E+01
75150	Carbon Disulfide	6.34E-04	1	15	1.03E-01	N/A	0.10	4.79E+01	6.34E-04	3.01E+03	1.95E+163	2.84E-06	N/A	N/A	7.0E-01
79209	Methyl Acetate	8.81E-04	1	15	8.84E-03	N/A	0.10	4.79E+01	8.81E-04	3.01E+03	2.07E+120	2.84E-06	N/A	N/A	#N/A
75002	Methylene chloride	6.35E-04	1	15	2.34E-02	N/A	0.10	4.79E+01	6.35E-04	3.01E+03	1.48E+163	2.84E-06	N/A	N/A	4.7E-07
158605	trans-1,2-Dichloroethylene	4.32E-04	1	15	1.05E-01	N/A	0.10	4.79E+01	4.32E-04	3.01E+03	9.26E+239	2.84E-06	N/A	N/A	3.0E+00
1834044	Methyl-Tertiary-Butyl Ether	6.87E-04	1	15	7.68E-02	2.89E+03	0.10	4.79E+01	6.87E-04	3.01E+03	2.13E+155	2.84E-06	7.83E-03	N/A	3.0E+00
75343	1,1-Dichloroethane	4.58E-04	1	15	3.32E-02	N/A	0.10	4.79E+01	4.58E-04	3.01E+03	1.65E+228	2.84E-06	N/A	N/A	5.0E-01
158582	cis-1,2-Dichloroethylene	4.58E-04	1	15	7.10E-02	N/A	0.10	4.79E+01	4.58E-04	3.01E+03	7.48E+225	2.84E-06	N/A	N/A	2.0E-01
78933	Butanone, 2- (MEK)	9.45E-04	1	15	7.09E-03	N/A	0.10	4.79E+01	9.45E-04	3.01E+03	3.81E+109	2.84E-06	N/A	N/A	N/A
71556	1,1,1-Trichloroethane	4.75E-04	1	15	2.20E-01	N/A	0.10	4.79E+01	4.75E-04	3.01E+03	1.21E+218	2.84E-06	N/A	N/A	2.2E+00
110827	Cyclohexane	4.85E-04	1	15	3.20E-01	N/A	0.10	4.79E+01	4.85E-04	3.01E+03	4.89E+213	2.84E-06	N/A	N/A	#N/A
71432	Benzene	5.42E-04	1	15	1.18E-01	4.84E+03	0.10	4.79E+01	5.42E-04	3.01E+03	1.94E+191	2.84E-06	1.23E-02	7.8E-08	3.0E-02
79018	Trichloroethylene	4.83E-04	1	15	3.32E-01	N/A	0.10	4.79E+01	4.83E-04	3.01E+03	2.88E+214	2.84E-06	N/A	N/A	1.1E-04
108572	Methyl cyclohexane	5.89E-04	1	15	5.38E-01	N/A	0.10	4.79E+01	5.89E-04	3.01E+03	2.33E+173	2.84E-06	N/A	N/A	3.0E+00
108893	Toluene	5.34E-04	1	15	3.64E-01	2.19E+04	0.10	4.79E+01	5.34E-04	3.01E+03	1.08E+184	2.84E-06	5.78E-02	N/A	4.0E-01
127164	Tetrachloroethylene	4.39E-04	1	15	3.10E-01	N/A	0.10	4.79E+01	4.39E-04	3.01E+03	1.40E+238	2.84E-06	N/A	N/A	5.9E-06
108907	Chlorobenzene	4.55E-04	1	15	4.38E-01	N/A	0.10	4.79E+01	4.55E-04	3.01E+03	3.77E+227	2.84E-06	N/A	N/A	8.0E-02
100414	Ethylbenzene	4.60E-04	1	15	7.28E-01	1.57E+05	0.10	4.79E+01	4.60E-04	3.01E+03	1.47E+225	2.84E-06	4.14E-01	N/A	1.0E+00
1330207	Xylenes	3.75E-03	1	15	4.62E-01	N/A	0.10	4.79E+01	3.75E-03	3.01E+03	4.33E+27	2.85E-06	N/A	N/A	1.0E-01
100425	Styrene	4.47E-04	1	15	1.55E+00	N/A	0.10	4.79E+01	4.47E-04	3.01E+03	5.26E+231	2.84E-06	N/A	N/A	#N/A
98828	Isopropylbenzene	3.95E-04	1	15	1.86E+01	N/A	0.10	4.79E+01	3.95E-04	3.01E+03	1.24E+262	2.84E-06	N/A	N/A	4.0E-01
76345	1,1,2,2-Tetrachloroethane	5.65E-04	1	15	1.87E-01	N/A	0.10	4.79E+01	5.65E-04	3.01E+03	3.00E+183	2.84E-06	N/A	N/A	#N/A
541731	Dichlorobenzene, 1,3-	2.58E-04	1	15	3.40E-01	N/A	0.10	4.79E+01	2.58E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	N/A
106487	1,4-Dichlorobenzene	4.38E-04	1	15	1.23E+00	N/A	0.10	4.79E+01	4.38E-04	3.01E+03	2.05E+236	2.84E-06	N/A	N/A	N/A
95501	1,2-Dichlorobenzene	3.94E-02	1	15	1.07E-01	N/A	0.10	4.79E+01	3.94E-02	3.01E+03	4.28E+02	2.85E-06	N/A	N/A	8.0E-01
120821	1,2,4-Trichlorobenzene	2.25E-04	1	15	3.56E+00	N/A	0.10	4.79E+01	2.25E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	N/A
100527	Benzaldehyde	1.35E-03	1	15	6.54E-02	N/A	0.10	4.79E+01	1.35E-03	3.01E+03	7.88E+76	2.84E-06	N/A	N/A	#N/A
91576	Methylnaphthalene, 2-	3.13E-04	1	15	1.70E+01	1.59E+04	0.10	4.79E+01	3.13E-04	3.01E+03	#NUM!	2.84E-06	4.19E-02	N/A	3.0E-03
92524	Biphenyl, 1,1'-	3.15E-04	1	15	1.25E+01	N/A	0.10	4.79E+01	3.15E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	N/A
208968	Acenaphthylene	3.38E-04	1	15	9.57E+00	1.81E+03	0.10	4.79E+01	3.38E-04	3.01E+03	#NUM!	2.84E-06	4.78E-03	N/A	3.0E-03
83329	Acenaphthene	7.33E-04	1	15	1.42E+01	N/A	0.10	4.79E+01	7.33E-04	3.01E+03	1.83E+141	2.84E-06	N/A	N/A	3.0E-03
132549	Dibenzofuran	1.66E-04	1	15	1.63E+01	1.30E+03	0.10	4.79E+01	1.66E-04	3.01E+03	#NUM!	2.63E-06	3.43E-03	N/A	N/A
98737	Fluorene	8.16E-01	1	15	1.54E+01	N/A	0.10	4.79E+01	8.16E-01	3.01E+03	1.34E+00	1.04E-05	N/A	N/A	3.0E-03
85018	Phenanthrene	3.50E-04	1	15	2.83E+01	2.23E+02	0.10	4.79E+01	3.50E-04	3.01E+03	2.42E+298	2.64E-06	5.90E-04	N/A	3.0E-03
120127	Anthracene	1.60E-03	1	15	5.80E+01	N/A	0.10	4.79E+01	1.60E-03	3.01E+03	8.87E+84	2.64E-06	N/A	N/A	3.0E-03
CS-C8	CS-C8 Aliphatics	3.64E-04	1	15	4.53E+00	2.89E+07	0.10	4.79E+01	3.64E-04	3.01E+03	7.81E+284	2.64E-06	7.55E+01	N/A	2.0E-01
CB-C12	CB-C12 Aliphatics	3.64E-04	1	15	3.00E+02	2.33E+06	0.10	4.79E+01	3.64E-04	3.01E+03	7.89E+284	2.64E-06	6.14E+00	N/A	2.0E-01
CB-C10	CB-C10 Aromatics	3.89E-04	1	15	3.58E+06	8.00E+06	0.10	4.79E+01	3.89E-04	3.01E+03	3.04E+280	2.64E-06	2.11E+01	N/A	5.0E-02
CB-C18	CB-C18 Aliphatics	3.84E-04	1	15	1.39E+03	3.43E+07	0.10	4.79E+01	3.84E-04	3.01E+03	8.02E+284	2.64E-06	9.05E+01	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	4.27E-04	1	15	1.00E+01	7.13E+05	0.10	4.79E+01	4.27E-04	3.01E+03	4.50E+242	2.64E-06	1.88E+00	N/A	5.0E-02

RESULTS SHEET

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  
 Aberjona Auto Parts

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 <sub>sat</sub> (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)
95636	Trimethylbenzene, 1,2,4-	NA	NA	NA	4.36E+05	NA	NA	NA
540590	Dichloroethylene, 1,2- (total)	NA	NA	NA	5.96E+02	NA	NA	NA
108678	Trimethylbenzene, 1,3,5-	NA	NA	NA	7.13E+04	NA	NA	NA
104518	n-Butylbenzene	NA	NA	NA	6.63E+03	NA	NA	NA
91203	Naphthalene	NA	NA	NA	1.30E+05	NA	NA	1.6E-03
99876	Isopropyltoluene, 4-	NA	NA	NA	7.31E+05	NA	NA	NA
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	3.69E+06	NA	NA	1.7E-04
75003	Ethyl Chloride	NA	NA	NA	1.37E+08	NA	NA	NA
75354	1,1-Dichloroethylene	NA	NA	NA	8.38E+05	NA	NA	1.0E-05
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	NA	NA	NA	3.99E+05	NA	NA	NA
67641	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	2.96E+06	NA	NA	NA
156605	trans-1,2-Dichloroethylene	NA	NA	NA	2.12E+08	NA	NA	NA
1634044	Methyl-Tertiary-Butyl Ether	NA	NA	NA	1.42E+07	NA	NA	5.2E-07
75343	1,1-Dichloroethane	NA	NA	NA	1.39E+06	NA	NA	NA
156592	cis-1,2-Dichloroethylene	NA	NA	NA	9.75E+05	NA	NA	NA
78933	Butanone, 2- (MEK)	NA	NA	NA	4.63E+07	NA	NA	NA
71556	1,1,1-Trichloroethane	NA	NA	NA	6.01E+05	NA	NA	NA
110827	Cyclohexane	NA	NA	NA	3.88E+05	NA	NA	NA
71432	Benzene	NA	NA	NA	5.74E+05	NA	2.5E-09	8.2E-05
79016	Trichloroethylene	NA	NA	NA	6.05E+05	NA	NA	NA
108872	Methyl cyclohexane	NA	NA	NA	2.96E+04	NA	NA	NA
108883	Toluene	NA	NA	NA	3.02E+05	NA	NA	2.9E-05
127184	Tetrachloroethylene	NA	NA	NA	1.08E+05	NA	NA	NA
108907	Chlorobenzene	NA	NA	NA	3.04E+05	NA	NA	NA
100414	Ethylbenzene	NA	NA	NA	1.58E+05	NA	NA	8.3E-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
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	1.06E+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	2.8E-03
92524	Biphenyl, 1,1'-	NA	NA	NA	6.81E+04	NA	NA	NA
208068	Acenaphthylene	NA	NA	NA	3.84E+04	NA	NA	3.2E-04
83329	Acenaphthene	NA	NA	NA	6.09E+04	NA	NA	NA
132649	Dibenzofuran	NA	NA	NA	1.65E+05	NA	NA	NA
88737	Fluorene	NA	NA	NA	2.97E+04	NA	NA	NA
85018	Phenanthrene	NA	NA	NA	3.64E+04	NA	NA	3.9E-05
120127	Anthracene	NA	NA	NA	2.57E+03	NA	NA	NA
C5-C8	C5-C8 Aliphatics	NA	NA	NA	7.86E+07	NA	NA	7.6E-02
C9-C12	C9-C12 Aliphatics	NA	NA	NA	2.12E+07	NA	NA	6.1E-03
C9-C10	C9-C10 Aromatics	NA	NA	NA	1.92E+08	NA	NA	8.4E-02
C9-C18	C9-C18 Aliphatics	NA	NA	NA	1.38E+07	NA	NA	9.0E-02
C11-C22	C11-C22 Aromatics	NA	NA	NA	5.92E+07	NA	NA	7.5E-03

95% UCL  
 Cancer Risk  
 2E-09

95% UCL  
 HI  
 2.7E-01

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<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.

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	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)	Mean soil conc., CR (µg/kg)	Depth below grade to bottom of enclosed space floor, L <sub>s</sub> (15 or 200 cm)	Depth below grade to top of contamination, L <sub>t</sub> (cm)	Average soil temperature, T <sub>a</sub> (°C)	Vadose zone SCS soil type (used to estimate soil vapor permeability)	User-defined vadose zone soil vapor permeability, k <sub>v</sub> (cm <sup>2</sup> )	Vadose zone soil dry bulk density, ρ <sub>b</sub> (g/cm <sup>3</sup> )	Vadose zone soil total porosity, n <sup>*</sup> (unitless)	Vadose zone soil water-filled porosity, θ <sub>v</sub> <sup>*</sup> (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone soil organic carbon fraction, f <sub>oc</sub> <sup>*</sup> (unitless)	Average time for carcinogens, ATC (hrs)	Average time for noncarcinogens, ATNC (hrs)	Exposure duration, ED (hrs)	Exposure frequency, EF (days/yr)	Exposure time ET (hrs/day)	Conversion factor CF (hr <sup>2</sup> /yr)	Target risk for carcinogens, TR (unitless)	Target hazard quotient for noncarcinogens, THQ (unitless)		
96938		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
540590		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
108676		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
104518		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
81203	6.74E+03	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
99676		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
135988		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
74873		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
75014		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
74839	2.40E+00	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
75003		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
75354		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
75321		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
87641	1.47E+02	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
75150		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
75209		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
75062		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
156805		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
1634044	1.30E+02	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
75343		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
156592		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
78933		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
71558		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
110827		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
71432	1.31E+01	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
79018		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
108872		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
108883	1.00E+02	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
127184		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
108907		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
109414	1.07E+03	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
1330207		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
106425		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
98828		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
78345		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
541731		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
108487		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
95501		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
120821		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
100527		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
91576	7.18E+03	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
92524		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
208968	1.68E+03	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
83329		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
132649	1.42E+02	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
86737		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
85018	1.36E+03	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
120127		15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
CS-C8	1.90E+04	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
C9-C12	6.10E+04	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
C9-C10	1.77E+05	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
C9-C18	1.31E+06	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		
C11-C22	1.72E+06	15	15	10	LS	1	1.8	0.43	0.3	0.002	70	6	6	78	2.5	8760	1.0E-06	1		

Note:  
 1) Default soil parameters from table 7 of User's Guide for Evaluating Subsurface Vapor Intrusion into Building (U.S. EPA June 19, 2003) were used for soil water filled porosity (θ<sub>v</sub>), soil organic carbon fraction (f<sub>oc</sub>), soil total porosity (n), and soil dry bulk density (ρ<sub>b</sub>).

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  
 Aberjona Auto Parts

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, D <sub>a</sub> (cm <sup>2</sup> /s)	Diffusivity in water, D <sub>w</sub> (cm <sup>2</sup> /s)	Henry's law constant at reference temperature, H (atm-m <sup>3</sup> /mol)	Henry's law constant reference temperature, T <sub>R</sub> (°C)	Enthalpy of vaporization at the normal boiling point, ΔH <sub>v,b</sub> (cal/mol)	Normal boiling point, T <sub>B</sub> (°K)	Critical temperature, T <sub>C</sub> (°K)	Organic carbon partition coefficient, K <sub>oc</sub> (cm <sup>3</sup> /g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF (μg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., R/C (mg/m <sup>3</sup> )	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	1.26E+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	1.87E-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	1.05E-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	0.0E+00
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	8.90E+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
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	0.0E+00
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
133207	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	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	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	1.52E-06	25	9.70E+03	465.00	697.50	5.34E+01	2.77E+04	N/A	N/A	S
120291	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	NA
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	8.00E-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	7.00E-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	7.00E-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	7.00E-02	5.00E-06	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  
 Future Child Recreational Scenario - RME  
 Future Child Recreational Scenario - RME  
 Southwest Properties, Wells G&H Superfund Site, Operable Unit 2  
 Aberjona Auto Parts

Chemical CAS No. (numbers only, no dashes)	Chemical	Source- building separation, LT (cm)	Vadose zone soil air-filled porosity, $\theta_a^v$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone effective total fluid saturation, $S_{ue}$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone soil intrinsic permeability, $k_i$ (cm <sup>2</sup> )	Vadose zone relative air permeability, $k_{ra}$ (cm <sup>2</sup> )	Vadose zone soil effective vapor permeability, $k_v$ (cm <sup>2</sup> )	Floor- wall seam perimeter, X <sub>crack</sub> (cm)	Initial soil concentration used, CR (µg/kg)	Bldg. ventilation rate, $Q_{\text{building}}$ (cm <sup>3</sup> /s)	Area of enclosed space below grade, $A_b$ (cm <sup>2</sup> )	Crack- to-total area ratio, $\eta$ (unitless)	Crack depth below grade, $Z_{\text{crack}}$ (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 <sup>3</sup> /mol)	Henry's law constant at ave. soil temperature, HTS (unitless)	Vapor viscosity at ave. soil temperature, $\mu_{Ts}$ (g/cm-s)
95836	Trimethylbenzene, 1,2,4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	4.38E+05	1.81E+07	5.67E+07	5.31E-05	15	1.55E+03	4.96E-03	2.13E-01	1.75E-04
540590	Dichloroethylene, 1,2- (total)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.98E+02	1.81E+07	5.67E+07	5.31E-05	15	1.73E+03	3.87E-04	1.87E-02	1.75E-04
106676	Trimethylbenzene, 1,3,5-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.13E+04	1.81E+07	5.67E+07	5.31E-05	15	1.55E+03	6.80E-03	2.93E-01	1.75E-04
104516	n-Butylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.63E+03	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	1.09E-02	4.68E-01	1.75E-04
91203	Naphthalene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.74E+03	1.81E+07	5.67E+07	5.31E-05	15	1.29E+04	1.52E-04	6.55E-03	1.75E-04
99876	Isopropyltoluene, 4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.31E+05	1.81E+07	5.67E+07	5.31E-05	15	1.57E+03	7.48E+00	3.22E+02	1.75E-04
135888	Butylbenzene, sec-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.10E+06	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	1.48E-02	6.27E-01	1.75E-04
74873	Chloromethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.37E+06	1.81E+07	5.67E+07	5.31E-05	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04
75014	Vinyl chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.33E+05	1.81E+07	5.67E+07	5.31E-05	15	5.00E+03	1.73E-02	7.48E-01	1.75E-04
74839	Bromomethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.40E+00	1.81E+07	5.67E+07	5.31E-05	15	5.39E+03	3.84E-03	1.65E-01	1.75E-04
75003	Ethyl Chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.37E+06	1.81E+07	5.67E+07	5.31E-05	15	1.20E+03	7.78E-03	3.35E-01	1.75E-04
75354	1,1-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	4.80E+00	1.81E+07	5.67E+07	5.31E-05	15	6.39E+03	1.47E-02	6.34E-01	1.75E-04
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.99E+05	1.81E+07	5.67E+07	5.31E-05	15	1.44E+03	4.55E-01	1.99E+01	1.75E-04
87841	Acetone	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.47E+02	1.81E+07	5.67E+07	5.31E-05	15	7.58E+03	1.07E-05	8.65E-04	1.75E-04
75150	Carbon Disulfide	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.78E+05	1.81E+07	5.67E+07	5.31E-05	15	6.88E+03	6.99E-03	3.01E-01	1.75E-04
78209	Methyl Acetate	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.03E+07	1.81E+07	5.67E+07	5.31E-05	15	1.50E+03	9.88E-05	4.25E-03	1.75E-04
75092	Methylene chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.98E+06	1.81E+07	5.67E+07	5.31E-05	15	7.03E+03	1.17E-03	5.03E-02	1.75E-04
159805	trans-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.12E+06	1.81E+07	5.67E+07	5.31E-05	15	1.42E+03	6.27E-03	3.58E-01	1.75E-04
1634044	Methyl-Tertiary-Butyl Ether	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.30E+02	1.81E+07	5.67E+07	5.31E-05	15	1.45E+03	5.16E-04	2.22E-02	1.75E-04
75343	1,1-Dichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.39E+06	1.81E+07	5.67E+07	5.31E-05	15	7.45E+08	2.88E-03	1.22E-01	1.75E-04
159592	cis-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	9.75E+05	1.81E+07	5.67E+07	5.31E-05	15	7.73E+03	2.04E-03	8.77E-02	1.75E-04
78933	Butanone, 2- (MEK)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	4.63E+07	1.81E+07	5.67E+07	5.31E-05	15	1.49E+03	4.90E-05	2.11E-03	1.75E-04
71558	1,1,1-Trichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.01E+05	1.81E+07	5.67E+07	5.31E-05	15	7.88E+03	8.50E-03	3.68E-01	1.75E-04
110827	Cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.88E+05	1.81E+07	5.67E+07	5.31E-05	15	1.49E+03	1.75E+00	7.54E+01	1.75E-04
71432	Benzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.31E+01	1.81E+07	5.67E+07	5.31E-05	15	6.12E+03	2.89E-03	1.18E-01	1.75E-04
70018	Trichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.05E+05	1.81E+07	5.67E+07	5.31E-05	15	8.58E+08	4.79E-03	2.08E-01	1.75E-04
108872	Methyl cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.98E+04	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	3.70E-01	1.59E+01	1.75E-04
108893	Toluene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.08E+02	1.81E+07	5.67E+07	5.31E-05	15	9.15E+03	2.92E-03	1.28E-01	1.75E-04
127184	Tetrachloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.08E+05	1.81E+07	5.67E+07	5.31E-05	15	8.55E+08	7.83E-03	3.37E-01	1.75E-04
108907	Chlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.04E+05	1.81E+07	5.67E+07	5.31E-05	15	8.80E+03	1.54E+03	6.65E-02	1.75E-04
100414	Ethylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.07E+03	1.81E+07	5.67E+07	5.31E-05	15	1.02E+04	3.18E-03	1.37E-01	1.75E-04
1330207	Xylenes	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.50E+05	1.81E+07	5.67E+07	5.31E-05	15	1.54E+03	5.86E-06	2.52E-04	1.75E-04
100425	Styrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.44E+05	1.81E+07	5.67E+07	5.31E-05	15	1.05E+04	1.08E-03	4.67E-02	1.75E-04
98828	Isopropylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.08E+06	1.81E+07	5.67E+07	5.31E-05	15	1.54E+03	1.28E-02	5.51E-01	1.75E-04
70345	1,1,2,2-Tetrachloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.15E+06	1.81E+07	5.67E+07	5.31E-05	15	1.05E+04	1.34E-04	5.77E-03	1.75E-04
541731	Dichlorobenzene, 1,3-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.82E+04	1.81E+07	5.67E+07	5.31E-05	15	1.50E+03	4.11E-03	1.77E-01	1.75E-04
106467	1,4-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.08E+05	1.81E+07	5.67E+07	5.31E-05	15	1.72E+04	8.89E-04	3.63E-02	1.75E-04
95501	1,2-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.50E+06	1.81E+07	5.67E+07	5.31E-05	15	1.21E+04	5.51E-07	2.37E-05	1.75E-04
120821	1,2,4-Trichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.13E+06	1.81E+07	5.67E+07	5.31E-05	15	1.32E+04	4.39E-04	1.67E-02	1.75E-04
100527	Benzaldehyde	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.74E+08	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	2.29E-05	9.84E-04	1.75E-04
81576	Methylnaphthalene, 2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.18E+03	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	8.86E-04	3.81E-02	1.75E-04
82524	Biphenyl, 1,1'-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.81E+04	1.81E+07	5.67E+07	5.31E-05	15	1.47E+03	2.68E-04	1.14E-02	1.75E-04
208956	Acenaphthylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.68E+03	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	2.45E-04	1.05E-02	1.75E-04
83329	Acenaphthene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.09E+04	1.81E+07	5.67E+07	5.31E-05	15	1.81E+04	3.67E-05	1.58E-03	1.75E-04
132849	Dibenzofuran	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.42E+02	1.81E+07	5.67E+07	5.31E-05	15	1.47E+03	3.51E-03	1.51E-01	1.75E-04
86737	Fluorene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.97E+04	1.81E+07	5.67E+07	5.31E-05	15	1.82E+04	2.20E-06	9.48E-07	1.75E-04
85018	Phenanthrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.30E+03	1.81E+07	5.67E+07	5.31E-05	15	1.48E+03	1.14E-04	4.90E-03	1.75E-04
120127	Anthracene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.57E+03	1.81E+07	5.67E+07	5.31E-05	15	1.84E+04	1.28E-05	5.43E-04	1.75E-04
C5-C8	C6-C8 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.90E+04	1.81E+07	5.67E+07	5.31E-05	15	NA	6.48E-01	2.79E+01	1.75E-04
C9-C12	C9-C12 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.10E+04	1.81E+07	5.67E+07	5.31E-05	15	NA	7.80E-01	3.86E+01	1.75E-04
CB-C10	C9-C10 Aromatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.77E+05	1.81E+07	5.67E+07	5.31E-05	15	NA	3.96E-03	1.70E-01	1.75E-04
CB-C18	C9-C18 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.31E+06	1.81E+07	5.67E+07	5.31E-05	15	NA	8.28E-01	3.56E+01	1.75E-04
C11-C22	C11-C22 Aromatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.72E+08	1.81E+07	5.67E+07	5.31E-05	15	NA	3.60E-04	1.55E-02	1.75E-04

1.4036E+217

Chemical CAS No. (numbers only, no dashes)	Chemical	Vadose zone effective diffusion coefficient, D <sub>v</sub> <sup>eff</sup> (cm <sup>2</sup> /s)	Diffusion path length, L <sub>d</sub> (cm)	Convection path length, L <sub>c</sub> (cm)	Soil-water partition coefficient, K <sub>d</sub> (cm <sup>3</sup> /g)	Source vapor conc., C <sub>source</sub> (µg/m <sup>3</sup> )	Crack radius, r <sub>crack</sub> (cm)	Average vapor flow rate into bldg., Q <sub>avg</sub> (cm <sup>2</sup> /s)	Crack effective diffusion coefficient, D <sub>crack</sub> <sup>eff</sup> (cm <sup>2</sup> /s)	Area of crack, A <sub>crack</sub> (cm <sup>2</sup> )	Exponent of equivalent foundation Peclet number, exp(Pef) (unitless)	Infinite source indoor attenuation coefficient, α <sub>i</sub> (unitless)	Infinite source bldg conc. C <sub>bldg</sub> (µg/m <sup>3</sup> )	Unit risk factor, URF (µg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RfC (mg/m <sup>3</sup> )
95638	Trimethylbenzene, 1,2,4-	4.77E-04	1	15	7.43E+00	N/A	0.10	4.79E+01	4.77E-04	3.91E+03	1.68E+217	2.64E-06	N/A	N/A	8.0E-03
540590	Dichloroethylene, 1,2- (total)	3.77E-04	1	15	2.57E-01	N/A	0.10	4.79E+01	3.77E-04	3.01E+03	7.28E+274	2.64E-06	N/A	#N/A	#N/A
108678	Trimethylbenzene, 1,3,5-	3.95E-04	1	15	3.34E+00	N/A	0.10	4.79E+01	3.95E-04	3.01E+03	1.15E+282	2.64E-06	N/A	N/A	6.0E-03
104518	n-Butylbenzene	4.41E-04	1	15	5.02E+00	N/A	0.10	4.79E+01	4.41E-04	3.01E+03	8.55E+234	2.64E-06	N/A	#N/A	#N/A
91203	Naphthalene	4.70E-04	1	15	4.00E+00	8.96E+03	0.10	4.79E+01	4.70E-04	3.01E+03	3.02E+220	2.64E-06	2.37E-02	N/A	3.0E-03
99876	Isopropyltoluene, 4-	4.39E-04	1	15	3.16E+00	N/A	0.10	4.79E+01	4.39E-04	3.01E+03	7.40E+235	2.64E-06	N/A	N/A	4.0E-01
135988	Butylbenzene, sec-	4.86E-04	1	15	6.22E+01	N/A	0.10	4.79E+01	4.86E-04	3.01E+03	1.39E+213	2.64E-06	N/A	#N/A	#N/A
74873	Chloromethane	7.66E-04	1	15	2.86E-02	N/A	0.10	4.79E+01	7.66E-04	3.01E+03	2.20E+135	2.64E-06	N/A	N/A	9.0E-02
75014	Vinyl chloride	6.44E-04	1	15	3.72E-02	N/A	0.10	4.79E+01	6.44E-04	3.01E+03	7.47E+180	2.64E-06	N/A	N/A	8.8E-08
74839	Bromomethane	4.48E-04	1	15	2.86E-02	1.83E+03	0.10	4.79E+01	4.48E-04	3.01E+03	1.16E+231	2.64E-06	4.31E-03	N/A	5.0E-03
75003	Ethyl Chloride	7.66E-04	1	15	2.86E-02	N/A	0.10	4.79E+01	7.66E-04	3.01E+03	2.19E+135	2.64E-06	N/A	N/A	1.0E+01
75354	1,1-Dichloroethylene	5.47E-04	1	15	1.19E-01	8.17E+03	0.10	4.79E+01	5.47E-04	3.01E+03	2.46E+189	2.64E-06	2.16E-02	N/A	2.0E-01
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1.75E-04	1	15	4.50E-01	N/A	0.10	4.79E+01	1.75E-04	3.01E+03	#NUM!	2.63E-06	N/A	N/A	3.0E+01
67841	Acetone	2.07E-03	1	15	1.15E-03	8.19E+02	0.10	4.79E+01	2.07E-03	3.01E+03	1.22E+50	2.64E-06	1.84E-03	N/A	N/A
75150	Carbon Disulfide	8.34E-04	1	15	1.03E-01	N/A	0.10	4.79E+01	8.34E-04	3.01E+03	1.85E+163	2.64E-06	N/A	N/A	7.0E-01
76209	Methyl Acetate	8.61E-04	1	15	6.84E-03	N/A	0.10	4.79E+01	8.61E-04	3.01E+03	2.07E+120	2.64E-06	N/A	#N/A	#N/A
75092	Methylene chloride	8.35E-04	1	15	3.72E-02	N/A	0.10	4.79E+01	8.35E-04	3.01E+03	1.48E+163	2.64E-06	N/A	N/A	4.7E-07
158605	trans-1,2-Dichloroethylene	4.32E-04	1	15	1.05E-01	N/A	0.10	4.79E+01	4.32E-04	3.01E+03	8.26E+239	2.64E-06	N/A	N/A	2.0E-01
185404	Methyl-Tertiary-Butyl Ether	6.67E-04	1	15	7.68E-02	1.04E+04	0.10	4.79E+01	6.67E-04	3.01E+03	2.13E+155	2.64E-06	2.74E-02	N/A	3.0E+00
75343	1,1-Dichloroethane	4.58E-04	1	15	8.32E-02	N/A	0.10	4.79E+01	4.58E-04	3.01E+03	1.85E+226	2.64E-06	N/A	N/A	5.0E-01
158592	cis-1,2-Dichloroethylene	4.59E-04	1	15	7.10E-02	N/A	0.10	4.79E+01	4.59E-04	3.01E+03	7.48E+225	2.64E-06	N/A	N/A	2.0E-01
78933	Butanone, 2- (MEK)	9.45E-04	1	15	7.66E-03	N/A	0.10	4.79E+01	9.45E-04	3.01E+03	3.81E+109	2.64E-06	N/A	N/A	N/A
71556	1,1,1-Trichloroethane	4.75E-04	1	15	2.20E-01	N/A	0.10	4.79E+01	4.75E-04	3.01E+03	1.21E+218	2.64E-06	N/A	N/A	2.2E+00
110827	Cyclohexane	4.85E-04	1	15	3.20E-01	N/A	0.10	4.79E+01	4.85E-04	3.01E+03	4.80E+213	2.64E-06	N/A	#N/A	#N/A
71432	Benzene	5.42E-04	1	15	1.18E-01	4.84E+03	0.10	4.79E+01	5.42E-04	3.01E+03	1.94E+191	2.64E-06	1.23E-02	7.8E-06	3.0E-02
79016	Trichloroethylene	4.83E-04	1	15	3.32E-01	N/A	0.10	4.79E+01	4.83E-04	3.01E+03	2.88E+214	2.64E-06	N/A	N/A	1.1E-04
108872	Methyl cyclohexane	5.98E-04	1	15	5.36E-01	N/A	0.10	4.79E+01	5.98E-04	3.01E+03	2.33E+173	2.64E-06	N/A	N/A	3.0E+00
108883	Toluene	5.34E-04	1	15	3.64E-01	2.19E+04	0.10	4.79E+01	5.34E-04	3.01E+03	1.08E+194	2.64E-06	5.78E-02	N/A	4.0E+01
127184	Tetrachloroethylene	4.39E-04	1	15	3.10E-01	N/A	0.10	4.79E+01	4.39E-04	3.01E+03	1.40E+236	2.64E-06	N/A	5.9E-06	N/A
108907	Chlorobenzene	4.55E-04	1	15	4.38E-01	N/A	0.10	4.79E+01	4.55E-04	3.01E+03	3.77E+227	2.64E-06	N/A	N/A	8.0E-02
100414	Ethylbenzene	4.60E-04	1	15	7.26E-01	1.57E+05	0.10	4.79E+01	4.60E-04	3.01E+03	1.47E+225	2.64E-06	4.14E-01	N/A	1.0E+00
1330207	Xylenes	3.75E-03	1	15	4.82E-01	N/A	0.10	4.79E+01	3.75E-03	3.01E+03	4.33E+27	2.65E-06	N/A	N/A	1.0E-01
100425	Styrene	4.47E-04	1	15	1.55E+00	N/A	0.10	4.79E+01	4.47E-04	3.01E+03	5.28E+231	2.64E-06	N/A	#N/A	#N/A
98826	Isopropylbenzene	3.95E-04	1	15	1.86E+01	N/A	0.10	4.79E+01	3.95E-04	3.01E+03	1.24E+282	2.64E-06	N/A	N/A	4.0E-01
79345	1,1,2,2-Tetrachloroethane	5.85E-04	1	15	1.87E-01	N/A	0.10	4.79E+01	5.85E-04	3.01E+03	3.00E+183	2.64E-06	N/A	#N/A	#N/A
541731	Dichlorobenzene, 1,3-	2.58E-04	1	15	3.40E-01	N/A	0.10	4.79E+01	2.58E-04	3.01E+03	#NUM!	2.64E-06	N/A	N/A	N/A
108467	1,4-Dichlorobenzene	4.38E-04	1	15	1.23E+00	N/A	0.10	4.79E+01	4.38E-04	3.01E+03	2.05E+238	2.64E-06	N/A	N/A	8.0E-01
95501	1,2-Dichlorobenzene	3.94E-02	1	15	1.07E-01	N/A	0.10	4.79E+01	3.94E-02	3.01E+03	4.28E+02	2.65E-06	N/A	N/A	N/A
120821	1,2,4-Trichlorobenzene	2.25E-04	1	15	3.58E+00	N/A	0.10	4.79E+01	2.25E-04	3.01E+03	#NUM!	2.64E-06	N/A	N/A	2.0E-01
100527	Benzaldehyde	1.35E-03	1	15	6.54E-02	N/A	0.10	4.79E+01	1.35E-03	3.01E+03	7.88E+78	2.64E-06	N/A	#N/A	#N/A
91576	Methylnaphthalene, 2-	3.13E-04	1	15	1.70E+01	1.59E+04	0.10	4.79E+01	3.13E-04	3.01E+03	#NUM!	2.64E-06	4.19E-02	N/A	3.0E-03
92524	Biphenyl, 1,1'-	3.15E-04	1	15	1.25E+01	N/A	0.10	4.79E+01	3.15E-04	3.01E+03	#NUM!	2.64E-06	N/A	N/A	N/A
208868	Acenaphthylene	3.38E-04	1	15	9.57E+00	1.81E+03	0.10	4.79E+01	3.38E-04	3.01E+03	7.70E+308	2.64E-06	4.76E-03	N/A	3.0E-03
83329	Acenaphthene	7.33E-04	1	15	1.42E+01	N/A	0.10	4.79E+01	7.33E-04	3.01E+03	1.83E+141	2.64E-06	N/A	N/A	3.0E-03
132849	Dibenzofuran	1.86E-04	1	15	1.83E+01	1.30E+03	0.10	4.79E+01	1.86E-04	3.01E+03	#NUM!	2.83E-06	9.43E-03	N/A	N/A
88737	Fluorene	8.18E-01	1	15	1.54E+01	N/A	0.10	4.79E+01	8.18E-01	3.01E+03	1.34E+00	1.04E-05	N/A	N/A	3.0E-03
85018	Phenanthrene	3.50E-04	1	15	2.83E+01	2.23E+02	0.10	4.79E+01	3.50E-04	3.01E+03	2.42E+298	2.64E-06	1.65E-04	N/A	3.0E-03
120127	Anthracene	1.90E-03	1	15	5.90E+01	N/A	0.10	4.79E+01	1.90E-03	3.01E+03	8.67E+84	2.64E-06	N/A	N/A	3.0E-03
C5-C9	C5-C8 Aliphatics	4.85E-04	1	15	4.53E+00	7.41E+07	0.10	4.79E+01	4.85E-04	3.01E+03	4.77E+213	2.64E-06	1.69E+02	N/A	2.0E-01
C9-C12	C9-C12 Aliphatics	4.24E-04	1	15	3.00E+02	8.78E+08	0.10	4.79E+01	4.24E-04	3.01E+03	1.80E+244	2.64E-06	1.178E+01	N/A	2.0E-01
C9-C10	C9-C10 Aromatics	4.30E-04	1	15	3.56E+00	8.00E+06	0.10	4.79E+01	4.30E-04	3.01E+03	8.94E+240	2.64E-06	2.21E+01	N/A	5.0E-02
C9-C18	C9-C18 Aliphatics	4.24E-04	1	15	1.38E+03	3.43E+07	0.10	4.79E+01	4.24E-04	3.01E+03	1.84E+244	2.64E-06	1.05E+01	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	4.27E-04	1	15	1.00E+01	2.61E+06	0.10	4.79E+01	4.27E-04	3.01E+03	4.50E+242	2.64E-06	N/A	N/A	5.0E-02

RESULTS SHEET

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  
 Aberjona Auto Parts

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 <sub>sat</sub> (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)
95636	Trimethylbenzene, 1,2,4-	NA	NA	NA	4.36E+05	NA	NA	NA
540590	Dichloroethylene, 1,2- (total)	NA	NA	NA	5.98E+02	NA	NA	NA
108678	Trimethylbenzene, 1,3,5-	NA	NA	NA	7.13E+03	NA	NA	NA
104518	n-Butylbenzene	NA	NA	NA	6.63E+03	NA	NA	NA
91203	Naphthalene	NA	NA	NA	1.30E+05	NA	NA	1.8E-04
99876	Isopropyltoluene, 4-	NA	NA	NA	7.31E+05	NA	NA	NA
135988	Butylbenzene, sec-	NA	NA	NA	1.10E+08	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	1.9E-05
75003	Ethyl Chloride	NA	NA	NA	1.37E+08	NA	NA	NA
75354	1,1-Dichloroethylene	NA	NA	NA	8.39E+05	NA	NA	2.4E-06
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	NA	NA	NA	3.99E+05	NA	NA	NA
67641	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	2.96E+06	NA	NA	NA
156605	trans-1,2-Dichloroethylene	NA	NA	NA	2.12E+08	NA	NA	NA
1834044	Methyl-Tertiary-Butyl Ether	NA	NA	NA	1.42E+07	NA	NA	2.0E-07
75343	1,1-Dichloroethane	NA	NA	NA	1.39E+06	NA	NA	NA
156592	cis-1,2-Dichloroethylene	NA	NA	NA	9.75E+05	NA	NA	NA
78933	Butanone, 2- (MEK)	NA	NA	NA	4.63E+07	NA	NA	NA
71556	1,1,1-Trichloroethane	NA	NA	NA	6.01E+05	NA	NA	NA
110827	Cyclohexane	NA	NA	NA	3.88E+05	NA	NA	NA
71432	Benzene	NA	NA	NA	5.74E+05	NA	1.6E-10	9.1E-08
79016	Trichloroethylene	NA	NA	NA	6.05E+05	NA	NA	NA
108872	Methyl cyclohexane	NA	NA	NA	2.96E+04	NA	NA	NA
108883	Toluene	NA	NA	NA	3.02E+05	NA	NA	3.2E-06
127184	Tetrachloroethylene	NA	NA	NA	1.08E+05	NA	NA	NA
108907	Chlorobenzene	NA	NA	NA	3.04E+05	NA	NA	NA
100414	Ethylbenzene	NA	NA	NA	1.58E+05	NA	NA	9.2E-06
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
106467	1,4-Dichlorobenzene	NA	NA	NA	1.06E+05	NA	NA	NA
96501	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	3.1E-04
92524	Biphenyl, 1,1'-	NA	NA	NA	8.81E+04	NA	NA	NA
208968	Acenaphthylene	NA	NA	NA	3.84E+04	NA	NA	3.5E-05
83329	Acenaphthene	NA	NA	NA	6.08E+04	NA	NA	NA
132649	Dibenzofuran	NA	NA	NA	1.65E+05	NA	NA	NA
86737	Fluorene	NA	NA	NA	2.97E+04	NA	NA	NA
85018	Phenanthrene	NA	NA	NA	3.64E+04	NA	NA	4.4E-06
120127	Anthracene	NA	NA	NA	2.57E+03	NA	NA	NA
C5-C8	C5-C8 Aliphatics	NA	NA	NA	7.86E+07	NA	NA	2.18E-03
C9-C12	C9-C12 Aliphatics	NA	NA	NA	2.12E+07	NA	NA	2.0E-03
C9-C10	C9-C10 Aromatics	NA	NA	NA	1.92E+08	NA	NA	9.40E-03
C9-C18	C9-C18 Aliphatics	NA	NA	NA	1.38E+07	NA	NA	1.007E-02
C11-C22	C11-C22 Aromatics	NA	NA	NA	5.92E+07	NA	NA	3.1E-03

95% UCL  
 Cancer Risk  
 2E-10

95% UCL  
 HI  
 4.7E-02

TOTAL:

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

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	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)	Mean soil conc. CR (µg/kg)	Depth below grade to bottom of enclosed space floor, L <sub>s</sub> (15 or 200 cm)	Depth below grade to top of contamination, L <sub>t</sub> (cm)	Average soil temperature, T <sub>s</sub> (°C)	Vadose zone SCS soil type (used to estimate soil vapor permeability)	OR	User-defined vadose zone soil vapor permeability, k <sub>v</sub> (cm <sup>2</sup> )	Vadose zone soil dry bulk density, ρ <sub>b</sub> (g/cm <sup>3</sup> )	Vadose zone soil total porosity, n <sup>v</sup> (unitless)	Vadose zone soil water-filled porosity, n <sub>w</sub> <sup>v</sup> (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone soil organic carbon fraction, f <sub>oc</sub> <sup>v</sup> (unitless)	Average time for carcinogens, ATC (yrs)	Average time for noncarcinogens, ATNC (yrs)	Exposure duration, ED (yrs)	Exposure frequency, EF (days/yr)	Exposure time, ET (hr/day)	Conversion factor, CF (hrays)	Target risk for carcinogens, TR (unitless)	Target hazard quotient for noncarcinogens, THQ (unitless)
95636	Trimethylbenzene, 1,2,4-	16	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
540590	Dichloroethylene, 1,2- (total)	16	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
109678	Trimethylbenzene, 1,3,5-	16	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
104518	n-Butylbenzene	16	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
91203	Naphthalene	8.74E+03	15	15	10	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
99878	Isopropyltoluene, 4-	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
135968	Butylbenzene, sec-	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
74873	Chloromethane	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
75014	Vinyl chloride	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
74839	Bromomethane	2.40E+00	15	15	10	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
75003	Ethyl chloride	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
75354	1,1-Dichloroethylene	2.22E+00	15	15	10	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
67641	Acetone	1.47E+02	15	15	10	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
75150	Carbon Disulfide	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
79209	Methyl Acetate	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
75092	Methylene chloride	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
158605	trans-1,2-Dichloroethylene	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
163404	Methyl-Tertiary-Butyl Ether	3.72E+01	15	15	10	L8	1	1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
76343	1,1-Dichloroethane	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
156992	cis-1,2-Dichloroethylene	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
78933	Butanone, 2- (MEK)	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
71556	1,1,1-Trichloroethane	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
110827	Cyclohexane	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
71432	Benzene	1.31E+01	15	15	10	L8	1	1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
79018	Trichloroethylene	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
108872	Methylcyclohexane	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
108853	Toluene	1.00E+02	15	15	10	L8	1	1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
127184	Tetrachloroethylene	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
108907	Chlorobenzene	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
100414	Ethylbenzene	1.07E+03	15	15	10	L8	1	1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
1330207	Xylenes	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
100425	Styrene	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
96628	Isopropylbenzene	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
79345	1,1,2,2-Tetrachloroethane	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
541731	Dichlorobenzene, 1,3-	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
106487	1,4-Dichlorobenzene	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
95501	1,2-Dichlorobenzene	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
120821	1,2,4-Trichlorobenzene	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
100527	Benzaldehyde	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
91578	Methylnaphthalene, 2-	7.10E+03	15	15	10	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
92524	Biphenyl, 1,1'-	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
208958	Acenaphthylene	1.88E+03	15	15	10	L8	1	1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
83329	Acenaphthene	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
132848	Dibenzofuran	1.42E+02	15	15	10	L8	1	1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
88737	Fluorene	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
85018	Phenanthrene	1.30E+03	15	15	10	L8	1	1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
120127	Anthracene	15	15	10	L8	1		1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
C5-C8	C5-C8 Aliphatics	7.33E+03	15	15	10	L8	1	1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
C9-C12	C9-C12 Aliphatics	2.10E+04	15	15	10	L8	1	1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
C9-C10	C9-C10 Aromatics	1.77E+05	15	15	10	L8	1	1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
C9-C18	C9-C18 Aliphatics	1.31E+06	15	15	10	L8	1	1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1
C11-C22	C11-C22 Aromatics	4.80E+05	15	15	10	L8	1	1.5	0.43	0.3	0.002	70	2	2	26	2.5	8760	1.0E-06	1

1) Default soil parameters from table 7 of User's Guide for Evaluating Subsurface Vapor Intrusion into Building (U.S. EPA June 19, 2003) were used for soil water filled porosity (n<sub>w</sub>), soil organic carbon fraction (f<sub>oc</sub>), soil total porosity (n), and soil dry bulk density (ρ<sub>b</sub>).

## Appendix C.4

Johnson &amp; Ettlinger Model - Data Entry Screen

Inhalation of Volatiles from Soil

Future Child Recreational Scenario- CT

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

Aberjona Auto Parts

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, D <sub>a</sub> (cm <sup>2</sup> /s)	Diffusivity in water, D <sub>w</sub> (cm <sup>2</sup> /s)	Henry's law constant at reference temperature, H (atm-m <sup>3</sup> /mol)	Henry's law constant reference temperature, T <sub>R</sub> (°C)	Enthalpy of vaporization at the normal boiling point, ΔH <sub>l,b</sub> (cal/mol)	Normal boiling point, T <sub>B</sub> (°K)	Critical temperature, T <sub>C</sub> (°K)	Organic carbon partition coefficient, K <sub>oc</sub> (cm <sup>3</sup> /g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF (μg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RfC (mg/m <sup>3</sup> )	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
108676	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
104516	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	Bulkybenzene, 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	0.0E+00
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
75343	1,1-Dichloroethane	7.42E-02	1.05E-05	5.61E-03	25	6.90E+03	330.55	523.00	3.18E+01	5.08E+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	8.10E-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	9.52E-06	4.23E-01	25	1.30E+03	373.90	580.85	2.68E+02	1.40E+01	N/A	3.0E+00	0.0E+00
108893	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	7.88E-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	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	6.89E+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	1.82E-06	25	9.70E+03	465.00	697.50	5.34E+01	2.77E+04	N/A	N/A	S
120921	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	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	1.15E+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	6.13E+03	1.00E+01	N/A	N/A	NA
88737	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	0.0E+00
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	0.0E+00
C9-C10	C9-C10 Aromatics	6.00E-02	1.00E-05	7.32E-03	25	NA	NA	NA	1.78E+03	5.10E+04	N/A	5.0E-02	0.0E+00
C8-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	0.0E+00
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	0.0E+00

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  
 Aberjona Auto Parts

Chemical CAS No. (numbers only, no dashes)	Chemical	Source- building separation, LT (cm)	Vadose zone soil air-filled porosity, $\theta_v$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone effective total fluid saturation, $S_e$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone soil intrinsic permeability, $k_i$ (cm <sup>2</sup> )	Vadose zone soil relative air permeability, $k_{ra}$ (cm <sup>2</sup> )	Vadose zone soil effective vapor permeability, $k_v$ (cm <sup>2</sup> )	Floor- wall seam perimeter, Xcrack (cm)	Initial soil concentration used, CR (µg/kg)	Bldg. ventilation rate, $Q_{\text{building}}$ (cm <sup>3</sup> /s)	Area of enclosed space below grade, $A_b$ (cm <sup>2</sup> )	Crack- to-total area ratio, $\eta$ (unitless)	Crack depth below grade, $Z_{\text{crack}}$ (cm)	Enthalpy of vaporization & ave. soil temperature, $\Delta H_{175}$ (cal/mol)	Henry's law constant at ave. soil temperature, $H_{175}$ (atm-m <sup>3</sup> /mol)	Henry's law constant at ave. soil temperature, HTS (unitless)	Vapor viscosity at ave. soil temperature, $\mu_{175}$ (g/cm-s)
95636	Trimethylbenzene, 1,2,4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	4.38E+05	1.81E+07	5.67E+07	5.31E-05	15	1.55E+03	4.96E-03	2.13E-01	1.75E-04
540590	Dichloromethane, 1,2- (total)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.96E+02	1.81E+07	5.67E+07	5.31E-05	15	1.73E+03	3.67E-04	1.67E-02	1.75E-04
109678	Trimethylbenzene, 1,3,5-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.13E+04	1.81E+07	5.67E+07	5.31E-05	15	1.55E+03	6.60E-03	2.63E-01	1.75E-04
104518	n-Butylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.63E+03	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	1.09E-02	4.96E-01	1.75E-04
91203	Naphthalene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.74E+03	1.81E+07	5.67E+07	5.31E-05	15	1.29E+04	1.52E-04	6.55E-03	1.75E-04
90876	Isopropyltoluene, 4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.31E+05	1.81E+07	5.67E+07	5.31E-05	15	1.57E+03	7.48E+00	3.22E+02	1.75E-04
135988	Butylbenzene, sec-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.10E+06	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	1.48E-02	6.27E-01	1.75E-04
74873	Chloromethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.37E+06	1.81E+07	5.67E+07	5.31E-05	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04
75014	Vinyl chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.33E+05	1.81E+07	5.67E+07	5.31E-05	15	5.00E+03	1.73E-02	7.48E-01	1.75E-04
74839	Bromomethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.40E+00	1.81E+07	5.67E+07	5.31E-05	15	5.39E+03	3.84E-03	1.66E-01	1.75E-04
75003	Ethyl chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.37E+06	1.81E+07	5.67E+07	5.31E-05	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04
75354	1,1-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.22E+00	1.81E+07	5.67E+07	5.31E-05	15	6.39E+03	1.47E-02	6.34E-01	1.75E-04
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.99E+05	1.81E+07	5.67E+07	5.31E-05	15	1.44E+03	5.95E-01	1.98E+01	1.75E-04
67841	Acetone	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.47E+02	1.81E+07	5.67E+07	5.31E-05	15	7.58E+03	1.97E-05	8.50E-04	1.75E-04
75150	Carbon Disulfide	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.78E+05	1.81E+07	5.67E+07	5.31E-05	15	6.68E+03	6.89E-03	3.01E-01	1.75E-04
79209	Methyl Acetate	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.03E+07	1.81E+07	5.67E+07	5.31E-05	15	1.50E+03	9.88E-05	4.25E-03	1.75E-04
75062	Methylene chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.90E+06	1.81E+07	5.67E+07	5.31E-05	15	7.03E+03	1.17E-03	5.03E-02	1.75E-04
156065	trans-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.12E+06	1.81E+07	5.67E+07	5.31E-05	15	1.42E+03	8.27E-03	3.58E-01	1.75E-04
1634044	Methyl-Tertary-Butyl Ether	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.72E+01	1.81E+07	5.67E+07	5.31E-05	15	1.45E+03	5.16E-04	2.22E-02	1.75E-04
75343	1,1-Dichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.39E+06	1.81E+07	5.67E+07	5.31E-05	15	7.45E+03	2.88E-03	1.24E-01	1.75E-04
158582	cis-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	9.75E+05	1.81E+07	5.67E+07	5.31E-05	15	7.73E+03	2.04E-03	8.77E-02	1.75E-04
78933	Butanone, 2- (MEK)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	4.63E+07	1.81E+07	5.67E+07	5.31E-05	15	1.49E+03	4.90E-05	2.11E-03	1.75E-04
71558	1,1,1-Trichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.01E+05	1.81E+07	5.67E+07	5.31E-05	15	7.88E+03	8.50E-03	3.66E-01	1.75E-04
110627	Cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.88E+05	1.81E+07	5.67E+07	5.31E-05	15	1.49E+03	1.75E+00	7.54E+01	1.75E-04
71432	Benzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.31E+01	1.81E+07	5.67E+07	5.31E-05	15	8.12E+03	2.08E-03	1.16E-01	1.75E-04
79016	Trichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.05E+05	1.81E+07	5.67E+07	5.31E-05	15	8.56E+03	4.76E-03	2.06E-01	1.75E-04
106872	Methyl cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.98E+04	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	3.70E-01	1.59E+01	1.75E-04
106863	Toluene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.00E+02	1.81E+07	5.67E+07	5.31E-05	15	9.15E+03	2.92E-03	1.26E-01	1.75E-04
127184	Tetrachloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.08E+06	1.81E+07	5.67E+07	5.31E-05	15	9.85E+03	7.83E-03	3.37E-01	1.75E-04
108907	Chlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.04E+05	1.81E+07	5.67E+07	5.31E-05	15	9.80E+03	1.54E-03	6.65E-02	1.75E-04
100414	Ethylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.07E+03	1.81E+07	5.67E+07	5.31E-05	15	1.02E+04	3.18E-03	1.37E-01	1.75E-04
1330207	Xylenes	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.50E+05	1.81E+07	5.67E+07	5.31E-05	15	1.54E+03	5.88E-06	2.52E-04	1.75E-04
100425	Styrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.44E+05	1.81E+07	5.67E+07	5.31E-05	15	1.05E+04	1.08E-03	4.67E-02	1.75E-04
98828	isopropylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.08E+06	1.81E+07	5.67E+07	5.31E-05	15	1.54E+03	1.28E-02	5.51E-01	1.75E-04
79345	1,1,2,2-Tetrachloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.15E+06	1.81E+07	5.67E+07	5.31E-05	15	1.05E+04	1.34E-04	5.77E-03	1.75E-04
541731	Dichlorobenzene, 1,3-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.82E+04	1.81E+07	5.67E+07	5.31E-05	15	1.80E+03	4.11E-03	1.77E-01	1.75E-04
106467	1,4-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.06E+05	1.81E+07	5.67E+07	5.31E-05	15	1.12E+04	8.89E-04	3.83E-02	1.75E-04
96501	1,2-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.50E+06	1.81E+07	5.67E+07	5.31E-05	15	1.21E+04	5.51E-07	2.37E-05	1.75E-04
120821	1,2,4-Trichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.13E+06	1.81E+07	5.67E+07	5.31E-05	15	1.32E+04	4.35E-04	1.87E-02	1.75E-04
100527	Benzaldehyde	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.74E+06	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	2.29E-05	9.84E-04	1.75E-04
91576	Methylnaphthalene, 2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.18E+03	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	8.88E-04	3.81E-02	1.75E-04
92524	Biphenyl, 1,1'	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.81E-04	1.81E+07	5.67E+07	5.31E-05	15	1.47E+03	2.68E-04	1.14E-02	1.75E-04
208968	Acenaphthylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.68E+03	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	2.45E-04	1.05E-02	1.75E-04
83329	Acenaphthene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.09E+04	1.81E+07	5.67E+07	5.31E-05	15	1.61E+04	3.87E-05	1.58E-03	1.75E-04
132648	Dibenzofuran	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.42E+02	1.81E+07	5.67E+07	5.31E-05	15	1.47E+03	3.51E-03	1.51E-01	1.75E-04
86737	Fluorene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.97E+04	1.81E+07	5.67E+07	5.31E-05	15	1.62E+04	2.20E-08	9.48E-07	1.75E-04
85018	Phenanthrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.30E+03	1.81E+07	5.67E+07	5.31E-05	15	1.48E+03	1.14E-04	4.90E-03	1.75E-04
120127	Anthracene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.57E+03	1.81E+07	5.67E+07	5.31E-05	15	1.84E+04	1.28E-05	5.43E-04	1.75E-04
C5-C8	C5-C8 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.33E-03	1.81E+07	5.67E+07	5.31E-05	15	NA	6.48E-01	2.79E+01	1.75E-04
C9-C12	C9-C12 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.10E+04	1.81E+07	5.67E+07	5.31E-05	15	NA	7.80E-01	3.30E+01	1.75E-04
C9-C10	C9-C10 Aromatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.77E+05	1.81E+07	5.67E+07	5.31E-05	15	NA	3.99E-03	1.70E-01	1.75E-04
C9-C18	C9-C18 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.31E+06	1.81E+07	5.67E+07	5.31E-05	15	NA	8.28E-01	3.56E+01	1.75E-04
C11-C22	C11-C22 Aromatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	4.69E+05	1.81E+07	5.67E+07	5.31E-05	15	NA	3.60E-04	1.55E-02	1.75E-04

Appendix C.4  
 Johnson & Ettlinger Model - Data Entry Screen  
 Inhalation of Volatiles from Soil  
 Futura Child Recreational Scenario- CT  
 Southwest Properties, Wells G&H Superfund Site, Operable  
 Aberjona Auto Parts

Chemical CAS No. (numbers only, no dashes)	Chemical	Vadose zone effective diffusion coefficient, $D_{eff}^v$ , (cm <sup>2</sup> /s)	Diffusion path length, $L_D$ (cm)	Convection path length, $L_P$ (cm)	Soil-water partition coefficient, $K_p$ (cm <sup>3</sup> /g)	Source vapor conc., $C_{soil}$ (µg/m <sup>3</sup> )	Crack radius, $r_{crack}$ (cm)	Average vapor flow rate into bldg., $Q_{soil}$ (cm <sup>3</sup> /s)	Crack diffusion coefficient, $D_{crack}$ (cm <sup>2</sup> /s)	Area of crack, $A_{crack}$ (cm <sup>2</sup> )	Exponent of equivalent foundation Paclet number, exp(Pe) (unitless)	Infinite source indoor attenuation coefficient, $\alpha$ (unitless)	Infinite source bldg. conc., $C_{soil,bldg}$ (µg/m <sup>3</sup> )	Unit risk factor, URF (µg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RfC (mg/m <sup>3</sup> )
96836	Trimethylbenzene, 1,2,4-	4.77E-04	1	15	7.43E+00	N/A	0.10	4.79E+01	4.77E-04	3.01E+03	1.68E+217	2.84E-06	N/A	N/A	6.0E-03
540590	Dichloroethylene, 1,2- (total)	3.77E-04	1	15	2.57E+01	N/A	0.10	4.79E+01	3.77E-04	3.01E+03	7.28E+274	2.84E-06	N/A	#N/A	#N/A
108678	Trimethylbenzene, 1,3,5-	3.95E-04	1	15	3.34E+00	N/A	0.10	4.79E+01	3.95E-04	3.01E+03	1.15E+282	2.84E-06	N/A	N/A	6.0E-03
104518	n-Butylbenzene	4.41E-04	1	15	5.02E+00	N/A	0.10	4.79E+01	4.41E-04	3.01E+03	8.55E+234	2.84E-06	N/A	#N/A	#N/A
91203	Naphthalene	4.70E-04	1	15	4.00E+00	8.96E+03	0.10	4.79E+01	4.70E-04	3.01E+03	3.02E+230	2.84E-06	2.37E-02	N/A	3.0E-03
96876	Isopropyltoluene, 4-	4.39E-04	1	15	3.16E+00	N/A	0.10	4.79E+01	4.39E-04	3.01E+03	7.40E+235	2.84E-06	N/A	N/A	4.0E-01
135988	Butylbenzene, sec-	4.96E-04	1	15	6.22E+01	N/A	0.10	4.79E+01	4.96E-04	3.01E+03	1.36E+213	2.84E-06	N/A	#N/A	#N/A
74873	Chloromethane	7.66E-04	1	15	2.88E-02	N/A	0.10	4.79E+01	7.66E-04	3.01E+03	2.20E+135	2.84E-06	N/A	N/A	8.0E-02
75014	Vinyl chloride	6.44E-04	1	15	3.72E-02	N/A	0.10	4.79E+01	6.44E-04	3.01E+03	7.47E+160	2.84E-06	N/A	8.8E-06	1.0E-01
74830	Bromomethane	4.48E-04	1	15	2.88E-02	1.63E+03	0.10	4.79E+01	4.48E-04	3.01E+03	1.16E+231	2.84E-06	4.31E-03	N/A	5.0E-03
75003	Ethyl Chloride	7.68E-04	1	15	2.88E-02	N/A	0.10	4.79E+01	7.68E-04	3.01E+03	2.19E+135	2.84E-06	N/A	N/A	1.0E+01
75354	1,1-Dichloroethylene	5.47E-04	1	15	1.18E-01	3.78E+03	0.10	4.79E+01	5.47E-04	3.01E+03	2.48E+189	2.84E-06	9.98E-03	N/A	2.0E-01
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1.75E-04	1	15	4.50E-01	N/A	0.10	4.79E+01	1.75E-04	3.01E+03	#NUM!	2.83E-06	N/A	N/A	3.0E+01
87841	Acetone	2.07E-03	1	15	1.15E-03	6.19E+02	0.10	4.79E+01	2.07E-03	3.01E+03	1.22E+50	2.84E-06	1.64E-03	N/A	N/A
75150	Carbon Disulfide	8.34E-04	1	15	1.03E-01	N/A	0.10	4.79E+01	6.34E-04	3.01E+03	1.95E+163	2.84E-06	N/A	N/A	7.0E-01
79209	Methyl Acetate	8.61E-04	1	15	6.84E-03	N/A	0.10	4.79E+01	8.61E-04	3.01E+03	2.07E+120	2.84E-06	N/A	#N/A	#N/A
75082	Methylene chloride	8.35E-04	1	15	2.34E-02	N/A	0.10	4.79E+01	6.35E-04	3.01E+03	1.48E+163	2.84E-06	N/A	4.7E-07	3.0E+00
158805	trans-1,2-Dichloroethylene	4.32E-04	1	15	1.35E-01	N/A	0.10	4.79E+01	4.32E-04	3.01E+03	9.28E+239	2.84E-06	N/A	N/A	2.0E-01
1834044	Methyl-Tertiary-Butyl Ether	8.87E-04	1	15	7.88E-02	2.98E+03	0.10	4.79E+01	6.87E-04	3.01E+03	2.13E+155	2.84E-06	7.63E-03	N/A	3.0E+00
75343	1,1-Dichloroethane	4.58E-04	1	15	6.32E-02	N/A	0.10	4.79E+01	4.58E-04	3.01E+03	1.66E+228	2.84E-06	N/A	N/A	5.0E-01
158892	cis-1,2-Dichloroethylene	4.50E-04	1	15	7.10E-02	N/A	0.10	4.79E+01	4.59E-04	3.01E+03	7.48E+225	2.84E-06	N/A	N/A	2.0E-01
76833	Butanone, 2- (MEK)	8.45E-04	1	15	7.66E-03	N/A	0.10	4.79E+01	9.45E-04	3.01E+03	3.81E+109	2.84E-06	N/A	N/A	N/A
71556	1,1,1-Trichloroethane	4.75E-04	1	15	2.20E-01	N/A	0.10	4.79E+01	4.75E-04	3.01E+03	1.21E+218	2.84E-06	N/A	N/A	2.2E+00
110827	Cyclohexane	4.85E-04	1	15	3.20E-01	N/A	0.10	4.79E+01	4.85E-04	3.01E+03	4.89E+213	2.84E-06	N/A	#N/A	#N/A
71432	Benzene	5.42E-04	1	15	1.18E-01	4.64E+03	0.10	4.79E+01	5.42E-04	3.01E+03	1.94E+191	2.84E-06	1.23E-02	7.8E-06	3.0E-02
76016	Trichloroethylene	4.83E-04	1	15	3.32E-01	N/A	0.10	4.79E+01	4.83E-04	3.01E+03	2.88E+214	2.84E-06	N/A	1.1E-04	4.0E-02
108872	Methyl cyclohexane	5.98E-04	1	15	5.36E-01	N/A	0.10	4.79E+01	5.98E-04	3.01E+03	2.33E+173	2.84E-06	N/A	N/A	3.0E+00
108883	Toluene	5.34E-04	1	15	3.84E-01	2.19E+04	0.10	4.79E+01	5.34E-04	3.01E+03	1.08E+194	2.84E-06	5.78E-02	N/A	4.0E-01
127184	Tetrachloroethylene	4.39E-04	1	15	3.10E-01	N/A	0.10	4.79E+01	4.39E-04	3.01E+03	1.40E+238	2.84E-06	N/A	5.9E-06	N/A
108907	Chlorobenzene	4.55E-04	1	15	4.35E-01	N/A	0.10	4.79E+01	4.55E-04	3.01E+03	3.77E+227	2.84E-06	N/A	N/A	6.0E-02
100414	Ethylbenzene	4.60E-04	1	15	7.28E-01	1.57E+05	0.10	4.79E+01	4.60E-04	3.01E+03	1.47E+225	2.84E-06	4.14E-01	N/A	1.0E+00
1330207	Xylenes	3.75E-03	1	15	4.82E-01	N/A	0.10	4.79E+01	3.75E-03	3.01E+03	4.33E+227	2.84E-06	N/A	N/A	1.0E-01
100425	Styrene	4.47E-04	1	15	1.55E+00	N/A	0.10	4.79E+01	4.47E-04	3.01E+03	5.28E+231	2.84E-06	N/A	#N/A	N/A
98828	Isopropylbenzene	3.05E-04	1	15	1.86E+01	N/A	0.10	4.79E+01	3.05E-04	3.01E+03	1.24E+262	2.84E-06	N/A	N/A	4.0E-01
78345	1,1,2,2-Tetrachloroethane	5.65E-04	1	15	1.87E-01	N/A	0.10	4.79E+01	5.65E-04	3.01E+03	3.00E+183	2.84E-06	N/A	#N/A	#N/A
541731	Dichlorobenzene, 1,3-	2.58E-04	1	15	3.40E-01	N/A	0.10	4.79E+01	2.58E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	N/A
106467	1,4-Dichlorobenzene	4.38E-04	1	15	1.23E+00	N/A	0.10	4.79E+01	4.38E-04	3.01E+03	2.05E+236	2.84E-06	N/A	N/A	8.0E-01
95501	1,2-Dichlorobenzene	3.94E-02	1	15	1.07E-01	N/A	0.10	4.79E+01	3.94E-02	3.01E+03	4.28E+02	2.84E-06	N/A	N/A	N/A
120821	1,2,4-Trichlorobenzene	2.26E-04	1	15	3.66E+00	N/A	0.10	4.79E+01	2.26E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	2.0E-01
100527	Benzaldehyde	1.35E-03	1	15	6.54E-02	N/A	0.10	4.79E+01	1.35E-03	3.01E+03	7.88E+76	2.84E-06	N/A	#N/A	#N/A
91576	Methylnaphthalene, 2-	3.13E-04	1	15	1.70E+01	1.59E+04	0.10	4.79E+01	3.13E-04	3.01E+03	#NUM!	2.84E-06	4.19E-02	N/A	3.0E-03
92524	Biphenyl, 1,1'-	3.15E-04	1	15	1.25E+01	N/A	0.10	4.79E+01	3.15E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	N/A
208868	Acenaphthylene	3.38E-04	1	15	9.57E+00	1.81E+03	0.10	4.79E+01	3.38E-04	3.01E+03	#NUM!	2.84E-06	4.78E-03	N/A	3.0E-03
83329	Acenaphthene	7.33E-04	1	15	1.42E+01	N/A	0.10	4.79E+01	7.33E-04	3.01E+03	1.83E+141	2.84E-06	N/A	N/A	3.0E-03
132649	Dibenzofuran	1.86E-04	1	15	1.63E+01	1.30E+03	0.10	4.79E+01	1.66E-04	3.01E+03	#NUM!	2.83E-06	3.43E-03	N/A	N/A
88737	Fluorene	8.16E-01	1	15	1.54E+01	N/A	0.10	4.79E+01	8.16E-01	3.01E+03	1.34E+00	1.04E-05	N/A	N/A	3.0E-03
85018	Phenanthrene	3.50E-04	1	15	2.63E+01	2.23E+02	0.10	4.79E+01	3.50E-04	3.01E+03	2.42E+296	2.84E-06	5.90E-04	N/A	3.0E-03
120127	Anthracene	1.80E-03	1	15	5.90E+01	N/A	0.10	4.79E+01	1.80E-03	3.01E+03	8.67E+84	2.84E-06	N/A	N/A	3.0E-03
05-C8	C5-C8 Aliphatics	3.64E-04	1	15	4.53E+00	2.86E+07	0.10	4.79E+01	3.64E-04	3.01E+03	7.91E+284	2.84E-06	7.55E+01	N/A	2.0E-01
06-C12	C9-C12 Aliphatics	3.84E-04	1	15	3.00E+02	2.33E+06	0.10	4.79E+01	3.84E-04	3.01E+03	7.99E+284	2.84E-06	6.14E+00	N/A	2.0E-01
08-C10	C9-C10 Aromatics	3.89E-04	1	15	3.66E+00	8.00E+06	0.10	4.79E+01	3.89E-04	3.01E+03	3.04E+280	2.84E-06	2.11E+01	N/A	6.0E-02
09-C18	C9-C18 Aliphatics	3.84E-04	1	15	1.36E+03	3.43E+07	0.10	4.79E+01	3.84E-04	3.01E+03	8.02E+284	2.84E-06	9.05E+01	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	4.27E-04	1	15	1.00E+01	7.13E+05	0.10	4.79E+01	4.27E-04	3.01E+03	4.50E+242	2.84E-06	1.89E+00	N/A	6.0E-02

RESULTS SHEET

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  
 Aberjona Auto Parts

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 <sub>sat</sub> (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)
95636	Trimethylbenzene, 1,2,4-	NA	NA	NA	4.36E+05	NA	NA	NA
540590	Dichloroethylene, 1,2- (total)	NA	NA	NA	5.96E+02	NA	NA	NA
108678	Trimethylbenzene, 1,3,5-	NA	NA	NA	7.13E+04	NA	NA	NA
104518	n-Butylbenzene	NA	NA	NA	6.63E+03	NA	NA	NA
91203	Naphthalene	NA	NA	NA	1.30E+05	NA	NA	5.9E-05
99876	Isopropyltoluene, 4-	NA	NA	NA	7.31E+05	NA	NA	NA
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	3.69E+06	NA	NA	6.4E-06
75003	Ethyl Chloride	NA	NA	NA	1.37E+06	NA	NA	NA
75354	1,1-Dichloroethylene	NA	NA	NA	8.39E+05	NA	NA	3.7E-07
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	NA	NA	NA	3.99E+05	NA	NA	NA
67641	Acetone	NA	NA	NA	2.07E+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	2.96E+06	NA	NA	NA
158605	trans-1,2-Dichloroethylene	NA	NA	NA	2.12E+06	NA	NA	NA
1634044	Methyl-Tertiary-Butyl Ether	NA	NA	NA	1.42E+07	NA	NA	1.9E-08
75343	1,1-Dichloroethane	NA	NA	NA	1.39E+06	NA	NA	NA
158592	cis-1,2-Dichloroethylene	NA	NA	NA	9.75E+05	NA	NA	NA
78933	Butanone, 2- (MEK)	NA	NA	NA	4.63E+07	NA	NA	NA
71556	1,1,1-Trichloroethane	NA	NA	NA	6.01E+05	NA	NA	NA
110627	Cyclohexane	NA	NA	NA	3.88E+05	NA	NA	NA
71432	Benzene	NA	NA	NA	5.74E+05	NA	2.0E-11	3.0E-06
79018	Trichloroethylene	NA	NA	NA	6.05E+05	NA	NA	NA
108872	Methyl cyclohexane	NA	NA	NA	2.96E+04	NA	NA	NA
108883	Toluene	NA	NA	NA	3.02E+05	NA	NA	1.1E-06
127184	Tetrachloroethylene	NA	NA	NA	1.08E+05	NA	NA	NA
108907	Chlorobenzene	NA	NA	NA	3.04E+05	NA	NA	NA
100414	Ethylbenzene	NA	NA	NA	1.58E+05	NA	NA	3.1E-06
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+08	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
108467	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+08	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	1.0E-04
92524	Biphenyl, 1,1'-	NA	NA	NA	8.81E+04	NA	NA	NA
208968	Acenaphthylene	NA	NA	NA	3.84E+04	NA	NA	1.2E-05
83329	Acenaphthene	NA	NA	NA	6.09E+04	NA	NA	NA
132649	Dibenzofuran	NA	NA	NA	1.65E+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	1.5E-06
120127	Anthracene	NA	NA	NA	2.57E+03	NA	NA	NA
C5-C8	C5-C8 Aliphatics	NA	NA	NA	7.86E+07	NA	NA	2.8E-03
C9-C12	C9-C12 Aliphatics	NA	NA	NA	2.12E+07	NA	NA	2.3E-04
C9-C10	C9-C10 Aromatics	NA	NA	NA	1.92E+08	NA	NA	3.1E-03
C9-C18	C9-C18 Aliphatics	NA	NA	NA	1.36E+07	NA	NA	3.4E-03
C11-C22	C11-C22 Aromatics	NA	NA	NA	5.92E+07	NA	NA	2.8E-04

95% UCL  
 Cancer Risk  
 2E-11

95% UCL  
 HI  
 1E-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<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.  
 MESSAGE: Soil conc. >= saturation (C<sub>sat</sub>). Risk/HQ calculated at C<sub>sat</sub>.

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	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	Mean soil conc. CR (ppb)	Depth below grade to bottom of enclosed space floor, L <sub>e</sub> (15 or 200 cm)	Depth below grade to top of contamination, L <sub>i</sub> (cm)	Average soil temperature, T <sub>s</sub> (°C)	Vadose zone SCS soil type (used to estimate soil vapor permeability)	User-defined vadose zone soil vapor permeability, k <sub>v</sub> (cm <sup>2</sup> )	Vadose zone soil dry bulk density, ρ <sub>b</sub> (g/cm <sup>3</sup> )	Vadose zone soil total porosity, n <sup>v</sup> (unitless)	Vadose zone soil water-filled porosity, θ <sub>w</sub> <sup>v</sup> (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone soil organic carbon fraction, f <sub>oc</sub> <sup>v</sup> (unitless)	Averaging time for carcinogens, ATC (yrs)	Averaging time for noncarcinogens, ATNC (yrs)	Exposure duration, ED (yrs)	Exposure frequency, EF (days/yr)	Exposure time, ET (hr/day)	Coveration factor, CF (hr/yr)	Target risk for carcinogens, TR (unitless)	Target hazard quotient for noncarcinogens, THQ (unitless)	
95638	Trimethylbenzene, 1,2,4-		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
540590	Dichloroethylene, 1,2- (total)		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
108678	Trimethylbenzene, 1,3,5-		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
104518	n-Butylbenzene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
91203	Naphthalene	5.74E+03	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
99870	Isopropyltoluene, 4-		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
135988	Butylbenzene, sec-		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
74873	Chloromethane		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
75014	Vinyl chloride		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
74839	Bromomethane	2.40E+03	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
75003	Ethyl chloride		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
75354	1,1-Dichloroethylene	4.80E+00	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
87841	Acetone	1.47E+02	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
75150	Carbon Disulfide		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
79200	Methyl Acetate		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
75082	Methylene chloride		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
156805	trans-1,2-Dichloroethylene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
1634044	Methyl-Tertiary-Butyl Ether	1.30E+02	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
75343	1,1-Dichloroethane		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
156582	cis-1,2-Dichloroethylene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
78933	Butanone, 2- (MEK)		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
71558	1,1,1-Trichloroethane		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
110827	Cyclohexane		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
71432	Benzene	1.31E+01	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
79016	Trichloroethylene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
108872	Methyl cyclohexane		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
108883	Toluene	1.00E+02	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
127184	Tetrachloroethylene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
108907	Chlorobenzene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
100414	Ethylbenzene	1.07E+00	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
1330207	Xylenes		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
100425	Styrene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
98828	Isopropylbenzene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
79345	1,1,2,2-Tetrachloroethane		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
541731	Dichlorobenzene, 1,3-		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
106467	1,4-Dichlorobenzene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
85501	1,2-Dichlorobenzene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
120821	1,2,4-Trichlorobenzene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
100527	Benzaldehyde		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
91576	Methylnaphthalene, 2-	7.18E+03	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
92524	Biphenyl, 1,1'-		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
208968	Acenaphthylene	1.68E+03	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
83329	Acenaphthene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
132649	Dibenzofuran	1.42E+02	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
86737	Fluorene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
85016	Phenanthrene	1.30E+03	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
120127	Anthracene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
C5-C8	C5-C8 Aliphatics	1.90E+04	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
C9-C12	C9-C12 Aliphatics	6.10E+04	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
C9-C10	C9-C10 Aromatics	1.77E+05	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
C9-C18	C9-C18 Aliphatics	1.31E+06	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	
C11-C22	C11-C22 Aromatics	1.72E+06	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	24	24	78	2.5	8760	1.0E-06	1	

Note:  
 1) Default soil parameters from table 7 of User's Guide for Evaluating Subsurface Vapor Intrusion into Building (U.S. EPA June 19, 2003) were used for soil water filled porosity (θ<sub>w</sub><sup>v</sup>), soil organic carbon fraction (f<sub>oc</sub><sup>v</sup>), soil total porosity (n), and soil dry bulk density (ρ<sub>b</sub>).

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

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, D <sub>a</sub> (cm <sup>2</sup> /s)	Diffusivity in water, D <sub>w</sub> (cm <sup>2</sup> /s)	Henry's law constant at reference temperature, H (atm-m <sup>3</sup> /mol)	Henry's law constant reference temperature, T <sub>R</sub> (°C)	Enthalpy of vaporization at the normal boiling point, ΔH <sub>LB</sub> (cal/mol)	Normal boiling point, T <sub>B</sub> (°K)	Critical temperature, T <sub>C</sub> (°K)	Organic carbon partition coefficient, K <sub>oc</sub> (cm <sup>3</sup> /g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF (μg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RfC (mg/m <sup>3</sup> )	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	278.50	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	0.0E+00
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	318.00	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
155605	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	5.08E+03	N/A	5.0E-01	L
158592	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
79018	Trichloroethylene	7.90E-02	9.10E-06	1.03E-02	25	7.51E+03	360.38	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	0.0E+00
108883	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
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	2.82E-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	7.75E-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	NA
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	8.00E-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	7.00E-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	7.00E-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	7.00E-02	5.00E-06	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, $\alpha_v$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone effective total fluid saturation, $S_w$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone soil intrinsic permeability, $k$ (cm <sup>2</sup> )	Vadose zone soil relative air permeability, $k_{ra}$ (cm <sup>2</sup> )	Vadose zone soil effective vapor permeability, $k_v$ (cm <sup>2</sup> )	Floor- wall seam perimeter, Xcrack (cm)	Initial soil concentration used, CR (ug/kg)	Bldg. ventilation rate, $Q_{\text{ventilating}}$ (cm <sup>3</sup> /s)	Area of enclosed space below grade, $A_g$ (m <sup>2</sup> )	Crack- to-total area ratio, $\eta$ (unitless)	Crack depth below grade, $Z_{\text{crack}}$ (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 <sup>3</sup> /mol)	Henry's law constant at ave. soil temperature, $H_{TS}$ (unitless)	Vapor viscosity at ave. soil temperature, $\mu_{HS}$ (g/cm-s)
95838	Trimethylbenzene, 1,2,4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	4.36E+05	1.81E+07	5.67E+07	5.31E-05	15	1.55E+03	4.96E-03	2.13E-01	1.75E-04
540590	Dichloromethane, 1,2- (total)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.96E+02	1.81E+07	5.67E+07	5.31E-05	15	1.73E+03	3.87E-04	1.87E-02	1.75E-04
108878	Trimethylbenzene, 1,3,5-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.13E+04	1.81E+07	5.67E+07	5.31E-05	15	1.55E+03	6.80E-03	2.03E-01	1.75E-04
104518	n-Butylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.63E+03	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	1.09E-02	4.89E-01	1.75E-04
81203	Naphthalene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.74E+03	1.81E+07	5.67E+07	5.31E-05	15	1.29E+04	1.52E-04	6.35E-03	1.75E-04
99876	Isopropyltoluene, 4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.31E+05	1.81E+07	5.67E+07	5.31E-05	15	1.57E+03	7.48E+00	3.22E+02	1.75E-04
135988	Butylbenzene, sec.	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.10E+08	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	1.49E-02	6.27E-01	1.75E-04
74873	Chloromethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.37E+08	1.81E+07	5.67E+07	5.31E-05	15	1.20E+03	7.79E-03	3.36E-01	1.75E-04
75014	Vinyl chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.33E+05	1.81E+07	5.67E+07	5.31E-05	15	5.00E+03	1.73E-02	7.46E-01	1.75E-04
74839	Bromomethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.40E+00	1.81E+07	5.67E+07	5.31E-05	15	5.39E+03	3.84E-03	1.65E-01	1.75E-04
75003	Ethyl chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.37E+06	1.81E+07	5.67E+07	5.31E-05	15	1.20E+03	7.79E-03	3.36E-01	1.75E-04
75354	1,1-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	4.80E+00	1.81E+07	5.67E+07	5.31E-05	15	6.39E+03	1.47E-02	6.34E-01	1.75E-04
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.99E+05	1.81E+07	5.67E+07	5.31E-05	15	1.44E+03	4.55E-01	1.90E+01	1.75E-04
67641	Acetone	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.47E+02	1.81E+07	5.67E+07	5.31E-05	15	7.50E+03	1.97E-02	8.50E-04	1.75E-04
75150	Carbon Disulfide	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.78E+05	1.81E+07	5.67E+07	5.31E-05	15	6.68E+03	0.99E-03	3.01E-01	1.75E-04
79209	Methyl Acetate	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.03E+07	1.81E+07	5.67E+07	5.31E-05	15	1.50E+03	6.88E-05	4.26E-03	1.75E-04
75092	Methylene chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.96E+06	1.81E+07	5.67E+07	5.31E-05	15	7.03E+03	1.17E-03	5.03E-02	1.75E-04
158605	trans-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.12E+06	1.81E+07	5.67E+07	5.31E-05	15	1.42E+03	8.27E-03	3.56E-01	1.75E-04
163404	Methyl-Tertiary-Butyl Ether	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.30E+02	1.81E+07	5.67E+07	5.31E-05	15	1.45E+03	5.16E-04	2.22E-02	1.75E-04
75343	1,1-Dichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.39E+06	1.81E+07	5.67E+07	5.31E-05	15	7.45E+03	2.88E-03	1.24E-01	1.75E-04
158592	cis-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	0.75E+05	1.81E+07	5.67E+07	5.31E-05	15	7.79E+03	2.04E-08	8.77E-02	1.75E-04
78833	Butanone, 2- (MEK)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	4.83E+07	1.81E+07	5.67E+07	5.31E-05	15	1.49E+03	4.90E-05	2.11E-03	1.75E-04
71556	1,1,1-Trichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.01E+05	1.81E+07	5.67E+07	5.31E-05	15	7.88E+03	8.50E-03	3.86E-01	1.75E-04
110827	Cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.88E+05	1.81E+07	5.67E+07	5.31E-05	15	1.49E+03	1.75E+00	7.54E+01	1.75E-04
71432	Benzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.31E+01	1.81E+07	5.67E+07	5.31E-05	15	8.12E+03	2.69E-03	1.16E-01	1.75E-04
79016	Trichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.09E+05	1.81E+07	5.67E+07	5.31E-05	15	8.50E+03	4.79E-03	2.06E-01	1.75E-04
108872	Methyl cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.98E+04	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	3.70E-01	1.59E+01	1.75E-04
106963	Toluene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.00E+02	1.81E+07	5.67E+07	5.31E-05	15	9.16E+03	2.92E-03	1.28E-01	1.75E-04
127184	Tetrachloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.08E+05	1.81E+07	5.67E+07	5.31E-05	15	8.80E+03	1.54E-03	6.66E-02	1.75E-04
708907	Chlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.04E+05	1.81E+07	5.67E+07	5.31E-05	15	5.56E+03	7.83E-03	3.37E-01	1.75E-04
100414	Ethylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.07E+03	1.81E+07	5.67E+07	5.31E-05	15	1.54E+03	5.88E-06	2.52E-04	1.75E-04
1330207	Xylenes	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.50E+05	1.81E+07	5.67E+07	5.31E-05	15	1.02E+04	3.18E-03	1.37E-01	1.75E-04
100425	Styrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.44E+06	1.81E+07	5.67E+07	5.31E-05	15	1.08E+03	1.08E-03	4.67E-02	1.75E-04
98828	Isopropylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.08E+06	1.81E+07	5.67E+07	5.31E-05	15	1.54E+03	1.28E-02	5.51E-01	1.75E-04
79345	1,1,2,2-Tetrachloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.15E+06	1.81E+07	5.67E+07	5.31E-05	15	1.06E+04	1.34E-04	5.77E-03	1.75E-04
541731	Dichlorobenzene, 1,3-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.82E+04	1.81E+07	5.67E+07	5.31E-05	15	1.50E+03	4.11E-03	1.77E-01	1.75E-04
106467	1,4-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.06E+05	1.81E+07	5.67E+07	5.31E-05	15	1.12E+04	8.89E-04	3.83E-02	1.75E-04
85501	1,2-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.50E+06	1.81E+07	5.67E+07	5.31E-05	15	1.21E+04	5.51E-07	2.37E-05	1.75E-04
120821	1,2,4-Trichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.13E+06	1.81E+07	5.67E+07	5.31E-05	15	1.32E+04	4.35E-04	1.87E-02	1.75E-04
100527	Benzaldehyde	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.74E+06	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	2.29E-05	9.84E-04	1.75E-04
91576	Methylnaphthalene, 2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.18E+03	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	8.66E-04	3.81E-02	1.75E-04
92524	Biphenyl, 1,1'-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.81E+04	1.81E+07	5.67E+07	5.31E-05	15	1.47E+03	2.66E-04	1.14E-02	1.75E-04
209968	Acenaphthylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.66E+03	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	2.45E-04	1.05E-02	1.75E-04
83328	Acenaphthene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.09E+04	1.81E+07	5.67E+07	5.31E-05	15	1.81E+04	3.67E-05	1.58E-03	1.75E-04
132948	Dibenzofuran	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.42E+02	1.81E+07	5.67E+07	5.31E-05	15	1.47E+03	3.51E-03	1.57E-01	1.75E-04
86737	Fluorene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.97E+04	1.81E+07	5.67E+07	5.31E-05	15	1.82E+04	2.20E-08	9.48E-07	1.75E-04
85018	Phenanthrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.30E+03	1.81E+07	5.67E+07	5.31E-05	15	1.48E+03	1.14E-04	4.60E-03	1.75E-04
120127	Anthracene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.57E+03	1.81E+07	5.67E+07	5.31E-05	15	1.84E+04	1.26E-05	5.43E-04	1.75E-04
C5-C8	C5-C8 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.90E+04	1.81E+07	5.67E+07	5.31E-05	15	NA	6.48E-01	2.79E+01	1.75E-04
C9-C12	C9-C12 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.10E+04	1.81E+07	5.67E+07	5.31E-05	15	NA	7.80E-01	3.38E+01	1.75E-04
C9-C10	C9-C10 Aromatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.77E+05	1.81E+07	5.67E+07	5.31E-05	15	NA	3.96E-03	1.70E-01	1.75E-04
C9-C18	C9-C18 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.31E+06	1.81E+07	5.67E+07	5.31E-05	15	NA	8.28E-01	3.56E+01	1.75E-04
C11-C22	C11-C22 Aromatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.72E+06	1.81E+07	5.67E+07	5.31E-05	15	NA	3.90E-04	1.55E-02	1.75E-04

Chemical CAS No. (numbers only, no dashes)	Chemical	Vadose zone effective diffusion coefficient, $D_{eff}^v$ (cm <sup>2</sup> /s)	Diffusion path length, $L_d$ (cm)	Convection path length, $L_c$ (cm)	Solli-water partition coefficient, $K_d$ (cm <sup>3</sup> /g)	Source vapor conc., $C_{source}$ (µg/m <sup>3</sup> )	Crack radius, $r_{crack}$ (cm)	Average vapor flow rate into bldg., $Q_{avg}$ (cm <sup>3</sup> /s)	Crack effective diffusion coefficient, $D_{crack}$ (cm <sup>2</sup> /s)	Area of crack, $A_{crack}$ (cm <sup>2</sup> )	Exponent of equivalent foundation Peclet number, $exp(Pe_f)$ (unitless)	Infinite source indoor attenuation coefficient, $\alpha$ (unitless)	Infinite source bldg. conc., $C_{bldg}$ (µg/m <sup>3</sup> )	Unit risk factor, URF (µg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RfC (mg/m <sup>3</sup> )
95636	Trimethylbenzene, 1,2,4-	4.77E-04	1	15	7.43E+00	N/A	0.10	4.79E+01	4.77E-04	3.01E+03	1.88E+217	2.84E-06	N/A	N/A	6.0E-03
540590	Dichloroethylene, 1,2- (dca)	3.77E-04	1	15	2.67E-01	N/A	0.10	4.79E+01	3.77E-04	3.01E+03	7.28E+274	2.84E-06	N/A	N/A	N/A
108678	Trimethylbenzene, 1,3,5-	3.95E-04	1	15	3.94E+00	N/A	0.10	4.79E+01	3.95E-04	3.01E+03	1.15E+282	2.84E-06	N/A	N/A	6.0E-03
104518	n-Butylbenzene	4.41E-04	1	15	5.02E+00	N/A	0.10	4.79E+01	4.41E-04	3.01E+03	8.55E+234	2.84E-06	N/A	N/A	N/A
91203	Naphthalene	4.70E-04	1	15	4.00E+00	8.99E+03	0.10	4.79E+01	4.70E-04	3.01E+03	3.02E+220	2.84E-06	12.97E-02	N/A	3.0E-03
99876	Isopropyltoluene, 4-	4.39E-04	1	15	3.18E+00	N/A	0.10	4.79E+01	4.39E-04	3.01E+03	7.40E+235	2.84E-06	N/A	N/A	4.0E-01
135988	Butylbenzene, sec-	4.88E-04	1	15	6.22E+01	N/A	0.10	4.79E+01	4.88E-04	3.01E+03	1.39E+213	2.84E-06	N/A	N/A	N/A
74873	Chloromethane	7.68E-04	1	15	2.86E-02	N/A	0.10	4.79E+01	7.68E-04	3.01E+03	2.20E+135	2.84E-06	N/A	N/A	9.0E-02
75014	Vinyl chloride	6.44E-04	1	15	3.72E-02	N/A	0.10	4.79E+01	6.44E-04	3.01E+03	7.47E+180	2.84E-06	N/A	8.8E-06	1.0E-01
74839	Bromomethane	4.48E-04	1	15	2.88E-02	1.63E+03	0.10	4.79E+01	4.48E-04	3.01E+03	1.18E+231	2.84E-06	4.31E-03	N/A	5.0E-03
75003	Ethyl Chloride	7.60E-04	1	15	2.88E-02	N/A	0.10	4.79E+01	7.60E-04	3.01E+03	2.19E+135	2.84E-06	N/A	N/A	1.0E+01
75354	1,1-Dichloroethylene	5.47E-04	1	15	1.18E-01	8.17E+03	0.10	4.79E+01	5.47E-04	3.01E+03	2.48E+189	2.84E-06	2.16E-02	N/A	2.0E-01
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1.75E-04	1	15	4.50E-01	N/A	0.10	4.79E+01	1.75E-04	3.01E+03	#NUM!	2.83E-06	N/A	N/A	3.0E+01
87641	Acetone	2.07E-03	1	15	1.15E-03	6.19E+02	0.10	4.79E+01	2.07E-03	3.01E+03	1.22E+50	2.84E-06	1.64E-06	N/A	N/A
75150	Carbon Disulfide	6.34E-04	1	15	1.03E-01	N/A	0.10	4.79E+01	6.34E-04	3.01E+03	1.95E+163	2.84E-06	N/A	N/A	7.0E-01
78209	Methyl Acetate	8.61E-04	1	15	6.64E-03	N/A	0.10	4.79E+01	8.61E-04	3.01E+03	2.07E+120	2.84E-06	N/A	N/A	N/A
75092	Methylene chloride	8.35E-04	1	15	2.34E-02	N/A	0.10	4.79E+01	8.35E-04	3.01E+03	1.48E+163	2.84E-06	N/A	4.7E-07	3.0E+00
158905	trans-1,2-Dichloroethylene	4.32E-04	1	15	1.05E-01	N/A	0.10	4.79E+01	4.32E-04	3.01E+03	8.29E+239	2.84E-06	N/A	N/A	2.0E-01
1834044	Methyl-Tertiary-Butyl Ether	6.87E-04	1	15	7.68E-02	1.04E+04	0.10	4.79E+01	6.87E-04	3.01E+03	2.13E+155	2.84E-06	2.74E-02	N/A	3.0E+00
75343	1,1-Dichloroethane	4.59E-04	1	15	6.32E-02	N/A	0.10	4.79E+01	4.59E-04	3.01E+03	1.85E+226	2.84E-06	N/A	N/A	5.0E-01
156582	cis-1,2-Dichloroethylene	4.59E-04	1	15	7.10E-02	N/A	0.10	4.79E+01	4.59E-04	3.01E+03	7.48E+225	2.84E-06	N/A	N/A	2.0E-01
78933	Butanone, 2- (MEK)	9.45E-04	1	15	7.69E-03	N/A	0.10	4.79E+01	9.45E-04	3.01E+03	3.91E+109	2.84E-06	N/A	N/A	N/A
71558	1,1,1-Trichloroethane	4.75E-04	1	15	2.20E-01	N/A	0.10	4.79E+01	4.75E-04	3.01E+03	1.21E+218	2.84E-06	N/A	N/A	2.2E+00
110827	Cyclohexane	4.85E-04	1	15	3.20E-01	N/A	0.10	4.79E+01	4.85E-04	3.01E+03	4.89E+213	2.84E-06	N/A	N/A	N/A
71432	Benzene	5.42E-04	1	15	1.18E-01	4.84E+03	0.10	4.79E+01	5.42E-04	3.01E+03	1.94E+191	2.84E-06	1.23E-02	7.8E-06	3.0E-02
79018	Trichloroethylene	4.83E-04	1	15	3.32E-01	N/A	0.10	4.79E+01	4.83E-04	3.01E+03	2.88E+214	2.84E-06	N/A	1.1E-04	4.0E-02
108872	Methyl cyclohexane	5.88E-04	1	15	5.36E-01	N/A	0.10	4.79E+01	5.88E-04	3.01E+03	2.33E+173	2.84E-06	N/A	N/A	3.0E+00
108883	Toluene	5.34E-04	1	15	3.64E-01	2.19E+04	0.10	4.79E+01	5.34E-04	3.01E+03	1.08E+194	2.84E-06	5.78E-02	N/A	4.0E-01
127184	Tetrachloroethylene	4.39E-04	1	15	3.10E-01	N/A	0.10	4.79E+01	4.39E-04	3.01E+03	1.40E+238	2.84E-06	N/A	5.9E-06	N/A
108907	Chlorobenzene	4.55E-04	1	15	4.35E-01	N/A	0.10	4.79E+01	4.55E-04	3.01E+03	3.77E+227	2.84E-06	N/A	N/A	6.0E-02
100414	Ethylbenzene	4.60E-04	1	15	7.20E-01	1.57E+05	0.10	4.79E+01	4.60E-04	3.01E+03	1.47E+225	2.84E-06	4.14E-01	N/A	1.0E+00
1330207	Xylenes	3.75E-03	1	15	4.82E-01	N/A	0.10	4.79E+01	3.75E-03	3.01E+03	4.33E+27	2.85E-06	N/A	N/A	1.0E-01
100425	Styrene	4.47E-04	1	15	1.55E+00	N/A	0.10	4.79E+01	4.47E-04	3.01E+03	5.29E+231	2.84E-06	N/A	N/A	N/A
98828	Isopropylbenzene	3.95E-04	1	15	1.86E+01	N/A	0.10	4.79E+01	3.95E-04	3.01E+03	1.24E+282	2.84E-06	N/A	N/A	4.0E-01
79345	1,1,2,2-Tetrachloroethane	5.85E-04	1	15	1.87E-01	N/A	0.10	4.79E+01	5.85E-04	3.01E+03	3.00E+183	2.84E-06	N/A	N/A	N/A
541731	Dichlorobenzene, 1,3-	2.59E-04	1	15	3.40E-01	N/A	0.10	4.79E+01	2.59E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	N/A
106467	1,4-Dichlorobenzene	4.38E-04	1	15	1.23E+00	N/A	0.10	4.79E+01	4.38E-04	3.01E+03	2.05E+238	2.84E-06	N/A	N/A	8.0E-01
95501	1,2-Dichlorobenzene	3.94E-02	1	15	1.07E-01	N/A	0.10	4.79E+01	3.94E-02	3.01E+03	4.28E+02	2.85E-06	N/A	N/A	N/A
120821	1,2,4-Trichlorobenzene	2.25E-04	1	15	3.58E+00	N/A	0.10	4.79E+01	2.25E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	2.0E-01
100827	Benzaldehyde	1.35E-03	1	15	6.54E-02	N/A	0.10	4.79E+01	1.35E-03	3.01E+03	7.88E+76	2.84E-06	N/A	N/A	N/A
91576	Methylnaphthalene, 2-	3.13E-04	1	15	1.70E+01	1.59E+04	0.10	4.79E+01	3.13E-04	3.01E+03	#NUM!	2.84E-06	2.419E-02	N/A	3.0E-03
92524	Biphenyl, 1,1'-	3.15E-04	1	15	1.25E+01	N/A	0.10	4.79E+01	3.15E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	N/A
208908	Acenaphthylene	3.38E-04	1	15	9.57E+00	1.61E+03	0.10	4.79E+01	3.38E-04	3.01E+03	7.70E+308	2.84E-06	4.78E-03	N/A	3.0E-03
83329	Acenaphthene	7.33E-04	1	15	1.42E+01	N/A	0.10	4.79E+01	7.33E-04	3.01E+03	1.83E+141	2.84E-06	N/A	N/A	3.0E-03
132649	Dibenzofuran	1.66E-04	1	15	1.63E+01	1.30E+03	0.10	4.79E+01	1.66E-04	3.01E+03	#NUM!	2.83E-06	3.43E-03	N/A	N/A
88737	Fluorene	8.16E-01	1	15	1.54E+01	N/A	0.10	4.79E+01	8.16E-01	3.01E+03	1.34E+00	1.04E-05	N/A	N/A	3.0E-03
85018	Phenanthrene	3.50E-04	1	15	2.83E+01	2.23E+02	0.10	4.79E+01	3.50E-04	3.01E+03	2.42E+296	2.84E-06	5.50E-04	N/A	3.0E-03
120127	Anthracene	1.90E-03	1	15	5.90E+01	N/A	0.10	4.79E+01	1.90E-03	3.01E+03	8.87E+84	2.84E-06	N/A	N/A	3.0E-03
CB-C6	CB-C6 Aliphatics	4.85E-04	1	15	4.53E+00	7.41E+07	0.10	4.79E+01	4.85E-04	3.01E+03	4.77E+213	2.84E-06	3.96E+02	N/A	2.0E-01
CB-C12	CB-C12 Aliphatics	4.24E-04	1	15	3.00E+02	8.78E+08	0.10	4.79E+01	4.24E-04	3.01E+03	1.60E+244	2.84E-06	1.78E+01	N/A	2.0E-01
CB-C10	CB-C10 Aromatics	4.39E-04	1	15	3.56E+00	8.00E+08	0.10	4.79E+01	4.39E-04	3.01E+03	8.94E+240	2.84E-06	2.11E+01	N/A	5.0E-02
CB-C18	CB-C18 Aliphatics	4.24E-04	1	15	1.36E+03	3.43E+07	0.10	4.79E+01	4.24E-04	3.01E+03	1.64E+244	2.84E-06	8.05E+01	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	4.27E-04	1	15	1.00E+01	2.61E+08	0.10	4.79E+01	4.27E-04	3.01E+03	4.50E+242	2.84E-06	4.09E+01	N/A	5.0E-02

RESULTS SHEET

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

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 <sub>sat</sub> (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+05	NA	NA	NA
540590	Dichloroethylene, 1,2- (total)	NA	NA	NA	5.96E+02	NA	NA	NA
108678	Trimethylbenzene, 1,3,5-	NA	NA	NA	7.13E+04	NA	NA	NA
104518	n-Butylbenzene	NA	NA	NA	6.63E+03	NA	NA	NA
91203	Naphthalene	NA	NA	NA	1.30E+05	NA	NA	1.8E-04
99876	Isopropyltoluene, 4-	NA	NA	NA	7.31E+05	NA	NA	NA
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	3.69E+08	NA	NA	1.9E-05
75003	Ethyl Chloride	NA	NA	NA	1.37E+08	NA	NA	NA
75354	1,1-Dichloroethylene	NA	NA	NA	8.39E+05	NA	NA	2.4E-06
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	NA	NA	NA	3.99E+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	2.96E+06	NA	NA	NA
158605	trans-1,2-Dichloroethylene	NA	NA	NA	2.12E+06	NA	NA	NA
1634044	Methyl-Tertiary-Butyl Ether	NA	NA	NA	1.42E+07	NA	NA	2.0E-07
75343	1,1-Dichloroethane	NA	NA	NA	1.39E+06	NA	NA	NA
156592	cis-1,2-Dichloroethylene	NA	NA	NA	9.75E+05	NA	NA	NA
78933	Butanone, 2- (MEK)	NA	NA	NA	4.63E+07	NA	NA	NA
71558	1,1,1-Trichloroethane	NA	NA	NA	6.01E+05	NA	NA	NA
110827	Cyclohexane	NA	NA	NA	3.88E+05	NA	NA	NA
71432	Benzene	NA	NA	NA	5.74E+05	NA	7.3E-10	9.1E-06
79016	Trichloroethylene	NA	NA	NA	6.05E+05	NA	NA	NA
108872	Methyl cyclohexane	NA	NA	NA	2.96E+04	NA	NA	NA
108883	Toluene	NA	NA	NA	3.02E+05	NA	NA	3.2E-06
127184	Tetrachloroethylene	NA	NA	NA	1.08E+05	NA	NA	NA
108907	Chlorobenzene	NA	NA	NA	3.04E+05	NA	NA	NA
100414	Ethylbenzene	NA	NA	NA	1.56E+05	NA	NA	9.2E-06
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
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
108467	1,4-Dichlorobenzene	NA	NA	NA	1.08E+05	NA	NA	NA
95501	1,2-Dichlorobenzene	NA	NA	NA	8.50E+08	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	3.1E-04
92524	Biphenyl, 1,1'-	NA	NA	NA	6.81E+04	NA	NA	NA
208068	Acenaphthylene	NA	NA	NA	3.84E+04	NA	NA	3.5E-05
83329	Acenaphthene	NA	NA	NA	6.09E+04	NA	NA	NA
132649	Dibenzofuran	NA	NA	NA	1.65E+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	4.4E-06
120127	Anthracene	NA	NA	NA	2.57E+03	NA	NA	NA
C5-C8	C5-C8 Aliphatics	NA	NA	NA	7.86E+07	NA	NA	2.18E-02
C9-C12	C9-C12 Aliphatics	NA	NA	NA	2.12E+07	NA	NA	2.0E-03
C9-C10	C9-C10 Aromatics	NA	NA	NA	1.92E+08	NA	NA	9.40E-03
C9-C18	C9-C18 Aliphatics	NA	NA	NA	1.36E+07	NA	NA	1.007E-02
C11-C22	C11-C22 Aromatics	NA	NA	NA	5.92E+07	NA	NA	3.1E-03

95% UCL  
 Cancer Risk  
 7E-10

95% UCL  
 HI  
 4.7E-02

TOTAL:

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

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 initial soil concentration		ENTER Depth below grade to bottom of enclosed soil floor, L <sub>f</sub> (15 or 300 cm)	ENTER Depth below grade to top of contamination, L <sub>i</sub> (cm)	ENTER Average soil temperature, T <sub>s</sub> (°C)	ENTER Vadose zone SCS soil type (used to estimate soil vapor permeability)	ENTER User-defined vadose zone soil vapor permeability, k <sub>v</sub> (cm <sup>2</sup> ) Note	ENTER Vadose zone soil dry bulk density, ρ <sub>b</sub> <sup>d</sup> (g/cm <sup>3</sup> )	ENTER Vadose zone soil total porosity, n <sup>t</sup> (unitless)	ENTER Vadose zone soil water-filled porosity, n <sub>w</sub> <sup>f</sup> (unitless)	ENTER Vadose zone soil organic carbon fraction, f <sub>oc</sub> (unitless)	ENTER Averaging time for carcinogens, ATC (yrs)	ENTER Averaging time for noncarcinogens, ATNC (yrs)	ENTER Exposure duration, ED (d)	ENTER Exposure frequency, EF (days/yr)	ENTER Exposure time ET (hr/day)	ENTER Conversion factor CF (hr/yr)	ENTER Target risk for carcinogens, TR (unitless)	ENTER Target hazard quotient for noncarcinogens, THQ (unitless)
	Chemical	Mean soil conc., CR (µg/kg)																	
95838	Trimethylbenzene, 1,2,4-		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
540590	Dichloroethylene, 1,2- (total)		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
108678	Trimethylbenzene, 1,3,5-		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
104518	n-Butylbenzene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
91203	Naphthalene	5.74E+03	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
99878	Isopropyltoluene, 4-		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
135888	Butylbenzene, sec-		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
74873	Chloromethane		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
76014	Vinyl chloride		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
74838	Bromomethane	2.40E+00	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
75003	Ethyl Chloride		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
78354	1,1-Dichloroethylene	2.22E+00	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
87841	Acetone	1.47E+02	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
75150	Carbon Disulfide		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
79209	Methyl Acetate		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
75022	Methylene chloride		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
156608	trans-1,2-Dichloroethylene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
1834044	Methyl-Tertiary-Butyl Ether	3.72E+01	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
75343	1,1-Dichloroethane		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
156382	cis-1,2-Dichloroethylene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
78933	Butanone, 2- (MEK)		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
71556	1,1,1-Trichloroethane		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
110827	Cyclohexane		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
71432	Benzene	1.31E+01	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
79016	Trichloroethylene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
108872	Methyl cyclohexane		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
108883	Toluene	1.00E+02	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
127184	Tetrachloroethylene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
108907	Chlorobenzene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
100414	Ethylbenzene	1.07E+03	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
1330207	Xylenes		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
100425	Styrene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
98828	Isopropylbenzene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
79345	1,1,2,2-Tetrachloroethane		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
541731	Dichlorobenzene, 1,3-		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
106467	1,4-Dichlorobenzene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
95501	1,2-Dichlorobenzene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
120821	1,2,4-Trichlorobenzene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
100527	Benzaldehyde		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
91578	Methylnaphthalene, 2-	7.18E+03	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
92524	Biphenyl, 1,1'-		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
208968	Acenaphthylene	1.68E+03	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
83329	Acenaphthene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
132849	Di-benzofuran	1.42E+02	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
86737	Fluorene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
85018	Phenanthrene	1.30E+03	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
120127	Anthracene		15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
C5-C8	C5-C8 Aliphatics	7.33E+03	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
C9-C12	C9-C12 Aliphatics	2.10E+04	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
C9-C10	C9-C10 Aromatics	1.77E+05	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
C9-C18	C9-C18 Aliphatics	1.31E+06	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1
C11-C22	C11-C22 Aromatics	4.86E+05	15	15	10	LS	1	1.5	0.43	0.3	0.002	70	7	7	26	2.5	8750	1.0E-06	1

Note: 1) Default soil parameters from table 7 of User's Guide for Evaluating Subsurface Vapor Intrusion into Building (U.S. EPA June 19, 2003) were used for soil water filled porosity (n<sub>w</sub><sup>f</sup>), soil organic carbon fraction (f<sub>oc</sub>), soil total porosity (n<sup>t</sup>), and soil dry bulk density (ρ<sub>b</sub><sup>d</sup>).

## Appendix C.4

Johnson &amp; Ettinger Model - Data Entry Screen

Inhalation of Volatiles from Soil

Future Adult Recreational Scenario- CT

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

Aberjona Auto Parts

Chemical CAS No. (numbers only, no dashes)	Chemical	Diffusivity in air, D <sub>a</sub> (cm <sup>2</sup> /s)	Diffusivity in water, D <sub>w</sub> (cm <sup>2</sup> /s)	Henry's law constant at reference temperature, H (atm·m <sup>3</sup> /mol)	Henry's law constant reference temperature, T <sub>R</sub> (°C)	Enthalpy of vaporization at the normal boiling point, ΔH <sub>v</sub> (cal/mol)	Normal boiling point, T <sub>B</sub> (°K)	Critical temperature, T <sub>C</sub> (°K)	Organic carbon partition coefficient, K <sub>oc</sub> (cm <sup>3</sup> /g)	Pure component water solubility, S (mg/L)	Unit risk factor, URF (μg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RIC (mg/m <sup>3</sup> )	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	0.0E+00
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	8.96E+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
156805	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
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	5.81E-03	25	6.90E+03	330.55	523.00	1.16E+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	582.16	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	380.36	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	0.0E+00
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	7.88E-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	418.31	636.00	7.78E+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	793.65	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	NA
86737	Fluorene	3.63E-02	7.88E-06	8.41E-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	0.0E+00
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	0.0E+00
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	0.0E+00
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	0.0E+00
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	0.0E+00

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  
 Aberjona Auto Parts

Chemical CAS No. (numbers only, no dashes)	Chemical	Source- building separation, LT (cm)	Vadose zone soil air-filled porosity, $\theta_a$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone effective total fluid saturation, $S_w$ (cm <sup>3</sup> /cm <sup>3</sup> )	Vadose zone soil intrinsic permeability, $k_i$ (cm <sup>2</sup> )	Vadose zone relative air permeability, $k_{ra}$ (cm <sup>2</sup> )	Vadose zone soil effective vapor permeability, $k_e$ (cm <sup>2</sup> )	Floor- wall seam permeator, Xcrack (cm)	Initial soil concentration used, CR (µg/kg)	Bldg. ventilation rate, $Q_{\text{building}}$ (cm <sup>3</sup> /s)	Area of enclosed space below grade, $A_b$ (cm <sup>2</sup> )	Crack- to-total area ratio, $\eta$ (unitless)	Crack depth below grade, $Z_{\text{crack}}$ (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 <sup>3</sup> /mol)	Henry's law constant at ave. soil temperature, HTS (unitless)	Vapor viscosity at ave. soil temperature, $\mu_{ts}$ (g/cm-s)
95836	Trimethylbenzene, 1,2,4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	4.39E+05	1.81E+07	5.67E+07	5.31E-05	15	1.55E+03	4.99E-03	2.13E-01	1.75E-04
540590	Dichloroethylene, 1,2- (total)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.96E+02	1.81E+07	5.67E+07	5.31E-05	15	1.73E+03	3.87E-04	1.67E-02	1.75E-04
108678	Trimethylbenzene, 1,3,5-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.13E+04	1.81E+07	5.67E+07	5.31E-05	15	1.55E+03	8.90E-03	2.93E-01	1.75E-04
104518	n-Butylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.63E+03	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	1.09E-02	4.69E-01	1.75E-04
91203	Naphthalene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.74E+03	1.81E+07	5.67E+07	5.31E-05	15	1.29E+04	1.52E-04	6.55E-03	1.75E-04
99876	Isopropyltoluene, 4-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.31E+05	1.81E+07	5.67E+07	5.31E-05	15	1.57E+03	7.48E+00	3.22E+02	1.75E-04
135988	Butylbenzene, sec-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.10E+06	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	1.46E-02	6.27E-01	1.75E-04
74873	Chloromethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.37E+06	1.81E+07	5.67E+07	5.31E-05	15	1.20E+03	7.79E-03	3.35E-01	1.75E-04
75014	Vinyl chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.33E+05	1.81E+07	5.67E+07	5.31E-05	15	5.00E+03	1.73E-02	7.46E-01	1.75E-04
74839	Bromomethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.40E+06	1.81E+07	5.67E+07	5.31E-05	15	5.39E+03	3.84E-03	1.65E-01	1.75E-04
75003	Ethyl Chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.37E+06	1.81E+07	5.67E+07	5.31E-05	15	1.20E+03	7.78E-03	3.35E-01	1.75E-04
75354	1,1-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.22E+00	1.81E+07	5.67E+07	5.31E-05	15	8.39E+03	1.47E-02	0.34E-01	1.75E-04
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.99E+05	1.81E+07	5.67E+07	5.31E-05	15	1.44E+03	4.55E-01	9.96E+01	1.75E-04
67841	Acetone	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.47E+02	1.81E+07	5.67E+07	5.31E-05	15	7.58E+03	1.97E-05	8.50E-04	1.75E-04
75150	Carbon Disulfide	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.78E+05	1.81E+07	5.67E+07	5.31E-05	15	8.98E+03	6.99E-03	3.01E-01	1.75E-04
79208	Methyl Acetate	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	5.03E+07	1.81E+07	5.67E+07	5.31E-05	15	1.50E+03	9.88E-06	4.25E-03	1.75E-04
75092	Methylene chloride	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.90E+06	1.81E+07	5.67E+07	5.31E-05	15	7.03E+03	1.17E-03	5.03E-02	1.75E-04
158905	trans-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.12E+06	1.81E+07	5.67E+07	5.31E-05	15	1.42E+03	8.27E-03	3.56E-01	1.75E-04
1934044	Methyl-Tertiary-Butyl Ether	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.72E+01	1.81E+07	5.67E+07	5.31E-05	15	1.45E+03	5.19E-04	2.22E-02	1.75E-04
75343	1,1-Dichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.39E+06	1.81E+07	5.67E+07	5.31E-05	15	7.45E+03	2.88E-03	1.24E-01	1.75E-04
158592	cis-1,2-Dichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	9.75E+05	1.81E+07	5.67E+07	5.31E-05	15	7.73E+03	2.04E-03	6.77E-02	1.75E-04
78833	Butanone, 2- (MEK)	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	4.63E+07	1.81E+07	5.67E+07	5.31E-05	15	1.49E+03	4.90E-05	2.11E-03	1.75E-04
71556	1,1,1-Trichloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.01E+05	1.81E+07	5.67E+07	5.31E-05	15	7.88E+03	8.50E-03	3.66E-01	1.75E-04
110827	Cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.88E+05	1.81E+07	5.67E+07	5.31E-05	15	1.49E+03	1.75E+00	7.54E+01	1.75E-04
71432	Benzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.31E+01	1.81E+07	5.67E+07	5.31E-05	15	8.12E+03	2.89E-03	1.16E-01	1.75E-04
79018	Trichloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.06E+06	1.81E+07	5.67E+07	5.31E-05	15	8.59E+03	4.79E-03	2.06E-01	1.75E-04
108672	Methyl cyclohexane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.98E+04	1.81E+07	5.67E+07	5.31E-05	15	1.91E+03	3.70E-01	1.59E+01	1.75E-04
108889	Toluene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.00E+02	1.81E+07	5.67E+07	5.31E-05	15	9.15E+03	2.82E-03	1.28E-01	1.75E-04
127184	Tetrachloroethylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.08E+05	1.81E+07	5.67E+07	5.31E-05	15	9.55E+03	7.83E-03	3.37E-01	1.75E-04
108907	Chlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.04E+05	1.81E+07	5.67E+07	5.31E-05	15	8.80E+03	1.54E-03	6.85E-02	1.75E-04
100414	Ethylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.07E+03	1.81E+07	5.67E+07	5.31E-05	15	1.02E+04	3.18E-03	1.37E-01	1.75E-04
1330207	Xylenes	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.50E+05	1.81E+07	5.67E+07	5.31E-05	15	1.54E+03	5.88E-06	2.52E-04	1.75E-04
100425	Styrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.44E+05	1.81E+07	5.67E+07	5.31E-05	15	1.05E+04	1.08E-03	4.07E-02	1.75E-04
98828	Isopropylbenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.08E+06	1.81E+07	5.67E+07	5.31E-05	15	1.64E+03	1.28E-02	5.51E-01	1.75E-04
79345	1,1,2,2-Tetrachloroethane	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.15E+06	1.81E+07	5.67E+07	5.31E-05	15	1.05E+04	1.34E-04	5.77E-03	1.75E-04
541731	Dichlorobenzene, 1,3-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	3.82E+04	1.81E+07	5.67E+07	5.31E-05	15	1.50E+03	4.11E-03	1.77E-01	1.75E-04
108487	1,4-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.08E+05	1.81E+07	5.67E+07	5.31E-05	15	1.12E+04	8.89E-04	3.83E-02	1.75E-04
95501	1,2-Dichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.50E+06	1.81E+07	5.67E+07	5.31E-05	15	1.21E+04	5.51E-07	2.37E-05	1.75E-04
120821	1,2,4-Trichlorobenzene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.13E+06	1.81E+07	5.67E+07	5.31E-05	15	1.32E+04	4.35E-04	1.87E-02	1.75E-04
100527	Benzaldehyde	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.74E+08	1.81E+07	5.67E+07	5.31E-05	15	1.53E+03	2.29E-05	9.84E-04	1.75E-04
91576	Methylnaphthalene, 2-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.18E+03	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	8.66E-04	3.81E-02	1.75E-04
92524	Biphenyl, 1,1'-	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	8.81E+04	1.81E+07	5.67E+07	5.31E-05	15	1.47E+03	2.98E-04	1.14E-02	1.75E-04
208968	Acenaphthylene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.68E+03	1.81E+07	5.67E+07	5.31E-05	15	1.51E+03	2.45E-04	1.06E-02	1.75E-04
83329	Acenaphthene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	6.08E+04	1.81E+07	5.67E+07	5.31E-05	15	1.81E+04	3.87E-05	1.58E-03	1.75E-04
132649	Dibenzofuran	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.42E+02	1.81E+07	5.67E+07	5.31E-05	15	1.47E+03	3.51E-03	1.51E-01	1.75E-04
88737	Fluorene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.97E+04	1.81E+07	5.67E+07	5.31E-05	15	1.82E+04	2.20E-08	9.48E-07	1.75E-04
85018	Phenanthrene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.30E+03	1.81E+07	5.67E+07	5.31E-05	15	1.48E+03	1.14E-04	4.90E-03	1.75E-04
120127	Anthracene	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.57E+03	1.81E+07	5.67E+07	5.31E-05	15	1.84E+04	1.28E-05	5.45E-04	1.75E-04
C5-C8	C5-C8 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	7.33E+03	1.81E+07	5.67E+07	5.31E-05	15	NA	8.48E-01	2.79E+01	1.75E-04
C9-C12	C9-C12 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	2.10E+04	1.81E+07	5.67E+07	5.31E-05	15	NA	7.80E-01	3.39E+01	1.75E-04
C9-C10	C9-C10 Aromatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.77E+05	1.81E+07	5.67E+07	5.31E-05	15	NA	3.96E-03	1.70E-01	1.75E-04
C9-C18	C9-C18 Aliphatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	1.31E+06	1.81E+07	5.67E+07	5.31E-05	15	NA	8.28E-01	3.58E+01	1.75E-04
C11-C22	C11-C22 Aromatics	1	0.130	0.659	1.62E-08	0.390	6.33E-09	3.01E+04	4.69E+05	1.81E+07	5.67E+07	5.31E-05	15	NA	3.80E-04	1.55E-02	1.75E-04

## 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  
 Aberjona Auto Parts

Chemical CAS No. (numbers only, no dashes)	Chemical	Vadose zone effective diffusion coefficient, $D_v^*$ (cm <sup>2</sup> /s)	Diffusion path length, $L_d$ (cm)	Convection path length, $L_c$ (cm)	Soil-water partition coefficient, $K_o$ (cm <sup>3</sup> /g)	Source vapor conc., $C_{source}$ (µg/m <sup>3</sup> )	Crack radius, $r_{crack}$ (cm)	Average vapor flow rate into bldg., $Q_{avg}$ (cm <sup>3</sup> /s)	Crack effective diffusion coefficient, $D_{crack}^{*eff}$ (cm <sup>2</sup> /s)	Area of crack, $A_{crack}$ (cm <sup>2</sup> )	Exponent of equivalent foundation Peclet number, exp(Pe) <sup>†</sup> (unitless)	Infinite source indoor attenuation coefficient, $\alpha$ (unitless)	Infinite source bldg. conc., $C_{bldg}$ (µg/m <sup>3</sup> )	Unit risk factor, URF (µg/m <sup>3</sup> ) <sup>-1</sup>	Reference conc., RfC (mg/m <sup>3</sup> )
95636	Trimethylbenzene, 1,2,4-	4.77E-04	1	15	7.43E+00	N/A	0.10	4.79E+01	4.77E-04	3.01E+03	1.88E+217	2.64E-06	N/A	N/A	6.0E-03
540590	Dichloromethylene, 1,2- (total)	3.77E-04	1	15	2.57E-01	N/A	0.10	4.79E+01	3.77E-04	3.01E+03	7.28E+274	2.64E-06	N/A	#N/A	#N/A
108670	Trimethylbenzene, 1,3,5-	3.95E-04	1	15	3.34E+00	N/A	0.10	4.79E+01	3.95E-04	3.01E+03	1.15E+262	2.64E-06	N/A	N/A	6.0E-03
104510	n-Butylbenzene	4.41E-04	1	15	5.02E+00	N/A	0.10	4.79E+01	4.41E-04	3.01E+03	8.55E+234	2.64E-06	N/A	#N/A	#N/A
91203	Naphthalene	4.70E-04	1	15	4.00E+00	8.98E+03	0.10	4.79E+01	4.70E-04	3.01E+03	3.02E+220	2.64E-06	2.37E-02	N/A	3.0E-03
98978	Isopropyltoluene, 4-	4.39E-04	1	15	3.18E+00	N/A	0.10	4.79E+01	4.39E-04	3.01E+03	7.40E+235	2.64E-06	N/A	N/A	4.0E-01
135988	Butylbenzene, sec-	4.89E-04	1	15	6.22E+01	N/A	0.10	4.79E+01	4.89E-04	3.01E+03	1.39E+213	2.64E-06	N/A	#N/A	#N/A
74873	Chloromethane	7.69E-04	1	15	2.96E-02	N/A	0.10	4.79E+01	7.69E-04	3.01E+03	2.20E+135	2.64E-06	N/A	N/A	8.0E-02
75014	Vinyl chloride	6.44E-04	1	15	3.72E-02	N/A	0.10	4.79E+01	6.44E-04	3.01E+03	7.47E+160	2.64E-06	N/A	8.8E-06	1.0E-01
74830	Bromomethane	4.49E-04	1	15	2.96E-02	1.83E+03	0.10	4.79E+01	4.49E-04	3.01E+03	1.18E+231	2.64E-06	4.31E-03	N/A	5.0E-03
75003	Ethyl Chloride	7.69E-04	1	15	2.96E-02	N/A	0.10	4.79E+01	7.69E-04	3.01E+03	2.19E+135	2.64E-06	N/A	N/A	1.0E+01
75354	1,1-Dichloroethylene	5.47E-04	1	15	1.18E-01	3.78E+03	0.10	4.79E+01	5.47E-04	3.01E+03	2.48E+189	2.64E-06	9.98E-03	N/A	2.0E-01
78131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	1.75E-04	1	15	4.50E-01	N/A	0.10	4.79E+01	1.75E-04	3.01E+03	#NUM!	2.63E-06	N/A	N/A	3.0E+01
67841	Acetone	2.07E-03	1	15	1.15E-03	6.19E+02	0.10	4.79E+01	2.07E-03	3.01E+03	1.22E+50	2.64E-06	1.64E-03	N/A	N/A
75150	Carbon Disulfide	6.34E-04	1	15	1.03E-01	N/A	0.10	4.79E+01	6.34E-04	3.01E+03	1.95E+163	2.64E-06	N/A	N/A	7.0E-01
79209	Methyl Acetate	8.61E-04	1	15	6.84E-03	N/A	0.10	4.79E+01	8.61E-04	3.01E+03	2.07E+120	2.64E-06	N/A	#N/A	#N/A
76082	Methylene chloride	6.35E-04	1	15	2.34E-02	N/A	0.10	4.79E+01	6.35E-04	3.01E+03	1.48E+163	2.64E-06	N/A	4.7E-07	3.0E+00
166605	trans-1,2-Dichloroethylene	4.32E-04	1	15	1.05E-01	N/A	0.10	4.79E+01	4.32E-04	3.01E+03	9.29E+239	2.64E-06	N/A	N/A	2.0E-01
189444	Methyl-Tertiary-Butyl Ether	6.67E-04	1	15	7.88E-02	2.96E+03	0.10	4.79E+01	6.67E-04	3.01E+03	2.13E+155	2.64E-06	7.83E-03	N/A	3.0E+00
75343	1,1-Dichloroethane	4.58E-04	1	15	6.32E-02	N/A	0.10	4.79E+01	4.58E-04	3.01E+03	1.65E+226	2.64E-06	N/A	N/A	5.0E-01
198592	cis-1,2-Dichloroethylene	4.59E-04	1	15	7.10E-02	N/A	0.10	4.79E+01	4.59E-04	3.01E+03	7.48E+225	2.64E-06	N/A	N/A	2.0E-01
78933	Butanone, 2- (MEK)	9.45E-04	1	15	7.88E-03	N/A	0.10	4.79E+01	9.45E-04	3.01E+03	3.81E+109	2.64E-06	N/A	N/A	N/A
71556	1,1,1-Trichloroethane	4.75E-04	1	15	2.20E-01	N/A	0.10	4.79E+01	4.75E-04	3.01E+03	1.21E+218	2.64E-06	N/A	N/A	2.2E+00
110827	Cyclohexane	4.85E-04	1	15	3.20E-01	N/A	0.10	4.79E+01	4.85E-04	3.01E+03	4.89E+213	2.64E-06	N/A	#N/A	#N/A
71432	Benzene	5.42E-04	1	15	1.18E-01	4.64E+03	0.10	4.79E+01	5.42E-04	3.01E+03	1.94E+191	2.64E-06	1.23E-02	7.8E-06	3.0E-02
79016	Trichloroethylene	4.83E-04	1	15	3.32E-01	N/A	0.10	4.79E+01	4.83E-04	3.01E+03	2.88E+214	2.64E-06	N/A	1.1E-04	4.0E-02
108872	Methyl cyclohexane	5.99E-04	1	15	5.39E-01	N/A	0.10	4.79E+01	5.99E-04	3.01E+03	2.33E+173	2.64E-06	N/A	N/A	3.0E+00
108883	Toluene	5.34E-04	1	15	3.64E-01	2.19E+04	0.10	4.79E+01	5.34E-04	3.01E+03	1.08E+194	2.64E-06	5.78E-02	N/A	4.0E-01
127184	Tetrachloroethylene	4.39E-04	1	15	3.10E-01	N/A	0.10	4.79E+01	4.39E-04	3.01E+03	1.40E+236	2.64E-06	N/A	5.9E-08	N/A
108907	Chlorobenzene	4.55E-04	1	15	4.38E-01	N/A	0.10	4.79E+01	4.55E-04	3.01E+03	3.77E+227	2.64E-06	N/A	N/A	6.0E-02
100414	Ethylbenzene	4.60E-04	1	15	7.28E-01	1.57E+05	0.10	4.79E+01	4.60E-04	3.01E+03	1.47E+225	2.64E-06	4.14E-01	N/A	1.0E+00
1330207	Xylenes	3.75E-03	1	15	4.82E-01	N/A	0.10	4.79E+01	3.75E-03	3.01E+03	4.33E+27	2.85E-09	N/A	N/A	1.0E-01
100426	Styrene	4.47E-04	1	15	1.55E+00	N/A	0.10	4.79E+01	4.47E-04	3.01E+03	5.29E+231	2.64E-06	N/A	#N/A	#N/A
98828	Isopropylbenzene	3.96E-04	1	15	1.89E+01	N/A	0.10	4.79E+01	3.96E-04	3.01E+03	1.24E+262	2.64E-06	N/A	N/A	4.0E-01
79345	1,1,2,2-Tetrachloroethane	5.05E-04	1	15	1.87E-01	N/A	0.10	4.79E+01	5.05E-04	3.01E+03	3.00E+183	2.64E-06	N/A	#N/A	#N/A
541731	Dichlorobenzene, 1,3-	2.59E-04	1	15	3.40E-01	N/A	0.10	4.79E+01	2.59E-04	3.01E+03	#NUM!	2.64E-06	N/A	N/A	N/A
106487	1,4-Dichlorobenzene	4.38E-04	1	15	1.23E+00	N/A	0.10	4.79E+01	4.38E-04	3.01E+03	2.05E+236	2.64E-06	N/A	N/A	8.0E-01
85601	1,2-Dichlorobenzene	3.94E-02	1	15	1.07E-01	N/A	0.10	4.79E+01	3.94E-02	3.01E+03	4.28E+02	2.85E-05	N/A	N/A	N/A
120821	1,2,4-Trichlorobenzene	2.25E-04	1	15	3.59E+00	N/A	0.10	4.79E+01	2.25E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	2.0E-01
100527	Benzaldehyde	1.35E-03	1	15	8.54E-02	N/A	0.10	4.79E+01	1.35E-03	3.01E+03	7.88E+78	2.64E-06	N/A	#N/A	#N/A
81576	Methylnaphthalene, 2-	3.13E-04	1	15	1.70E+01	1.59E+04	0.10	4.79E+01	3.13E-04	3.01E+03	#NUM!	2.84E-06	4.19E-02	N/A	3.0E-03
82524	Biphenyl, 1,1'-	3.15E-04	1	15	1.25E+01	N/A	0.10	4.79E+01	3.15E-04	3.01E+03	#NUM!	2.84E-06	N/A	N/A	N/A
208968	Acenaphthylene	3.38E-04	1	15	8.57E+00	1.81E+03	0.10	4.79E+01	3.38E-04	3.01E+03	#NUM!	2.84E-06	4.78E-03	N/A	3.0E-03
83328	Acenaphthene	7.33E-04	1	15	1.42E+01	N/A	0.10	4.79E+01	7.33E-04	3.01E+03	1.83E+141	2.64E-06	N/A	N/A	3.0E-03
132949	Dibenzofuran	1.88E-04	1	15	1.83E+01	1.80E+03	0.10	4.79E+01	1.88E-04	3.01E+03	#NUM!	2.83E-06	3.43E-03	N/A	N/A
86737	Fluorene	8.16E-01	1	15	1.54E+01	N/A	0.10	4.79E+01	8.16E-01	3.01E+03	1.34E+00	1.04E-05	N/A	N/A	3.0E-03
85018	Phenanthrene	3.50E-04	1	15	2.83E+01	2.23E+02	0.10	4.79E+01	3.50E-04	3.01E+03	2.42E+296	2.64E-06	5.80E-04	N/A	3.0E-03
120127	Anthracene	1.80E-03	1	15	5.90E+01	N/A	0.10	4.79E+01	1.80E-03	3.01E+03	8.67E+84	2.64E-06	N/A	N/A	3.0E-03
C5-C8	C5-C8 Aliphatics	3.64E-04	1	15	4.53E+00	2.88E+07	0.10	4.79E+01	3.64E-04	3.01E+03	7.81E+284	2.64E-06	7.55E+01	N/A	2.9E-01
C9-C12	C9-C12 Aliphatics	3.64E-04	1	15	3.00E+02	2.33E+06	0.10	4.79E+01	3.64E-04	3.01E+03	7.99E+284	2.64E-06	6.14E+00	N/A	2.0E-01
C9-C10	C9-C10 Aromatics	3.69E-04	1	15	3.59E+00	8.00E+06	0.10	4.79E+01	3.69E-04	3.01E+03	3.04E+280	2.64E-06	2.11E+01	N/A	5.0E-02
C9-C18	C9-C18 Aliphatics	3.64E-04	1	15	1.35E+03	3.43E+07	0.10	4.79E+01	3.64E-04	3.01E+03	8.02E+284	2.64E-06	9.05E+01	N/A	2.0E-01
C11-C22	C11-C22 Aromatics	4.27E-04	1	15	1.00E+01	7.13E+05	0.10	4.79E+01	4.27E-04	3.01E+03	4.50E+242	2.64E-06	1.88E+00	N/A	6.0E-02

RESULTS SHEET

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  
 Aberjona Auto Parts

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 <sub>sat</sub> (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)
95636	Trimethylbenzene, 1,2,4-	NA	NA	NA	4.36E+05	NA	NA	NA
540590	Dichloroethylene, 1,2- (total)	NA	NA	NA	5.96E+02	NA	NA	NA
106878	Trimethylbenzene, 1,3,5-	NA	NA	NA	7.13E+04	NA	NA	NA
104518	n-Butylbenzene	NA	NA	NA	6.63E+03	NA	NA	NA
91203	Naphthalene	NA	NA	NA	1.30E+05	NA	NA	5.9E-05
99876	Isopropyltoluene, 4-	NA	NA	NA	7.31E+05	NA	NA	NA
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	3.69E+06	NA	NA	6.4E-06
75003	Ethyl Chloride	NA	NA	NA	1.37E+06	NA	NA	NA
75354	1,1-Dichloroethylene	NA	NA	NA	8.39E+05	NA	NA	3.7E-07
76131	Trichloro-1,2,2-trifluoroethane, 1,1,2-	NA	NA	NA	3.99E+05	NA	NA	NA
67641	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	2.96E+08	NA	NA	NA
158605	trans-1,2-Dichloroethylene	NA	NA	NA	2.12E+08	NA	NA	NA
1634044	Methyl-Tertiary-Butyl Ether	NA	NA	NA	1.42E+07	NA	NA	1.9E-08
75343	1,1-Dichloroethane	NA	NA	NA	1.39E+06	NA	NA	NA
156592	cis-1,2-Dichloroethylene	NA	NA	NA	9.75E+05	NA	NA	NA
78933	Butanone, 2- (MEK)	NA	NA	NA	4.63E+07	NA	NA	NA
71556	1,1,1-Trichloroethane	NA	NA	NA	6.01E+05	NA	NA	NA
110827	Cyclohexane	NA	NA	NA	3.88E+05	NA	NA	NA
71432	Benzene	NA	NA	NA	5.74E+05	NA	7.1E-11	3.0E-08
79016	Trichloroethylene	NA	NA	NA	6.05E+05	NA	NA	NA
108872	Methyl cyclohexane	NA	NA	NA	2.96E+04	NA	NA	NA
108883	Toluene	NA	NA	NA	3.02E+05	NA	NA	1.1E-06
127184	Tetrachloroethylene	NA	NA	NA	1.08E+05	NA	NA	NA
108907	Chlorobenzene	NA	NA	NA	3.04E+05	NA	NA	NA
100414	Ethylbenzene	NA	NA	NA	1.58E+05	NA	NA	3.1E-06
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
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	1.0E-04
92524	Biphenyl, 1,1'-	NA	NA	NA	8.81E+04	NA	NA	NA
208968	Acenaphthylene	NA	NA	NA	3.94E+04	NA	NA	1.2E-05
83329	Acenaphthene	NA	NA	NA	6.09E+04	NA	NA	NA
132649	Dibenzofuran	NA	NA	NA	1.65E+05	NA	NA	NA
86737	Fluorene	NA	NA	NA	2.97E+04	NA	NA	NA
85018	Phenanthrene	NA	NA	NA	3.64E+04	NA	NA	1.5E-06
120127	Anthracene	NA	NA	NA	2.57E+03	NA	NA	NA
C5-C8	C5-C8 Aliphatics	NA	NA	NA	7.86E+07	NA	NA	2.8E-03
C9-C12	C9-C12 Aliphatics	NA	NA	NA	2.12E+07	NA	NA	2.3E-04
C9-C10	C9-C10 Aromatics	NA	NA	NA	1.92E+08	NA	NA	3.1E-03
C9-C18	C9-C18 Aliphatics	NA	NA	NA	1.36E+07	NA	NA	3.4E-03
C11-C22	C11-C22 Aromatics	NA	NA	NA	5.92E+07	NA	NA	2.6E-04

95% UCL  
 Cancer Risk  
 7E-11

95% UCL  
 HI  
 1E-02

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

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