

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Dermal Contact with Soil

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Dermal Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	5.10E+01	1.75E-07	1.00E-01	8.93E-07	--	NC
1,1-Dichloroethane	75-34-3	2.26E+00	1.75E-07	1.30E-01	5.14E-08	--	NC
1,1-Dichloroethene	75-35-4	9.60E-01	1.75E-07	1.00E-01	1.68E-08	--	NC
1,2,4-Trimethylbenzene	95-63-6	9.17E-01	1.75E-07	1.00E-02	1.61E-09	--	NC
1,2-Dichlorobenzene	95-50-1	1.14E+00	1.75E-07	1.00E-01	2.00E-08	--	NC
1,2-Dichloroethane	107-06-2	1.86E-01	1.75E-07	1.00E-01	3.25E-09	9.10E-02	2.96E-10
1,3,5-Trimethylbenzene	108-67-8	4.98E-01	1.75E-07	1.00E-02	8.71E-10	--	NC
1,4-Dichlorobenzene	106-46-7	2.21E-01	1.75E-07	1.00E-01	3.87E-09	2.40E-02	9.28E-11
2-Butanone	78-93-3	4.55E-02	1.75E-07	1.00E-01	7.96E-10	--	NC
4-Isopropyltoluene	99-87-6	1.51E+00	1.75E-07	1.00E-02	2.65E-09	--	NC
Acetone	67-64-1	4.59E-02	1.75E-07	1.00E-01	8.03E-10	--	NC
Bromoform	75-25-2	3.25E-03	1.75E-07	1.10E-01	6.26E-11	7.90E-03	4.94E-13
Carbon Disulfide	75-15-0	3.09E-02	1.75E-07	1.00E-02	5.40E-11	--	NC
Chlorobenzene	108-90-7	9.37E-02	1.75E-07	1.00E-02	1.64E-10	--	NC
Chloroethane	75-00-3	3.70E-03	1.75E-07	1.00E-02	6.48E-12	--	NC
cis-1,2-Dichloroethene	156-59-2	4.47E+00	1.75E-07	1.00E-01	7.82E-08	--	NC
Ethylbenzene	100-41-4	6.03E+00	1.75E-07	2.00E-01	2.11E-07	--	NC
Isopropylbenzene	98-82-8	1.21E-01	1.75E-07	1.00E-02	2.13E-10	--	NC
Methyl tert butyl ether	1634-04-4	2.33E-03	1.75E-07	1.00E-01	4.08E-11	--	NC
Methylene Chloride	75-09-2	4.36E-01	1.75E-07	1.00E-01	7.63E-09	7.50E-03	5.72E-11
Naphthalene	91-20-3	8.26E-01	1.75E-07	1.00E-01	1.45E-08	--	NC
n-Butylbenzene	104-51-8	3.22E-01	1.75E-07	1.00E-02	5.64E-10	--	NC
n-Propylbenzene	103-65-1	3.85E-01	1.75E-07	1.00E-02	6.74E-10	--	NC
sec-Butylbenzene	135-98-8	3.93E-01	1.75E-07	1.00E-02	6.88E-10	--	NC
Tetrachloroethene	127-18-4	5.47E+01	1.75E-07	1.00E-01	9.58E-07	5.10E-02	4.89E-08
Toluene	108-88-3	2.04E+01	1.75E-07	1.20E-01	4.29E-07	--	NC
trans-1,2-Dichloroethene	156-60-5	5.35E-03	1.75E-07	1.00E-01	9.37E-11	--	NC
Trichloroethene	79-01-6	4.38E+01	1.75E-07	1.00E-01	7.66E-07	1.10E-02	8.43E-09
Vinyl Chloride	75-01-4	2.56E-01	1.75E-07	1.00E-01	4.48E-09	7.20E-01	3.22E-09
Xylenes (Total)	1330-20-7	1.27E+01	1.75E-07	1.20E-01	2.67E-07	--	NC
Semi-Volatile Organic Compounds (SVOCs)							
2-Methylnaphthalene	91-57-6	2.95E-01	1.75E-07	1.00E-01	5.16E-09	--	NC
Acenaphthene	83-32-9	3.86E-01	1.75E-07	1.00E-01	6.76E-09	--	NC
Acenaphthylene	208-96-8	2.61E-01	1.75E-07	1.00E-01	4.57E-09	--	NC
Anthracene	120-12-7	6.30E-01	1.75E-07	1.00E-01	1.10E-08	--	NC
Benzo(a)anthracene	56-55-3	1.69E+00	1.75E-07	2.00E-02	5.90E-09	7.30E-01	4.31E-09
Benzo(a)pyrene	50-32-8	1.56E+00	1.75E-07	2.00E-02	5.45E-09	7.30E+00	3.98E-08
Benzo(b)fluoranthene	205-99-2	1.56E+00	1.75E-07	2.00E-02	5.47E-09	7.30E-01	4.00E-09
Benzo(g,h,i)perylene	191-24-2	1.37E+00	1.75E-07	1.00E-01	2.40E-08	--	NC
Benzo(k)fluoranthene	207-08-9	1.21E+00	1.75E-07	2.00E-02	4.25E-09	7.30E-02	3.10E-10
Chrysene	218-01-9	1.84E+00	1.75E-07	2.00E-02	6.43E-09	7.30E-02	4.69E-10
Dibenzo(a,h)anthracene	53-70-3	3.08E-01	1.75E-07	2.00E-02	1.08E-09	7.30E+00	7.86E-09
Fluoranthene	206-44-0	3.28E+00	1.75E-07	1.00E-01	5.74E-08	--	NC
Fluorene	86-73-7	3.23E-01	1.75E-07	1.00E-01	5.66E-09	--	NC
Indeno(1,2,3-cd)pyrene	193-39-5	9.93E-01	1.75E-07	2.00E-02	3.48E-09	7.30E-01	2.54E-09
Phenanthrene	85-01-8	2.75E+00	1.75E-07	1.00E-01	4.82E-08	--	NC
Pyrene	129-00-0	2.73E+00	1.75E-07	1.00E-01	4.78E-08	--	NC
Petroleum Hydrocarbons							
C11-C22 Aromatic Hydrocarbons	NA c11-c22	1.01E+02	1.75E-07	1.00E-01	1.76E-06	--	NC
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.01E+02	1.75E-07	1.00E-01	1.77E-06	--	NC
C5-C8 Aliphatic Hydrocarbons	NA c5-8	4.37E+01	1.75E-07	1.00E+00	7.65E-06	--	NC
C9-C10 Aromatic Hydrocarbons	NA c9-10	2.20E+01	1.75E-07	5.00E-01	1.93E-06	--	NC
C9-C12 Aliphatic Hydrocarbons	NA c9-12	1.85E+01	1.75E-07	5.00E-01	1.62E-06	--	NC
C9-C18 Aliphatic Hydrocarbons	NA c9-18	3.38E+01	1.75E-07	5.00E-01	2.96E-06	--	NC
Polychlorinated Biphenyls (PCBs)							
Aroclor 1232	11141-16-5	4.83E-01	1.75E-07	1.60E-01	1.35E-08	2.00E+00	2.71E-08
Aroclor 1248	12672-29-6	3.09E+00	1.75E-07	1.60E-01	8.66E-08	2.00E+00	1.73E-07
Inorganics							
Barium, Total	7440-39-3	4.41E+01	1.75E-07	5.00E-02	3.86E-07	--	NC
Chromium, Total	7440-47-3	1.68E+01	1.75E-07	9.00E-02	2.64E-07	--	NC
Mercury, Total	7439-97-6	6.50E-01	1.75E-07	5.00E-02	5.69E-09	--	NC
Silver, Total	7440-22-4	6.53E-01	1.75E-07	2.50E-01	2.86E-08	--	NC
CUMULATIVE ELCR							3.21E-07

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF
Excess Lifetime Cancer Risk (ELCR_{calc}) = LADD * CSF
Cumulative ELCR = ΣELCR_{calc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Incidental Ingestion of Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Average Daily Dose (ADD) mg/kg-day	Oral Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	5.10E+01	2.94E-07	1.00E+00	1.50E-05	9.00E-02	1.66E-04
1,1-Dichloroethane	75-34-3	2.26E+00	2.94E-07	1.30E+00	8.62E-07	1.00E-01	8.62E-06
1,1-Dichloroethene	75-35-4	9.60E-01	2.94E-07	1.00E+00	2.82E-07	5.00E-02	5.63E-06
1,2,4-Trimethylbenzene	95-63-6	9.17E-01	2.94E-07	1.00E+00	2.69E-07	5.00E-02	5.39E-06
1,2-Dichlorobenzene	95-50-1	1.14E+00	2.94E-07	1.00E+00	3.35E-07	9.00E-02	3.72E-06
1,2-Dichloroethane	107-06-2	1.86E-01	2.94E-07	1.00E+00	5.45E-08	2.00E-02	2.73E-06
1,3,5-Trimethylbenzene	108-67-8	4.98E-01	2.94E-07	1.00E+00	1.46E-07	5.00E-02	2.92E-06
1,4-Dichlorobenzene	106-46-7	2.21E-01	2.94E-07	1.00E+00	6.48E-08	9.00E-02	7.20E-07
2-Butanone	78-93-3	4.55E-02	2.94E-07	1.00E+00	1.34E-08	6.00E-01	2.23E-08
4-Isopropyltoluene	99-87-6	1.51E+00	2.94E-07	1.00E+00	4.44E-07	1.00E-01	4.44E-06
Acetone	67-64-1	4.59E-02	2.94E-07	1.00E+00	1.35E-08	9.00E-01	1.50E-08
Bromoform	75-25-2	3.25E-03	2.94E-07	1.00E+00	9.54E-10	2.00E-02	4.77E-08
Carbon Disulfide	75-15-0	3.09E-02	2.94E-07	1.00E+00	9.06E-09	1.00E-01	9.06E-08
Chlorobenzene	108-90-7	9.37E-02	2.94E-07	1.00E+00	2.75E-08	2.00E-02	1.38E-06
Chloroethane	75-00-3	3.70E-03	2.94E-07	1.00E+00	1.09E-09	4.00E-01	2.72E-09
cis-1,2-Dichloroethene	156-59-2	4.47E+00	2.94E-07	1.00E+00	1.31E-06	1.00E-02	1.31E-04
Ethylbenzene	100-41-4	6.03E+00	2.94E-07	1.00E+00	1.77E-06	1.00E-01	1.77E-05
Isopropylbenzene	98-82-8	1.21E-01	2.94E-07	1.00E+00	3.57E-08	1.00E-01	3.57E-07
Methyl tert butyl ether	1634-04-4	2.33E-03	2.94E-07	1.00E+00	6.85E-10	1.00E-01	6.85E-09
Methylene Chloride	75-09-2	4.36E-01	2.94E-07	1.00E+00	1.28E-07	6.00E-02	2.13E-06
Naphthalene	91-20-3	8.26E-01	2.94E-07	3.60E-01	8.73E-08	2.00E-02	4.37E-06
n-Butylbenzene	104-51-8	3.22E-01	2.94E-07	1.00E+00	9.46E-08	4.00E-02	2.37E-06
n-Propylbenzene	103-65-1	3.85E-01	2.94E-07	1.00E+00	1.13E-07	4.00E-02	2.83E-06
sec-Butylbenzene	135-98-8	3.93E-01	2.94E-07	1.00E+00	1.15E-07	4.00E-02	2.88E-06
Tetrachloroethene	127-18-4	5.47E+01	2.94E-07	1.00E+00	1.61E-05	1.00E-02	1.61E-03
Toluene	108-88-3	2.04E+01	2.94E-07	1.00E+00	6.00E-06	8.00E-02	7.50E-05
trans-1,2-Dichloroethene	156-60-5	5.35E-03	2.94E-07	1.00E+00	1.57E-09	2.00E-02	7.85E-08
Trichloroethene	79-01-6	4.38E+01	2.94E-07	1.00E+00	1.28E-05	2.00E-03	6.42E-03
Vinyl Chloride	75-01-4	2.56E-01	2.94E-07	1.00E+00	7.51E-08	3.00E-03	2.50E-05
Xylenes (Total)	1330-20-7	1.27E+01	2.94E-07	1.00E+00	3.73E-06	2.00E-01	1.87E-05
Semi-volatile Organic Compounds (SVOCs)							
2-Methylnaphthalene	91-57-6	2.95E-01	2.94E-07	3.60E-01	3.11E-08	4.00E-03	7.78E-06
Acenaphthene	83-32-9	3.86E-01	2.94E-07	3.60E-01	4.08E-08	6.00E-02	6.80E-07
Anthracene	120-12-7	6.30E-01	2.94E-07	3.60E-01	6.66E-08	3.00E-01	2.22E-07
Benzo(a)anthracene	56-55-3	1.69E+00	2.94E-07	2.80E-01	1.39E-07	3.00E-02	4.62E-06
Benzo(a)pyrene	50-32-8	1.56E+00	2.94E-07	2.80E-01	1.28E-07	3.00E-02	4.26E-06
Benzo(b)fluoranthene	205-99-2	1.56E+00	2.94E-07	2.80E-01	1.29E-07	3.00E-02	4.28E-06
Benzo(g,h,i)perylene	191-24-2	1.37E+00	2.94E-07	3.60E-01	1.45E-07	3.00E-02	4.83E-06
Benzo(k)fluoranthene	207-08-9	1.21E+00	2.94E-07	2.80E-01	9.98E-08	3.00E-02	3.33E-06
Chrysene	218-01-9	1.84E+00	2.94E-07	2.80E-01	1.51E-07	3.00E-02	5.03E-06
Dibenzo(a,h)anthracene	53-70-3	3.08E-01	2.94E-07	2.80E-01	2.53E-08	3.00E-02	8.43E-07
Fluoranthene	206-44-0	3.28E+00	2.94E-07	3.60E-01	3.46E-07	4.00E-02	8.66E-06
Indeno(1,2,3-cd)pyrene	193-39-5	9.93E-01	2.94E-07	2.80E-01	8.16E-08	3.00E-02	2.72E-06
Phenanthrene	85-01-8	2.75E+00	2.94E-07	3.60E-01	2.91E-07	3.00E-02	9.70E-06
Pyrene	129-00-0	2.73E+00	2.94E-07	3.60E-01	2.89E-07	3.00E-02	9.63E-06
Petroleum Hydrocarbons							
C11-C22 Aromatic Hydrocarbons	NA c11-c22	1.01E+02	2.94E-07	3.60E-01	1.06E-05	3.00E-02	3.54E-04
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.01E+02	2.94E-07	1.00E+00	2.97E-05	2.00E+00	1.49E-05
C5-C8 Aliphatic Hydrocarbons	NA c5-8	4.37E+01	2.94E-07	1.00E+00	1.28E-05	4.00E-02	3.21E-04
C9-C10 Aromatic Hydrocarbons	NA c9-10	2.20E+01	2.94E-07	1.00E+00	6.47E-06	3.00E-02	2.16E-04
C9-C12 Aliphatic Hydrocarbons	NA c9-12	1.85E+01	2.94E-07	1.00E+00	5.43E-06	1.00E-01	5.43E-05
C9-C18 Aliphatic Hydrocarbons	NA c9-18	3.38E+01	2.94E-07	1.00E+00	9.94E-06	1.00E-01	9.94E-05
Polychlorinated Biphenyls (PCBs)							
Aroclor 1232	11141-16-5	4.83E-01	2.94E-07	8.50E-01	1.21E-07	2.00E-05	6.03E-03
Aroclor 1248	12672-29-6	3.09E+00	2.94E-07	8.50E-01	7.72E-07	2.00E-05	3.86E-02
Inorganics							
Barium, Total	7440-39-3	4.41E+01	2.94E-07	1.00E+00	1.29E-05	2.00E-01	6.47E-05
Chromium, Total	7440-47-3	1.68E+01	2.94E-07	1.00E+00	4.92E-06	3.00E-03	1.64E-03
Mercury, Total	7439-97-6	6.50E-01	2.94E-07	1.00E+00	1.91E-07	3.00E-04	6.36E-04
Silver, Total	7440-22-4	6.53E-01	2.94E-07	1.00E+00	1.92E-07	5.00E-03	3.83E-05
CUMULATIVE HAZARD INDEX							5.66E-02

$$\text{Average Daily Dose (ADD)} = \text{EPC} \times \text{EF} \times \text{RAF}$$

$$\text{Hazard Quotient (HQ}_{\text{conc}}) = \text{ADD} / \text{RfD}$$

$$\text{Cumulative Hazard Index (HI)} = \sum \text{HQ}_{\text{conc}}$$

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Incidental Ingestion of Soil

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Oral Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	5.10E+01	1.05E-07	1.00E+00	5.35E-06	--	NC
1,1-Dichloroethane	75-34-3	2.26E+00	1.05E-07	1.30E+00	3.08E-07	--	NC
1,1-Dichloroethene	75-35-4	9.60E-01	1.05E-07	1.00E+00	1.01E-07	--	NC
1,2,4-Trimethylbenzene	95-63-6	9.17E-01	1.05E-07	1.00E+00	9.62E-08	--	NC
1,2-Dichlorobenzene	95-50-1	1.14E+00	1.05E-07	1.00E+00	1.19E-07	--	NC
1,2-Dichloroethane	107-06-2	1.86E-01	1.05E-07	1.00E+00	1.95E-08	9.10E-02	1.77E-09
1,3,5-Trimethylbenzene	108-67-8	4.98E-01	1.05E-07	1.00E+00	5.22E-08	--	NC
1,4-Dichlorobenzene	106-46-7	2.21E-01	1.05E-07	1.00E+00	2.32E-08	2.40E-02	5.56E-10
2-Butanone	78-93-3	4.55E-02	1.05E-07	1.00E+00	4.77E-09	--	NC
4-Isopropyltoluene	99-87-6	1.51E+00	1.05E-07	1.00E+00	1.58E-07	--	NC
Acetone	67-64-1	4.59E-02	1.05E-07	1.00E+00	4.81E-09	--	NC
Bromoform	75-25-2	3.25E-03	1.05E-07	1.00E+00	3.41E-10	7.90E-03	2.69E-12
Carbon Disulfide	75-15-0	3.09E-02	1.05E-07	1.00E+00	3.23E-09	--	NC
Chlorobenzene	108-90-7	9.37E-02	1.05E-07	1.00E+00	9.82E-09	--	NC
Chloroethane	75-00-3	3.70E-03	1.05E-07	1.00E+00	3.88E-10	--	NC
cis-1,2-Dichloroethene	156-59-2	4.47E+00	1.05E-07	1.00E+00	4.69E-07	--	NC
Ethylbenzene	100-41-4	6.03E+00	1.05E-07	1.00E+00	6.32E-07	--	NC
Isopropylbenzene	98-82-8	1.21E-01	1.05E-07	1.00E+00	1.27E-08	--	NC
Methyl tert butyl ether	1634-04-4	2.33E-03	1.05E-07	1.00E+00	2.45E-10	--	NC
Methylene Chloride	75-09-2	4.36E-01	1.05E-07	1.00E+00	4.57E-08	7.50E-03	3.43E-10
Naphthalene	91-20-3	8.26E-01	1.05E-07	3.60E-01	3.12E-08	--	NC
n-Butylbenzene	104-51-8	3.22E-01	1.05E-07	1.00E+00	3.38E-08	--	NC
n-Propylbenzene	103-65-1	3.85E-01	1.05E-07	1.00E+00	4.04E-08	--	NC
sec-Butylbenzene	135-98-8	3.93E-01	1.05E-07	1.00E+00	4.12E-08	--	NC
Tetrachloroethene	127-18-4	5.47E+01	1.05E-07	1.00E+00	5.74E-06	5.10E-02	2.93E-07
Toluene	108-88-3	2.04E-01	1.05E-07	1.00E+00	2.14E-06	--	NC
trans-1,2-Dichloroethene	156-60-5	5.35E-03	1.05E-07	1.00E+00	5.61E-10	--	NC
Trichloroethene	79-01-6	4.38E+01	1.05E-07	1.00E+00	4.59E-06	1.10E-02	5.05E-08
Vinyl Chloride	75-01-4	2.56E-01	1.05E-07	1.00E+00	2.68E-08	7.20E-01	1.93E-08
Xylenes (Total)	1330-20-7	1.27E+01	1.05E-07	1.00E+00	1.33E-06	--	NC
Semi-volatile Organic Compounds (SVOCs)							
2-Methylnaphthalene	91-57-6	2.95E-01	1.05E-07	3.60E-01	1.11E-08	--	NC
Acenaphthene	83-32-9	3.86E-01	1.05E-07	3.60E-01	1.46E-08	--	NC
Acenaphthylene	208-96-8	2.61E-01	1.05E-07	3.60E-01	9.84E-09	--	NC
Anthracene	120-12-7	6.30E-01	1.05E-07	3.60E-01	2.38E-08	--	NC
Benzo(a)anthracene	56-55-3	1.69E+00	1.05E-07	2.80E-01	4.95E-08	7.30E-01	3.61E-08
Benzo(a)pyrene	50-32-8	1.56E+00	1.05E-07	2.80E-01	4.57E-08	7.30E+00	3.33E-07
Benzo(b)fluoranthene	205-99-2	1.56E+00	1.05E-07	2.80E-01	4.59E-08	7.30E-01	3.35E-08
Benzo(g,h,i)perylene	191-24-2	1.37E+00	1.05E-07	3.60E-01	5.18E-08	--	NC
Benzo(k)fluoranthene	207-08-9	1.21E+00	1.05E-07	2.80E-01	3.56E-08	7.30E-02	2.60E-09
Chrysene	218-01-9	1.84E+00	1.05E-07	2.80E-01	5.39E-08	7.30E-02	3.93E-09
Dibenzo(a,h)anthracene	53-70-3	3.08E-01	1.05E-07	2.80E-01	9.03E-09	7.30E+00	6.59E-08
Fluoranthene	206-44-0	3.28E+00	1.05E-07	3.60E-01	1.24E-07	--	NC
Fluorene	86-73-7	3.23E-01	1.05E-07	3.60E-01	1.22E-08	--	NC
Indeno(1,2,3-cd)pyrene	193-39-5	9.93E-01	1.05E-07	2.80E-01	2.91E-08	7.30E-01	2.13E-08
Phenanthrene	85-01-8	2.75E+00	1.05E-07	3.60E-01	1.04E-07	--	NC
Pyrene	129-00-0	2.73E+00	1.05E-07	3.60E-01	1.03E-07	--	NC
Petroleum Hydrocarbons							
C11-C22 Aromatic Hydrocarbons	NA c11-c22	1.01E+02	1.05E-07	3.60E-01	3.79E-06	--	NC
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.01E+02	1.05E-07	1.00E+00	1.06E-05	--	NC
C5-C8 Aliphatic Hydrocarbons	NA c5-8	4.37E+01	1.05E-07	1.00E+00	4.58E-06	--	NC
C9-C10 Aromatic Hydrocarbons	NA c9-10	2.20E+01	1.05E-07	1.00E+00	2.31E-06	--	NC
C9-C12 Aliphatic Hydrocarbons	NA c9-12	1.85E+01	1.05E-07	1.00E+00	1.94E-06	--	NC
C9-C18 Aliphatic Hydrocarbons	NA c9-18	3.38E+01	1.05E-07	1.00E+00	3.55E-06	--	NC
Polychlorinated Biphenyls (PCBs)							
Aroclor 1232	11141-16-5	4.83E-01	1.05E-07	8.50E-01	4.31E-08	2.00E+00	8.61E-08
Aroclor 1248	12672-29-6	3.09E+00	1.05E-07	8.50E-01	2.76E-07	2.00E+00	5.51E-07
Inorganics							
Barium, Total	7440-39-3	4.41E+01	1.05E-07	1.00E+00	4.62E-06	--	NC
Chromium, Total	7440-47-3	1.68E+01	1.05E-07	1.00E+00	1.76E-06	--	NC
Mercury, Total	7439-97-6	6.50E-01	1.05E-07	1.00E+00	6.82E-08	--	NC
Silver, Total	7440-22-4	6.53E-01	1.05E-07	1.00E+00	6.84E-08	--	NC
CUMULATIVE ELCR							1.50E-06

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF

Excess Lifetime Cancer Risk (ELCR_{cope}) = LADD * CSF

Cumulative ELCR = ΣELCR_{cope}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Inhalation of Fugitive Dust

Noncancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Noncancer Exposure Factor (EF)	Average Daily Exposure (ADE) mg/m ³	Inhalation Reference Concentration (RfC) mg/m ³	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	1.63E-06	1.37E-01	2.24E-07	5.20E+00	4.30E-08
1,1-Dichloroethane	75-34-3	7.23E-08	1.37E-01	9.90E-09	5.00E-01	1.98E-08
1,1-Dichloroethene	75-35-4	3.07E-08	1.37E-01	4.21E-09	2.00E-01	2.10E-08
1,2,4-Trimethylbenzene	95-63-6	2.94E-08	1.37E-01	4.02E-09	6.00E-03	6.70E-07
1,2-Dichlorobenzene	95-50-1	3.65E-08	1.37E-01	5.00E-09	2.00E-01	2.50E-08
1,2-Dichloroethane	107-06-2	5.94E-09	1.37E-01	8.14E-10	5.50E-02	1.48E-08
1,3,5-Trimethylbenzene	108-67-8	1.59E-08	1.37E-01	2.18E-09	6.00E-03	3.64E-07
1,4-Dichlorobenzene	106-46-7	7.07E-09	1.37E-01	9.68E-10	8.00E-01	1.21E-09
2-Butanone	78-93-3	1.46E-09	1.37E-01	1.99E-10	5.00E+00	3.99E-11
4-Isopropyltoluene	99-87-6	4.84E-08	1.37E-01	6.63E-09	4.00E-01	1.66E-08
Acetone	67-64-1	1.47E-09	1.37E-01	2.01E-10	8.00E-01	2.52E-10
Bromoform	75-25-2	1.04E-10	1.37E-01	1.42E-11	7.00E-02	2.04E-10
Carbon Disulfide	75-15-0	9.87E-10	1.37E-01	1.35E-10	7.00E-01	1.93E-10
Chlorobenzene	108-90-7	3.00E-09	1.37E-01	4.11E-10	2.00E-02	2.05E-08
Chloroethane	75-00-3	1.18E-10	1.37E-01	1.62E-11	1.00E+01	1.62E-12
cis-1,2-Dichloroethene	156-59-2	1.43E-07	1.37E-01	1.96E-08	3.50E-02	5.60E-07
Ethylbenzene	100-41-4	1.93E-07	1.37E-01	2.64E-08	1.00E+00	2.64E-08
Isopropylbenzene	98-82-8	3.89E-09	1.37E-01	5.32E-10	4.00E-01	1.33E-09
Methyl tert butyl ether	1634-04-4	7.47E-11	1.37E-01	1.02E-11	3.00E+00	3.41E-12
Methylene Chloride	75-09-2	1.39E-08	1.37E-01	1.91E-09	3.00E+00	6.37E-10
Naphthalene	91-20-3	2.64E-08	1.37E-01	3.62E-09	3.00E-03	1.21E-06
n-Butylbenzene	104-51-8	1.03E-08	1.37E-01	1.41E-09	1.40E-01	1.01E-08
n-Propylbenzene	103-65-1	1.23E-08	1.37E-01	1.69E-09	1.40E-01	1.21E-08
sec-Butylbenzene	135-98-8	1.26E-08	1.37E-01	1.72E-09	1.40E-01	1.23E-08
Tetrachloroethene	127-18-4	1.75E-06	1.37E-01	2.40E-07	4.60E+00	5.21E-08
Toluene	108-88-3	6.54E-07	1.37E-01	8.96E-08	5.00E+00	1.79E-08
trans-1,2-Dichloroethene	156-60-5	1.71E-10	1.37E-01	2.35E-11	7.00E-02	3.35E-10
Trichloroethene	79-01-6	1.40E-06	1.37E-01	1.92E-07	1.80E-01	1.07E-06
Vinyl Chloride	75-01-4	8.18E-09	1.37E-01	1.12E-09	1.00E-01	1.12E-08
Xylenes (Total)	1330-20-7	4.07E-07	1.37E-01	5.57E-08	1.00E-01	5.57E-07
Semi-volatile Organic Compounds (SVOCs)						
2-Methylnaphthalene	91-57-6	9.43E-09	1.37E-01	1.29E-09	5.00E-02	2.58E-08
Acenaphthene	83-32-9	1.24E-08	1.37E-01	1.69E-09	5.00E-02	3.39E-08
Acenaphthylene	208-96-8	8.35E-09	1.37E-01	1.14E-09	5.00E-02	2.29E-08
Anthracene	120-12-7	2.02E-08	1.37E-01	2.76E-09	5.00E-02	5.53E-08
Benzo(a)anthracene	56-55-3	5.39E-08	1.37E-01	7.39E-09	5.00E-02	1.48E-07
Benzo(a)pyrene	50-32-8	4.98E-08	1.37E-01	6.82E-09	5.00E-02	1.36E-07
Benzo(b)fluoranthene	205-99-2	5.00E-08	1.37E-01	6.85E-09	5.00E-02	1.37E-07
Benzo(g,h,i)perylene	191-24-2	4.39E-08	1.37E-01	6.01E-09	5.00E-02	1.20E-07
Benzo(k)fluoranthene	207-08-9	3.89E-08	1.37E-01	5.32E-09	5.00E-02	1.06E-07
Chrysene	218-01-9	5.87E-08	1.37E-01	8.05E-09	5.00E-02	1.61E-07
Dibenz(a,h)anthracene	53-70-3	9.85E-09	1.37E-01	1.35E-09	5.00E-02	2.70E-08
Fluoranthene	206-44-0	1.05E-07	1.37E-01	1.44E-08	5.00E-02	2.87E-07
Fluorene	86-73-7	1.04E-08	1.37E-01	1.42E-09	5.00E-02	2.84E-08
Indeno(1,2,3-cd)pyrene	193-39-5	3.18E-08	1.37E-01	4.35E-09	5.00E-02	8.70E-08
Phenanthrene	85-01-8	8.81E-08	1.37E-01	1.21E-08	5.00E-02	2.41E-07
Pyrene	129-00-0	8.75E-08	1.37E-01	1.20E-08	5.00E-02	2.40E-07
Petroleum Hydrocarbons						
C11-C22 Aromatic Hydrocarbons	NA c11-c22	3.22E-06	1.37E-01	4.41E-07	5.00E-02	8.81E-06
C19-C36 Aliphatic Hydrocarbons	NA c19-36	3.24E-06	1.37E-01	4.44E-07	NA	NC
C5-C8 Aliphatic Hydrocarbons	NA c5-8	1.40E-06	1.37E-01	1.92E-07	2.00E-01	9.58E-07
C9-C10 Aromatic Hydrocarbons	NA c9-10	7.05E-07	1.37E-01	9.66E-08	5.00E-02	1.93E-06
C9-C12 Aliphatic Hydrocarbons	NA c9-12	5.92E-07	1.37E-01	8.11E-08	2.00E-01	4.06E-07
C9-C18 Aliphatic Hydrocarbons	NA c9-18	1.08E-06	1.37E-01	1.48E-07	2.00E-01	7.42E-07
Polychlorinated Biphenyls (PCBs)						
Aroclor 1232	11141-16-5	1.55E-08	1.37E-01	2.12E-09	2.00E-05	1.06E-04
Aroclor 1248	12672-29-6	9.90E-08	1.37E-01	1.36E-08	2.00E-05	6.78E-04
Inorganics						
Barium, Total	7440-39-3	1.41E-06	1.37E-01	1.93E-07	5.00E-04	3.86E-04
Chromium, Total	7440-47-3	5.37E-07	1.37E-01	7.35E-08	1.00E-04	7.35E-04
Mercury, Total	7439-97-6	2.08E-08	1.37E-01	2.85E-09	3.00E-04	9.50E-06
Silver, Total	7440-22-4	2.09E-08	1.37E-01	2.86E-09	1.40E-04	2.04E-05
CUMULATIVE HAZARD INDEX						1.95E-03

Average Daily Dose (ADD) = EPC * EF
Hazard Quotient (HQ_{conc}) = ADE / RfC
Cumulative Hazard Index (HI) = Σ HQ_{conc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Inhalation of Fugitive Dust

Cancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Cancer Exposure Factor (EF)	Lifetime Average Daily Dose (LADE) mg/m ³	Inhalation Unit Risk (IUR) (mg/m ³) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	1.63E-06	4.89E-02	7.99E-08	--	NC
1,1-Dichloroethane	75-34-3	7.23E-08	4.89E-02	3.53E-09	--	NC
1,1-Dichloroethene	75-35-4	3.07E-08	4.89E-02	1.50E-09	--	NC
1,2,4-Trimethylbenzene	95-63-6	2.94E-08	4.89E-02	1.44E-09	--	NC
1,2-Dichlorobenzene	95-50-1	3.65E-08	4.89E-02	1.78E-09	--	NC
1,2-Dichloroethane	107-06-2	5.94E-09	4.89E-02	2.91E-10	2.60E-02	7.56E-12
1,3,5-Trimethylbenzene	108-67-8	1.59E-08	4.89E-02	7.79E-10	--	NC
1,4-Dichlorobenzene	106-46-7	7.07E-09	4.89E-02	3.46E-10	6.86E-03	2.37E-12
2-Butanone	78-93-3	1.46E-09	4.89E-02	7.12E-11	--	NC
4-Isopropyltoluene	99-87-6	4.84E-08	4.89E-02	2.37E-09	--	NC
Acetone	67-64-1	1.47E-09	4.89E-02	7.19E-11	--	NC
Bromoform	75-25-2	1.04E-10	4.89E-02	5.09E-12	1.10E-03	5.60E-15
Carbon Disulfide	75-15-0	9.87E-10	4.89E-02	4.83E-11	--	NC
Chlorobenzene	108-90-7	3.00E-09	4.89E-02	1.47E-10	--	NC
Chloroethane	75-00-3	1.18E-10	4.89E-02	5.79E-12	--	NC
cis-1,2-Dichloroethene	156-59-2	1.43E-07	4.89E-02	7.00E-09	--	NC
Ethylbenzene	100-41-4	1.93E-07	4.89E-02	9.44E-09	--	NC
Isopropylbenzene	98-82-8	3.89E-09	4.89E-02	1.90E-10	--	NC
Methyl tert butyl ether	1634-04-4	7.47E-11	4.89E-02	3.65E-12	--	NC
Methylene Chloride	75-09-2	1.39E-08	4.89E-02	6.82E-10	4.70E-04	3.21E-13
Naphthalene	91-20-3	2.64E-08	4.89E-02	1.29E-09	--	NC
n-Butylbenzene	104-51-8	1.03E-08	4.89E-02	5.05E-10	--	NC
n-Propylbenzene	103-65-1	1.23E-08	4.89E-02	6.03E-10	--	NC
sec-Butylbenzene	135-98-8	1.26E-08	4.89E-02	6.15E-10	--	NC
Tetrachloroethene	127-18-4	1.75E-06	4.89E-02	8.57E-08	5.52E-02	4.73E-09
Toluene	108-88-3	6.54E-07	4.89E-02	3.20E-08	--	NC
trans-1,2-Dichloroethene	156-60-5	1.71E-10	4.89E-02	8.38E-12	--	NC
Trichloroethene	79-01-6	1.40E-06	4.89E-02	6.85E-08	1.70E-03	1.16E-10
Vinyl Chloride	75-01-4	8.18E-09	4.89E-02	4.00E-10	4.40E-03	1.76E-12
Xylenes (Total)	1330-20-7	4.07E-07	4.89E-02	1.99E-08	--	NC
Semi-volatile Organic Compounds (SVOCs)						
2-Methylnaphthalene	91-57-6	9.43E-09	4.89E-02	4.61E-10	--	NC
Acenaphthene	83-32-9	1.24E-08	4.89E-02	6.05E-10	--	NC
Acenaphthylene	208-96-8	8.35E-09	4.89E-02	4.08E-10	--	NC
Anthracene	120-12-7	2.02E-08	4.89E-02	9.87E-10	--	NC
Benzo(a)anthracene	56-55-3	5.39E-08	4.89E-02	2.64E-09	2.09E-01	5.51E-10
Benzo(a)pyrene	50-32-8	4.98E-08	4.89E-02	2.44E-09	2.09E+00	5.09E-09
Benzo(b)fluoranthene	205-99-2	5.00E-08	4.89E-02	2.45E-09	2.09E-01	5.12E-10
Benzo(g,h,i)perylene	191-24-2	4.39E-08	4.89E-02	2.15E-09	--	NC
Benzo(k)fluoranthene	207-08-9	3.89E-08	4.89E-02	1.90E-09	2.09E-02	3.97E-11
Chrysene	218-01-9	5.87E-08	4.89E-02	2.87E-09	2.09E-02	6.01E-11
Dibenzo(a,h)anthracene	53-70-3	9.85E-09	4.89E-02	4.82E-10	2.09E+00	1.01E-09
Fluoranthene	206-44-0	1.05E-07	4.89E-02	5.13E-09	--	NC
Fluorene	86-73-7	1.04E-08	4.89E-02	5.06E-10	--	NC
Indeno(1,2,3-cd)pyrene	193-39-5	3.18E-08	4.89E-02	1.55E-09	2.09E-01	3.25E-10
Phenanthrene	85-01-8	8.81E-08	4.89E-02	4.31E-09	--	NC
Pyrene	129-00-0	8.75E-08	4.89E-02	4.28E-09	--	NC
Petroleum Hydrocarbons						
C11-C22 Aromatic Hydrocarbons	NA c11-c22	3.22E-06	4.89E-02	1.57E-07	--	NC
C19-C36 Aliphatic Hydrocarbons	NA c19-36	3.24E-06	4.89E-02	1.58E-07	--	NC
C5-C8 Aliphatic Hydrocarbons	NA c5-8	1.40E-06	4.89E-02	6.84E-08	--	NC
C9-C10 Aromatic Hydrocarbons	NA c9-10	7.05E-07	4.89E-02	3.45E-08	--	NC
C9-C12 Aliphatic Hydrocarbons	NA c9-12	5.92E-07	4.89E-02	2.90E-08	--	NC
C9-C18 Aliphatic Hydrocarbons	NA c9-18	1.08E-06	4.89E-02	5.30E-08	--	NC
Polychlorinated Biphenyls (PCBs)						
Aroclor 1232	11141-16-5	1.55E-08	4.89E-02	7.57E-10	1.00E-01	7.57E-11
Aroclor 1248	12672-29-6	9.90E-08	4.89E-02	4.84E-09	1.00E-01	4.84E-10
Inorganics						
Barium, Total	7440-39-3	1.41E-06	4.89E-02	6.90E-08	--	NC
Chromium, Total	7440-47-3	5.37E-07	4.89E-02	2.63E-08	1.20E+01	3.15E-07
Mercury, Total	7439-97-6	2.08E-08	4.89E-02	1.02E-09	--	NC
Silver, Total	7440-22-4	2.09E-08	4.89E-02	1.02E-09	--	NC
CUMULATIVE ELCR						3.28E-07

Lifetime Average Daily Dose (LADE) = EPC * EF
Excess Lifetime Cancer Risk (ELCR_{cpc}) = LADE * CSF
Cumulative ELCR = ΣELCR_{cpc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Hot Spot #1
EXPOSURE PATHWAY:	Dermal Contact with Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF)	Average Daily Dose (ADD) mg/kg-day	Dermal Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
<i>Volatile Organic Compounds (VOCs)</i>							
1,1,1-Trichloroethane	71-55-6	3.00E+03	4.90E-07	1.00E-01	1.47E-04	9.00E-02	1.63E-03
Tetrachloroethene	127-18-4	1.60E+03	4.90E-07	1.00E-01	7.84E-05	1.00E-02	7.84E-03
Toluene	108-88-3	6.80E+02	4.90E-07	1.20E-01	4.00E-05	8.00E-02	5.00E-04
Trichloroethene	79-01-6	1.90E+03	4.90E-07	1.00E-01	9.31E-05	2.00E-03	4.66E-02
<i>Polychlorinated Biphenyls (PCBs)</i>							
Aroclor 1248	12672-29-6	1.70E+00	4.90E-07	1.60E-01	1.33E-07	2.00E-05	6.67E-03
Aroclor 1232	11141-16-5	--	4.90E-07	1.60E-01	NC	2.00E-05	NC
CUMULATIVE HAZARD INDEX							6.32E-02

Average Daily Dose (ADD) = EPC * EF * RAF

Hazard Quotient (HQ_{conc}) = ADD / RfD

Cumulative Hazard Index (HI) = Σ HQ_{conc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Hot Spot #1
EXPOSURE PATHWAY:	Dermal Contact with Soil

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Dermal Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
<i>Volatile Organic Compounds (VOCs)</i>							
1,1,1-Trichloroethane	71-55-6	3.00E+03	1.75E-07	1.00E-01	5.25E-05	--	NC
Tetrachloroethene	127-18-4	1.60E+03	1.75E-07	1.00E-01	2.80E-05	5.10E-02	1.43E-06
Toluene	108-88-3	6.80E+02	1.75E-07	1.20E-01	1.43E-05	--	NC
Trichloroethene	79-01-6	1.90E+03	1.75E-07	1.00E-01	3.33E-05	1.10E-02	3.66E-07
<i>Polychlorinated Biphenyls (PCBs)</i>							
Aroclor 1248	12672-29-6	1.70E+00	1.75E-07	1.60E-01	4.76E-08	2.00E+00	9.52E-08
Aroclor 1232	11141-16-5	--	1.75E-07	1.60E-01	NC	2.00E+00	NC
CUMULATIVE ELCR							1.89E-06

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF

Excess Lifetime Cancer Risk (ELCR_{topc}) = LADD * CSF

Cumulative ELCR = ΣELCR_{topc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Hot Spot #1
EXPOSURE PATHWAY:	Incidental Ingestion of Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Average Daily Dose (ADD) mg/kg-day	Oral Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
<i>Volatile Organic Compounds (VOCs)</i>							
1,1,1-Trichloroethane	71-55-6	3.00E+03	2.94E-07	1.00E+00	8.81E-04	9.00E-02	9.78E-03
Tetrachloroethene	127-18-4	1.60E+03	2.94E-07	1.00E+00	4.70E-04	1.00E-02	4.70E-02
Toluene	108-88-3	6.80E+02	2.94E-07	1.00E+00	2.00E-04	8.00E-02	2.50E-03
Trichloroethene	79-01-6	1.90E+03	2.94E-07	1.00E+00	5.58E-04	2.00E-03	2.79E-01
<i>Polychlorinated Biphenyls (PCBs)</i>							
Aroclor 1248	12672-29-6	1.70E+00	2.94E-07	8.50E-01	4.24E-07	2.00E-05	2.12E-02
Aroclor 1232	11141-16-5	--	2.94E-07	8.50E-01	NC	2.00E-05	NC
CUMULATIVE HAZARD INDEX							3.59E-01

Average Daily Dose (ADD) = EPC * EF * RAF

Hazard Quotient (HQ_{copc}) = ADD / RfD

Cumulative Hazard Index (HI) = Σ HQ_{copc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Hot Spot #1
EXPOSURE PATHWAY:	Incidental Ingestion of Soil

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Oral Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
<i>Volatile Organic Compounds (VOCs)</i>							
1,1,1-Trichloroethane	71-55-6	3.00E+03	1.05E-07	1.00E+00	3.15E-04	--	NC
Tetrachloroethene	127-18-4	1.60E+03	1.05E-07	1.00E+00	1.68E-04	5.10E-02	8.55E-06
Toluene	108-88-3	6.80E+02	1.05E-07	1.00E+00	7.13E-05	--	NC
Trichloroethene	79-01-6	1.90E+03	1.05E-07	1.00E+00	1.99E-04	1.10E-02	2.19E-06
<i>Polychlorinated Biphenyls (PCBs)</i>							
Aroclor 1248	12672-29-6	1.70E+00	1.05E-07	8.50E-01	1.51E-07	2.00E+00	3.03E-07
Aroclor 1232	11141-16-5	--	1.05E-07	8.50E-01	NC	2.00E+00	NC
CUMULATIVE ELCR							1.10E-05

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF

Excess Lifetime Cancer Risk (ELCR_{copc}) = LADD * CSF

Cumulative ELCR = ΣELCR_{copc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Hot Spot #1
EXPOSURE PATHWAY:	Inhalation of Fugitive Dust

Noncancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Noncancer Exposure Factor (EF)	Average Daily Exposure (ADE) mg/m ³	Inhalation Reference Concentration (RfC) mg/m ³	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	9.60E-05	1.37E-01	1.32E-05	5.20E+00	2.53E-06
Tetrachloroethene	127-18-4	5.12E-05	1.37E-01	7.01E-06	4.60E+00	1.52E-06
Toluene	108-88-3	2.18E-05	1.37E-01	2.98E-06	5.00E+00	5.96E-07
Trichloroethene	79-01-6	6.08E-05	1.37E-01	8.33E-06	1.80E-01	4.63E-05
Polychlorinated Biphenyls (PCBs)						
Aroclor 1248	12672-29-6	5.44E-08	1.37E-01	7.45E-09	2.00E-05	3.73E-04
Aroclor 1232	11141-16-5	NC	1.37E-01	NC	2.00E-05	NC
CUMULATIVE HAZARD INDEX						4.24E-04

Average Daily Dose (ADD) = EPC * EF
Hazard Quotient (HQ_{conc}) = ADE / RfC
Cumulative Hazard Index (HI) = Σ HQ_{conc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Hot Spot #1
EXPOSURE PATHWAY:	Inhalation of Fugitive Dust

Cancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Cancer Exposure Factor (EF)	Lifetime Average Daily Dose (LADE) mg/m ³	Inhalation Unit Risk (IUR) (mg/m ³) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
<i>Volatile Organic Compounds (VOCs)</i>						
1,1,1-Trichloroethane	71-55-6	9.60E-05	4.89E-02	4.70E-06	--	NC
Tetrachloroethene	127-18-4	5.12E-05	4.89E-02	2.50E-06	5.52E-02	1.38E-07
Toluene	108-88-3	2.18E-05	4.89E-02	1.06E-06	--	NC
Trichloroethene	79-01-6	6.08E-05	4.89E-02	2.97E-06	1.70E-03	5.06E-09
<i>Polychlorinated Biphenyls (PCBs)</i>						
Aroclor 1248	12672-29-6	5.44E-08	4.89E-02	2.66E-09	1.00E-01	2.66E-10
Aroclor 1232	11141-16-5	NC	4.89E-02	NC	1.00E-01	NC
CUMULATIVE ELCR						1.44E-07

Lifetime Average Daily Dose (LADE) = EPC * EF
Excess Lifetime Cancer Risk (ELCR_{cope}) = LADE * CSF
Cumulative ELCR = ΣELCR_{cope}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Dermal Contact with Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF)	Average Daily Dose (ADD) mg/kg-day	Dermal Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	2.20E+01	4.90E-07	1.00E-01	1.08E-06	9.00E-02	1.20E-05
1,1-Dichloroethene	75-35-4	3.33E+00	4.90E-07	1.00E-01	1.63E-07	5.00E-02	3.26E-06
1,2,4-Trimethylbenzene	95-63-6	3.58E+00	4.90E-07	1.00E-02	1.75E-08	5.00E-02	3.50E-07
1,2-Dichlorobenzene	95-50-1	1.22E+01	4.90E-07	1.00E-01	5.98E-07	9.00E-02	6.64E-06
1,3,5-Trimethylbenzene	108-67-8	2.90E+00	4.90E-07	1.00E-02	1.42E-08	5.00E-02	2.84E-07
1,4-Dichlorobenzene	106-46-7	1.20E+00	4.90E-07	1.00E-01	5.88E-08	9.00E-02	6.54E-07
4-Isopropyltoluene	99-87-6	2.88E+00	4.90E-07	1.00E-02	1.41E-08	1.00E-01	1.41E-07
Chlorobenzene	108-90-7	2.30E-01	4.90E-07	1.00E-02	1.13E-09	2.00E-02	5.64E-08
cis-1,2-Dichloroethene	156-59-2	2.35E+01	4.90E-07	1.00E-01	1.15E-06	1.00E-02	1.15E-04
Ethylbenzene	100-41-4	7.00E+00	4.90E-07	2.00E-01	6.86E-07	1.00E-01	6.86E-06
Isopropylbenzene	98-82-8	6.40E-01	4.90E-07	1.00E-02	3.14E-09	1.00E-01	3.14E-08
Naphthalene	91-20-3	1.90E+00	4.90E-07	1.00E-01	9.31E-08	2.00E-02	4.66E-06
n-Propylbenzene	103-65-1	2.70E+00	4.90E-07	1.00E-02	1.32E-08	4.00E-02	3.31E-07
sec-Butylbenzene	135-98-8	6.30E-01	4.90E-07	1.00E-02	3.09E-09	4.00E-02	7.72E-08
Tetrachloroethene	127-18-4	1.30E+01	4.90E-07	1.00E-01	6.37E-07	1.00E-02	6.37E-05
Toluene	108-88-3	5.88E+01	4.90E-07	1.20E-01	3.46E-06	8.00E-02	4.32E-05
Trichloroethene	79-01-6	1.03E+01	4.90E-07	1.00E-01	5.02E-07	2.00E-03	2.51E-04
Vinyl Chloride	75-01-4	1.20E+00	4.90E-07	1.00E-01	5.88E-08	3.00E-03	1.96E-05
Xylenes (Total)	1330-20-7	2.07E+01	4.90E-07	1.20E-01	1.21E-06	2.00E-01	6.07E-06
Polychlorinated Biphenyls (PCBs)							
Aroclor 1232	11141-16-5	--	4.90E-07	1.60E-01	NC	2.00E-05	NC
Aroclor 1248	12672-29-6	2.44E-01	4.90E-07	1.60E-01	1.92E-08	2.00E-05	9.58E-04
Inorganics							
Barium, Total	7440-39-3	3.09E+01	4.90E-07	5.00E-02	7.57E-07	1.40E-02	5.41E-05
Chromium, Total	7440-47-3	1.36E+01	4.90E-07	9.00E-02	6.00E-07	7.50E-05	8.00E-03
Mercury, Total	7439-97-6	1.50E-01	4.90E-07	5.00E-02	3.68E-09	3.00E-04	1.23E-05
Silver, Total	7440-22-4	5.10E-01	4.90E-07	2.50E-01	6.25E-08	2.00E-04	3.12E-04
CUMULATIVE HAZARD INDEX							9.87E-03

Average Daily Dose (ADD) = EPC * EF * RAF
Hazard Quotient (HQ_{copc}) = ADD / RfD
Cumulative Hazard Index (HI) = Σ HQ_{copc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Dermal Contact with Soil

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Dermal Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	2.20E+01	1.75E-07	1.00E-01	3.85E-07	--	NC
1,1-Dichloroethene	75-35-4	3.33E+00	1.75E-07	1.00E-01	5.82E-08	--	NC
1,2,4-Trimethylbenzene	95-63-6	3.58E+00	1.75E-07	1.00E-02	6.26E-09	--	NC
1,2-Dichlorobenzene	95-50-1	1.22E+01	1.75E-07	1.00E-01	2.14E-07	--	NC
1,3,5-Trimethylbenzene	108-67-8	2.90E+00	1.75E-07	1.00E-02	5.08E-09	--	NC
1,4-Dichlorobenzene	106-46-7	1.20E+00	1.75E-07	1.00E-01	2.10E-08	2.40E-02	5.04E-10
4-Isopropyltoluene	99-87-6	2.88E+00	1.75E-07	1.00E-02	5.03E-09	--	NC
Chlorobenzene	108-90-7	2.30E-01	1.75E-07	1.00E-02	4.03E-10	--	NC
cis-1,2-Dichloroethene	156-59-2	2.35E+01	1.75E-07	1.00E-01	4.11E-07	--	NC
Ethylbenzene	100-41-4	7.00E+00	1.75E-07	2.00E-01	2.45E-07	--	NC
Isopropylbenzene	98-82-8	6.40E-01	1.75E-07	1.00E-02	1.12E-09	--	NC
Naphthalene	91-20-3	1.90E+00	1.75E-07	1.00E-01	3.33E-08	--	NC
n-Propylbenzene	103-65-1	2.70E+00	1.75E-07	1.00E-02	4.73E-09	--	NC
sec-Butylbenzene	135-98-8	6.30E-01	1.75E-07	1.00E-02	1.10E-09	--	NC
Tetrachloroethene	127-18-4	1.30E+01	1.75E-07	1.00E-01	2.28E-07	5.10E-02	1.16E-08
Toluene	108-88-3	5.88E+01	1.75E-07	1.20E-01	1.23E-06	--	NC
Trichloroethene	79-01-6	1.03E+01	1.75E-07	1.00E-01	1.79E-07	1.10E-02	1.97E-09
Vinyl Chloride	75-01-4	1.20E+00	1.75E-07	1.00E-01	2.10E-08	7.20E-01	1.51E-08
Xylenes (Total)	1330-20-7	2.07E+01	1.75E-07	1.20E-01	4.34E-07	--	NC
Polychlorinated Biphenyls (PCBs)							
Aroclor 1232	11141-16-5	--	1.75E-07	1.60E-01	NC	2.00E+00	NC
Aroclor 1248	12672-29-6	2.44E-01	1.75E-07	1.60E-01	6.84E-09	2.00E+00	1.37E-08
Inorganics							
Barium, Total	7440-39-3	3.09E+01	1.75E-07	5.00E-02	2.70E-07	--	NC
Chromium, Total	7440-47-3	1.36E+01	1.75E-07	9.00E-02	2.14E-07	--	NC
Mercury, Total	7439-97-6	1.50E-01	1.75E-07	5.00E-02	1.31E-09	--	NC
Silver, Total	7440-22-4	5.10E-01	1.75E-07	2.50E-01	2.23E-08	--	NC
CUMULATIVE ELCR							4.29E-08

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF
Excess Lifetime Cancer Risk (ELCR_{corp}) = LADD * CSF
Cumulative ELCR = ΣELCR_{corp}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Incidental Ingestion of Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Average Daily Dose (ADD) mg/kg-day	Oral Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	2.20E+01	2.94E-07	1.00E+00	6.46E-06	9.00E-02	7.18E-05
1,1-Dichloroethene	75-35-4	3.33E+00	2.94E-07	1.00E+00	9.76E-07	5.00E-02	1.95E-05
1,2,4-Trimethylbenzene	95-63-6	3.58E+00	2.94E-07	1.00E+00	1.05E-06	5.00E-02	2.10E-05
1,2-Dichlorobenzene	95-50-1	1.22E+01	2.94E-07	1.00E+00	3.58E-06	9.00E-02	3.98E-05
1,3,5-Trimethylbenzene	108-67-8	2.90E+00	2.94E-07	1.00E+00	8.51E-07	5.00E-02	1.70E-05
1,4-Dichlorobenzene	106-46-7	1.20E+00	2.94E-07	1.00E+00	3.52E-07	9.00E-02	3.91E-06
4-Isopropyltoluene	99-87-6	2.88E+00	2.94E-07	1.00E+00	8.44E-07	1.00E-01	8.44E-06
Chlorobenzene	108-90-7	2.30E-01	2.94E-07	1.00E+00	6.75E-08	2.00E-02	3.38E-06
cis-1,2-Dichloroethene	156-59-2	2.35E+01	2.94E-07	1.00E+00	6.90E-06	1.00E-02	6.90E-04
Ethylbenzene	100-41-4	7.00E+00	2.94E-07	1.00E+00	2.05E-06	1.00E-01	2.05E-05
Isopropylbenzene	98-82-8	6.40E-01	2.94E-07	1.00E+00	1.88E-07	1.00E-01	1.88E-06
Naphthalene	91-20-3	1.90E+00	2.94E-07	3.60E-01	2.01E-07	2.00E-02	1.00E-05
n-Propylbenzene	103-65-1	2.70E+00	2.94E-07	1.00E+00	7.93E-07	4.00E-02	1.98E-05
sec-Butylbenzene	135-98-8	6.30E-01	2.94E-07	1.00E+00	1.85E-07	4.00E-02	4.62E-06
Tetrachloroethene	127-18-4	1.30E+01	2.94E-07	1.00E+00	3.82E-06	1.00E-02	3.82E-04
Toluene	108-88-3	5.88E+01	2.94E-07	1.00E+00	1.72E-05	8.00E-02	2.16E-04
Trichloroethene	79-01-6	1.03E+01	2.94E-07	1.00E+00	3.01E-06	2.00E-03	1.50E-03
Vinyl Chloride	75-01-4	1.20E+00	2.94E-07	1.00E+00	3.52E-07	3.00E-03	1.17E-04
Xylenes (Total)	1330-20-7	2.07E+01	2.94E-07	1.00E+00	6.06E-06	2.00E-01	3.03E-05
Polychlorinated Biphenyls (PCBs)							
Aroclor 1232	11141-16-5	--	2.94E-07	8.50E-01	NC	2.00E-05	NC
Aroclor 1248	12672-29-6	2.44E-01	2.94E-07	8.50E-01	6.09E-08	2.00E-05	3.05E-03
Inorganics							
Barium, Total	7440-39-3	3.09E+01	2.94E-07	1.00E+00	9.07E-06	2.00E-01	4.54E-05
Chromium, Total	7440-47-3	1.36E+01	2.94E-07	1.00E+00	3.99E-06	3.00E-03	1.33E-03
Mercury, Total	7439-97-6	1.50E-01	2.94E-07	1.00E+00	4.40E-08	3.00E-04	1.47E-04
Silver, Total	7440-22-4	5.10E-01	2.94E-07	1.00E+00	1.50E-07	5.00E-03	2.99E-05
CUMULATIVE HAZARD INDEX							7.78E-03

$$\text{Average Daily Dose (ADD)} = \text{EPC} * \text{EF} * \text{RAF}$$

$$\text{Hazard Quotient (HQ}_{\text{conc}}) = \text{ADD} / \text{RfD}$$

$$\text{Cumulative Hazard Index (HI)} = \Sigma \text{HQ}_{\text{conc}}$$

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Incidental Ingestion of Soil

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Oral Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	2.20E+01	1.05E-07	1.00E+00	2.31E-06	--	NC
1,1-Dichloroethene	75-35-4	3.33E+00	1.05E-07	1.00E+00	3.49E-07	--	NC
1,2,4-Trimethylbenzene	95-63-6	3.58E+00	1.05E-07	1.00E+00	3.75E-07	--	NC
1,2-Dichlorobenzene	95-50-1	1.22E+01	1.05E-07	1.00E+00	1.28E-06	--	NC
1,3,5-Trimethylbenzene	108-67-8	2.90E+00	1.05E-07	1.00E+00	3.04E-07	--	NC
1,4-Dichlorobenzene	106-46-7	1.20E+00	1.05E-07	1.00E+00	1.26E-07	2.40E-02	3.02E-09
4-Isopropyltoluene	99-87-6	2.88E+00	1.05E-07	1.00E+00	3.01E-07	--	NC
Chlorobenzene	108-90-7	2.30E-01	1.05E-07	1.00E+00	2.41E-08	--	NC
cis-1,2-Dichloroethene	156-59-2	2.35E+01	1.05E-07	1.00E+00	2.46E-06	--	NC
Ethylbenzene	100-41-4	7.00E+00	1.05E-07	1.00E+00	7.34E-07	--	NC
Isopropylbenzene	98-82-8	6.40E-01	1.05E-07	1.00E+00	6.71E-08	--	NC
Naphthalene	91-20-3	1.90E+00	1.05E-07	3.60E-01	7.17E-08	--	NC
n-Propylbenzene	103-65-1	2.70E+00	1.05E-07	1.00E+00	2.83E-07	--	NC
sec-Butylbenzene	135-98-8	6.30E-01	1.05E-07	1.00E+00	6.60E-08	--	NC
Tetrachloroethene	127-18-4	1.30E+01	1.05E-07	1.00E+00	1.36E-06	5.10E-02	6.95E-08
Toluene	108-88-3	5.88E+01	1.05E-07	1.00E+00	6.16E-06	--	NC
trans-1,2-Dichloroethene	156-60-5	--	1.05E-07	1.00E+00	NC	--	NC
Trichloroethene	79-01-6	1.03E+01	1.05E-07	1.00E+00	1.07E-06	1.10E-02	1.18E-08
Vinyl Chloride	75-01-4	1.20E+00	1.05E-07	1.00E+00	1.26E-07	7.20E-01	9.06E-08
Xylenes (Total)	1330-20-7	2.07E+01	1.05E-07	1.00E+00	2.16E-06	--	NC
Polychlorinated Biphenyls (PCBs)							
Aroclor 1232	11141-16-5	--	1.05E-07	8.50E-01	NC	2.00E+00	NC
Aroclor 1248	12672-29-6	2.44E-01	1.05E-07	8.50E-01	2.18E-08	2.00E+00	4.35E-08
Inorganics							
Barium, Total	7440-39-3	3.09E+01	1.05E-07	1.00E+00	3.24E-06	--	NC
Chromium, Total	7440-47-3	1.36E+01	1.05E-07	1.00E+00	1.43E-06	--	NC
Mercury, Total	7439-97-6	1.50E-01	1.05E-07	1.00E+00	1.57E-08	--	NC
Silver, Total	7440-22-4	5.10E-01	1.05E-07	1.00E+00	5.35E-08	--	NC
CUMULATIVE ELCR							2.18E-07

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF

Excess Lifetime Cancer Risk (ELCR_{pop}) = LADD * CSF

Cumulative ELCR = ΣELCR_{pop}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Inhalation of Fugitive Dust

Noncancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Noncancer Exposure Factor (EF)	Average Daily Exposure (ADE) mg/m ³	Inhalation Reference Concentration (RfC) mg/m ³	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	7.04E-07	1.37E-01	9.64E-08	5.20E+00	1.85E-08
1,1-Dichloroethene	75-35-4	1.06E-07	1.37E-01	1.46E-08	2.00E-01	7.29E-08
1,2,4-Trimethylbenzene	95-63-6	1.14E-07	1.37E-01	1.57E-08	6.00E-03	2.61E-06
1,2-Dichlorobenzene	95-50-1	3.90E-07	1.37E-01	5.35E-08	2.00E-01	2.67E-07
1,3,5-Trimethylbenzene	108-67-8	9.28E-08	1.37E-01	1.27E-08	6.00E-03	2.12E-06
1,4-Dichlorobenzene	106-46-7	3.84E-08	1.37E-01	5.26E-09	8.00E-01	6.58E-09
4-Isopropyltoluene	99-87-6	9.20E-08	1.37E-01	1.26E-08	4.00E-01	3.15E-08
Chlorobenzene	108-90-7	7.36E-09	1.37E-01	1.01E-09	2.00E-02	5.04E-08
cis-1,2-Dichloroethene	156-59-2	7.52E-07	1.37E-01	1.03E-07	3.50E-02	2.94E-06
Ethylbenzene	100-41-4	2.24E-07	1.37E-01	3.07E-08	1.00E+00	3.07E-08
Isopropylbenzene	98-82-8	2.05E-08	1.37E-01	2.81E-09	4.00E-01	7.01E-09
Naphthalene	91-20-3	6.08E-08	1.37E-01	8.33E-09	3.00E-03	2.78E-06
n-Propylbenzene	103-65-1	8.64E-08	1.37E-01	1.18E-08	1.40E-01	8.45E-08
sec-Butylbenzene	135-98-8	2.02E-08	1.37E-01	2.76E-09	1.40E-01	1.97E-08
Tetrachloroethene	127-18-4	4.16E-07	1.37E-01	5.70E-08	4.60E+00	1.24E-08
Toluene	108-88-3	1.88E-06	1.37E-01	2.58E-07	5.00E+00	5.15E-08
Trichloroethene	79-01-6	3.28E-07	1.37E-01	4.49E-08	1.80E-01	2.50E-07
Vinyl Chloride	75-01-4	3.84E-08	1.37E-01	5.26E-09	1.00E-01	5.26E-08
Xylenes (Total)	1330-20-7	6.61E-07	1.37E-01	9.05E-08	1.00E-01	9.05E-07
Polychlorinated Biphenyls (PCBs)						
Aroclor 1232	11141-16-5	NC	1.37E-01	NC	2.00E-05	NC
Aroclor 1248	12672-29-6	7.82E-09	1.37E-01	1.07E-09	2.00E-05	5.35E-05
Inorganics						
Barium, Total	7440-39-3	9.89E-07	1.37E-01	1.35E-07	5.00E-04	2.71E-04
Chromium, Total	7440-47-3	4.35E-07	1.37E-01	5.96E-08	1.00E-04	5.96E-04
Mercury, Total	7439-97-6	4.80E-09	1.37E-01	6.58E-10	3.00E-04	2.19E-06
Silver, Total	7440-22-4	1.63E-08	1.37E-01	2.24E-09	1.40E-04	1.60E-05
CUMULATIVE HAZARD INDEX						9.51E-04

Average Daily Dose (ADD) = EPC * EF
Hazard Quotient (HQ_{conc}) = ADE / RfC
Cumulative Hazard Index (HI) = Σ HQ_{conc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Facility Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Inhalation of Fugitive Dust

Cancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Cancer Exposure Factor (EF)	Lifetime Average Daily Dose (LADE) mg/m ³	Inhalation Unit Risk (IUR) (mg/m ³) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	7.04E-07	4.89E-02	3.44E-08	--	NC
1,1-Dichloroethene	75-35-4	1.06E-07	4.89E-02	5.21E-09	--	NC
1,2,4-Trimethylbenzene	95-63-6	1.14E-07	4.89E-02	5.60E-09	--	NC
1,2-Dichlorobenzene	95-50-1	3.90E-07	4.89E-02	1.91E-08	--	NC
1,3,5-Trimethylbenzene	108-67-8	9.28E-08	4.89E-02	4.54E-09	--	NC
1,4-Dichlorobenzene	106-46-7	3.84E-08	4.89E-02	1.88E-09	6.86E-03	1.29E-11
4-Isopropyltoluene	99-87-6	9.20E-08	4.89E-02	4.50E-09	--	NC
Chlorobenzene	108-90-7	7.36E-09	4.89E-02	3.60E-10	--	NC
cis-1,2-Dichloroethene	156-59-2	7.52E-07	4.89E-02	3.68E-08	--	NC
Ethylbenzene	100-41-4	2.24E-07	4.89E-02	1.10E-08	--	NC
Isopropylbenzene	98-82-8	2.05E-08	4.89E-02	1.00E-09	--	NC
Naphthalene	91-20-3	6.08E-08	4.89E-02	2.97E-09	--	NC
n-Propylbenzene	103-65-1	8.64E-08	4.89E-02	4.23E-09	--	NC
sec-Butylbenzene	135-98-8	2.02E-08	4.89E-02	9.86E-10	--	NC
Tetrachloroethene	127-18-4	4.16E-07	4.89E-02	2.04E-08	5.52E-02	1.12E-09
Toluene	108-88-3	1.88E-06	4.89E-02	9.20E-08	--	NC
Trichloroethene	79-01-6	3.28E-07	4.89E-02	1.60E-08	1.70E-03	2.73E-11
Vinyl Chloride	75-01-4	3.84E-08	4.89E-02	1.88E-09	4.40E-03	8.27E-12
Xylenes (Total)	1330-20-7	6.61E-07	4.89E-02	3.23E-08	--	NC
Polychlorinated Biphenyls (PCBs)						
Aroclor 1232	11141-16-5	NC	4.89E-02	NC	1.00E-01	NC
Aroclor 1248	12672-29-6	7.82E-09	4.89E-02	3.82E-10	1.00E-01	3.82E-11
Inorganics						
Barium, Total	7440-39-3	9.89E-07	4.89E-02	4.84E-08	--	NC
Chromium, Total	7440-47-3	4.35E-07	4.89E-02	2.13E-08	1.20E+01	2.55E-07
Mercury, Total	7439-97-6	4.80E-09	4.89E-02	2.35E-10	--	NC
Silver, Total	7440-22-4	1.63E-08	4.89E-02	7.98E-10	--	NC
CUMULATIVE ELCR						2.57E-07

Lifetime Average Daily Dose (LADE) = EPC * EF
Excess Lifetime Cancer Risk (ELCR_{conc}) = LADE * CSF
Cumulative ELCR = ΣELCR_{conc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR: Future Construction Worker
EXPOSURE POINT: Site
EXPOSURE PATHWAY: Dermal Contact with Groundwater

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/L	Noncancer Exposure Factor (EF)	Dermally Absorbed Factor (DAF)	Average Daily Dose (ADD) mg/kg-day	Dermal Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	2.98E+00	4.49E+00	1.97E-05	2.63E-04	9.00E-01	2.92E-04
1,1-Dichloroethane	75-34-3	4.69E-01	4.49E+00	8.07E-06	1.70E-05	1.00E+00	1.70E-05
1,1-Dichloroethene	75-35-4	5.73E-02	4.49E+00	1.43E-05	3.67E-06	5.00E-02	7.34E-05
1,2,4-Trichlorobenzene	120-82-1	5.02E-03	4.49E+00	1.36E-04	3.07E-06	1.00E-02	3.07E-04
1,2,4-Trimethylbenzene	95-63-6	1.84E-02	4.49E+00	2.15E-04	1.78E-05	5.00E-02	3.55E-04
1,2-Dichlorobenzene	95-50-1	3.06E-02	4.49E+00	6.75E-05	9.28E-06	9.00E-01	1.03E-05
1,2-Dichloroethane	107-06-2	4.78E-02	4.49E+00	5.06E-06	1.09E-06	2.00E-01	5.43E-06
1,3,5-Trimethylbenzene	108-67-8	3.95E-03	4.49E+00	1.19E-04	2.12E-06	5.00E-02	4.24E-05
1,4-Dichlorobenzene	106-46-7	2.06E-03	4.49E+00	6.92E-05	6.39E-07	9.00E-01	7.10E-07
4-Isopropyltoluene	99-87-6	6.04E-02	4.49E+00	8.92E-05	2.42E-05	1.00E-01	2.42E-04
Chlorobenzene	108-90-7	2.26E-02	4.49E+00	3.71E-05	3.77E-06	2.00E-01	1.88E-05
Chloroethane	75-00-3	1.83E-02	4.49E+00	5.84E-06	4.81E-07	4.00E-01	1.20E-06
cis-1,2-Dichloroethene	156-59-2	3.00E+00	4.49E+00	9.15E-06	1.23E-04	1.00E-01	1.23E-03
Ethylbenzene	100-41-4	6.81E-01	4.49E+00	6.21E-05	1.90E-04	1.00E+00	1.90E-04
Isopropylbenzene	98-82-8	1.31E-03	4.49E+00	1.37E-04	8.07E-07	1.00E-01	8.07E-06
Methylene Chloride	75-09-2	1.41E-01	4.49E+00	3.87E-06	2.44E-06	6.00E-02	4.07E-05
n-Propylbenzene	103-65-1	1.31E-03	4.49E+00	1.80E-04	1.06E-06	4.00E-02	2.65E-05
sec-Butylbenzene	135-98-8	4.86E-03	4.49E+00	1.95E-06	4.27E-08	4.00E-02	1.07E-06
Tetrachloroethene	127-18-4	7.29E-02	4.49E+00	6.15E-05	2.02E-05	1.00E-01	2.02E-04
Toluene	108-88-3	5.84E-01	4.49E+00	3.58E-05	9.39E-05	8.00E-02	1.17E-03
trans-1,2-Dichloroethene	156-60-5	3.97E-02	4.49E+00	9.15E-06	1.63E-06	2.00E-01	8.16E-06
Trichloroethene	79-01-6	1.71E-01	4.49E+00	1.79E-05	1.37E-05	2.00E-02	6.84E-04
Vinyl Chloride	75-01-4	1.93E-01	4.49E+00	5.36E-06	4.65E-06	3.00E-03	1.55E-03
Xylenes (Total)	1330-20-7	1.10E+00	4.49E+00	8.92E-05	4.40E-04	2.00E-01	2.20E-03
Semi-volatile Organic Compounds (SVOCs)							
Benzo(a)anthracene	56-55-3	4.67E-04	4.49E+00	1.31E-03	2.74E-06	3.00E-01	9.14E-06
Benzo(a)pyrene	50-32-8	5.00E-04	4.49E+00	2.24E-03	5.04E-06	3.00E-01	1.68E-05
Benzo(b)fluoranthene	205-99-2	8.33E-04	4.49E+00	2.27E-03	8.51E-06	3.00E-01	2.84E-05
Benzo(g,h,i)perylene	191-24-2	5.00E-04	4.49E+00	3.91E-03	8.78E-06	3.00E-01	2.93E-05
Benzo(k)fluoranthene	207-08-9	4.33E-04	4.49E+00	2.35E-03	4.56E-06	3.00E-01	1.52E-05
Chrysene	218-01-9	4.67E-04	4.49E+00	1.31E-03	2.74E-06	3.00E-01	9.14E-06
Fluoranthene	206-44-0	8.33E-04	4.49E+00	5.18E-04	1.94E-06	4.00E-01	4.85E-06
Indeno(1,2,3-cd)pyrene	193-39-5	4.67E-04	4.49E+00	1.37E-03	2.87E-06	3.00E-01	9.56E-06
Pyrene	129-00-0	8.33E-04	4.49E+00	6.33E-04	2.37E-06	3.00E-01	7.90E-06
Petroleum Hydrocarbons							
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.16E+00	4.49E+00	7.11E-04	3.69E-03	6.00E+00	6.15E-04
C9-C10 Aromatic Hydrocarbons	NA c9-10	5.63E-01	4.49E+00	6.36E-04	1.61E-03	3.00E-01	5.36E-03
Polychlorinated Biphenyls (PCBs)							
Aroclor 1242	53469-21-9	9.23E-04	4.49E+00	7.06E-04	2.93E-06	5.00E-05	5.85E-02
Inorganics							
Barium, Total	7440-39-3	1.30E-01	4.49E+00	5.00E-07	2.92E-07	1.40E-02	2.09E-05
CUMULATIVE HAZARD INDEX							7.33E-02

$$\text{Average Daily Dose (ADD)} = \text{EPC} * \text{EF} * \text{DAF}$$

$$\text{Hazard Quotient (HQ}_{\text{conc}}) = \text{ADD} / \text{RfD}$$

$$\text{Cumulative Hazard Index (HI)} = \sum \text{HQ}_{\text{conc}}$$

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Dermal Contact with Groundwater

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/L	Cancer Exposure Factor (EF)	Dermally Absorbed Factor (DAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Dermal Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	2.98E+00	3.21E-02	1.97E-05	1.88E-06	--	NC
1,1-Dichloroethane	75-34-3	4.69E-01	3.21E-02	8.07E-06	1.21E-07	--	NC
1,1-Dichloroethene	75-35-4	5.73E-02	3.21E-02	1.43E-05	2.62E-08	--	NC
1,2,4-Trichlorobenzene	120-82-1	5.02E-03	3.21E-02	1.36E-04	2.19E-08	--	NC
1,2,4-Trimethylbenzene	95-63-6	1.84E-02	3.21E-02	2.15E-04	1.27E-07	--	NC
1,2-Dichlorobenzene	95-50-1	3.06E-02	3.21E-02	6.75E-05	6.63E-08	--	NC
1,2-Dichloroethane	107-06-2	4.78E-02	3.21E-02	5.06E-06	7.75E-09	9.10E-02	7.05E-10
1,3,5-Trimethylbenzene	108-67-8	3.95E-03	3.21E-02	1.19E-04	1.51E-08	--	NC
1,4-Dichlorobenzene	106-46-7	2.06E-03	3.21E-02	6.92E-05	4.56E-09	2.40E-02	1.09E-10
4-Isopropyltoluene	99-87-6	6.04E-02	3.21E-02	8.92E-05	1.73E-07	--	NC
Benzene	71-43-2	--	3.21E-02	1.58E-05	NC	5.50E-02	NC
Chlorobenzene	108-90-7	2.26E-02	3.21E-02	3.71E-05	2.69E-08	--	NC
Chloroethane	75-00-3	1.83E-02	3.21E-02	5.84E-06	3.43E-09	--	NC
cis-1,2-Dichloroethene	156-59-2	3.00E+00	3.21E-02	9.15E-06	8.80E-07	--	NC
Ethylbenzene	100-41-4	6.81E-01	3.21E-02	6.21E-05	1.36E-06	--	NC
Isopropylbenzene	98-82-8	1.31E-03	3.21E-02	1.37E-04	5.76E-09	--	NC
Methylene Chloride	75-09-2	1.41E-01	3.21E-02	3.87E-06	1.75E-08	7.50E-03	1.31E-10
n-Propylbenzene	103-65-1	1.31E-03	3.21E-02	1.80E-04	7.57E-09	--	NC
Toluene	108-88-3	5.84E-01	3.21E-02	3.58E-05	6.71E-07	--	NC
trans-1,2-Dichloroethene	156-60-5	3.97E-02	3.21E-02	9.15E-06	1.17E-08	--	NC
Trichloroethene	79-01-6	1.71E-01	3.21E-02	1.79E-05	9.77E-08	1.10E-02	1.08E-09
Vinyl Chloride	75-01-4	1.93E-01	3.21E-02	5.36E-06	3.32E-08	7.20E-01	2.39E-08
Xylenes (Total)	1330-20-7	1.10E+00	3.21E-02	8.92E-05	3.14E-06	--	NC
Semi-volatile Organic Compounds (SVOCs)							
Benzo(a)anthracene	56-55-3	4.67E-04	3.21E-02	1.31E-03	1.96E-08	7.30E-01	1.43E-08
Benzo(a)pyrene	50-32-8	5.00E-04	3.21E-02	2.24E-03	3.60E-08	7.30E+00	2.63E-07
Benzo(b)fluoranthene	205-99-2	8.33E-04	3.21E-02	2.27E-03	6.08E-08	7.30E-01	4.44E-08
Benzo(g,h,i)perylene	191-24-2	5.00E-04	3.21E-02	3.91E-03	6.27E-08	--	NC
Benzo(k)fluoranthene	207-08-9	4.33E-04	3.21E-02	2.35E-03	3.26E-08	7.30E-02	2.38E-09
Chrysene	218-01-9	4.67E-04	3.21E-02	1.31E-03	1.96E-08	7.30E-02	1.43E-09
Fluoranthene	206-44-0	8.33E-04	3.21E-02	5.18E-04	1.38E-08	--	NC
Indeno(1,2,3-cd)pyrene	193-39-5	4.67E-04	3.21E-02	1.37E-03	2.05E-08	7.30E-01	1.50E-08
Pyrene	129-00-0	8.33E-04	3.21E-02	6.33E-04	1.69E-08	--	NC
Petroleum Hydrocarbons							
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.16E+00	3.21E-02	7.11E-04	2.63E-05	--	NC
C9-C10 Aromatic Hydrocarbons	NA c9-10	5.63E-01	3.21E-02	6.36E-04	1.15E-05	--	NC
Polychlorinated Biphenyls (PCBs)							
Aroclor 1242	53469-21-9	9.23E-04	3.21E-02	7.06E-04	2.09E-08	2.00E+00	4.18E-08
Inorganics							
Barium, Total	7440-39-3	1.30E-01	3.21E-02	5.00E-07	2.09E-09	--	NC
CUMULATIVE ELCR							4.15E-07

$$\text{Lifetime Average Daily Dose (LADD)} = \text{EPC} \times \text{EF} \times \text{DAF}$$

$$\text{Excess Lifetime Cancer Risk (ELCR}_{\text{cope}}) = \text{LADD} \times \text{CSF}$$

$$\text{Cumulative ELCR} = \sum \text{ELCR}_{\text{cope}}$$

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction Worker
EXPOSURE POINT:	Hot Spot #1
EXPOSURE PATHWAY:	Dermal Contact with Groundwater

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC)	Noncancer Exposure Factor (EF)	Dermally Absorbed Factor (DAF)	Average Daily Dose (ADD)	Dermal Reference Dose (RfD)	Hazard Quotient (HQ)
		mg/L			mg/kg-day	mg/kg-day	
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	6.55E+01	4.49E+00	1.97E-05	5.79E-03	9.00E-01	6.43E-03
1,1,2-Trichloroethane	79-00-5	7.00E-02	4.49E+00	9.69E-06	3.05E-06	4.00E-02	7.62E-05
1,1-Dichloroethane	75-34-3	2.32E+00	4.49E+00	8.07E-06	8.41E-05	1.00E+00	8.41E-05
1,1-Dichloroethene	75-35-4	2.58E+00	4.49E+00	1.43E-05	1.65E-04	5.00E-02	3.31E-03
1,2,4-Trimethylbenzene	95-63-6	5.58E-02	4.49E+00	2.15E-04	5.38E-05	5.00E-02	1.08E-03
1,2-Dichlorobenzene	95-50-1	1.89E-01	4.49E+00	6.75E-05	5.73E-05	9.00E-01	6.37E-05
1,2-Dichloroethane	107-06-2	1.70E+00	4.49E+00	5.06E-06	3.86E-05	2.00E-01	1.93E-04
Benzene	71-43-2	9.22E-02	4.49E+00	1.58E-05	6.54E-06	1.00E-02	6.54E-04
Chlorobenzene	108-90-7	3.66E-01	4.49E+00	3.71E-05	6.10E-05	2.00E-01	3.05E-04
Chloroethane	75-00-3	6.17E-02	4.49E+00	5.84E-06	1.62E-06	4.00E-01	4.04E-06
cis-1,2-Dichloroethene	156-59-2	2.91E+01	4.49E+00	9.15E-06	1.20E-03	1.00E-01	1.20E-02
Ethylbenzene	100-41-4	7.86E-01	4.49E+00	6.21E-05	2.19E-04	1.00E+00	2.19E-04
Methylene Chloride	75-09-2	1.89E+00	4.49E+00	3.87E-06	3.28E-05	6.00E-02	5.47E-04
Tetrachloroethene	127-18-4	5.75E+00	4.49E+00	6.15E-05	1.59E-03	1.00E-01	1.59E-02
Toluene	108-88-3	1.19E+01	4.49E+00	3.58E-05	1.92E-03	8.00E-02	2.40E-02
trans-1,2-Dichloroethene	156-60-5	1.66E-01	4.49E+00	9.15E-06	6.81E-06	2.00E-01	3.41E-05
Trichloroethene	79-01-6	7.20E+01	4.49E+00	1.79E-05	5.78E-03	2.00E-02	2.89E-01
Vinyl Chloride	75-01-4	1.10E+00	4.49E+00	5.36E-06	2.64E-05	3.00E-03	8.80E-03
Xylenes (Total)	1330-20-7	1.12E+00	4.49E+00	8.92E-05	4.47E-04	2.00E-01	2.23E-03
Polychlorinated Biphenyls (PCBs)							
Aroclor 1242	53469-21-9	2.23E-02	4.49E+00	7.06E-04	7.07E-05	5.00E-05	1.41E+00
CUMULATIVE HAZARD INDEX							1.78E+00

Average Daily Dose (ADD) = EPC * EF * DAF
Hazard Quotient (HQ_{copc}) = ADD / RfD
Cumulative Hazard Index (HI) = Σ HQ_{copc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction Worker
EXPOSURE POINT:	Hot Spot #1
EXPOSURE PATHWAY:	Dermal Contact with Groundwater

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/L	Cancer Exposure Factor (EF)	Dermally Absorbed Factor (DAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Dermal Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	6.55E+01	3.21E-02	1.97E-05	4.13E-05	--	NC
1,1,2-Trichloroethane	79-00-5	7.00E-02	3.21E-02	9.69E-06	2.18E-08	5.70E-02	1.24E-09
1,1-Dichloroethane	75-34-3	2.32E+00	3.21E-02	8.07E-06	6.01E-07	--	NC
1,1-Dichloroethene	75-35-4	2.58E+00	3.21E-02	1.43E-05	1.18E-06	--	NC
1,2,4-Trimethylbenzene	95-63-6	5.58E-02	3.21E-02	2.15E-04	3.85E-07	--	NC
1,2-Dichlorobenzene	95-50-1	1.89E-01	3.21E-02	6.75E-05	4.09E-07	--	NC
1,2-Dichloroethane	107-06-2	1.70E+00	3.21E-02	5.06E-06	2.76E-07	9.10E-02	2.51E-08
Benzene	71-43-2	9.22E-02	3.21E-02	1.58E-05	4.67E-08	5.50E-02	2.57E-09
Chlorobenzene	108-90-7	3.66E-01	3.21E-02	3.71E-05	4.36E-07	--	NC
Chloroethane	75-00-3	6.17E-02	3.21E-02	5.84E-06	1.16E-08	--	NC
cis-1,2-Dichloroethene	156-59-2	2.91E+01	3.21E-02	9.15E-06	8.55E-06	--	NC
Ethylbenzene	100-41-4	7.86E-01	3.21E-02	6.21E-05	1.57E-06	--	NC
Methylene Chloride	75-09-2	1.89E+00	3.21E-02	3.87E-06	2.35E-07	7.50E-03	1.76E-09
Tetrachloroethene	127-18-4	5.75E+00	3.21E-02	6.15E-05	1.13E-05	5.10E-02	5.79E-07
Toluene	108-88-3	1.19E+01	3.21E-02	3.58E-05	1.37E-05	--	NC
trans-1,2-Dichloroethene	156-60-5	1.66E-01	3.21E-02	9.15E-06	4.87E-08	--	NC
Trichloroethene	79-01-6	7.20E+01	3.21E-02	1.79E-05	4.13E-05	1.10E-02	4.54E-07
Vinyl Chloride	75-01-4	1.10E+00	3.21E-02	5.36E-06	1.88E-07	7.20E-01	1.36E-07
Xylenes (Total)	1330-20-7	1.12E+00	3.21E-02	8.92E-05	3.19E-06	--	NC
Polychlorinated Biphenyls (PCBs)							
Aroclor 1242	53469-21-9	2.23E-02	3.21E-02	7.06E-04	5.05E-07	2.00E+00	1.01E-06
CUMULATIVE ELCR							2.21E-06

$$\text{Lifetime Average Daily Dose (LADD)} = \text{EPC} * \text{EF} * \text{DAF}$$

$$\text{Excess Lifetime Cancer Risk (ELCR}_{\text{cope}}) = \text{LADD} * \text{CSF}$$

$$\text{Cumulative ELCR} = \Sigma \text{ELCR}_{\text{cope}}$$

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Dermal Contact with Groundwater

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/L	Noncancer Exposure Factor (EF)	Dermally Absorbed Factor (DAF)	Average Daily Dose (ADD) mg/kg-day	Dermal Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	7.41E+00	4.49E+00	1.97E-05	6.55E-04	9.00E-01	7.28E-04
1,1-Dichloroethane	75-34-3	2.03E+00	4.49E+00	8.07E-06	7.35E-05	1.00E+00	7.35E-05
1,1-Dichloroethene	75-35-4	3.35E-01	4.49E+00	1.43E-05	2.15E-05	5.00E-02	4.30E-04
1,2,4-Trimethylbenzene	95-63-6	2.03E-02	4.49E+00	2.15E-04	1.96E-05	5.00E-02	3.91E-04
1,2-Dichlorobenzene	95-50-1	3.29E-01	4.49E+00	6.75E-05	9.97E-05	9.00E-01	1.11E-04
Benzene	71-43-2	2.64E-02	4.49E+00	1.58E-05	1.87E-06	1.00E-02	1.87E-04
cis-1,2-Dichloroethene	156-59-2	1.99E+01	4.49E+00	9.15E-06	8.18E-04	1.00E-01	8.18E-03
Ethylbenzene	100-41-4	4.17E-01	4.49E+00	6.21E-05	1.16E-04	1.00E+00	1.16E-04
Tetrachloroethene	127-18-4	1.42E+00	4.49E+00	6.15E-05	3.91E-04	1.00E-01	3.91E-03
Toluene	108-88-3	1.45E+01	4.49E+00	3.58E-05	2.33E-03	8.00E-02	2.92E-02
trans-1,2-Dichloroethene	156-60-5	1.09E-01	4.49E+00	9.15E-06	4.47E-06	2.00E-01	2.24E-05
Trichloroethene	79-01-6	4.31E+00	4.49E+00	1.79E-05	3.45E-04	2.00E-02	1.73E-02
Vinyl Chloride	75-01-4	2.56E+00	4.49E+00	5.36E-06	6.17E-05	3.00E-03	2.06E-02
Xylenes (Total)	1330-20-7	1.66E+00	4.49E+00	8.92E-05	6.64E-04	2.00E-01	3.32E-03
Petroleum Hydrocarbons							
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.50E+02	4.49E+00	7.11E-04	4.79E-01	6.00E+00	7.98E-02
Polychlorinated Biphenyls (PCBs)							
Aroclor 1242	53469-21-9	6.83E-04	4.49E+00	7.06E-04	2.17E-06	5.00E-05	4.33E-02
Inorganics							
Barium, Total	7440-39-3	7.00E-02	4.49E+00	5.00E-07	1.57E-07	1.40E-02	1.12E-05
CUMULATIVE HAZARD INDEX							2.08E-01

$$\text{Average Daily Dose (ADD)} = \text{EPC} * \text{EF} * \text{DAF}$$

$$\text{Hazard Quotient (HQ}_{\text{cope}}) = \text{ADD} / \text{RfD}$$

$$\text{Cumulative Hazard Index (HI)} = \sum \text{HQ}_{\text{cope}}$$

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Dermal Contact with Groundwater

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/L	Cancer Exposure Factor (EF)	Dermally Absorbed Factor (DAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Dermal Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds							
1,1,1-Trichloroethane	71-55-6	7.41E+00	3.21E-02	1.97E-05	4.68E-06	--	NC
1,1-Dichloroethane	75-34-3	2.03E+00	3.21E-02	8.07E-06	5.25E-07	--	NC
1,1-Dichloroethene	75-35-4	3.35E-01	3.21E-02	1.43E-05	1.53E-07	--	NC
1,2,4-Trimethylbenzene	95-63-6	2.03E-02	3.21E-02	2.15E-04	1.40E-07	--	NC
1,2-Dichlorobenzene	95-50-1	3.29E-01	3.21E-02	6.75E-05	7.12E-07	--	NC
1,2-Dichloroethane	107-06-2	2.65E-01	3.21E-02	5.06E-06	4.30E-08	9.10E-02	3.91E-09
Benzene	71-43-2	2.64E-02	3.21E-02	1.58E-05	1.34E-08	5.50E-02	7.35E-10
cis-1,2-Dichloroethene	156-59-2	1.99E+01	3.21E-02	9.15E-06	5.84E-06	--	NC
Ethylbenzene	100-41-4	4.17E-01	3.21E-02	6.21E-05	8.31E-07	--	NC
Tetrachloroethene	127-18-4	1.42E+00	3.21E-02	6.15E-05	2.79E-06	5.10E-02	1.43E-07
Toluene	108-88-3	1.45E+01	3.21E-02	3.58E-05	1.67E-05	--	NC
trans-1,2-Dichloroethene	156-60-5	1.09E-01	3.21E-02	9.15E-06	3.20E-08	--	NC
Trichloroethene	79-01-6	4.31E+00	3.21E-02	1.79E-05	2.47E-06	1.10E-02	2.71E-08
Vinyl Chloride	75-01-4	2.56E+00	3.21E-02	5.36E-06	4.41E-07	7.20E-01	3.18E-07
Xylenes (Total)	1330-20-7	1.66E+00	3.21E-02	8.92E-05	4.75E-06	--	NC
Petroleum Hydrocarbons							
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.50E+02	3.21E-02	7.11E-04	3.42E-03	--	NC
Polychlorinated Biphenyls (PCBs)							
Aroclor 1242	53469-21-9	6.83E-04	3.21E-02	7.06E-04	1.55E-08	2.00E+00	3.10E-08
Inorganics							
Barium, Total	7440-39-3	7.00E-02	3.21E-02	5.00E-07	1.12E-09	--	NC
CUMULATIVE ELCR							5.23E-07

Lifetime Average Daily Dose (LADD) = EPC * EF * DAF
Excess Lifetime Cancer Risk (ELCR_{cope}) = LADD * CSF
Cumulative ELCR = ΣELCR_{cope}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Inhalation of Ambient (Trench) Air

Noncancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Noncancer Exposure Factor (EF)	Average Daily Exposure (ADE) mg/m ³	Subchronic inhalation Reference Concentration (RfC) mg/m ³	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	4.22E-03	1.67E-01	7.05E-04	5.20E+00	1.36E-04
1,1-Dichloroethane	75-34-3	7.50E-04	1.67E-01	1.25E-04	5.00E+00	2.51E-05
1,1-Dichloroethene	75-35-4	9.58E-05	1.67E-01	1.60E-05	2.00E-01	8.00E-05
1,2,4-Trichlorobenzene	120-82-1	5.25E-06	1.67E-01	8.78E-07	2.00E+00	4.39E-07
1,2,4-Trimethylbenzene	95-63-6	2.69E-05	1.67E-01	4.50E-06	6.00E-03	7.50E-04
1,2-Dichlorobenzene	95-50-1	3.70E-05	1.67E-01	6.19E-06	2.00E-01	3.09E-05
1,2-Dichloroethane	107-06-2	6.56E-05	1.67E-01	1.10E-05	5.50E-02	1.99E-04
1,3,5-Trimethylbenzene	108-67-8	5.83E-06	1.67E-01	9.74E-07	6.00E-03	1.62E-04
1,4-Dichlorobenzene	106-46-7	2.55E-06	1.67E-01	4.26E-07	2.40E+00	1.77E-07
4-Isopropyltoluene	99-87-6	8.47E-05	1.67E-01	1.42E-05	4.00E-01	3.54E-05
Chlorobenzene	108-90-7	3.27E-05	1.67E-01	5.47E-06	2.00E-02	2.73E-04
Chloroethane	75-00-3	3.71E-05	1.67E-01	6.20E-06	1.00E+01	6.20E-07
cis-1,2-Dichloroethene	156-59-2	4.76E-03	1.67E-01	7.96E-04	3.50E-02	2.27E-02
Ethylbenzene	100-41-4	1.06E-03	1.67E-01	1.78E-04	1.00E+00	1.78E-04
Isopropylbenzene	98-82-8	1.95E-06	1.67E-01	3.25E-07	4.00E-01	8.13E-07
Methylene Chloride	75-09-2	2.35E-04	1.67E-01	3.93E-05	3.00E+00	1.31E-05
n-Propylbenzene	103-65-1	1.94E-06	1.67E-01	3.25E-07	1.40E-01	2.32E-06
sec-Butylbenzene	135-98-8	6.88E-06	1.67E-01	1.15E-06	1.40E-01	8.21E-06
Tetrachloroethene	127-18-4	9.28E-05	1.67E-01	1.55E-05	4.60E+00	3.37E-06
Toluene	108-88-3	9.73E-04	1.67E-01	1.63E-04	5.00E+00	3.25E-05
trans-1,2-Dichloroethene	156-60-5	6.52E-05	1.67E-01	1.09E-05	7.00E-01	1.56E-05
Trichloroethene	79-01-6	2.41E-04	1.67E-01	4.03E-05	1.80E-01	2.24E-04
Vinyl Chloride	75-01-4	4.02E-04	1.67E-01	6.72E-05	1.00E-01	6.72E-04
Xylenes (Total)	1330-20-7	1.71E-03	1.67E-01	2.85E-04	3.00E-01	9.50E-04
Petroleum Hydrocarbons						
C9-C10 Aromatic Hydrocarbons	NA c9-10	8.27E-04	1.67E-01	1.38E-04	5.00E-01	2.76E-04
CUMULATIVE HAZARD INDEX						2.68E-02

Average Daily Dose (ADD) = EPC * EF
Hazard Quotient (HQ_{conc}) = ADE / RfC
Cumulative Hazard Index (HI) = Σ HQ_{conc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Inhalation of Ambient (Trench) Air

Cancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC)	Cancer Exposure Factor (EF)	Lifetime Average Daily Dose (LADE)	Inhalation Unit Risk (IUR)	Excess Lifetime Cancer Risk (ELCR)
		mg/m ³		mg/m ³	(mg/m ³) ⁻¹	
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	4.22E-03	1.19E-03	5.04E-06	--	NC
1,1-Dichloroethane	75-34-3	7.50E-04	1.19E-03	8.95E-07	--	NC
1,1-Dichloroethene	75-35-4	9.58E-05	1.19E-03	1.14E-07	--	NC
1,2,4-Trichlorobenzene	120-82-1	5.25E-06	1.19E-03	6.27E-09	--	NC
1,2,4-Trimethylbenzene	95-63-6	2.69E-05	1.19E-03	3.21E-08	--	NC
1,2-Dichlorobenzene	95-50-1	3.70E-05	1.19E-03	4.42E-08	--	NC
1,2-Dichloroethane	107-06-2	6.56E-05	1.19E-03	7.83E-08	2.60E-02	2.04E-09
1,3,5-Trimethylbenzene	108-67-8	5.83E-06	1.19E-03	6.95E-09	--	NC
1,4-Dichlorobenzene	106-46-7	2.55E-06	1.19E-03	3.04E-09	6.86E-03	2.09E-11
4-Isopropyltoluene	99-87-6	8.47E-05	1.19E-03	1.01E-07	--	NC
Chlorobenzene	108-90-7	3.27E-05	1.19E-03	3.91E-08	--	NC
Chloroethane	75-00-3	3.71E-05	1.19E-03	4.43E-08	--	NC
cis-1,2-Dichloroethene	156-59-2	4.76E-03	1.19E-03	5.68E-06	--	NC
Ethylbenzene	100-41-4	1.06E-03	1.19E-03	1.27E-06	--	NC
Isopropylbenzene	98-82-8	1.95E-06	1.19E-03	2.32E-09	--	NC
Methylene Chloride	75-09-2	2.35E-04	1.19E-03	2.81E-07	4.70E-04	1.32E-10
n-Propylbenzene	103-65-1	1.94E-06	1.19E-03	2.32E-09	--	NC
sec-Butylbenzene	135-98-8	6.88E-06	1.19E-03	8.21E-09	--	NC
Tetrachloroethene	127-18-4	9.28E-05	1.19E-03	1.11E-07	5.52E-02	6.11E-09
Toluene	108-88-3	9.73E-04	1.19E-03	1.16E-06	--	NC
trans-1,2-Dichloroethene	156-60-5	6.52E-05	1.19E-03	7.78E-08	--	NC
Trichloroethene	79-01-6	2.41E-04	1.19E-03	2.88E-07	1.70E-03	4.89E-10
Vinyl Chloride	75-01-4	4.02E-04	1.19E-03	4.80E-07	4.40E-03	2.11E-09
Xylenes (Total)	1330-20-7	1.71E-03	1.19E-03	2.04E-06	--	NC
Petroleum Hydrocarbons						
C9-C10 Aromatic Hydrocarbons	NA c9-10	8.27E-04	1.19E-03	9.87E-07	--	NC
CUMULATIVE ELCR						1.09E-08

Lifetime Average Daily Dose (LADE) = EPC * EF
Excess Lifetime Cancer Risk (ELCR_{conc}) = LADE * CSF
Cumulative ELCR = ΣELCR_{conc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction/Utility Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Dermal Contact with Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF) unitless	Average Daily Dose (ADD) mg/kg-day	Dermal Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	5.10E+01	5.61E-06	1.00E-01	2.86E-05	9.00E-01	3.18E-05
1,1-Dichloroethane	75-34-3	2.26E+00	5.61E-06	1.30E-01	1.65E-06	1.00E+00	1.65E-06
1,1-Dichloroethene	75-35-4	9.60E-01	5.61E-06	1.00E-01	5.38E-07	5.00E-02	1.08E-05
1,2,4-Trimethylbenzene	95-63-6	9.17E-01	5.61E-06	1.00E-02	5.14E-08	5.00E-02	1.03E-06
1,2-Dichlorobenzene	95-50-1	1.14E+00	5.61E-06	1.00E-01	6.39E-07	9.00E-01	7.10E-07
1,2-Dichloroethane	107-06-2	1.86E-01	5.61E-06	1.00E-01	1.04E-07	2.00E-01	5.21E-07
1,3,5-Trimethylbenzene	108-67-8	4.98E-01	5.61E-06	1.00E-02	2.79E-08	5.00E-02	5.58E-07
1,4-Dichlorobenzene	106-46-7	2.21E-01	5.61E-06	1.00E-01	1.24E-07	9.00E-01	1.38E-07
2-Butanone	78-93-3	4.55E-02	5.61E-06	1.00E-01	2.55E-08	6.00E-01	4.25E-08
4-Isopropyltoluene	99-87-6	1.51E+00	5.61E-06	1.00E-02	8.48E-08	1.00E-01	8.48E-07
Acetone	67-64-1	4.59E-02	5.61E-06	1.00E-01	2.57E-08	2.70E+00	9.53E-09
Bromoform	75-25-2	3.25E-03	5.61E-06	1.10E-01	2.00E-09	2.00E-01	1.00E-08
Carbon Disulfide	75-15-0	3.09E-02	5.61E-06	1.00E-02	1.73E-09	1.00E-01	1.73E-08
Chlorobenzene	108-90-7	9.37E-02	5.61E-06	1.00E-02	5.25E-09	2.00E-01	2.63E-08
Chloroethane	75-00-3	3.70E-03	5.61E-06	1.00E-02	2.07E-10	4.00E-01	5.19E-10
cis-1,2-Dichloroethene	156-59-2	4.47E+00	5.61E-06	1.00E-01	2.51E-06	1.00E-01	2.51E-05
Ethylbenzene	100-41-4	6.03E+00	5.61E-06	2.00E-01	6.76E-06	1.00E+00	6.76E-06
Isopropylbenzene	98-82-8	1.21E-01	5.61E-06	1.00E-02	6.81E-09	1.00E-01	6.81E-08
Methyl tert butyl ether	1634-04-4	2.33E-03	5.61E-06	1.00E-01	1.31E-09	1.00E+00	1.31E-09
Methylene Chloride	75-09-2	4.36E-01	5.61E-06	1.00E-01	2.44E-07	6.00E-02	4.07E-06
Naphthalene	91-20-3	8.26E-01	5.61E-06	1.00E-01	4.63E-07	2.00E-01	2.32E-06
n-Butylbenzene	104-51-8	3.22E-01	5.61E-06	1.00E-02	1.81E-08	4.00E-02	4.52E-07
n-Propylbenzene	103-65-1	3.85E-01	5.61E-06	1.00E-02	2.16E-08	4.00E-02	5.40E-07
sec-Butylbenzene	135-98-8	3.93E-01	5.61E-06	1.00E-02	2.20E-08	4.00E-02	5.51E-07
Tetrachloroethene	127-18-4	5.47E+01	5.61E-06	1.00E-01	3.07E-05	1.00E-01	3.07E-04
Toluene	108-88-3	2.04E+01	5.61E-06	1.20E-01	1.38E-05	8.00E-02	1.72E-04
trans-1,2-Dichloroethene	156-60-5	5.35E-03	5.61E-06	1.00E-01	3.00E-09	2.00E-01	1.50E-08
Trichloroethene	79-01-6	4.38E+01	5.61E-06	1.00E-01	2.45E-05	2.00E-02	1.23E-03
Vinyl Chloride	75-01-4	2.56E-01	5.61E-06	1.00E-01	1.43E-07	3.00E-03	4.78E-05
Xylenes (Total)	1330-20-7	1.27E+01	5.61E-06	1.20E-01	8.55E-06	2.00E-01	4.28E-05
Semi-volatile Organic Compounds (SVOCs)							
2-Methylnaphthalene	91-57-6	2.95E-01	5.61E-06	1.00E-01	1.65E-07	4.00E-02	4.13E-06
Acenaphthene	83-32-9	3.86E-01	5.61E-06	1.00E-01	2.16E-07	6.00E-01	3.61E-07
Acenaphthylene	208-96-8	2.61E-01	5.61E-06	1.00E-01	1.46E-07	3.00E-01	4.87E-07
Anthracene	120-12-7	6.30E-01	5.61E-06	1.00E-01	3.53E-07	3.00E+00	1.18E-07
Benzo(a)anthracene	56-55-3	1.69E+00	5.61E-06	2.00E-02	1.89E-07	3.00E-01	6.30E-07
Benzo(a)pyrene	50-32-8	1.56E+00	5.61E-06	2.00E-02	1.74E-07	3.00E-01	5.81E-07
Benzo(b)fluoranthene	205-99-2	1.56E+00	5.61E-06	2.00E-02	1.75E-07	3.00E-01	5.84E-07
Benzo(g,h,i)perylene	191-24-2	1.37E+00	5.61E-06	1.00E-01	7.69E-07	3.00E-01	2.56E-06
Benzo(k)fluoranthene	207-08-9	1.21E+00	5.61E-06	2.00E-02	1.36E-07	3.00E-01	4.54E-07
Chrysene	218-01-9	1.84E+00	5.61E-06	2.00E-02	2.06E-07	3.00E-01	6.86E-07
Dibenzo(a,h)anthracene	53-70-3	3.08E-01	5.61E-06	2.00E-02	3.45E-08	3.00E-01	1.15E-07
Fluoranthene	206-44-0	3.28E+00	5.61E-06	1.00E-01	1.84E-06	4.00E-01	4.60E-06
Fluorene	86-73-7	3.23E-01	5.61E-06	1.00E-01	1.81E-07	4.00E-01	4.53E-07
Indeno(1,2,3-cd)pyrene	193-39-5	9.93E-01	5.61E-06	2.00E-02	1.11E-07	3.00E-01	3.71E-07
Phenanthrene	85-01-8	2.75E+00	5.61E-06	1.00E-01	1.54E-06	3.00E-01	5.14E-06
Pyrene	129-00-0	2.73E+00	5.61E-06	1.00E-01	1.53E-06	3.00E-01	5.11E-06
Petroleum Hydrocarbons							
C11-C22 Aromatic Hydrocarbons	NA c11-c22	1.01E+02	5.61E-06	1.00E-01	5.63E-05	3.00E-01	1.88E-04
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.01E+02	5.61E-06	1.00E-01	5.67E-05	6.00E+00	9.45E-06
C5-C8 Aliphatic Hydrocarbons	NA c5-8	4.37E+01	5.61E-06	1.00E+00	2.45E-04	4.00E-01	6.12E-04
C9-C10 Aromatic Hydrocarbons	NA c9-10	2.20E+01	5.61E-06	5.00E-01	6.18E-05	3.00E-01	2.06E-04
C9-C12 Aliphatic Hydrocarbons	NA c9-12	1.85E+01	5.61E-06	5.00E-01	5.19E-05	1.00E+00	5.19E-05
C9-C18 Aliphatic Hydrocarbons	NA c9-18	3.38E+01	5.61E-06	5.00E-01	9.49E-05	1.00E+00	9.49E-05
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	3.09E+00	5.61E-06	1.60E-01	2.77E-06	5.00E-05	5.55E-02
Aroclor 1232	11141-16-5	4.83E-01	5.61E-06	1.60E-01	4.34E-07	5.00E-05	8.67E-03
Inorganics							
Barium, Total	7440-39-3	4.41E+01	5.61E-06	5.00E-02	1.24E-05	1.40E-02	8.82E-04
Chromium, Total	7440-47-3	1.68E+01	5.61E-06	9.00E-02	8.46E-06	5.00E-04	1.69E-02
Mercury, Total	7439-97-6	6.50E-01	5.61E-06	5.00E-02	1.82E-07	3.00E-04	6.07E-04
Silver, Total	7440-22-4	6.53E-01	5.61E-06	2.50E-01	9.14E-07	2.00E-04	4.57E-03
CUMULATIVE HAZARD INDEX							9.02E-02

Average Daily Dose (ADD) = EPC * EF * RAF
Hazard Quotient (HQ_{copc}) = ADD / RfD
Cumulative Hazard Index (HI) = Σ HQ_{copc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction/Utility Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Dermal Contact with Soil

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Dermal Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	5.10E+01	4.00E-08	1.00E-01	2.04E-07	--	NC
1,1-Dichloroethane	75-34-3	2.26E+00	4.00E-08	1.30E-01	1.18E-08	--	NC
1,1-Dichloroethene	75-35-4	9.60E-01	4.00E-08	1.00E-01	3.84E-09	--	NC
1,2,4-Trimethylbenzene	95-63-6	9.17E-01	4.00E-08	1.00E-02	3.67E-10	--	NC
1,2-Dichlorobenzene	95-50-1	1.14E+00	4.00E-08	1.00E-01	4.56E-09	--	NC
1,2-Dichloroethane	107-06-2	1.86E-01	4.00E-08	1.00E-01	7.44E-10	9.10E-02	6.77E-11
1,3,5-Trimethylbenzene	108-67-8	4.98E-01	4.00E-08	1.00E-02	1.99E-10	--	NC
1,4-Dichlorobenzene	106-46-7	2.21E-01	4.00E-08	1.00E-01	8.84E-10	2.40E-02	2.12E-11
2-Butanone	78-93-3	4.55E-02	4.00E-08	1.00E-01	1.82E-10	--	NC
4-Isopropyltoluene	99-87-6	1.51E+00	4.00E-08	1.00E-02	6.05E-10	--	NC
Acetone	67-64-1	4.59E-02	4.00E-08	1.00E-01	1.84E-10	--	NC
Bromoform	75-25-2	3.25E-03	4.00E-08	1.10E-01	1.43E-11	7.90E-03	1.13E-13
Carbon Disulfide	75-15-0	3.09E-02	4.00E-08	1.00E-02	1.24E-11	--	NC
Chlorobenzene	108-90-7	9.37E-02	4.00E-08	1.00E-02	3.75E-11	--	NC
Chloroethane	75-00-3	3.70E-03	4.00E-08	1.00E-01	1.48E-12	--	NC
cis-1,2-Dichloroethene	156-59-2	4.47E+00	4.00E-08	1.00E-01	1.79E-08	--	NC
Isopropylbenzene	98-82-8	1.21E-01	4.00E-08	1.00E-02	4.86E-11	--	NC
Methyl tert butyl ether	1634-04-4	2.33E-03	4.00E-08	1.00E-01	9.34E-12	--	NC
Methylene Chloride	75-09-2	4.36E-01	4.00E-08	1.00E-01	1.75E-09	7.50E-03	1.31E-11
Naphthalene	91-20-3	8.26E-01	4.00E-08	1.00E-01	3.31E-09	--	NC
n-Butylbenzene	104-51-8	3.22E-01	4.00E-08	1.00E-02	1.29E-10	--	NC
n-Propylbenzene	103-65-1	3.85E-01	4.00E-08	1.00E-02	1.54E-10	--	NC
sec-Butylbenzene	135-98-8	3.93E-01	4.00E-08	1.00E-02	1.57E-10	--	NC
Tetrachloroethene	127-18-4	5.47E+01	4.00E-08	1.00E-01	2.19E-07	5.10E-02	1.12E-08
Toluene	108-88-3	2.04E+01	4.00E-08	1.20E-01	9.82E-08	--	NC
trans-1,2-Dichloroethene	156-60-5	5.35E-03	4.00E-08	1.00E-01	2.14E-11	--	NC
Trichloroethene	79-01-6	4.38E+01	4.00E-08	1.00E-01	1.75E-07	1.10E-02	1.93E-09
Vinyl Chloride	75-01-4	2.56E-01	4.00E-08	1.00E-01	1.02E-09	7.20E-01	7.37E-10
Xylenes (Total)	1330-20-7	1.27E+01	4.00E-08	1.20E-01	6.11E-08	--	NC
Semi-volatile Organic Compounds (SVOCs)							
2-Methylnaphthalene	91-57-6	2.95E-01	4.00E-08	1.00E-01	1.18E-09	--	NC
Acenaphthene	83-32-9	3.86E-01	4.00E-08	1.00E-01	1.55E-09	--	NC
Anthracene	120-12-7	6.30E-01	4.00E-08	1.00E-01	2.52E-09	--	NC
Benzo(a)anthracene	56-55-3	1.69E+00	4.00E-08	2.00E-02	1.35E-09	7.30E-01	9.85E-10
Benzo(a)pyrene	50-32-8	1.56E+00	4.00E-08	2.00E-02	1.25E-09	7.30E+00	9.09E-09
Benzo(b)fluoranthene	205-99-2	1.56E+00	4.00E-08	2.00E-02	1.25E-09	7.30E-01	9.14E-10
Benzo(g,h,i)perylene	191-24-2	1.37E+00	4.00E-08	1.00E-01	5.49E-09	--	NC
Benzo(k)fluoranthene	207-08-9	1.21E+00	4.00E-08	2.00E-02	9.72E-10	7.30E-02	7.10E-11
Chrysene	218-01-9	1.84E+00	4.00E-08	2.00E-02	1.47E-09	7.30E-02	1.07E-10
Dibenzo(a,h)anthracene	53-70-3	3.08E-01	4.00E-08	2.00E-02	2.46E-10	7.30E+00	1.80E-09
Ethylbenzene	100-41-4	6.03E+00	4.00E-08	2.00E-01	4.83E-08	--	NC
Fluoranthene	206-44-0	3.28E+00	4.00E-08	1.00E-01	1.31E-08	--	NC
Indeno(1,2,3-cd)pyrene	193-39-5	9.93E-01	4.00E-08	2.00E-02	7.95E-10	7.30E-01	5.80E-10
Phenanthrene	85-01-8	2.75E+00	4.00E-08	1.00E-01	1.10E-08	--	NC
Pyrene	129-00-0	2.73E+00	4.00E-08	1.00E-01	1.09E-08	--	NC
Petroleum Hydrocarbons							
C11-C22 Aromatic Hydrocarbons	NA c11-c22	1.01E+02	4.00E-08	1.00E-01	4.02E-07	--	NC
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.01E+02	4.00E-08	1.00E-01	4.05E-07	--	NC
C5-C8 Aliphatic Hydrocarbons	NA c5-8	4.37E+01	4.00E-08	1.00E+00	1.75E-06	--	NC
C9-C10 Aromatic Hydrocarbons	NA c9-10	2.20E+01	4.00E-08	5.00E-01	4.41E-07	--	NC
C9-C12 Aliphatic Hydrocarbons	NA c9-12	1.85E+01	4.00E-08	5.00E-01	3.70E-07	--	NC
C9-C18 Aliphatic Hydrocarbons	NA c9-18	3.38E+01	4.00E-08	5.00E-01	6.78E-07	--	NC
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	3.09E+00	4.00E-08	1.60E-01	1.98E-08	2.00E+00	3.96E-08
Aroclor 1232	11141-16-5	4.83E-01	4.00E-08	1.60E-01	3.10E-09	2.00E+00	6.19E-09
Inorganics							
Barium, Total	7440-39-3	4.41E+01	4.00E-08	5.00E-02	8.82E-08	--	NC
Chromium, Total	7440-47-3	1.68E+01	4.00E-08	9.00E-02	6.04E-08	--	NC
Mercury, Total	7439-97-6	6.50E-01	4.00E-08	5.00E-02	1.30E-09	--	NC
Silver, Total	7440-22-4	6.53E-01	4.00E-08	2.50E-01	6.53E-09	--	NC
CUMULATIVE ELCR							7.33E-08

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF

Excess Lifetime Cancer Risk (ELCR_{cope}) = LADD * CSF

Cumulative ELCR = ΣELCR_{cope}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction/Utility Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Incidental Ingestion of Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Average Daily Dose (ADD) mg/kg-day	Oral Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	5.10E+01	7.16E-07	1.00E+00	3.66E-05	9.00E-01	4.06E-05
1,1-Dichloroethane	75-34-3	2.26E+00	7.16E-07	1.30E+00	2.10E-06	1.00E+00	2.10E-06
1,1-Dichloroethene	75-35-4	9.60E-01	7.16E-07	1.00E+00	6.87E-07	5.00E-02	1.37E-05
1,2,4-Trimethylbenzene	95-63-6	9.17E-01	7.16E-07	1.00E+00	6.57E-07	5.00E-02	1.31E-05
1,2-Dichlorobenzene	95-50-1	1.14E+00	7.16E-07	1.00E+00	8.16E-07	9.00E-01	9.07E-07
1,2-Dichloroethane	107-06-2	1.86E-01	7.16E-07	1.00E+00	1.33E-07	2.00E-01	6.65E-07
1,3,5-Trimethylbenzene	108-67-8	4.98E-01	7.16E-07	1.00E+00	3.56E-07	5.00E-02	7.13E-06
1,4-Dichlorobenzene	106-46-7	2.21E-01	7.16E-07	1.00E+00	1.58E-07	9.00E-01	1.76E-07
2-Butanone	78-93-3	4.55E-02	7.16E-07	1.00E+00	3.26E-08	6.00E-01	5.43E-08
4-Isopropyltoluene	99-87-6	1.51E+00	7.16E-07	1.00E+00	1.08E-06	1.00E-01	1.08E-05
Acetone	67-64-1	4.59E-02	7.16E-07	1.00E+00	3.29E-08	2.70E+00	1.22E-08
Bromoform	75-25-2	3.25E-03	7.16E-07	1.00E+00	2.33E-09	2.00E-01	1.16E-08
Carbon Disulfide	75-15-0	3.09E-02	7.16E-07	1.00E+00	2.21E-08	1.00E-01	2.21E-07
Chlorobenzene	108-90-7	9.37E-02	7.16E-07	1.00E+00	6.71E-08	2.00E-01	3.36E-07
Chloroethane	75-00-3	3.70E-03	7.16E-07	1.00E+00	2.65E-09	4.00E-01	6.63E-09
cis-1,2-Dichloroethene	156-59-2	4.47E+00	7.16E-07	1.00E+00	3.20E-06	1.00E-01	3.20E-05
Ethylbenzene	100-41-4	6.03E+00	7.16E-07	1.00E+00	4.32E-06	1.00E+00	4.32E-06
Isopropylbenzene	98-82-8	1.21E-01	7.16E-07	1.00E+00	8.70E-08	1.00E-01	8.70E-07
Methyl tert butyl ether	1634-04-4	2.33E-03	7.16E-07	1.00E+00	1.67E-09	1.00E+00	1.67E-09
Methylene Chloride	75-09-2	4.36E-01	7.16E-07	1.00E+00	3.12E-07	6.00E-02	5.20E-06
Naphthalene	91-20-3	8.26E-01	7.16E-07	1.00E+00	2.13E-07	2.00E-01	1.07E-06
n-Butylbenzene	104-51-8	3.22E-01	7.16E-07	1.00E+00	2.31E-07	4.00E-02	5.77E-06
n-Propylbenzene	103-65-1	3.85E-01	7.16E-07	1.00E+00	2.76E-07	4.00E-02	6.90E-06
sec-Butylbenzene	135-98-8	3.93E-01	7.16E-07	1.00E+00	2.81E-07	4.00E-02	7.03E-06
Tetrachloroethene	127-18-4	5.47E-01	7.16E-07	1.00E+00	3.92E-05	1.00E-01	3.92E-04
Toluene	108-88-3	2.04E+01	7.16E-07	1.00E+00	1.46E-05	8.00E-02	1.83E-04
trans-1,2-Dichloroethene	156-60-5	5.35E-03	7.16E-07	1.00E+00	3.83E-09	2.00E-01	1.92E-08
Trichloroethene	79-01-6	4.38E-01	7.16E-07	1.00E+00	3.13E-05	2.00E-02	1.57E-03
Vinyl Chloride	75-01-4	2.56E+01	7.16E-07	1.00E+00	1.83E-07	3.00E-03	6.11E-05
Xylenes (Total)	1330-20-7	1.27E+01	7.16E-07	1.00E+00	9.10E-06	2.00E-01	4.55E-05
Semi-volatile Organic Compounds (SVOCs)							
2-Methylnaphthalene	91-57-6	2.95E-01	7.16E-07	3.60E-01	7.60E-08	4.00E-02	1.90E-06
Acenaphthene	83-32-9	3.86E-01	7.16E-07	3.60E-01	9.96E-08	6.00E-01	1.66E-07
Anthracene	120-12-7	6.30E-01	7.16E-07	3.60E-01	1.63E-07	3.00E+00	5.42E-08
Benzo(a)anthracene	56-55-3	1.69E+00	7.16E-07	2.80E-01	3.38E-07	3.00E-01	1.13E-06
Benzo(a)pyrene	50-32-8	1.56E+00	7.16E-07	2.80E-01	3.12E-07	3.00E-01	1.04E-06
Benzo(b)fluoranthene	205-99-2	1.56E+00	7.16E-07	2.80E-01	3.14E-07	3.00E-01	1.05E-06
Benzo(g,h,i)perylene	191-24-2	1.37E+00	7.16E-07	3.60E-01	3.54E-07	3.00E-01	1.18E-06
Benzo(k)fluoranthene	207-08-9	1.21E+00	7.16E-07	2.80E-01	2.44E-07	3.00E-01	8.12E-07
Chrysene	218-01-9	1.84E+00	7.16E-07	2.80E-01	3.68E-07	3.00E-01	1.23E-06
Dibenzo(a,h)anthracene	53-70-3	3.08E-01	7.16E-07	2.80E-01	6.17E-08	3.00E-01	2.06E-07
Fluoranthene	206-44-0	3.28E+00	7.16E-07	3.60E-01	8.45E-07	4.00E-01	2.11E-06
Indeno(1,2,3-cd)pyrene	193-39-5	9.93E-01	7.16E-07	2.80E-01	1.99E-07	3.00E-01	6.64E-07
Phenanthrene	85-01-8	2.75E+00	7.16E-07	3.60E-01	7.10E-07	3.00E-01	2.37E-06
Pyrene	129-00-0	2.73E+00	7.16E-07	3.60E-01	7.05E-07	3.00E-01	2.35E-06
Petroleum Hydrocarbons							
C11-C22 Aromatic Hydrocarbons	NA c11-c22	1.01E+02	7.16E-07	3.60E-01	2.59E-05	3.00E-01	8.64E-05
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.01E+02	7.16E-07	1.00E+00	7.25E-05	6.00E+00	1.21E-05
C5-C8 Aliphatic Hydrocarbons	NA c5-8	4.37E+01	7.16E-07	1.00E+00	3.13E-05	4.00E-01	7.82E-05
C9-C10 Aromatic Hydrocarbons	NA c9-10	2.20E+01	7.16E-07	1.00E+00	1.58E-05	3.00E-01	5.26E-05
C9-C12 Aliphatic Hydrocarbons	NA c9-12	1.85E+01	7.16E-07	1.00E+00	1.33E-05	1.00E+00	1.33E-05
C9-C18 Aliphatic Hydrocarbons	NA c9-18	3.38E+01	7.16E-07	1.00E+00	2.42E-05	1.00E+00	2.42E-05
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	3.09E+00	7.16E-07	8.50E-01	1.88E-06	5.00E-05	3.77E-02
Aroclor 1232	11141-16-5	4.83E-01	7.16E-07	8.50E-01	2.94E-07	5.00E-05	5.89E-03
Inorganics							
Barium, Total	7440-39-3	4.41E+01	7.16E-07	1.00E+00	3.16E-05	2.00E-01	1.58E-04
Chromium, Total	7440-47-3	1.68E+01	7.16E-07	1.00E+00	1.20E-05	2.00E-02	6.01E-04
Mercury, Total	7439-97-6	6.50E-01	7.16E-07	1.00E+00	4.66E-07	3.00E-04	1.55E-03
Silver, Total	7440-22-4	6.53E-01	7.16E-07	1.00E+00	4.67E-07	5.00E-03	9.35E-05
CUMULATIVE HAZARD INDEX							4.86E-02

Average Daily Dose (ADD) = EPC * EF * RAF
Hazard Quotient (HQ_{conc}) = ADD / RfD
Cumulative Hazard Index (HI) = Σ HQ_{conc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction/Utility Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Incidental Ingestion of Soil

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Oral Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	5.10E+01	5.12E-09	1.00E+00	2.61E-07	--	NC
1,1-Dichloroethane	75-34-3	2.26E+00	5.12E-09	1.30E+00	1.50E-08	--	NC
1,1-Dichloroethene	75-35-4	9.60E-01	5.12E-09	1.00E+00	4.91E-09	--	NC
1,2,4-Trimethylbenzene	95-63-6	9.17E-01	5.12E-09	1.00E+00	4.69E-09	--	NC
1,2-Dichlorobenzene	95-50-1	1.14E+00	5.12E-09	1.00E+00	5.83E-09	--	NC
1,2-Dichloroethane	107-06-2	1.86E-01	5.12E-09	1.00E+00	9.50E-10	9.10E-02	8.65E-11
1,3,5-Trimethylbenzene	108-67-8	4.98E-01	5.12E-09	1.00E+00	2.55E-09	--	NC
1,4-Dichlorobenzene	106-46-7	2.21E-01	5.12E-09	1.00E+00	1.13E-09	2.40E-02	2.71E-11
2-Butanone	78-93-3	4.55E-02	5.12E-09	1.00E+00	2.33E-10	--	NC
4-Isopropyltoluene	99-87-6	1.51E+00	5.12E-09	1.00E+00	7.73E-09	--	NC
Acetone	67-64-1	4.59E-02	5.12E-09	1.00E+00	2.35E-10	--	NC
Bromoform	75-25-2	3.25E-03	5.12E-09	1.00E+00	1.66E-11	7.90E-03	1.31E-13
Carbon Disulfide	75-15-0	3.09E-02	5.12E-09	1.00E+00	1.58E-10	--	NC
Chlorobenzene	108-90-7	9.37E-02	5.12E-09	1.00E+00	4.79E-10	--	NC
Chloroethane	75-00-3	3.70E-03	5.12E-09	1.00E+00	1.89E-11	--	NC
cis-1,2-Dichloroethene	156-59-2	4.47E+00	5.12E-09	1.00E+00	2.29E-08	--	NC
Ethylbenzene	100-41-4	6.03E+00	5.12E-09	1.00E+00	3.09E-08	--	NC
Isopropylbenzene	98-82-8	1.21E-01	5.12E-09	1.00E+00	6.21E-10	--	NC
Methyl tert butyl ether	1634-04-4	2.33E-03	5.12E-09	1.00E+00	1.19E-11	--	NC
Methylene Chloride	75-09-2	4.36E-01	5.12E-09	1.00E+00	2.23E-09	7.50E-03	1.67E-11
Naphthalene	91-20-3	8.26E-01	5.12E-09	3.60E-01	1.52E-09	--	NC
n-Butylbenzene	104-51-8	3.22E-01	5.12E-09	1.00E+00	1.65E-09	--	NC
n-Propylbenzene	103-65-1	3.85E-01	5.12E-09	1.00E+00	1.97E-09	--	NC
sec-Butylbenzene	135-98-8	3.93E-01	5.12E-09	1.00E+00	2.01E-09	--	NC
Tetrachloroethene	127-18-4	5.47E+01	5.12E-09	1.00E+00	2.80E-07	5.10E-02	1.43E-08
Toluene	108-88-3	2.04E+01	5.12E-09	1.00E+00	1.05E-07	--	NC
trans-1,2-Dichloroethene	156-60-5	5.35E-03	5.12E-09	1.00E+00	2.74E-11	--	NC
Trichloroethene	79-01-6	4.38E+01	5.12E-09	1.00E+00	2.24E-07	1.10E-02	2.46E-09
Vinyl Chloride	75-01-4	2.56E-01	5.12E-09	1.00E+00	1.31E-09	7.20E-01	9.42E-10
Xylenes (Total)	1330-20-7	1.27E+01	5.12E-09	1.00E+00	6.50E-08	--	NC
Semi-volatile Organic Compounds (SVOCs)							
2-Methylnaphthalene	91-57-6	2.95E-01	5.12E-09	3.60E-01	5.43E-10	--	NC
Acenaphthene	83-32-9	3.86E-01	5.12E-09	3.60E-01	7.11E-10	--	NC
Anthracene	120-12-7	6.30E-01	5.12E-09	3.60E-01	1.16E-09	--	NC
Benzo(a)anthracene	56-55-3	1.69E+00	5.12E-09	2.80E-01	2.41E-09	7.30E-01	1.76E-09
Benzo(a)pyrene	50-32-8	1.56E+00	5.12E-09	2.80E-01	2.23E-09	7.30E+00	1.63E-08
Benzo(b)fluoranthene	205-99-2	1.56E+00	5.12E-09	2.80E-01	2.24E-09	7.30E-01	1.63E-09
Benzo(g,h,i)perylene	191-24-2	1.37E+00	5.12E-09	3.60E-01	2.53E-09	--	NC
Benzo(k)fluoranthene	207-08-9	1.21E+00	5.12E-09	2.80E-01	1.74E-09	7.30E-02	1.27E-10
Chrysene	218-01-9	1.84E+00	5.12E-09	2.80E-01	2.63E-09	7.30E-02	1.92E-10
Dibenzo(a,h)anthracene	53-70-3	3.08E-01	5.12E-09	2.80E-01	4.41E-10	7.30E+00	3.22E-09
Fluoranthene	206-44-0	3.28E+00	5.12E-09	3.60E-01	6.04E-09	--	NC
Indeno(1,2,3-cd)pyrene	193-39-5	9.93E-01	5.12E-09	2.80E-01	1.42E-09	7.30E-01	1.04E-09
Phenanthrene	85-01-8	2.75E+00	5.12E-09	3.60E-01	5.07E-09	--	NC
Pyrene	129-00-0	2.73E+00	5.12E-09	3.60E-01	5.03E-09	--	NC
Petroleum Hydrocarbons							
C11-C22 Aromatic Hydrocarbons	NA c11-c22	1.01E+02	5.12E-09	3.60E-01	1.85E-07	--	NC
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.01E+02	5.12E-09	1.00E+00	5.18E-07	--	NC
C5-C8 Aliphatic Hydrocarbons	NA c5-8	4.37E+01	5.12E-09	1.00E+00	2.24E-07	--	NC
C9-C10 Aromatic Hydrocarbons	NA c9-10	2.20E+01	5.12E-09	1.00E+00	1.13E-07	--	NC
C9-C12 Aliphatic Hydrocarbons	NA c9-12	1.85E+01	5.12E-09	1.00E+00	9.47E-08	--	NC
C9-C18 Aliphatic Hydrocarbons	NA c9-18	3.38E+01	5.12E-09	1.00E+00	1.73E-07	--	NC
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	3.09E+00	5.12E-09	8.50E-01	1.35E-08	2.00E+00	2.69E-08
Aroclor 1232	11141-16-5	4.83E-01	5.12E-09	8.50E-01	2.10E-09	2.00E+00	4.20E-09
Inorganics							
Barium, Total	7440-39-3	4.41E+01	5.12E-09	1.00E+00	2.25E-07	--	NC
Chromium, Total	7440-47-3	1.68E+01	5.12E-09	1.00E+00	8.58E-08	--	NC
Mercury, Total	7439-97-6	6.50E-01	5.12E-09	1.00E+00	3.33E-09	--	NC
Silver, Total	7440-22-4	6.53E-01	5.12E-09	1.00E+00	3.34E-09	--	NC
CUMULATIVE ELCR							7.32E-08

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF

Excess Lifetime Cancer Risk (ELCR_{corp}) = LADD * CSF

Cumulative ELCR = ΣELCR_{corp}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Inhalation of Fugitive Dust

Noncancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Noncancer Exposure Factor (EF)	Average Daily Exposure (ADE) mg/m ³	Subchronic Inhalation Reference Concentration (RfC) mg/m ³	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	1.53E-06	1.19E-01	1.82E-07	5.20E+00	3.50E-08
1,1-Dichloroethane	75-34-3	6.77E-08	1.19E-01	8.04E-09	5.00E+00	1.61E-09
1,1-Dichloroethene	75-35-4	2.88E-08	1.19E-01	3.42E-09	2.00E-01	1.71E-08
1,2,4-Trimethylbenzene	95-63-6	2.75E-08	1.19E-01	3.27E-09	6.00E-03	5.45E-07
1,2-Dichlorobenzene	95-50-1	3.42E-08	1.19E-01	4.06E-09	2.00E-01	2.03E-08
1,2-Dichloroethane	107-06-2	5.57E-09	1.19E-01	6.62E-10	5.50E-02	1.20E-08
1,3,5-Trimethylbenzene	108-67-8	1.49E-08	1.19E-01	1.77E-09	6.00E-03	2.95E-07
1,4-Dichlorobenzene	106-46-7	6.63E-09	1.19E-01	7.87E-10	2.40E+00	3.28E-10
2-Butanone	78-93-3	1.37E-09	1.19E-01	1.62E-10	5.00E+00	3.24E-11
4-Isopropyltoluene	99-87-6	4.54E-08	1.19E-01	5.38E-09	4.00E-01	1.35E-08
Acetone	67-64-1	1.38E-09	1.19E-01	1.63E-10	8.00E-01	2.04E-10
Bromoform	75-25-2	9.75E-11	1.19E-01	1.16E-11	7.00E-01	1.65E-11
Carbon Disulfide	75-15-0	9.26E-10	1.19E-01	1.10E-10	7.00E-01	1.57E-10
Chlorobenzene	108-90-7	2.81E-09	1.19E-01	3.34E-10	2.00E-02	1.67E-08
Chloroethane	75-00-3	1.11E-10	1.19E-01	1.32E-11	1.00E+01	1.32E-12
cis-1,2-Dichloroethene	156-59-2	1.34E-07	1.19E-01	1.59E-08	3.50E-02	4.55E-07
Ethylbenzene	100-41-4	1.81E-07	1.19E-01	2.15E-08	1.00E+00	2.15E-08
Isopropylbenzene	98-82-8	3.64E-09	1.19E-01	4.33E-10	4.00E-01	1.08E-09
Methyl tert butyl ether	1634-04-4	7.00E-11	1.19E-01	8.31E-12	3.00E+00	2.77E-12
Methylene Chloride	75-09-2	1.31E-08	1.19E-01	1.55E-09	3.00E+00	5.18E-10
Naphthalene	91-20-3	2.48E-08	1.19E-01	2.94E-09	3.00E-03	9.81E-07
n-Butylbenzene	104-51-8	9.67E-09	1.19E-01	1.15E-09	1.40E-01	8.20E-09
n-Propylbenzene	103-65-1	1.16E-08	1.19E-01	1.37E-09	1.40E-01	9.80E-09
sec-Butylbenzene	135-98-8	1.18E-08	1.19E-01	1.40E-09	1.40E-01	9.99E-09
Tetrachloroethene	127-18-4	1.64E-06	1.19E-01	1.95E-07	4.60E+00	4.24E-08
Toluene	108-88-3	6.13E-07	1.19E-01	7.28E-08	5.00E+00	1.46E-08
trans-1,2-Dichloroethene	156-60-5	1.61E-10	1.19E-01	1.91E-11	7.00E-01	2.72E-11
Trichloroethene	79-01-6	1.31E-06	1.19E-01	1.56E-07	1.80E-01	8.66E-07
Vinyl Chloride	75-01-4	7.67E-09	1.19E-01	9.11E-10	1.00E-01	9.11E-09
Xylenes (Total)	1330-20-7	3.81E-07	1.19E-01	4.53E-08	3.00E-01	1.51E-07
Semi-volatile Organic Compounds (SVOCs)						
2-Methylnaphthalene	91-57-6	8.84E-09	1.19E-01	1.05E-09	5.00E-01	2.10E-09
Acenaphthene	83-32-9	1.16E-08	1.19E-01	1.38E-09	5.00E-01	2.75E-09
Acenaphthylene	208-96-8	7.82E-09	1.19E-01	9.29E-10	5.00E-01	1.86E-09
Anthracene	120-12-7	1.89E-08	1.19E-01	2.25E-09	5.00E-01	4.49E-09
Benzo(a)anthracene	56-55-3	5.06E-08	1.19E-01	6.00E-09	5.00E-01	1.20E-08
Benzo(a)pyrene	50-32-8	4.67E-08	1.19E-01	5.54E-09	5.00E-01	1.11E-08
Benzo(b)fluoranthene	205-99-2	4.69E-08	1.19E-01	5.57E-09	5.00E-01	1.11E-08
Benzo(g,h,i)perylene	191-24-2	4.11E-08	1.19E-01	4.88E-09	5.00E-01	9.77E-09
Benzo(k)fluoranthene	207-08-9	3.64E-08	1.19E-01	4.32E-09	5.00E-01	8.65E-09
Chrysene	218-01-9	5.51E-08	1.19E-01	6.54E-09	5.00E-01	1.31E-08
Dibenzo(a,h)anthracene	53-70-3	9.23E-09	1.19E-01	1.10E-09	5.00E-01	2.19E-09
Fluoranthene	206-44-0	9.84E-08	1.19E-01	1.17E-08	5.00E-01	2.34E-08
Fluorene	86-73-7	9.70E-09	1.19E-01	1.15E-09	5.00E-01	2.30E-09
Indeno(1,2,3-cd)pyrene	193-39-5	2.98E-08	1.19E-01	3.54E-09	5.00E-01	7.07E-09
Phenanthrene	85-01-8	8.26E-08	1.19E-01	9.80E-09	5.00E-01	1.96E-08
Pyrene	129-00-0	8.20E-08	1.19E-01	9.74E-09	5.00E-01	1.95E-08
Petroleum Hydrocarbons						
C11-C22 Aromatic Hydrocarbons	NA c11-c22	3.02E-06	1.19E-01	3.58E-07	5.00E-01	7.16E-07
C19-C36 Aliphatic Hydrocarbons	NA c19-36	3.04E-06	1.19E-01	3.60E-07	NA	NC
C5-C8 Aliphatic Hydrocarbons	NA c5-8	1.31E-06	1.19E-01	1.56E-07	2.00E-01	7.78E-07
C9-C10 Aromatic Hydrocarbons	NA c9-10	6.61E-07	1.19E-01	7.85E-08	5.00E-01	1.57E-07
C9-C12 Aliphatic Hydrocarbons	NA c9-12	5.55E-07	1.19E-01	6.59E-08	6.00E-01	1.10E-07
C9-C18 Aliphatic Hydrocarbons	NA c9-18	1.02E-06	1.19E-01	1.21E-07	6.00E-01	2.01E-07
Polychlorinated Biphenyls (PCBs)						
Aroclor 1232	11141-16-5	1.45E-08	1.19E-01	1.72E-09	2.00E-05	8.61E-05
Aroclor 1248	12672-29-6	9.28E-08	1.19E-01	1.10E-08	2.00E-05	5.51E-04
Inorganics						
Barium, Total	7440-39-3	1.32E-06	1.19E-01	1.57E-07	5.00E-03	3.14E-05
Chromium, Total	7440-47-3	5.03E-07	1.19E-01	5.97E-08	3.00E-04	1.99E-04
Mercury, Total	7439-97-6	1.95E-08	1.19E-01	2.32E-09	3.00E-04	7.72E-06
Silver, Total	7440-22-4	1.96E-08	1.19E-01	2.32E-09	1.40E-04	1.66E-05
CUMULATIVE HAZARD INDEX						8.97E-04

Average Daily Dose (ADD) = EPC * EF
Hazard Quotient (HQ_{conc}) = ADE / RfC
Cumulative Hazard Index (HI) = Σ HQ_{conc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Inhalation of Fugitive Dust

Cancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Cancer Exposure Factor (EF)	Lifetime Average Daily Exposure (LADE) mg/m ³	Inhalation Unit Risk (IUR) (mg/m ³) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	1.53E-06	8.48E-04	1.30E-09	--	NC
1,1-Dichloroethane	75-34-3	6.77E-08	8.48E-04	5.74E-11	--	NC
1,1-Dichloroethene	75-35-4	2.88E-08	8.48E-04	2.44E-11	--	NC
1,2,4-Trimethylbenzene	95-63-6	2.75E-08	8.48E-04	2.33E-11	--	NC
1,2-Dichlorobenzene	95-50-1	3.42E-08	8.48E-04	2.90E-11	--	NC
1,2-Dichloroethane	107-06-2	5.57E-09	8.48E-04	4.73E-12	2.60E-02	1.23E-13
1,3,5-Trimethylbenzene	108-67-8	1.49E-08	8.48E-04	1.27E-11	--	NC
1,4-Dichlorobenzene	106-46-7	6.63E-09	8.48E-04	5.62E-12	6.86E-03	3.85E-14
2-Butanone	78-93-3	1.37E-09	8.48E-04	1.16E-12	--	NC
4-Isopropyltoluene	99-87-6	4.54E-08	8.48E-04	3.85E-11	--	NC
Acetone	67-64-1	1.38E-09	8.48E-04	1.17E-12	--	NC
Bromoform	75-25-2	9.75E-11	8.48E-04	8.27E-14	1.10E-03	9.09E-17
Carbon Disulfide	75-15-0	9.26E-10	8.48E-04	7.85E-13	--	NC
Chlorobenzene	108-90-7	2.81E-09	8.48E-04	2.38E-12	--	NC
Chloroethane	75-00-3	1.11E-10	8.48E-04	9.41E-14	--	NC
cis-1,2-Dichloroethene	156-59-2	1.34E-07	8.48E-04	1.14E-10	--	NC
Ethylbenzene	100-41-4	1.81E-07	8.48E-04	1.53E-10	--	NC
Isopropylbenzene	98-82-8	3.64E-09	8.48E-04	3.09E-12	--	NC
Methyl tert butyl ether	1634-04-4	7.00E-11	8.48E-04	5.94E-14	--	NC
Methylene Chloride	75-09-2	1.31E-08	8.48E-04	1.11E-11	4.70E-04	5.21E-15
Naphthalene	91-20-3	2.48E-08	8.48E-04	2.10E-11	--	NC
n-Butylbenzene	104-51-8	9.67E-09	8.48E-04	8.20E-12	--	NC
n-Propylbenzene	103-65-1	1.16E-08	8.48E-04	9.80E-12	--	NC
o-xylene	95-47-6	3.77E-08	8.48E-04	3.20E-11	#N/A	NC
p/m-Xylene	106-42-3/108-38-3	3.17E-07	8.48E-04	2.69E-10	#N/A	NC
sec-Butylbenzene	135-98-8	1.18E-08	8.48E-04	9.99E-12	--	NC
Tetrachloroethene	127-18-4	1.64E-06	8.48E-04	1.39E-09	5.52E-02	7.68E-11
Toluene	108-88-3	6.13E-07	8.48E-04	5.20E-10	--	NC
trans-1,2-Dichloroethene	156-60-5	1.61E-10	8.48E-04	1.36E-13	--	NC
Trichloroethene	79-01-6	1.31E-06	8.48E-04	1.11E-09	1.70E-03	1.89E-12
Trichlorofluoromethane	75-69-4	NC	8.48E-04	NC	--	NC
Vinyl Chloride	75-01-4	7.67E-09	8.48E-04	6.51E-12	8.80E-03	5.73E-14
Xylenes (Total)	1330-20-7	3.81E-07	8.48E-04	3.23E-10	--	NC
Semi-volatile Organic Compounds (SVOCs)						
2-Methylnaphthalene	91-57-6	8.84E-09	8.48E-04	7.50E-12	--	NC
Acenaphthene	83-32-9	1.16E-08	8.48E-04	9.82E-12	--	NC
Acenaphthylene	208-96-8	7.82E-09	8.48E-04	6.64E-12	--	NC
Anthracene	120-12-7	1.89E-08	8.48E-04	1.60E-11	--	NC
Benzo(a)anthracene	56-55-3	5.06E-08	8.48E-04	4.29E-11	2.09E-01	8.96E-12
Benzo(a)pyrene	50-32-8	4.67E-08	8.48E-04	3.96E-11	2.09E+00	8.27E-11
Benzo(b)fluoranthene	205-99-2	4.69E-08	8.48E-04	3.98E-11	2.09E-01	8.31E-12
Benzo(g,h,i)perylene	191-24-2	4.11E-08	8.48E-04	3.49E-11	--	NC
Benzo(k)fluoranthene	207-08-9	3.64E-08	8.48E-04	3.09E-11	2.09E-02	6.46E-13
Chrysene	218-01-9	5.51E-08	8.48E-04	4.67E-11	2.09E-02	9.76E-13
Dibenzo(a,h)anthracene	53-70-3	9.23E-09	8.48E-04	7.83E-12	2.09E+00	1.64E-11
Fluoranthene	206-44-0	9.84E-08	8.48E-04	8.34E-11	--	NC
Fluorene	86-73-7	9.70E-09	8.48E-04	8.23E-12	--	NC
Indeno(1,2,3-cd)pyrene	193-39-5	2.98E-08	8.48E-04	2.53E-11	2.09E-01	5.28E-12
Phenanthrene	85-01-8	8.26E-08	8.48E-04	7.00E-11	--	NC
Pyrene	129-00-0	8.20E-08	8.48E-04	6.95E-11	--	NC
Petroleum Hydrocarbons						
C11-C22 Aromatic Hydrocarbons	NA c11-c22	3.02E-06	8.48E-04	2.56E-09	--	NC
C19-C36 Aliphatic Hydrocarbons	NA c19-36	3.04E-06	8.48E-04	2.57E-09	--	NC
C5-C8 Aliphatic Hydrocarbons	NA c5-8	1.31E-06	8.48E-04	1.11E-09	--	NC
C9-C10 Aromatic Hydrocarbons	NA c9-10	6.61E-07	8.48E-04	5.61E-10	--	NC
C9-C12 Aliphatic Hydrocarbons	NA c9-12	5.55E-07	8.48E-04	4.71E-10	--	NC
C9-C18 Aliphatic Hydrocarbons	NA c9-18	1.02E-06	8.48E-04	8.61E-10	--	NC
Polychlorinated Biphenyls (PCBs)						
Aroclor 1232	11141-16-5	1.45E-08	8.48E-04	1.23E-11	1.00E-01	1.23E-12
Aroclor 1248	12672-29-6	9.28E-08	8.48E-04	7.87E-11	1.00E-01	7.87E-12
Inorganics						
Barium, Total	7440-39-3	1.32E-06	8.48E-04	1.12E-09	--	NC
Chromium, Total	7440-47-3	5.03E-07	8.48E-04	4.27E-10	1.20E+01	5.12E-09
Mercury, Total	7439-97-6	1.95E-08	8.48E-04	1.65E-11	--	NC
Silver, Total	7440-22-4	1.96E-08	8.48E-04	1.66E-11	--	NC
CUMULATIVE ELCR						5.33E-09

Lifetime Average Daily Dose (LADE) = EPC * EF
Excess Lifetime Cancer Risk (ELCR_{conc}) = LADE * CSF
Cumulative ELCR = ΣELCR_{conc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction/Utility Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Ingestion of fugitive dust

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Average Daily Dose (ADD) mg/kg-day	Subchronic Oral Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	6.12E-06	1.03E-01	1.00E+00	6.28E-07	9.00E-01	6.98E-07
1,1-Dichloroethane	75-34-3	2.71E-07	1.03E-01	1.30E+00	3.61E-08	1.00E+00	3.61E-08
1,1-Dichloroethene	75-35-4	1.15E-07	1.03E-01	1.00E+00	1.18E-08	5.00E-02	2.36E-07
1,2,4-Trimethylbenzene	95-63-6	1.10E-07	1.03E-01	1.00E+00	1.13E-08	5.00E-02	2.26E-07
1,2-Dichlorobenzene	95-50-1	1.37E-07	1.03E-01	1.00E+00	1.40E-08	9.00E-01	1.56E-08
1,2-Dichloroethane	107-06-2	2.23E-08	1.03E-01	1.00E+00	2.29E-09	2.00E-01	1.14E-08
1,3,5-Trimethylbenzene	108-67-8	5.97E-08	1.03E-01	1.00E+00	6.12E-09	5.00E-02	1.22E-07
1,4-Dichlorobenzene	106-46-7	2.65E-08	1.03E-01	1.00E+00	2.72E-09	9.00E-01	3.02E-09
2-Butanone	78-93-3	5.46E-09	1.03E-01	1.00E+00	5.60E-10	6.00E-01	9.33E-10
4-Isopropyltoluene	99-87-6	1.81E-07	1.03E-01	1.00E+00	1.86E-08	1.00E-01	1.86E-07
Acetone	67-64-1	5.51E-09	1.03E-01	1.00E+00	5.65E-10	2.70E+00	2.09E-10
Bromoform	75-25-2	3.90E-10	1.03E-01	1.00E+00	4.00E-11	2.00E-01	2.00E-10
Carbon Disulfide	75-15-0	3.70E-09	1.03E-01	1.00E+00	3.80E-10	1.00E-01	3.80E-09
Chlorobenzene	108-90-7	1.12E-08	1.03E-01	1.00E+00	1.15E-09	2.00E-01	5.77E-09
Chloroethane	75-00-3	4.44E-10	1.03E-01	1.00E+00	4.55E-11	4.00E-01	1.14E-10
cis-1,2-Dichloroethene	156-59-2	5.36E-07	1.03E-01	1.00E+00	5.50E-08	1.00E-01	5.50E-07
Ethylbenzene	100-41-4	7.24E-07	1.03E-01	1.00E+00	7.43E-08	1.00E+00	7.43E-08
Isopropylbenzene	98-82-8	1.46E-08	1.03E-01	1.00E+00	1.50E-09	1.00E-01	1.50E-08
Methyl tert butyl ether	1634-04-4	2.80E-10	1.03E-01	1.00E+00	2.87E-11	1.00E+00	2.87E-11
Methylene Chloride	75-09-2	5.23E-08	1.03E-01	1.00E+00	5.37E-09	6.00E-02	8.94E-08
Naphthalene	91-20-3	9.92E-08	1.03E-01	3.60E-01	3.66E-09	2.00E-01	1.83E-08
n-Butylbenzene	104-51-8	3.87E-08	1.03E-01	1.00E+00	3.97E-09	4.00E-02	9.92E-08
n-Propylbenzene	103-65-1	4.62E-08	1.03E-01	1.00E+00	4.74E-09	4.00E-02	1.19E-07
sec-Butylbenzene	135-98-8	4.71E-08	1.03E-01	1.00E+00	4.84E-09	4.00E-02	1.21E-07
Tetrachloroethene	127-18-4	6.57E-06	1.03E-01	1.00E+00	6.74E-07	1.00E-01	6.74E-06
Toluene	108-88-3	2.45E-06	1.03E-01	1.00E+00	2.52E-07	8.00E-02	3.15E-06
trans-1,2-Dichloroethene	156-60-5	6.42E-10	1.03E-01	1.00E+00	6.59E-11	2.00E-01	3.29E-10
Trichloroethene	79-01-6	5.25E-06	1.03E-01	1.00E+00	5.39E-07	2.00E-02	2.69E-05
Vinyl Chloride	75-01-4	3.07E-08	1.03E-01	1.00E+00	3.15E-09	3.00E-03	1.05E-06
Xylenes (Total)	1330-20-7	1.53E-06	1.03E-01	1.00E+00	1.56E-07	2.00E-01	7.82E-07
Semi-volatile Organic Compounds (SVOCs)							
2-Methylnaphthalene	91-57-6	3.54E-08	1.03E-01	3.60E-01	1.31E-09	4.00E-02	3.26E-08
Acenaphthene	83-32-9	4.63E-08	1.03E-01	3.60E-01	1.71E-09	6.00E-01	2.85E-09
Anthracene	120-12-7	7.56E-08	1.03E-01	3.60E-01	2.79E-09	3.00E+00	9.31E-10
Benzo(a)anthracene	56-55-3	2.02E-07	1.03E-01	2.80E-01	5.81E-09	3.00E-01	1.94E-08
Benzo(a)pyrene	50-32-8	1.87E-07	1.03E-01	2.80E-01	5.36E-09	3.00E-01	1.79E-08
Benzo(b)fluoranthene	205-99-2	1.88E-07	1.03E-01	2.80E-01	5.39E-09	3.00E-01	1.80E-08
Benzo(g,h,i)perylene	191-24-2	1.65E-07	1.03E-01	3.60E-01	6.08E-09	3.00E-01	2.03E-08
Benzo(k)fluoranthene	207-08-9	1.46E-07	1.03E-01	2.80E-01	4.18E-09	3.00E-01	1.39E-08
Chrysene	218-01-9	2.20E-07	1.03E-01	2.80E-01	6.33E-09	3.00E-01	2.11E-08
Dibenzo(a,h)anthracene	53-70-3	3.69E-08	1.03E-01	2.80E-01	1.06E-09	3.00E-01	3.53E-09
Fluoranthene	206-44-0	3.93E-07	1.03E-01	3.60E-01	1.45E-08	4.00E-01	3.63E-08
Indeno(1,2,3-cd)pyrene	193-39-5	1.19E-07	1.03E-01	2.80E-01	3.42E-09	3.00E-01	1.14E-08
Phenanthrene	85-01-8	3.30E-07	1.03E-01	3.60E-01	1.22E-08	3.00E-01	4.07E-08
Pyrene	129-00-0	3.28E-07	1.03E-01	3.60E-01	1.21E-08	3.00E-01	4.04E-08
Petroleum Hydrocarbons							
C11-C22 Aromatic Hydrocarbons	NA c11-c22	1.21E-05	1.03E-01	3.60E-01	4.45E-07	3.00E-01	1.48E-06
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.21E-05	1.03E-01	1.00E+00	1.25E-06	6.00E+00	2.08E-07
C5-C8 Aliphatic Hydrocarbons	NA c5-8	5.24E-06	1.03E-01	1.00E+00	5.38E-07	4.00E-01	1.34E-06
C9-C10 Aromatic Hydrocarbons	NA c9-10	2.64E-06	1.03E-01	1.00E+00	2.71E-07	3.00E-01	9.04E-07
C9-C12 Aliphatic Hydrocarbons	NA c9-12	2.22E-06	1.03E-01	1.00E+00	2.28E-07	1.00E+00	2.28E-07
C9-C18 Aliphatic Hydrocarbons	NA c9-18	4.06E-06	1.03E-01	1.00E+00	4.17E-07	1.00E+00	4.17E-07
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	3.71E-07	1.03E-01	8.50E-01	3.24E-08	5.00E-05	6.47E-04
Aroclor 1232	11141-16-5	5.80E-08	1.03E-01	8.50E-01	5.06E-09	5.00E-05	1.01E-04
Inorganics							
Barium, Total	7440-39-3	5.29E-06	1.03E-01	1.00E+00	5.42E-07	2.00E-01	2.71E-06
Chromium, Total	7440-47-3	2.01E-06	1.03E-01	1.00E+00	2.06E-07	2.00E-02	1.03E-05
Mercury, Total	7439-97-6	7.80E-08	1.03E-01	1.00E+00	8.00E-09	3.00E-04	2.67E-05
Silver, Total	7440-22-4	7.83E-08	1.03E-01	1.00E+00	8.03E-09	5.00E-03	1.61E-06
CUMULATIVE HAZARD INDEX							8.36E-04

Average Daily Dose (ADD) = EPC * EF * RAF
Hazard Quotient (HQ_{copc}) = ADD / RfD
Cumulative Hazard Index (HI) = Σ HQ_{copc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction/Utility Worker
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Ingestion of fugitive dust

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Oral Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	6.12E-06	7.33E-04	1.00E+00	4.49E-09	--	NC
1,1-Dichloroethane	75-34-3	2.71E-07	7.33E-04	1.30E+00	2.58E-10	--	NC
1,1-Dichloroethene	75-35-4	1.15E-07	7.33E-04	1.00E+00	8.44E-11	--	NC
1,2,4-Trimethylbenzene	95-63-6	1.10E-07	7.33E-04	1.00E+00	8.07E-11	--	NC
1,2-Dichlorobenzene	95-50-1	1.37E-07	7.33E-04	1.00E+00	1.00E-10	--	NC
1,2-Dichloroethane	107-06-2	2.23E-08	7.33E-04	1.00E+00	1.63E-11	9.10E-02	1.49E-12
1,3,5-Trimethylbenzene	108-67-8	5.97E-08	7.33E-04	1.00E+00	4.37E-11	--	NC
1,4-Dichlorobenzene	106-46-7	2.65E-08	7.33E-04	1.00E+00	1.94E-11	2.40E-02	4.66E-13
2-Butanone	78-93-3	5.46E-09	7.33E-04	1.00E+00	4.00E-12	--	NC
4-Isopropyltoluene	99-87-6	1.81E-07	7.33E-04	1.00E+00	1.33E-10	--	NC
Acetone	67-64-1	5.51E-09	7.33E-04	1.00E+00	4.04E-12	--	NC
Bromoform	75-25-2	3.90E-10	7.33E-04	1.00E+00	2.86E-13	7.90E-03	2.26E-15
Carbon Disulfide	75-15-0	3.70E-09	7.33E-04	1.00E+00	2.71E-12	--	NC
Chlorobenzene	108-90-7	1.12E-08	7.33E-04	1.00E+00	8.24E-12	--	NC
Chloroethane	75-00-3	4.44E-10	7.33E-04	1.00E+00	3.25E-13	--	NC
cis-1,2-Dichloroethene	156-59-2	5.36E-07	7.33E-04	1.00E+00	3.93E-10	--	NC
Ethylbenzene	100-41-4	7.24E-07	7.33E-04	1.00E+00	5.30E-10	--	NC
Isopropylbenzene	98-82-8	1.46E-08	7.33E-04	1.00E+00	1.07E-11	--	NC
Methyl tert butyl ether	1634-04-4	2.80E-10	7.33E-04	1.00E+00	2.05E-13	--	NC
Methylene Chloride	75-09-2	5.23E-08	7.33E-04	1.00E+00	3.83E-11	7.50E-03	2.87E-13
Naphthalene	91-20-3	9.92E-08	7.33E-04	3.60E-01	2.62E-11	--	NC
n-Butylbenzene	104-51-8	3.87E-08	7.33E-04	1.00E+00	2.83E-11	--	NC
n-Propylbenzene	103-65-1	4.62E-08	7.33E-04	1.00E+00	3.39E-11	--	NC
sec-Butylbenzene	135-98-8	4.71E-08	7.33E-04	1.00E+00	3.45E-11	--	NC
Tetrachloroethene	127-18-4	6.57E-06	7.33E-04	1.00E+00	4.81E-09	5.10E-02	2.45E-10
Toluene	108-88-3	2.45E-06	7.33E-04	1.00E+00	1.80E-09	--	NC
trans-1,2-Dichloroethene	156-60-5	6.42E-10	7.33E-04	1.00E+00	4.70E-13	--	NC
Trichloroethene	79-01-6	5.25E-06	7.33E-04	1.00E+00	3.85E-09	1.10E-02	4.23E-11
Vinyl Chloride	75-01-4	3.07E-08	7.33E-04	1.00E+00	2.25E-11	7.20E-01	1.62E-11
Xylenes (Total)	1330-20-7	1.53E-06	7.33E-04	1.00E+00	1.12E-09	--	NC
Semi-volatile Organic Compounds (SVOCs)							
2-Methylnaphthalene	91-57-6	3.54E-08	7.33E-04	3.60E-01	9.33E-12	--	NC
Acenaphthene	83-32-9	4.63E-08	7.33E-04	3.60E-01	1.22E-11	--	NC
Anthracene	120-12-7	7.56E-08	7.33E-04	3.60E-01	2.00E-11	--	NC
Benzo(a)anthracene	56-55-3	2.02E-07	7.33E-04	2.80E-01	4.15E-11	7.30E-01	3.03E-11
Benzo(a)pyrene	50-32-8	1.87E-07	7.33E-04	2.80E-01	3.83E-11	7.30E+00	2.80E-10
Benzo(b)fluoranthene	205-99-2	1.88E-07	7.33E-04	2.80E-01	3.85E-11	7.30E-01	2.81E-11
Benzo(g,h,i)perylene	191-24-2	1.65E-07	7.33E-04	3.60E-01	4.34E-11	--	NC
Benzo(k)fluoranthene	207-08-9	1.46E-07	7.33E-04	2.80E-01	2.99E-11	7.30E-02	2.18E-12
Chrysene	218-01-9	2.20E-07	7.33E-04	2.80E-01	4.52E-11	7.30E-02	3.30E-12
Dibenzo(a,h)anthracene	53-70-3	3.69E-08	7.33E-04	2.80E-01	7.57E-12	7.30E+00	5.53E-11
Fluoranthene	206-44-0	3.93E-07	7.33E-04	3.60E-01	1.04E-10	--	NC
Indeno(1,2,3-cd)pyrene	193-39-5	1.19E-07	7.33E-04	2.80E-01	2.44E-11	7.30E-01	1.78E-11
Phenanthrene	85-01-8	3.30E-07	7.33E-04	3.60E-01	8.71E-11	--	NC
Pyrene	129-00-0	3.28E-07	7.33E-04	3.60E-01	8.65E-11	--	NC
Petroleum Hydrocarbons							
C11-C22 Aromatic Hydrocarbons	NA c11-c22	1.21E-05	7.33E-04	3.60E-01	3.18E-09	--	NC
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.21E-05	7.33E-04	1.00E+00	8.90E-09	--	NC
C5-C8 Aliphatic Hydrocarbons	NA c5-8	5.24E-06	7.33E-04	1.00E+00	3.84E-09	--	NC
C9-C10 Aromatic Hydrocarbons	NA c9-10	2.64E-06	7.33E-04	1.00E+00	1.94E-09	--	NC
C9-C12 Aliphatic Hydrocarbons	NA c9-12	2.22E-06	7.33E-04	1.00E+00	1.63E-09	--	NC
C9-C18 Aliphatic Hydrocarbons	NA c9-18	4.06E-06	7.33E-04	1.00E+00	2.98E-09	--	NC
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	3.71E-07	7.33E-04	8.50E-01	2.31E-10	2.00E+00	4.62E-10
Aroclor 1232	11141-16-5	5.80E-08	7.33E-04	8.50E-01	3.61E-11	2.00E+00	7.22E-11
Inorganics							
Barium, Total	7440-39-3	5.29E-06	7.33E-04	1.00E+00	3.87E-09	--	NC
Chromium, Total	7440-47-3	2.01E-06	7.33E-04	1.00E+00	1.47E-09	--	NC
Mercury, Total	7439-97-6	7.80E-08	7.33E-04	1.00E+00	5.72E-11	--	NC
Silver, Total	7440-22-4	7.83E-08	7.33E-04	1.00E+00	5.74E-11	--	NC
CUMULATIVE ELCR							1.26E-09

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF

Excess Lifetime Cancer Risk (ELCR_{exp}) = LADD * CSF

Cumulative ELCR = ΣELCR_{exp}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction Worker
EXPOSURE POINT:	Hot Spot 1
EXPOSURE PATHWAY:	Inhalation of Ambient (Trench) Air

Noncancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Noncancer Exposure Factor (EF)	Average Daily Exposure (ADE) mg/m ³	Subchronic inhalation Reference Concentration (RfC) mg/m ³	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	9.28E-02	1.67E-01	1.55E-02	5.20E+00	2.98E-03
1,1,2-Trichloroethane	79-00-5	7.69E-05	1.67E-01	1.29E-05	7.40E-02	1.74E-04
1,1-Dichloroethane	75-34-3	3.71E-03	1.67E-01	6.20E-04	5.00E+00	1.24E-04
1,1-Dichloroethene	75-35-4	4.31E-03	1.67E-01	7.21E-04	2.00E-01	3.60E-03
1,2,4-Trimethylbenzene	95-63-6	8.15E-05	1.67E-01	1.36E-05	6.00E-03	2.27E-03
1,2-Dichlorobenzene	95-50-1	2.29E-04	1.67E-01	3.82E-05	2.00E-01	1.91E-04
1,2-Dichloroethane	107-06-2	2.33E-03	1.67E-01	3.90E-04	5.50E-02	7.09E-03
Benzene	71-43-2	1.66E-04	1.67E-01	2.77E-05	9.00E-02	3.08E-04
Chlorobenzene	108-90-7	5.30E-04	1.67E-01	8.86E-05	2.00E-02	4.43E-03
Chloroethane	75-00-3	1.25E-04	1.67E-01	2.08E-05	1.00E+01	2.08E-06
cis-1,2-Dichloroethene	156-59-2	4.62E-02	1.67E-01	7.73E-03	3.50E-02	2.21E-01
Ethylbenzene	100-41-4	1.23E-03	1.67E-01	2.05E-04	1.00E+00	2.05E-04
Methylene Chloride	75-09-2	3.16E-03	1.67E-01	5.28E-04	3.00E+00	1.76E-04
Tetrachloroethene	127-18-4	7.31E-03	1.67E-01	1.22E-03	4.60E+00	2.66E-04
Toluene	108-88-3	1.99E-02	1.67E-01	3.32E-03	5.00E+00	6.64E-04
trans-1,2-Dichloroethene	156-60-5	2.72E-04	1.67E-01	4.55E-05	7.00E-01	6.50E-05
Trichloroethene	79-01-6	1.02E-01	1.67E-01	1.70E-02	1.80E-01	9.45E-02
Vinyl Chloride	75-01-4	2.28E-03	1.67E-01	3.81E-04	1.00E-01	3.81E-03
Xylenes (Total)	1330-20-7	1.73E-03	1.67E-01	2.89E-04	3.00E-01	9.65E-04
CUMULATIVE HAZARD INDEX						3.43E-01

Average Daily Dose (ADD) = EPC * EF
Hazard Quotient (HQ_{copc}) = ADE / RfC
Cumulative Hazard Index (HI) = Σ HQ_{copc}

Cancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Cancer Exposure Factor (EF)	Lifetime Average Daily Dose (LADE) mg/m ³	Inhalation Unit Risk (IUR) (mg/m ³) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	9.28E-02	1.19E-03	1.11E-04	--	NC
1,1,2-Trichloroethane	79-00-5	7.69E-05	1.19E-03	9.18E-08	1.60E-02	1.47E-09
1,1-Dichloroethane	75-34-3	3.71E-03	1.19E-03	4.43E-06	--	NC
1,1-Dichloroethene	75-35-4	4.31E-03	1.19E-03	5.15E-06	--	NC
1,2,4-Trimethylbenzene	95-63-6	8.15E-05	1.19E-03	9.73E-08	--	NC
1,2-Dichlorobenzene	95-50-1	2.29E-04	1.19E-03	2.73E-07	--	NC
1,2-Dichloroethane	107-06-2	2.33E-03	1.19E-03	2.78E-06	2.60E-02	7.24E-08
Benzene	71-43-2	1.66E-04	1.19E-03	1.98E-07	7.80E-03	1.54E-09
Chlorobenzene	108-90-7	5.30E-04	1.19E-03	6.33E-07	--	NC
Chloroethane	75-00-3	1.25E-04	1.19E-03	1.49E-07	--	NC
cis-1,2-Dichloroethene	156-59-2	4.62E-02	1.19E-03	5.52E-05	--	NC
Ethylbenzene	100-41-4	1.23E-03	1.19E-03	1.47E-06	--	NC
Methylene Chloride	75-09-2	3.16E-03	1.19E-03	3.77E-06	4.70E-04	1.77E-09
Tetrachloroethene	127-18-4	7.31E-03	1.19E-03	8.73E-06	5.52E-02	4.82E-07
Toluene	108-88-3	1.99E-02	1.19E-03	2.37E-05	--	NC
trans-1,2-Dichloroethene	156-60-5	2.72E-04	1.19E-03	3.25E-07	--	NC
Trichloroethene	79-01-6	1.02E-01	1.19E-03	1.21E-04	1.70E-03	2.07E-07
Vinyl Chloride	75-01-4	2.28E-03	1.19E-03	2.72E-06	4.40E-03	1.20E-08
Xylenes (Total)	1330-20-7	1.73E-03	1.19E-03	2.07E-06	--	NC
CUMULATIVE ELCR						7.78E-07

Lifetime Average Daily Dose (LADE) = EPC * EF
Excess Lifetime Cancer Risk (ELCR_{copc}) = LADE * CSF
Cumulative ELCR = ΣELCR_{copc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction/Utility Worker
EXPOSURE POINT:	Hot Spot #1
EXPOSURE PATHWAY:	Dermal Contact with Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF)	Average Daily Dose (ADD) mg/kg-day	Dermal Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	3.00E+03	5.61E-06	1.00E-01	1.68E-03	9.00E-01	1.87E-03
Tetrachloroethene	127-18-4	1.60E+03	5.61E-06	1.00E-01	8.97E-04	1.00E-01	8.97E-03
Toluene	108-88-3	6.80E+02	5.61E-06	1.20E-01	4.57E-04	8.00E-02	5.72E-03
Trichloroethene	79-01-6	1.90E+03	5.61E-06	1.00E-01	1.07E-03	2.00E-02	5.33E-02
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	1.70E+00	5.61E-06	1.60E-01	1.52E-06	5.00E-05	3.05E-02
Aroclor 1232	11141-16-5	--	5.61E-06	1.60E-01	NC	5.00E-05	NC
CUMULATIVE HAZARD INDEX							1.00E-01

Average Daily Dose (ADD) = EPC * EF * RAF

Hazard Quotient (HQ_{copc}) = ADD / RfD

Cumulative Hazard Index (HI) = Σ HQ_{copc}

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Dermal Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	3.00E+03	4.00E-08	1.00E-01	1.20E-05	--	NC
Tetrachloroethene	127-18-4	1.60E+03	4.00E-08	1.00E-01	6.41E-06	5.10E-02	3.27E-07
Toluene	108-88-3	6.80E+02	4.00E-08	1.20E-01	3.27E-06	--	NC
Trichloroethene	79-01-6	1.90E+03	4.00E-08	1.00E-01	7.61E-06	1.10E-02	8.37E-08
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	1.70E+00	4.00E-08	1.60E-01	1.09E-08	2.00E+00	2.18E-08
Aroclor 1232	11141-16-5	--	4.00E-08	1.60E-01	NC	2.00E+00	NC
CUMULATIVE ELCR							4.32E-07

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF

Excess Lifetime Cancer Risk (ELCR_{copc}) = LADD * CSF

Cumulative ELCR = ΣELCR_{copc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction/Utility Worker
EXPOSURE POINT:	Hot Spot #1
EXPOSURE PATHWAY:	Incidental Ingestion of Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Average Daily Dose (ADD) mg/kg-day	Oral Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
<i>Volatile Organic Compounds (VOCs)</i>							
1,1,1-Trichloroethane	71-55-6	3.00E+03	7.16E-07	1.00E+00	2.15E-03	9.00E-01	2.39E-03
Tetrachloroethene	127-18-4	1.60E+03	7.16E-07	1.00E+00	1.15E-03	1.00E-01	1.15E-02
Toluene	108-88-3	6.80E+02	7.16E-07	1.00E+00	4.87E-04	8.00E-02	6.09E-03
Trichloroethene	79-01-6	1.90E+03	7.16E-07	1.00E+00	1.36E-03	2.00E-02	6.80E-02
<i>Polychlorinated Biphenyls (PCBs)</i>							
Aroclor 1248	12672-29-6	1.70E+00	7.16E-07	8.50E-01	1.03E-06	5.00E-05	2.07E-02
Aroclor 1232	11141-16-5	--	7.16E-07	8.50E-01	NC	5.00E-05	NC
CUMULATIVE HAZARD INDEX							1.09E-01

$$\text{Average Daily Dose (ADD)} = \text{EPC} * \text{EF} * \text{RAF}$$

$$\text{Hazard Quotient (HQ)}_{\text{copc}} = \text{ADD} / \text{RfD}$$

$$\text{Cumulative Hazard Index (HI)} = \sum \text{HQ}_{\text{copc}}$$

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Oral Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
<i>Volatile Organic Compounds (VOCs)</i>							
1,1,1-Trichloroethane	71-55-6	3.00E+03	5.12E-09	1.00E+00	1.53E-05	--	NC
Tetrachloroethene	127-18-4	1.60E+03	5.12E-09	1.00E+00	8.19E-06	5.10E-02	4.17E-07
Toluene	108-88-3	6.80E+02	5.12E-09	1.00E+00	3.48E-06	--	NC
Trichloroethene	79-01-6	1.90E+03	5.12E-09	1.00E+00	9.72E-06	1.10E-02	1.07E-07
<i>Polychlorinated Biphenyls (PCBs)</i>							
Aroclor 1248	12672-29-6	1.70E+00	5.12E-09	8.50E-01	7.39E-09	2.00E+00	1.48E-08
Aroclor 1232	11141-16-5	--	5.12E-09	8.50E-01	NC	2.00E+00	NC
CUMULATIVE ELCR							5.39E-07

$$\text{Lifetime Average Daily Dose (LADD)} = \text{EPC} * \text{EF} * \text{RAF}$$

$$\text{Excess Lifetime Cancer Risk (ELCR)}_{\text{copc}} = \text{LADD} * \text{CSF}$$

$$\text{Cumulative ELCR} = \sum \text{ELCR}_{\text{copc}}$$

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction/Utility Worker
EXPOSURE POINT:	Hot Spot #1
EXPOSURE PATHWAY:	Ingestion of fugitive dust

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Average Daily Dose (ADD) mg/kg-day	Subchronic Oral Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
<i>Volatile Organic Compounds (VOCs)</i>							
1,1,1-Trichloroethane	71-55-6	3.60E-04	1.03E-01	1.00E+00	3.69E-05	9.00E-01	4.10E-05
Tetrachloroethene	127-18-4	1.92E-04	1.03E-01	1.00E+00	1.97E-05	1.00E-01	1.97E-04
Toluene	108-88-3	8.16E-05	1.03E-01	1.00E+00	8.37E-06	8.00E-02	1.05E-04
Trichloroethene	79-01-6	2.28E-04	1.03E-01	1.00E+00	2.34E-05	2.00E-02	1.17E-03
<i>Polychlorinated Biphenyls (PCBs)</i>							
Aroclor 1248	12672-29-6	2.04E-07	1.03E-01	8.50E-01	1.78E-08	5.00E-05	3.56E-04
CUMULATIVE HAZARD INDEX							1.87E-03

$$\text{Average Daily Dose (ADD)} = \text{EPC} * \text{EF} * \text{RAF}$$

$$\text{Hazard Quotient (HQ}_{\text{copc}}) = \text{ADD} / \text{RfD}$$

$$\text{Cumulative Hazard Index (HI)} = \Sigma \text{HQ}_{\text{copc}}$$

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Oral Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
<i>Volatile Organic Compounds (VOCs)</i>							
1,1,1-Trichloroethane	71-55-6	3.60E-04	7.33E-04	1.00E+00	2.64E-07	--	NC
Tetrachloroethene	127-18-4	1.92E-04	7.33E-04	1.00E+00	1.41E-07	5.10E-02	7.17E-09
Toluene	108-88-3	8.16E-05	7.33E-04	1.00E+00	5.98E-08	--	NC
Trichloroethene	79-01-6	2.28E-04	7.33E-04	1.00E+00	1.67E-07	1.10E-02	1.84E-09
<i>Polychlorinated Biphenyls (PCBs)</i>							
Aroclor 1248	12672-29-6	2.04E-07	7.33E-04	8.50E-01	1.27E-10	2.00E+00	2.54E-10
CUMULATIVE ELCR							9.27E-09

$$\text{Lifetime Average Daily Dose (LADD)} = \text{EPC} * \text{EF} * \text{RAF}$$

$$\text{Excess Lifetime Cancer Risk (ELCR}_{\text{copc}}) = \text{LADD} * \text{CSF}$$

$$\text{Cumulative ELCR} = \Sigma \text{ELCR}_{\text{copc}}$$

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction Worker
EXPOSURE POINT:	Hot Spot #1
EXPOSURE PATHWAY:	Inhalation of Fugitive Dust

Noncancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Noncancer Exposure Factor (EF)	Average Daily Exposure (ADE) mg/m ³	Subchronic Inhalation Reference Concentration (RfC) mg/m ³	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	9.00E-05	1.19E-01	1.07E-05	5.20E+00	2.05E-06
Tetrachloroethene	127-18-4	4.80E-05	1.19E-01	5.70E-06	4.60E+00	1.24E-06
Toluene	108-88-3	2.04E-05	1.19E-01	2.42E-06	5.00E+00	4.84E-07
Trichloroethene	79-01-6	5.70E-05	1.19E-01	6.77E-06	1.80E-01	3.76E-05
Polychlorinated Biphenyls (PCBs)						
Aroclor 1248	12672-29-6	5.10E-08	1.19E-01	6.05E-09	2.00E-05	3.03E-04
CUMULATIVE HAZARD INDEX						3.44E-04

Average Daily Dose (ADD) = EPC * EF
Hazard Quotient (HQ_{copc}) = ADE / RfC
Cumulative Hazard Index (HI) = Σ HQ_{copc}

Cancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Cancer Exposure Factor (EF)	Lifetime Average Daily Exposure (LADE) mg/m ³	Inhalation Unit Risk (IUR) (mg/m ³) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	9.00E-05	8.48E-04	7.63E-08	--	NC
Tetrachloroethene	127-18-4	4.80E-05	8.48E-04	4.07E-08	5.52E-02	2.25E-09
Toluene	108-88-3	2.04E-05	8.48E-04	1.73E-08	--	NC
Trichloroethene	79-01-6	5.70E-05	8.48E-04	4.83E-08	1.70E-03	8.22E-11
Polychlorinated Biphenyls (PCBs)						
Aroclor 1248	12672-29-6	5.10E-08	8.48E-04	4.32E-11	1.00E-01	4.32E-12
CUMULATIVE ELCR						2.33E-09

Lifetime Average Daily Dose (LADE) = EPC * EF
Excess Lifetime Cancer Risk (ELCR_{copc}) = LADE * CSF
Cumulative ELCR = Σ ELCR_{copc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction Worker
EXPOSURE POINT:	Hot Spot 2
EXPOSURE PATHWAY:	Inhalation of Ambient (Trench) Air

Noncancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Noncancer Exposure Factor (EF)	Average Daily Exposure (ADE) mg/m ³	Subchronic inhalation Reference Concentration (RfC) mg/m ³	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	1.05E-02	1.67E-01	1.76E-03	5.20E+00	3.38E-04
1,1-Dichloroethane	75-34-3	3.24E-03	1.67E-01	5.41E-04	5.00E+00	1.08E-04
1,1-Dichloroethene	75-35-4	5.60E-04	1.67E-01	9.36E-05	2.00E-01	4.68E-04
1,2,4-Trimethylbenzene	95-63-6	2.96E-05	1.67E-01	4.95E-06	6.00E-03	8.25E-04
1,2-Dichlorobenzene	95-50-1	3.98E-04	1.67E-01	6.65E-05	2.00E-01	3.32E-04
1,2-Dichloroethane	107-06-2	3.64E-04	1.67E-01	6.08E-05	5.50E-02	1.11E-03
Benzene	71-43-2	4.75E-05	1.67E-01	7.93E-06	9.00E-02	8.81E-05
cis-1,2-Dichloroethene	156-59-2	3.16E-02	1.67E-01	5.28E-03	3.50E-02	1.51E-01
Ethylbenzene	100-41-4	6.52E-04	1.67E-01	1.09E-04	1.00E+00	1.09E-04
Tetrachloroethene	127-18-4	1.80E-03	1.67E-01	3.01E-04	4.60E+00	6.54E-05
Toluene	108-88-3	2.42E-02	1.67E-01	4.04E-03	5.00E+00	8.07E-04
trans-1,2-Dichloroethene	156-60-5	1.79E-04	1.67E-01	2.99E-05	7.00E-01	4.27E-05
Trichloroethene	79-01-6	6.08E-03	1.67E-01	1.02E-03	1.80E-01	5.65E-03
Vinyl Chloride	75-01-4	5.34E-03	1.67E-01	8.92E-04	1.00E-01	8.92E-03
Xylenes (Total)	1330-20-7	2.58E-03	1.67E-01	4.31E-04	3.00E-01	1.44E-03
CUMULATIVE HAZARD INDEX						1.71E-01

$$\text{Average Daily Dose (ADD)} = \text{EPC} * \text{EF}$$

$$\text{Hazard Quotient (HQ}_{\text{cnc}}) = \text{ADE} / \text{RfC}$$

$$\text{Cumulative Hazard Index (HI)} = \Sigma \text{HQ}_{\text{cnc}}$$

Cancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Cancer Exposure Factor (EF)	Lifetime Average Daily Dose (LADE) mg/m ³	Inhalation Unit Risk (IUR) (mg/m ³) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	1.05E-02	1.19E-03	1.25E-05	--	NC
1,1-Dichloroethane	75-34-3	3.24E-03	1.19E-03	3.87E-06	--	NC
1,1-Dichloroethene	75-35-4	5.60E-04	1.19E-03	6.69E-07	--	NC
1,2,4-Trimethylbenzene	95-63-6	2.96E-05	1.19E-03	3.53E-08	--	NC
1,2-Dichlorobenzene	95-50-1	3.98E-04	1.19E-03	4.75E-07	--	NC
1,2-Dichloroethane	107-06-2	3.64E-04	1.19E-03	4.34E-07	2.60E-02	1.13E-08
Benzene	71-43-2	4.75E-05	1.19E-03	5.67E-08	7.80E-03	4.42E-10
cis-1,2-Dichloroethene	156-59-2	3.16E-02	1.19E-03	3.77E-05	--	NC
Ethylbenzene	100-41-4	6.52E-04	1.19E-03	7.79E-07	--	NC
Tetrachloroethene	127-18-4	1.80E-03	1.19E-03	2.15E-06	5.52E-02	1.19E-07
Toluene	108-88-3	2.42E-02	1.19E-03	2.88E-05	--	NC
trans-1,2-Dichloroethene	156-60-5	1.79E-04	1.19E-03	2.13E-07	--	NC
Trichloroethene	79-01-6	6.08E-03	1.19E-03	7.26E-06	1.70E-03	1.23E-08
Vinyl Chloride	75-01-4	5.34E-03	1.19E-03	6.37E-06	4.40E-03	2.80E-08
Xylenes (Total)	1330-20-7	2.58E-03	1.19E-03	3.08E-06	--	NC
CUMULATIVE ELCR						1.71E-07

$$\text{Lifetime Average Daily Dose (LADE)} = \text{EPC} * \text{EF}$$

$$\text{Excess Lifetime Cancer Risk (ELCR}_{\text{cnc}}) = \text{LADE} * \text{CSF}$$

$$\text{Cumulative ELCR} = \Sigma \text{ELCR}_{\text{cnc}}$$

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction/Utility Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Dermal Contact with Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF)	Average Daily Dose (ADD) mg/kg-day	Dermal Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	2.20E+01	5.61E-06	1.00E-01	1.23E-05	9.00E-01	1.37E-05
1,1-Dichloroethene	75-35-4	3.33E+00	5.61E-06	1.00E-01	1.86E-06	5.00E-02	3.73E-05
1,2,4-Trimethylbenzene	95-63-6	3.58E+00	5.61E-06	1.00E-02	2.00E-07	5.00E-02	4.01E-06
1,2-Dichlorobenzene	95-50-1	1.22E+01	5.61E-06	1.00E-01	6.84E-06	9.00E-01	7.60E-06
1,3,5-Trimethylbenzene	108-67-8	2.90E+00	5.61E-06	1.00E-02	1.63E-07	5.00E-02	3.25E-06
1,4-Dichlorobenzene	106-46-7	1.20E+00	5.61E-06	1.00E-01	6.73E-07	9.00E-01	7.47E-07
4-Isopropyltoluene	99-87-6	2.88E+00	5.61E-06	1.00E-02	1.61E-07	1.00E-01	1.61E-06
Chlorobenzene	108-90-7	2.30E-01	5.61E-06	1.00E-02	1.29E-08	2.00E-01	6.45E-08
cis-1,2-Dichloroethene	156-59-2	2.35E+01	5.61E-06	1.00E-01	1.32E-05	1.00E-01	1.32E-04
Ethylbenzene	100-41-4	7.00E+00	5.61E-06	2.00E-01	7.85E-06	1.00E+00	7.85E-06
Isopropylbenzene	98-82-8	6.40E-01	5.61E-06	1.00E-02	3.59E-08	1.00E-01	3.59E-07
Naphthalene	91-20-3	1.90E+00	5.61E-06	1.00E-01	1.07E-06	2.00E-01	5.33E-06
n-Propylbenzene	103-65-1	2.70E+00	5.61E-06	1.00E-02	1.51E-07	4.00E-02	3.78E-06
sec-Butylbenzene	135-98-8	6.30E-01	5.61E-06	1.00E-02	3.53E-08	4.00E-02	8.83E-07
Tetrachloroethene	127-18-4	1.30E+01	5.61E-06	1.00E-01	7.29E-06	1.00E-01	7.29E-05
Toluene	108-88-3	5.88E+01	5.61E-06	1.20E-01	3.95E-05	8.00E-02	4.94E-04
Trichloroethene	79-01-6	1.03E+01	5.61E-06	1.00E-01	5.75E-06	2.00E-02	2.87E-04
Vinyl Chloride	75-01-4	1.20E+00	5.61E-06	1.00E-01	6.73E-07	3.00E-03	2.24E-04
Xylenes (Total)	1330-20-7	2.07E+01	5.61E-06	1.20E-01	1.39E-05	2.00E-01	6.95E-05
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	2.44E-01	5.61E-06	1.60E-01	2.19E-07	5.00E-05	4.38E-03
Aroclor 1232	11141-16-5	--	5.61E-06	1.60E-01	NC	5.00E-05	NC
Inorganics							
Barium, Total	7440-39-3	3.09E+01	5.61E-06	5.00E-02	8.66E-06	1.40E-02	6.19E-04
Chromium, Total	7440-47-3	1.36E+01	5.61E-06	9.00E-02	6.86E-06	5.00E-04	1.37E-02
Mercury, Total	7439-97-6	1.50E-01	5.61E-06	5.00E-02	4.20E-08	3.00E-04	1.40E-04
Silver, Total	7440-22-4	5.10E-01	5.61E-06	2.50E-01	7.15E-07	2.00E-04	3.57E-03
CUMULATIVE HAZARD INDEX							2.38E-02

Average Daily Dose (ADD) = EPC * EF * RAF
Hazard Quotient (HQ_{cnc}) = ADD / RfD
Cumulative Hazard Index (HI) = Σ HQ_{cnc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction/Utility Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Dermal Contact with Soil

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Dermal Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	2.20E+01	4.00E-08	1.00E-01	8.81E-08	--	NC
1,1-Dichloroethene	75-35-4	3.33E+00	4.00E-08	1.00E-01	1.33E-08	--	NC
1,2,4-Trimethylbenzene	95-63-6	3.58E+00	4.00E-08	1.00E-02	1.43E-09	--	NC
1,2-Dichlorobenzene	95-50-1	1.22E+01	4.00E-08	1.00E-01	4.89E-08	--	NC
1,3,5-Trimethylbenzene	108-67-8	2.90E+00	4.00E-08	1.00E-02	1.16E-09	--	NC
1,4-Dichlorobenzene	106-46-7	1.20E+00	4.00E-08	1.00E-01	4.81E-09	2.40E-02	1.15E-10
4-Isopropyltoluene	99-87-6	2.88E+00	4.00E-08	1.00E-02	1.15E-09	--	NC
Chlorobenzene	108-90-7	2.30E-01	4.00E-08	1.00E-02	9.21E-11	--	NC
cis-1,2-Dichloroethene	156-59-2	2.35E+01	4.00E-08	1.00E-01	9.41E-08	--	NC
Ethylbenzene	100-41-4	7.00E+00	4.00E-08	2.00E-01	5.61E-08	--	NC
Isopropylbenzene	98-82-8	6.40E-01	4.00E-08	1.00E-02	2.56E-10	--	NC
Naphthalene	91-20-3	1.90E+00	4.00E-08	1.00E-01	7.61E-09	--	NC
n-Propylbenzene	103-65-1	2.70E+00	4.00E-08	1.00E-02	1.08E-09	--	NC
sec-Butylbenzene	135-98-8	6.30E-01	4.00E-08	1.00E-02	2.52E-10	--	NC
Tetrachloroethene	127-18-4	1.30E+01	4.00E-08	1.00E-01	5.21E-08	5.10E-02	2.66E-09
Toluene	108-88-3	5.88E+01	4.00E-08	1.20E-01	2.82E-07	--	NC
Trichloroethene	79-01-6	1.03E+01	4.00E-08	1.00E-01	4.10E-08	1.10E-02	4.51E-10
Vinyl Chloride	75-01-4	1.20E+00	4.00E-08	1.00E-01	4.81E-09	7.20E-01	3.46E-09
Xylenes (Total)	1330-20-7	2.07E+01	4.00E-08	1.20E-01	9.92E-08	--	NC
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	2.44E-01	4.00E-08	1.60E-01	1.56E-09	2.00E+00	3.13E-09
Aroclor 1232	11141-16-5	--	4.00E-08	1.60E-01	NC	2.00E+00	NC
Inorganics							
Barium, Total	7440-39-3	3.09E+01	4.00E-08	5.00E-02	6.19E-08	--	NC
Chromium, Total	7440-47-3	1.36E+01	4.00E-08	9.00E-02	4.90E-08	--	NC
Mercury, Total	7439-97-6	1.50E-01	4.00E-08	5.00E-02	3.00E-10	--	NC
Silver, Total	7440-22-4	5.10E-01	4.00E-08	2.50E-01	5.11E-09	--	NC
CUMULATIVE ELCR							9.81E-09

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF
Excess Lifetime Cancer Risk (ELCR_{cope}) = LADD * CSF
Cumulative ELCR = ΣELCR_{cope}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction/Utility Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Incidental Ingestion of Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Average Daily Dose (ADD) mg/kg-day	Oral Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	2.20E+01	7.16E-07	1.00E+00	1.58E-05	9.00E-01	1.75E-05
1,1-Dichloroethene	75-35-4	3.33E+00	7.16E-07	1.00E+00	2.38E-06	5.00E-02	4.76E-05
1,2,4-Trimethylbenzene	95-63-6	3.58E+00	7.16E-07	1.00E+00	2.56E-06	5.00E-02	5.12E-05
1,2-Dichlorobenzene	95-50-1	1.22E+01	7.16E-07	1.00E+00	8.74E-06	9.00E-01	9.71E-06
1,3,5-Trimethylbenzene	108-67-8	2.90E+00	7.16E-07	1.00E+00	2.08E-06	5.00E-02	4.15E-05
1,4-Dichlorobenzene	106-46-7	1.20E+00	7.16E-07	1.00E+00	8.59E-07	9.00E-01	9.55E-07
4-Isopropyltoluene	99-87-6	2.88E+00	7.16E-07	1.00E+00	2.06E-06	1.00E-01	2.06E-05
Chlorobenzene	108-90-7	2.30E-01	7.16E-07	1.00E+00	1.65E-07	2.00E-01	8.24E-07
cis-1,2-Dichloroethene	156-59-2	2.35E+01	7.16E-07	1.00E+00	1.68E-05	1.00E-01	1.68E-04
Ethylbenzene	100-41-4	7.00E+00	7.16E-07	1.00E+00	5.01E-06	1.00E+00	5.01E-06
Isopropylbenzene	98-82-8	6.40E-01	7.16E-07	1.00E+00	4.58E-07	1.00E-01	4.58E-06
Naphthalene	91-20-3	1.90E+00	7.16E-07	3.60E-01	4.90E-07	2.00E-01	2.45E-06
n-Propylbenzene	103-65-1	2.70E+00	7.16E-07	1.00E+00	1.93E-06	4.00E-02	4.83E-05
sec-Butylbenzene	135-98-8	6.30E-01	7.16E-07	1.00E+00	4.51E-07	4.00E-02	1.13E-05
Tetrachloroethene	127-18-4	1.30E+01	7.16E-07	1.00E+00	9.31E-06	1.00E-01	9.31E-05
Toluene	108-88-3	5.88E+01	7.16E-07	1.00E+00	4.21E-05	8.00E-02	5.26E-04
Trichloroethene	79-01-6	1.03E+01	7.16E-07	1.00E+00	7.34E-06	2.00E-02	3.67E-04
Vinyl Chloride	75-01-4	1.20E+00	7.16E-07	1.00E+00	8.59E-07	3.00E-03	2.86E-04
Xylenes (Total)	1330-20-7	2.07E+01	7.16E-07	1.00E+00	1.48E-05	2.00E-01	7.40E-05
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	2.44E-01	7.16E-07	8.50E-01	1.49E-07	5.00E-05	2.97E-03
Aroclor 1232	11141-16-5	--	7.16E-07	8.50E-01	NC	5.00E-05	NC
Inorganics							
Barium, Total	7440-39-3	3.09E+01	7.16E-07	1.00E+00	2.21E-05	2.00E-01	1.11E-04
Chromium, Total	7440-47-3	1.36E+01	7.16E-07	1.00E+00	9.74E-06	2.00E-02	4.87E-04
Mercury, Total	7439-97-6	1.50E-01	7.16E-07	1.00E+00	1.07E-07	3.00E-04	3.58E-04
Silver, Total	7440-22-4	5.10E-01	7.16E-07	1.00E+00	3.65E-07	5.00E-03	7.31E-05
CUMULATIVE HAZARD INDEX							5.78E-03

Average Daily Dose (ADD) = EPC * EF * RAF
Hazard Quotient (HQ_{conc}) = ADD / RfD
Cumulative Hazard Index (HI) = Σ HQ_{conc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction/Utility Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Incidental Ingestion of Soil

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Oral Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	2.20E+01	5.12E-09	1.00E+00	1.13E-07	--	NC
1,1-Dichloroethene	75-35-4	3.33E+00	5.12E-09	1.00E+00	1.70E-08	--	NC
1,2,4-Trimethylbenzene	95-63-6	3.58E+00	5.12E-09	1.00E+00	1.83E-08	--	NC
1,2-Dichlorobenzene	95-50-1	1.22E+01	5.12E-09	1.00E+00	6.24E-08	--	NC
1,3,5-Trimethylbenzene	108-67-8	2.90E+00	5.12E-09	1.00E+00	1.48E-08	--	NC
1,4-Dichlorobenzene	106-46-7	1.20E+00	5.12E-09	1.00E+00	6.14E-09	2.40E-02	1.47E-10
4-Isopropyltoluene	99-87-6	2.88E+00	5.12E-09	1.00E+00	1.47E-08	--	NC
Chlorobenzene	108-90-7	2.30E-01	5.12E-09	1.00E+00	1.18E-09	--	NC
cis-1,2-Dichloroethene	156-59-2	2.35E+01	5.12E-09	1.00E+00	1.20E-07	--	NC
Ethylbenzene	100-41-4	7.00E+00	5.12E-09	1.00E+00	3.58E-08	--	NC
Isopropylbenzene	98-82-8	6.40E-01	5.12E-09	1.00E+00	3.27E-09	--	NC
Naphthalene	91-20-3	1.90E+00	5.12E-09	3.60E-01	3.50E-09	--	NC
n-Propylbenzene	103-65-1	2.70E+00	5.12E-09	1.00E+00	1.38E-08	--	NC
sec-Butylbenzene	135-98-8	6.30E-01	5.12E-09	1.00E+00	3.22E-09	--	NC
Tetrachloroethene	127-18-4	1.30E+01	5.12E-09	1.00E+00	6.65E-08	5.10E-02	3.39E-09
Toluene	108-88-3	5.88E+01	5.12E-09	1.00E+00	3.01E-07	--	NC
trans-1,2-Dichloroethene	156-60-5	--	5.12E-09	1.00E+00	NC	--	NC
Trichloroethene	79-01-6	1.03E+01	5.12E-09	1.00E+00	5.24E-08	1.10E-02	5.77E-10
Vinyl Chloride	75-01-4	1.20E+00	5.12E-09	1.00E+00	6.14E-09	7.20E-01	4.42E-09
Xylenes (Total)	1330-20-7	2.07E+01	5.12E-09	1.00E+00	1.06E-07	--	NC
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	2.44E-01	5.12E-09	8.50E-01	1.06E-09	2.00E+00	2.12E-09
Aroclor 1232	11141-16-5	--	5.12E-09	8.50E-01	NC	2.00E+00	NC
Inorganics							
Barium, Total	7440-39-3	3.09E+01	5.12E-09	1.00E+00	1.58E-07	--	NC
Chromium, Total	7440-47-3	1.36E+01	5.12E-09	1.00E+00	6.96E-08	--	NC
Mercury, Total	7439-97-6	1.50E-01	5.12E-09	1.00E+00	7.67E-10	--	NC
Silver, Total	7440-22-4	5.10E-01	5.12E-09	1.00E+00	2.61E-09	--	NC
CUMULATIVE ELCR							1.07E-08

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF
Excess Lifetime Cancer Risk (ELCR_{comp}) = LADD * CSF
Cumulative ELCR = ΣELCR_{comp}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

File No. 218291
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RECEPTOR:	Future Construction/Utility Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Ingestion of fugitive dust

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC)	Noncancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Average Daily Dose (ADD)	Subchronic Oral Reference Dose (RfD)	Hazard Quotient (HQ)
		mg/kg			mg/kg-day	mg/kg-day	
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	2.64E-06	1.03E-01	1.00E+00	2.71E-07	9.00E-01	3.01E-07
1,1-Dichloroethene	75-35-4	3.99E-07	1.03E-01	1.00E+00	4.09E-08	5.00E-02	8.19E-07
1,2,4-Trimethylbenzene	95-63-6	4.29E-07	1.03E-01	1.00E+00	4.40E-08	5.00E-02	8.80E-07
1,2-Dichlorobenzene	95-50-1	1.46E-06	1.03E-01	1.00E+00	1.50E-07	9.00E-01	1.67E-07
1,3,5-Trimethylbenzene	108-67-8	3.48E-07	1.03E-01	1.00E+00	3.57E-08	5.00E-02	7.14E-07
1,4-Dichlorobenzene	106-46-7	1.44E-07	1.03E-01	1.00E+00	1.48E-08	9.00E-01	1.64E-08
4-Isopropyltoluene	99-87-6	3.45E-07	1.03E-01	1.00E+00	3.54E-08	1.00E-01	3.54E-07
Chlorobenzene	108-90-7	2.76E-08	1.03E-01	1.00E+00	2.83E-09	2.00E-01	1.42E-08
cis-1,2-Dichloroethene	156-59-2	2.82E-06	1.03E-01	1.00E+00	2.89E-07	1.00E-01	2.89E-06
Ethylbenzene	100-41-4	8.40E-07	1.03E-01	1.00E+00	8.62E-08	1.00E+00	8.62E-08
Isopropylbenzene	98-82-8	7.68E-08	1.03E-01	1.00E+00	7.88E-09	1.00E-01	7.88E-08
Naphthalene	91-20-3	2.28E-07	1.03E-01	3.60E-01	8.42E-09	2.00E-01	4.21E-08
n-Propylbenzene	103-65-1	3.24E-07	1.03E-01	1.00E+00	3.32E-08	4.00E-02	8.31E-07
sec-Butylbenzene	135-98-8	7.56E-08	1.03E-01	1.00E+00	7.75E-09	4.00E-02	1.94E-07
Tetrachloroethene	127-18-4	1.56E-06	1.03E-01	1.00E+00	1.60E-07	1.00E-01	1.60E-06
Toluene	108-88-3	7.05E-06	1.03E-01	1.00E+00	7.23E-07	8.00E-02	9.04E-06
Trichloroethene	79-01-6	1.23E-06	1.03E-01	1.00E+00	1.26E-07	2.00E-02	6.31E-06
Vinyl Chloride	75-01-4	1.44E-07	1.03E-01	1.00E+00	1.48E-08	3.00E-03	4.92E-06
Xylenes (Total)	1330-20-7	2.48E-06	1.03E-01	1.00E+00	2.54E-07	2.00E-01	1.27E-06
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	2.93E-08	1.03E-01	8.50E-01	2.56E-09	5.00E-05	5.11E-05
Aroclor 1232	11141-16-5	NC	1.03E-01	8.50E-01	NC	5.00E-05	NC
Inorganics							
Barium, Total	7440-39-3	3.71E-06	1.03E-01	1.00E+00	3.80E-07	2.00E-01	1.90E-06
Chromium, Total	7440-47-3	1.63E-06	1.03E-01	1.00E+00	1.67E-07	2.00E-02	8.37E-06
Mercury, Total	7439-97-6	1.80E-08	1.03E-01	1.00E+00	1.85E-09	3.00E-04	6.15E-06
Silver, Total	7440-22-4	6.12E-08	1.03E-01	1.00E+00	6.28E-09	5.00E-03	1.26E-06
CUMULATIVE HAZARD INDEX							9.93E-05

Average Daily Dose (ADD) = EPC * EF * RAF

Hazard Quotient (HQ_{EPC}) = ADD / RfD

Cumulative Hazard Index (HI) = Σ HQ_{EPC}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

File No. 218291
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2/13/2007

RECEPTOR:	Future Construction/Utility Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Ingestion of fugitive dust

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC)	Cancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD)	Oral Cancer Slope Factor (CSF)	Excess Lifetime Cancer Risk (ELCR)
		mg/kg			mg/kg-day	(mg/kg-day) ⁻¹	
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	2.64E-06	7.33E-04	1.00E+00	1.93E-09	--	NC
1,1-Dichloroethene	75-35-4	3.99E-07	7.33E-04	1.00E+00	2.92E-10	--	NC
1,2,4-Trimethylbenzene	95-63-6	4.29E-07	7.33E-04	1.00E+00	3.14E-10	--	NC
1,2-Dichlorobenzene	95-50-1	1.46E-06	7.33E-04	1.00E+00	1.07E-09	--	NC
1,3,5-Trimethylbenzene	108-67-8	3.48E-07	7.33E-04	1.00E+00	2.55E-10	--	NC
1,4-Dichlorobenzene	106-46-7	1.44E-07	7.33E-04	1.00E+00	1.06E-10	2.40E-02	2.53E-12
4-Isopropyltoluene	99-87-6	3.45E-07	7.33E-04	1.00E+00	2.53E-10	--	NC
Chlorobenzene	108-90-7	2.76E-08	7.33E-04	1.00E+00	2.02E-11	--	NC
cis-1,2-Dichloroethene	156-59-2	2.82E-06	7.33E-04	1.00E+00	2.07E-09	--	NC
Ethylbenzene	100-41-4	8.40E-07	7.33E-04	1.00E+00	6.15E-10	--	NC
Isopropylbenzene	98-82-8	7.68E-08	7.33E-04	1.00E+00	5.63E-11	--	NC
Naphthalene	91-20-3	2.28E-07	7.33E-04	3.60E-01	6.01E-11	--	NC
n-Propylbenzene	103-65-1	3.24E-07	7.33E-04	1.00E+00	2.37E-10	--	NC
sec-Butylbenzene	135-98-8	7.56E-08	7.33E-04	1.00E+00	5.54E-11	--	NC
Tetrachloroethene	127-18-4	1.56E-06	7.33E-04	1.00E+00	1.14E-09	5.10E-02	5.83E-11
Toluene	108-88-3	7.05E-06	7.33E-04	1.00E+00	5.17E-09	--	NC
Trichloroethene	79-01-6	1.23E-06	7.33E-04	1.00E+00	9.01E-10	1.10E-02	9.91E-12
Vinyl Chloride	75-01-4	1.44E-07	7.33E-04	1.00E+00	1.06E-10	7.20E-01	7.60E-11
Xylenes (Total)	1330-20-7	2.48E-06	7.33E-04	1.00E+00	1.82E-09	--	NC
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	2.93E-08	7.33E-04	8.50E-01	1.83E-11	2.00E+00	3.65E-11
Aroclor 1232	11141-16-5	NC	7.33E-04	8.50E-01	NC	2.00E+00	NC
Inorganics							
Barium, Total	7440-39-3	3.71E-06	7.33E-04	1.00E+00	2.72E-09	--	NC
Chromium, Total	7440-47-3	1.63E-06	7.33E-04	1.00E+00	1.20E-09	--	NC
Mercury, Total	7439-97-6	1.80E-08	7.33E-04	1.00E+00	1.32E-11	--	NC
Silver, Total	7440-22-4	6.12E-08	7.33E-04	1.00E+00	4.48E-11	--	NC
CUMULATIVE ELCR							1.83E-10

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF

Excess Lifetime Cancer Risk (ELCR_{cope}) = LADD * CSF

Cumulative ELCR = ΣELCR_{cope}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Inhalation of Fugitive Dust

Noncancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Noncancer Exposure Factor (EF)	Average Daily Exposure (ADE) mg/m ³	Subchronic Inhalation Reference Concentration (RfC) mg/m ³	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	6.60E-07	1.19E-01	7.84E-08	5.20E+00	1.51E-08
1,1-Dichloroethene	75-35-4	9.98E-08	1.19E-01	1.18E-08	2.00E-01	5.92E-08
1,2,4-Trimethylbenzene	95-63-6	1.07E-07	1.19E-01	1.27E-08	6.00E-03	2.12E-06
1,2-Dichlorobenzene	95-50-1	3.66E-07	1.19E-01	4.35E-08	2.00E-01	2.17E-07
1,3,5-Trimethylbenzene	108-67-8	8.70E-08	1.19E-01	1.03E-08	6.00E-03	1.72E-06
1,4-Dichlorobenzene	106-46-7	3.60E-08	1.19E-01	4.27E-09	8.00E-01	5.34E-09
4-Isopropyltoluene	99-87-6	8.63E-08	1.19E-01	1.02E-08	4.00E-01	2.56E-08
Chlorobenzene	108-90-7	6.90E-09	1.19E-01	8.19E-10	2.00E-02	4.10E-08
cis-1,2-Dichloroethene	156-59-2	7.05E-07	1.19E-01	8.37E-08	3.50E-02	2.39E-06
Ethylbenzene	100-41-4	2.10E-07	1.19E-01	2.49E-08	1.00E+00	2.49E-08
Isopropylbenzene	98-82-8	1.92E-08	1.19E-01	2.28E-09	4.00E-01	5.70E-09
Naphthalene	91-20-3	5.70E-08	1.19E-01	6.77E-09	3.00E-03	2.26E-06
n-Propylbenzene	103-65-1	8.10E-08	1.19E-01	9.62E-09	1.40E-01	6.87E-08
sec-Butylbenzene	135-98-8	1.89E-08	1.19E-01	2.24E-09	1.40E-01	1.60E-08
Tetrachloroethene	127-18-4	3.90E-07	1.19E-01	4.63E-08	4.60E+00	1.01E-08
Toluene	108-88-3	1.76E-06	1.19E-01	2.09E-07	5.00E+00	4.18E-08
Trichloroethene	79-01-6	3.08E-07	1.19E-01	3.65E-08	1.80E-01	2.03E-07
Vinyl Chloride	75-01-4	3.60E-08	1.19E-01	4.27E-09	1.00E-01	4.27E-08
Xylenes (Total)	1330-20-7	6.20E-07	1.19E-01	7.35E-08	1.00E-01	7.35E-07
Polychlorinated Biphenyls (PCBs)						
Aroclor 1248	12672-29-6	7.33E-09	1.19E-01	8.70E-10	2.00E-05	4.35E-05
Inorganics						
Barium, Total	7440-39-3	9.27E-07	1.19E-01	1.10E-07	5.00E-04	2.20E-04
Chromium, Total	7440-47-3	4.08E-07	1.19E-01	4.84E-08	1.00E-04	4.84E-04
Mercury, Total	7439-97-6	4.50E-09	1.19E-01	5.34E-10	3.00E-04	1.78E-06
Silver, Total	7440-22-4	1.33E-08	1.19E-01	1.82E-09	1.40E-04	1.30E-05
CUMULATIVE HAZARD INDEX						7.73E-04

Average Daily Dose (ADD) = EPC * EF
Hazard Quotient (HQ_{conc}) = ADE / RfC
Cumulative Hazard Index (HI) = Σ HQ_{conc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Construction Worker
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Inhalation of Fugitive Dust

Cancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Cancer Exposure Factor (EF)	Lifetime Average Daily Exposure (LADE) mg/m ³	Inhalation Unit Risk (IUR) (mg/m ³) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatle Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	6.60E-07	8.48E-04	5.60E-10	--	NC
1,1-Dichloroethene	75-35-4	9.98E-08	8.48E-04	8.46E-11	--	NC
1,2,4-Trimethylbenzene	95-63-6	1.07E-07	8.48E-04	9.09E-11	--	NC
1,2-Dichlorobenzene	95-50-1	3.66E-07	8.48E-04	3.10E-10	--	NC
1,3,5-Trimethylbenzene	108-67-8	8.70E-08	8.48E-04	7.38E-11	--	NC
1,4-Dichlorobenzene	106-46-7	3.60E-08	8.48E-04	3.05E-11	6.86E-03	2.09E-13
4-Isopropyltoluene	99-87-6	8.63E-08	8.48E-04	7.31E-11	--	NC
Chlorobenzene	108-90-7	6.90E-09	8.48E-04	5.85E-12	--	NC
cis-1,2-Dichloroethene	156-59-2	7.05E-07	8.48E-04	5.98E-10	--	NC
Ethylbenzene	100-41-4	2.10E-07	8.48E-04	1.78E-10	--	NC
Isopropylbenzene	98-82-8	1.92E-08	8.48E-04	1.63E-11	--	NC
Naphthalene	91-20-3	5.70E-08	8.48E-04	4.83E-11	--	NC
n-Propylbenzene	103-65-1	8.10E-08	8.48E-04	6.87E-11	--	NC
sec-Butylbenzene	135-98-8	1.89E-08	8.48E-04	1.60E-11	--	NC
Tetrachloroethene	127-18-4	3.90E-07	8.48E-04	3.31E-10	5.52E-02	1.83E-11
Toluene	108-88-3	1.76E-06	8.48E-04	1.49E-09	--	NC
Trichloroethene	79-01-6	3.08E-07	8.48E-04	2.61E-10	1.70E-03	4.43E-13
Vinyl Chloride	75-01-4	3.60E-08	8.48E-04	3.05E-11	8.80E-03	2.69E-13
Xylenes (Total)	1330-20-7	6.20E-07	8.48E-04	5.25E-10	--	NC
Polychlorinated Biphenyls (PCBs)						
Aroclor 1248	12672-29-6	7.33E-09	8.48E-04	6.21E-12	1.00E-01	6.21E-13
Inorganics						
Barium, Total	7440-39-3	9.27E-07	8.48E-04	7.86E-10	--	NC
Chromium, Total	7440-47-3	4.08E-07	8.48E-04	3.46E-10	1.20E+01	4.15E-09
Mercury, Total	7439-97-6	4.50E-09	8.48E-04	3.82E-12	--	NC
Silver, Total	7440-22-4	1.53E-08	8.48E-04	1.30E-11	--	NC
CUMULATIVE ELCR						4.17E-09

Lifetime Average Daily Dose (LADE) = EPC * EF
Excess Lifetime Cancer Risk (ELCR_{one}) = LADE * CSF
Cumulative ELCR = ΣELCR_{one}

CALCULATION OF HAZARD INDICES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Resident Infant (0-1 years)
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Inhalation of Indoor Air

Noncancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Noncancer Exposure Factor (EF)	Average Daily Exposure (ADE) mg/m ³	Inhalation Reference Concentration (RfC) mg/m ³	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	8.92E-01	9.59E-01	8.55E-01	5.20E+00	1.65E-01
1,1-Dichloroethane	75-34-3	1.21E-02	9.59E-01	1.16E-02	5.00E+00	2.32E-03
1,1-Dichloroethene	75-35-4	1.56E-02	9.59E-01	1.50E-02	2.00E-01	7.48E-02
1,2,4-Trimethylbenzene	95-63-6	2.99E-03	9.59E-01	2.87E-03	6.00E-03	4.78E-01
1,2-Dichloroethane	107-06-2	5.14E-03	9.59E-01	4.93E-03	5.50E-02	8.97E-02
cis-1,2-Dichloroethene	156-59-2	3.39E-01	9.59E-01	3.25E-01	3.50E-02	9.28E+00
Ethylbenzene	100-41-4	5.68E-03	9.59E-01	5.45E-03	1.00E+00	5.45E-03
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	76-13-1	1.51E-01	9.59E-01	1.45E-01	3.00E+01	4.83E-03
Methylene Chloride	75-09-2	1.18E-02	9.59E-01	1.13E-02	3.00E+00	3.77E-03
Tetrachloroethene	127-18-4	1.02E+00	9.59E-01	9.77E-01	4.60E+00	2.12E-01
Toluene	108-88-3	1.86E-02	9.59E-01	1.78E-02	5.00E+00	3.56E-03
trans-1,2-Dichloroethene	156-60-5	4.68E-03	9.59E-01	4.49E-03	7.00E-01	6.42E-03
Trichloroethene	79-01-6	7.10E-01	9.59E-01	6.80E-01	1.80E-01	3.78E+00
Vinyl Chloride	75-01-4	6.01E-03	9.59E-01	5.77E-03	1.00E-01	5.77E-02
Xylenes (Total)	1330-20-7	2.50E-02	9.59E-01	2.39E-02	3.00E-01	7.98E-02
CUMULATIVE HAZARD INDEX						1.42E+01

Average Daily Dose (ADD) = EPC * EF
Hazard Quotient (HQ_{conc}) = ADE / RfC
Cumulative Hazard Index (HI) = Σ HQ_{conc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Resident
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Inhalation of Indoor Air

Noncancer Effects (child)						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC)	Noncancer Exposure Factor (EF)	Average Daily Exposure (ADE)	Inhalation Reference Concentration (RfC)	Hazard Quotient (HQ)
		mg/m ³		mg/m ³	mg/m ³	
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	8.92E-01	9.59E-01	8.55E-01	5.20E+00	1.65E-01
1,1-Dichloroethane	75-34-3	1.21E-02	9.59E-01	1.16E-02	5.00E-01	2.32E-02
1,1-Dichloroethene	75-35-4	1.56E-02	9.59E-01	1.50E-02	2.00E-01	7.48E-02
1,2,4-Trimethylbenzene	95-63-6	2.99E-03	9.59E-01	2.87E-03	6.00E-03	4.78E-01
1,2-Dichloroethane	107-06-2	5.14E-03	9.59E-01	4.93E-03	5.50E-02	8.97E-02
cis-1,2-Dichloroethene	156-59-2	3.39E-01	9.59E-01	3.25E-01	3.50E-02	9.28E+00
Ethylbenzene	100-41-4	5.68E-03	9.59E-01	5.45E-03	1.00E+00	5.45E-03
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	76-13-1	1.51E-01	9.59E-01	1.45E-01	3.00E+01	4.83E-03
Methylene Chloride	75-09-2	1.18E-02	9.59E-01	1.13E-02	3.00E+00	3.77E-03
Tetrachloroethene	127-18-4	1.02E+00	9.59E-01	9.77E-01	4.60E+00	2.12E-01
Toluene	108-88-3	1.86E-02	9.59E-01	1.78E-02	5.00E+00	3.56E-03
trans-1,2-Dichloroethene	156-60-5	4.68E-03	9.59E-01	4.49E-03	7.00E-02	6.42E-02
Trichloroethene	79-01-6	7.10E-01	9.59E-01	6.80E-01	1.80E-01	3.78E+00
Vinyl Chloride	75-01-4	6.01E-03	9.59E-01	5.77E-03	1.00E-01	5.77E-02
Xylenes (Total)	1330-20-7	2.50E-02	9.59E-01	2.39E-02	1.00E-01	2.39E-01
CUMULATIVE HAZARD INDEX						1.45E+01

Average Daily Dose (ADD) = EPC * EF

Hazard Quotient (HQ_{comp}) = ADE / RfC

Cumulative Hazard Index (HI) = Σ HQ_{comp}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Resident
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Inhalation of Indoor Air

Cancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC)	Cancer Exposure Factor (EF)	Lifetime Average Daily Dose (LADE)	Inhalation Unit Risk (IUR)	Excess Lifetime Cancer Risk (ELCR)
		mg/m ³		mg/m ³	(mg/m ³) ⁻¹	
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	8.92E-01	4.11E-01	3.67E-01	--	NC
1,1-Dichloroethane	75-34-3	1.21E-02	4.11E-01	4.97E-03	--	NC
1,1-Dichloroethene	75-35-4	1.56E-02	4.11E-01	6.41E-03	--	NC
1,2,4-Trimethylbenzene	95-63-6	2.99E-03	4.11E-01	1.23E-03	--	NC
1,2-Dichloroethane	107-06-2	5.14E-03	4.11E-01	2.11E-03	2.60E-02	5.49E-05
cis-1,2-Dichloroethene	156-59-2	3.39E-01	4.11E-01	1.39E-01	--	NC
Ethylbenzene	100-41-4	5.68E-03	4.11E-01	2.34E-03	--	NC
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	76-13-1	1.51E-01	4.11E-01	6.21E-02	--	NC
Methylene Chloride	75-09-2	1.18E-02	4.11E-01	4.85E-03	4.70E-04	2.28E-06
Tetrachloroethene	127-18-4	1.02E+00	4.11E-01	4.19E-01	5.52E-02	2.31E-02
Toluene	108-88-3	1.86E-02	4.11E-01	7.63E-03	--	NC
trans-1,2-Dichloroethene	156-60-5	4.68E-03	4.11E-01	1.92E-03	--	NC
Trichloroethene	79-01-6	7.10E-01	4.11E-01	2.92E-01	1.70E-03	4.96E-04
Vinyl Chloride	75-01-4	6.01E-03	4.11E-01	2.47E-03	8.80E-03	2.17E-05
Xylenes (Total)	1330-20-7	2.50E-02	4.11E-01	1.03E-02	--	NC
CUMULATIVE ELCR						2.37E-02

Lifetime Average Daily Dose (LADE) = EPC * EF
Excess Lifetime Cancer Risk (ELCR_{conc}) = LADE * CSF
Cumulative ELCR = ΣELCR_{conc}

TABLE
CALCULATION OF HAZARD INDICES AND RISK ESTIMATES
Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, Massachusetts

RECEPTOR:	Future Resident
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Dermal Contact with Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC)	Noncancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF)	Average Daily Dose (ADD)	Dermal Reference Dose (RfD)	Hazard Quotient (HQ)
		mg/kg		unitless	mg/kg-day	mg/kg-day	
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	5.10E+01	4.28E-05	1.00E-01	2.18E-04	9.00E-02	2.43E-03
1,1-Dichloroethane	75-34-3	2.26E+00	4.28E-05	1.30E-01	1.26E-05	1.00E-01	1.26E-04
1,1-Dichloroethene	75-35-4	9.60E-01	4.28E-05	1.00E-01	4.11E-06	5.00E-02	8.21E-05
1,2,4-Trimethylbenzene	95-63-6	9.17E-01	4.28E-05	1.00E-02	3.93E-07	5.00E-02	7.85E-06
1,2-Dichlorobenzene	95-50-1	1.14E+00	4.28E-05	1.00E-01	4.88E-06	9.00E-02	5.42E-05
1,2-Dichloroethane	107-06-2	1.86E-01	4.28E-05	1.00E-01	7.95E-07	2.00E-02	3.98E-05
1,3,5-Trimethylbenzene	108-67-8	4.98E-01	4.28E-05	1.00E-02	2.13E-07	5.00E-02	4.26E-06
1,4-Dichlorobenzene	106-46-7	2.21E-01	4.28E-05	1.00E-01	9.45E-07	9.00E-02	1.05E-05
2-Butanone	78-93-3	4.55E-02	4.28E-05	1.00E-01	1.95E-07	6.00E-01	3.25E-07
4-Isopropyltoluene	99-87-6	1.51E+00	4.28E-05	1.00E-02	6.47E-07	1.00E-01	6.47E-06
Acetone	67-64-1	4.59E-02	4.28E-05	1.00E-01	1.96E-07	9.00E-01	2.18E-07
Bromoform	75-25-2	3.25E-03	4.28E-05	1.10E-01	1.53E-08	2.00E-02	7.65E-07
Carbon Disulfide	75-15-0	3.09E-02	4.28E-05	1.00E-02	1.32E-08	1.00E-01	1.32E-07
Chlorobenzene	108-90-7	9.37E-02	4.28E-05	1.00E-02	4.01E-08	2.00E-02	2.01E-06
Chloroethane	75-00-3	3.70E-03	4.28E-05	1.00E-02	1.58E-09	4.00E-01	3.96E-09
cis-1,2-Dichloroethene	156-59-2	4.47E+00	4.28E-05	1.00E-01	1.91E-05	1.00E-02	1.91E-03
Ethylbenzene	100-41-4	6.03E+00	4.28E-05	2.00E-01	5.16E-05	1.00E-01	5.16E-04
Isopropylbenzene	98-82-8	1.21E-01	4.28E-05	1.00E-02	5.20E-08	1.00E-01	5.20E-07
Methyl tert butyl ether	1634-04-4	2.33E-03	4.28E-05	1.00E-01	9.99E-09	1.00E-01	9.99E-08
Methylene Chloride	75-09-2	4.36E-01	4.28E-05	1.00E-01	1.87E-06	6.00E-02	3.11E-05
Naphthalene	91-20-3	8.26E-01	4.28E-05	1.00E-01	3.54E-06	2.00E-02	1.77E-04
n-Butylbenzene	104-51-8	3.22E-01	4.28E-05	1.00E-02	1.38E-07	4.00E-02	3.45E-06
n-Propylbenzene	103-65-1	3.85E-01	4.28E-05	1.00E-02	1.65E-07	4.00E-02	4.12E-06
sec-Butylbenzene	135-98-8	3.93E-01	4.28E-05	1.00E-02	1.68E-07	4.00E-02	4.20E-06
Tetrachloroethene	127-18-4	5.47E+01	4.28E-05	1.00E-01	2.34E-04	1.00E-02	2.34E-02
Toluene	108-88-3	2.04E+01	4.28E-05	1.20E-01	1.05E-04	8.00E-02	1.31E-03
trans-1,2-Dichloroethene	156-60-5	5.35E-03	4.28E-05	1.00E-01	2.29E-08	2.00E-02	1.14E-06
Trichloroethene	79-01-6	4.38E+01	4.28E-05	1.00E-01	1.87E-04	2.00E-03	9.37E-02
Vinyl Chloride	75-01-4	2.56E-01	4.28E-05	1.00E-01	1.09E-06	3.00E-03	3.65E-04
Xylenes (Total)	1330-20-7	1.27E+01	4.28E-05	1.20E-01	6.53E-05	2.00E-01	3.26E-04
Semi-volatile Organic Compounds (SVOCs)							
2-Methylnaphthalene	91-57-6	2.95E-01	4.28E-05	1.00E-01	1.26E-06	4.00E-03	3.15E-04
Acenaphthene	83-32-9	3.86E-01	4.28E-05	1.00E-01	1.65E-06	6.00E-02	2.75E-05
Anthracene	120-12-7	6.30E-01	4.28E-05	1.00E-01	2.70E-06	3.00E-01	8.99E-06
Benzo(a)anthracene	56-55-3	1.69E+00	4.28E-05	2.00E-02	1.44E-06	3.00E-02	4.81E-05
Benzo(a)pyrene	50-32-8	1.56E+00	4.28E-05	2.00E-02	1.33E-06	3.00E-02	4.44E-05
Benzo(b)fluoranthene	205-99-2	1.56E+00	4.28E-05	2.00E-02	1.34E-06	3.00E-02	4.46E-05
Benzo(g,h,i)perylene	191-24-2	1.37E+00	4.28E-05	1.00E-01	5.87E-06	3.00E-02	1.96E-04
Benzo(k)fluoranthene	207-08-9	1.21E+00	4.28E-05	2.00E-02	1.04E-06	3.00E-02	3.46E-05
Chrysene	218-01-9	1.84E+00	4.28E-05	2.00E-02	1.57E-06	3.00E-02	5.24E-05
Dibenz(a,h)anthracene	53-70-3	3.08E-01	4.28E-05	2.00E-02	2.63E-07	3.00E-02	8.78E-06
Fluoranthene	206-44-0	3.28E+00	4.28E-05	1.00E-01	1.40E-05	4.00E-02	3.51E-04
Indeno(1,2,3-cd)pyrene	193-39-5	9.93E-01	4.28E-05	2.00E-02	8.50E-07	3.00E-02	2.83E-05
Phenanthrene	85-01-8	2.75E+00	4.28E-05	1.00E-01	1.18E-05	3.00E-02	3.93E-04
Pyrene	129-00-0	2.73E+00	4.28E-05	1.00E-01	1.17E-05	3.00E-02	3.90E-04
Petroleum Hydrocarbons							
C11-C22 Aromatic Hydrocarbons	NA c11-c22	1.01E+02	4.28E-05	1.00E-01	4.30E-04	3.00E-02	1.43E-02
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.01E+02	4.28E-05	1.00E-01	4.33E-04	2.00E+00	2.17E-04
C5-C8 Aliphatic Hydrocarbons	NA c5-8	4.37E+01	4.28E-05	1.00E+00	1.87E-03	4.00E-02	4.68E-02
C9-C10 Aromatic Hydrocarbons	NA c9-10	2.20E+01	4.28E-05	5.00E-01	4.72E-04	3.00E-02	1.57E-02
C9-C12 Aliphatic Hydrocarbons	NA c9-12	1.85E+01	4.28E-05	5.00E-01	3.96E-04	1.00E-01	3.96E-03
C9-C18 Aliphatic Hydrocarbons	NA c9-18	3.38E+01	4.28E-05	5.00E-01	7.24E-04	1.00E-01	7.24E-03
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	3.09E+00	4.28E-05	1.60E-01	2.12E-05	2.00E-05	1.06E+00
Aroclor 1232	11141-16-5	4.83E-01	4.28E-05	1.60E-01	3.31E-06	2.00E-05	1.65E-01
Inorganics							
Barium, Total	7440-39-3	4.41E+01	4.28E-05	5.00E-02	9.43E-05	1.40E-02	6.74E-03
Chromium, Total	7440-47-3	1.68E+01	4.28E-05	9.00E-02	6.46E-05	7.50E-05	8.61E-01
Mercury, Total	7439-97-6	6.50E-01	4.28E-05	5.00E-02	1.39E-06	3.00E-04	4.64E-03
Silver, Total	7440-22-4	6.53E-01	4.28E-05	2.50E-01	6.98E-06	2.00E-04	3.49E-02
CUMULATIVE HAZARD INDEX							2.35E+00

Average Daily Dose (ADD) = EPC * EF * RAF
Hazard Quotient (HQ_{conc}) = ADD / RfD
Cumulative Hazard Index (HI) = Σ HQ_{conc}

TABLE
CALCULATION OF HAZARD INDICES AND RISK ESTIMATES
Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, Massachusetts

RECEPTOR:	Future Resident
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Dermal Contact with Soil

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Dermal Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	5.10E+01	4.10E-06	1.00E-01	2.09E-05	--	NC
1,1-Dichloroethane	75-34-3	2.26E+00	4.10E-06	1.30E-01	1.20E-06	--	NC
1,1-Dichloroethene	75-35-4	9.60E-01	4.10E-06	1.00E-01	3.93E-07	--	NC
1,2,4-Trimethylbenzene	95-63-6	9.17E-01	4.10E-06	1.00E-02	3.76E-08	--	NC
1,2-Dichlorobenzene	95-50-1	1.14E+00	4.10E-06	1.00E-01	4.67E-07	--	NC
1,2-Dichloroethane	107-06-2	1.86E-01	4.10E-06	1.00E-01	7.61E-08	9.10E-02	6.92E-09
1,3,5-Trimethylbenzene	108-67-8	4.98E-01	4.10E-06	1.00E-02	2.04E-08	--	NC
1,4-Dichlorobenzene	106-46-7	2.21E-01	4.10E-06	1.00E-01	9.05E-08	2.40E-02	2.17E-09
2-Butanone	78-93-3	4.55E-02	4.10E-06	1.00E-01	1.86E-08	--	NC
4-Isopropyltoluene	99-87-6	1.51E+00	4.10E-06	1.00E-02	6.19E-08	--	NC
Acetone	67-64-1	4.59E-02	4.10E-06	1.00E-01	1.88E-08	--	NC
Bromoform	75-25-2	3.25E-03	4.10E-06	1.10E-01	1.46E-09	7.90E-03	1.16E-11
Carbon Disulfide	75-15-0	3.09E-02	4.10E-06	1.00E-02	1.26E-09	--	NC
Chlorobenzene	108-90-7	9.37E-02	4.10E-06	1.00E-02	3.84E-09	--	NC
Chloroethane	75-00-3	3.70E-03	4.10E-06	1.00E-02	1.52E-10	--	NC
cis-1,2-Dichloroethene	156-59-2	4.47E+00	4.10E-06	1.00E-01	1.83E-06	--	NC
Ethylbenzene	100-41-4	6.03E+00	4.10E-06	2.00E-01	4.94E-06	--	NC
Isopropylbenzene	98-82-8	1.21E-01	4.10E-06	1.00E-02	4.98E-09	--	NC
Methyl tert butyl ether	1634-04-4	2.33E-03	4.10E-06	1.00E-01	9.56E-10	--	NC
Methylene Chloride	75-09-2	4.36E-01	4.10E-06	1.00E-01	1.79E-07	7.50E-03	1.34E-09
Naphthalene	91-20-3	8.26E-01	4.10E-06	1.00E-01	3.38E-07	--	NC
n-Butylbenzene	104-51-8	3.22E-01	4.10E-06	1.00E-02	1.32E-08	--	NC
n-Propylbenzene	103-65-1	3.85E-01	4.10E-06	1.00E-02	1.58E-08	--	NC
sec-Butylbenzene	135-98-8	3.93E-01	4.10E-06	1.00E-02	1.61E-08	--	NC
Tetrachloroethene	127-18-4	5.47E+01	4.10E-06	1.00E-01	2.24E-05	5.10E-02	1.14E-06
Toluene	108-88-3	2.04E+01	4.10E-06	1.20E-01	1.00E-05	--	NC
trans-1,2-Dichloroethene	156-60-5	5.35E-03	4.10E-06	1.00E-01	2.19E-09	--	NC
Trichloroethene	79-01-6	4.38E-01	4.10E-06	1.00E-01	1.79E-05	1.10E-02	1.97E-07
Vinyl Chloride	75-01-4	2.56E-01	4.10E-06	1.00E-01	1.05E-07	1.50E+00	1.57E-07
Xylenes (Total)	1330-20-7	1.27E+01	4.10E-06	1.20E-01	6.25E-06	--	NC
Semi-volatile Organic Compounds (SVOCs)							
2-Methylnaphthalene	91-57-6	2.95E-01	4.10E-06	1.00E-01	1.21E-07	--	NC
Acenaphthene	83-32-9	3.86E-01	4.10E-06	1.00E-01	1.58E-07	--	NC
Anthracene	120-12-7	6.30E-01	4.10E-06	1.00E-01	2.58E-07	--	NC
Benzo(a)anthracene	56-55-3	1.69E+00	4.10E-06	2.00E-02	1.38E-07	7.30E-01	1.01E-07
Benzo(a)pyrene	50-32-8	1.56E+00	4.10E-06	2.00E-02	1.27E-07	7.30E+00	9.30E-07
Benzo(b)fluoranthene	205-99-2	1.56E+00	4.10E-06	2.00E-02	1.28E-07	7.30E-01	9.35E-08
Benzo(g,h,i)perylene	191-24-2	1.37E+00	4.10E-06	1.00E-01	5.62E-07	--	NC
Benzo(k)fluoranthene	207-08-9	1.21E+00	4.10E-06	2.00E-02	9.95E-08	7.30E-02	7.26E-09
Chrysene	218-01-9	1.84E+00	4.10E-06	2.00E-02	1.50E-07	7.30E-02	1.10E-08
Di benzo(a,h)anthracene	53-70-3	3.08E-01	4.10E-06	2.00E-02	2.52E-08	7.30E+00	1.84E-07
Fluoranthene	206-44-0	3.28E+00	4.10E-06	1.00E-01	1.34E-06	--	NC
Indeno(1,2,3-cd)pyrene	193-39-5	9.93E-01	4.10E-06	2.00E-02	8.13E-08	7.30E-01	5.94E-08
Phenanthrene	85-01-8	2.75E+00	4.10E-06	1.00E-01	1.13E-06	--	NC
Pyrene	129-00-0	2.73E+00	4.10E-06	1.00E-01	1.12E-06	--	NC
Petroleum Hydrocarbons							
C11-C22 Aromatic Hydrocarbons	NA c11-c22	1.01E+02	4.10E-06	1.00E-01	4.12E-05	--	NC
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.01E+02	4.10E-06	1.00E-01	4.14E-05	--	NC
C5-C8 Aliphatic Hydrocarbons	NA c5-8	4.37E+01	4.10E-06	1.00E+00	1.79E-04	--	NC
C9-C10 Aromatic Hydrocarbons	NA c9-10	2.20E+01	4.10E-06	5.00E-01	4.51E-05	--	NC
C9-C12 Aliphatic Hydrocarbons	NA c9-12	1.85E+01	4.10E-06	5.00E-01	3.79E-05	--	NC
C9-C18 Aliphatic Hydrocarbons	NA c9-18	3.38E+01	4.10E-06	5.00E-01	6.93E-05	--	NC
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	3.09E+00	4.10E-06	1.60E-01	2.03E-06	2.00E+00	4.05E-06
Aroclor 1232	11141-16-5	4.83E-01	4.10E-06	1.60E-01	3.17E-07	2.00E+00	6.33E-07
Inorganics							
Barium, Total	7440-39-3	4.41E+01	4.10E-06	5.00E-02	9.02E-06	--	NC
Chromium, Total	7440-47-3	1.68E+01	4.10E-06	9.00E-02	6.18E-06	--	NC
Mercury, Total	7439-97-6	6.50E-01	4.10E-06	5.00E-02	1.33E-07	--	NC
Silver, Total	7440-22-4	6.53E-01	4.10E-06	2.50E-01	6.68E-07	--	NC
CUMULATIVE ELCR							7.58E-06

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF
Excess Lifetime Cancer Risk (ELCR_{comp}) = LADD * CSF
Cumulative ELCR = ΣELCR_{comp}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Resident
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Incidental Ingestion of Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Average Daily Dose (ADD) mg/kg-day	Oral Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	5.10E+01	6.34E-06	1.00E+00	3.23E-04	9.00E-02	3.59E-03
1,1-Dichloroethane	75-34-3	2.26E+00	6.34E-06	1.30E+00	1.86E-05	1.00E-01	1.86E-04
1,1-Dichloroethene	75-35-4	9.60E-01	6.34E-06	1.00E+00	6.08E-06	5.00E-02	1.22E-04
1,2,4-Trimethylbenzene	95-63-6	9.17E-01	6.34E-06	1.00E+00	5.81E-06	5.00E-02	1.16E-04
1,2-Dichlorobenzene	95-50-1	1.14E+00	6.34E-06	1.00E+00	7.22E-06	9.00E-02	8.03E-05
1,2-Dichloroethane	107-06-2	1.86E-01	6.34E-06	1.00E+00	1.18E-06	2.00E-02	5.89E-05
1,3,5-Trimethylbenzene	108-67-8	4.98E-01	6.34E-06	1.00E+00	3.15E-06	5.00E-02	6.31E-05
1,4-Dichlorobenzene	106-46-7	2.21E-01	6.34E-06	1.00E+00	1.40E-06	9.00E-02	1.56E-05
2-Butanone	78-93-3	4.55E-02	6.34E-06	1.00E+00	2.88E-07	6.00E-01	4.81E-07
4-Isopropyltoluene	99-87-6	1.51E+00	6.34E-06	1.00E+00	9.58E-06	1.00E-01	9.58E-05
Acetone	67-64-1	4.59E-02	6.34E-06	1.00E+00	2.91E-07	9.00E-01	3.23E-07
Bromoform	75-25-2	3.25E-03	6.34E-06	1.00E+00	2.06E-08	2.00E-02	1.03E-06
Carbon Disulfide	75-15-0	3.09E-02	6.34E-06	1.00E+00	1.96E-07	1.00E-01	1.96E-06
Chlorobenzene	108-90-7	9.37E-02	6.34E-06	1.00E+00	5.94E-07	2.00E-02	2.97E-05
Chloroethane	75-00-3	3.70E-03	6.34E-06	1.00E+00	2.35E-08	4.00E-01	5.86E-08
cis-1,2-Dichloroethene	156-59-2	4.47E+00	6.34E-06	1.00E+00	2.83E-05	1.00E-02	2.83E-03
Ethylbenzene	100-41-4	6.03E+00	6.34E-06	1.00E+00	3.82E-05	1.00E-01	3.82E-04
Isopropylbenzene	98-82-8	1.21E-01	6.34E-06	1.00E+00	7.70E-07	1.00E-01	7.70E-06
Methyl tert butyl ether	1634-04-4	2.33E-03	6.34E-06	1.00E+00	1.48E-08	1.00E-01	1.48E-07
Methylene Chloride	75-09-2	4.36E-01	6.34E-06	1.00E+00	2.76E-06	6.00E-02	4.60E-05
Naphthalene	91-20-3	8.26E-01	6.34E-06	3.60E-01	1.89E-06	2.00E-02	9.43E-05
n-Butylbenzene	104-51-8	3.22E-01	6.34E-06	1.00E+00	2.04E-06	4.00E-02	5.11E-05
n-Propylbenzene	103-65-1	3.85E-01	6.34E-06	1.00E+00	2.44E-06	4.00E-02	6.10E-05
sec-Butylbenzene	135-98-8	3.93E-01	6.34E-06	1.00E+00	2.49E-06	4.00E-02	6.22E-05
Tetrachloroethene	127-18-4	5.47E+01	6.34E-06	1.00E+00	3.47E-04	1.00E-02	3.47E-02
Toluene	108-88-3	2.04E+01	6.34E-06	1.00E+00	1.30E-04	8.00E-02	1.62E-03
trans-1,2-Dichloroethene	156-60-5	5.35E-03	6.34E-06	1.00E+00	3.39E-08	2.00E-02	1.70E-06
Trichloroethene	79-01-6	4.38E+01	6.34E-06	1.00E+00	2.77E-04	2.00E-03	1.39E-01
Vinyl Chloride	75-01-4	2.56E-01	6.34E-06	1.00E+00	1.62E-06	3.00E-03	5.40E-04
Xylenes (Total)	1330-20-7	1.27E+01	6.34E-06	1.00E+00	8.06E-05	2.00E-01	4.03E-04
Semi-volatile Organic Compounds (SVOCs)							
2-Methylnaphthalene	91-57-6	2.95E-01	6.34E-06	3.60E-01	6.72E-07	4.00E-03	1.68E-04
Acenaphthene	83-32-9	3.86E-01	6.34E-06	3.60E-01	8.81E-07	6.00E-02	1.47E-05
Anthracene	120-12-7	6.30E-01	6.34E-06	3.60E-01	1.44E-06	3.00E-01	4.79E-06
Benzo(a)anthracene	56-55-3	1.69E+00	6.34E-06	2.80E-01	2.99E-06	3.00E-02	9.97E-05
Benzo(a)pyrene	50-32-8	1.56E+00	6.34E-06	2.80E-01	2.76E-06	3.00E-02	9.20E-05
Benzo(b)fluoranthene	205-99-2	1.56E+00	6.34E-06	2.80E-01	2.77E-06	3.00E-02	9.25E-05
Benzo(g,h,i)perylene	191-24-2	1.37E+00	6.34E-06	3.60E-01	3.13E-06	3.00E-02	1.04E-04
Benzo(k)fluoranthene	207-08-9	1.21E+00	6.34E-06	2.80E-01	2.15E-06	3.00E-02	7.18E-05
Chrysene	218-01-9	1.84E+00	6.34E-06	2.80E-01	3.26E-06	3.00E-02	1.09E-04
Dibenzo(a,h)anthracene	53-70-3	3.08E-01	6.34E-06	2.80E-01	5.46E-07	3.00E-02	1.82E-05
Fluoranthene	206-44-0	3.28E+00	6.34E-06	3.60E-01	7.48E-06	4.00E-02	1.87E-04
Indeno(1,2,3-cd)pyrene	193-39-5	9.93E-01	6.34E-06	2.80E-01	1.76E-06	3.00E-02	5.87E-05
Phenanthrene	85-01-8	2.75E+00	6.34E-06	3.60E-01	6.28E-06	3.00E-02	2.09E-04
Pyrene	129-00-0	2.73E+00	6.34E-06	3.60E-01	6.24E-06	3.00E-02	2.08E-04
Petroleum Hydrocarbons							
C11-C22 Aromatic Hydrocarbons	NA c11-c22	1.01E+02	6.34E-06	3.60E-01	2.29E-04	3.00E-02	7.64E-03
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.01E+02	6.34E-06	1.00E+00	6.41E-04	2.00E+00	3.21E-04
C5-C8 Aliphatic Hydrocarbons	NA c5-8	4.37E+01	6.34E-06	1.00E+00	2.77E-04	4.00E-02	6.92E-03
C9-C10 Aromatic Hydrocarbons	NA c9-10	2.20E+01	6.34E-06	1.00E+00	1.40E-04	3.00E-02	4.66E-03
C9-C12 Aliphatic Hydrocarbons	NA c9-12	1.85E+01	6.34E-06	1.00E+00	1.17E-04	1.00E-01	1.17E-03
C9-C18 Aliphatic Hydrocarbons	NA c9-18	3.38E+01	6.34E-06	1.00E+00	2.15E-04	1.00E-01	2.15E-03
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	3.09E+00	6.34E-06	8.50E-01	1.67E-05	2.00E-05	8.33E-01
Aroclor 1232	11141-16-5	4.83E-01	6.34E-06	8.50E-01	2.60E-06	2.00E-05	1.30E-01
Inorganics							
Barium, Total	7440-39-3	4.41E+01	6.34E-06	1.00E+00	2.79E-04	2.00E-01	1.40E-03
Chromium, Total	7440-47-3	1.68E+01	6.34E-06	1.00E+00	1.06E-04	3.00E-03	3.54E-02
Mercury, Total	7439-97-6	6.50E-01	6.34E-06	1.00E+00	4.12E-06	3.00E-04	1.37E-02
Silver, Total	7440-22-4	6.53E-01	6.34E-06	1.00E+00	4.14E-06	5.00E-03	8.27E-04
CUMULATIVE HAZARD INDEX							1.22E+00

Average Daily Dose (ADD) = EPC * EF * RAF
Hazard Quotient (HQ_{avg}) = ADD / RfD
Cumulative Hazard Index (HI) = Σ HQ_{avg}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Resident
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Incidental Ingestion of Soil

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Oral Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	5.10E+01	5.01E-07	1.00E+00	2.56E-05	--	NC
1,1-Dichloroethane	75-34-3	2.26E+00	5.01E-07	1.30E+00	1.47E-06	--	NC
1,1-Dichloroethene	75-35-4	9.60E-01	5.01E-07	1.00E+00	4.81E-07	--	NC
1,2,4-Trimethylbenzene	95-63-6	9.17E-01	5.01E-07	1.00E+00	4.60E-07	--	NC
1,2-Dichlorobenzene	95-50-1	1.14E+00	5.01E-07	1.00E+00	5.71E-07	--	NC
1,2-Dichloroethane	107-06-2	1.86E-01	5.01E-07	1.00E+00	9.31E-08	9.10E-02	8.47E-09
1,3,5-Trimethylbenzene	108-67-8	4.98E-01	5.01E-07	1.00E+00	2.49E-07	--	NC
1,4-Dichlorobenzene	106-46-7	2.21E-01	5.01E-07	1.00E+00	1.11E-07	2.40E-02	2.66E-09
2-Butanone	78-93-3	4.55E-02	5.01E-07	1.00E+00	2.28E-08	--	NC
4-Isopropyltoluene	99-87-6	1.51E+00	5.01E-07	1.00E+00	7.58E-07	--	NC
Acetone	67-64-1	4.59E-02	5.01E-07	1.00E+00	2.30E-08	--	NC
Bromoform	75-25-2	3.25E-03	5.01E-07	1.00E+00	1.63E-09	7.90E-03	1.29E-11
Carbon Disulfide	75-15-0	3.09E-02	5.01E-07	1.00E+00	1.55E-08	--	NC
Chlorobenzene	108-90-7	9.37E-02	5.01E-07	1.00E+00	4.70E-08	--	NC
Chloroethane	75-00-3	3.70E-03	5.01E-07	1.00E+00	1.85E-09	--	NC
cis-1,2-Dichloroethene	156-59-2	4.47E+00	5.01E-07	1.00E+00	2.24E-06	--	NC
Ethylbenzene	100-41-4	6.03E+00	5.01E-07	1.00E+00	3.02E-06	--	NC
Isopropylbenzene	98-82-8	1.21E-01	5.01E-07	1.00E+00	6.09E-08	--	NC
Methyl tert butyl ether	1634-04-4	2.33E-03	5.01E-07	1.00E+00	1.17E-09	--	NC
Methylene Chloride	75-09-2	4.36E-01	5.01E-07	1.00E+00	2.18E-07	7.50E-03	1.64E-09
Naphthalene	91-20-3	8.26E-01	5.01E-07	3.60E-01	1.49E-07	--	NC
n-Butylbenzene	104-51-8	3.22E-01	5.01E-07	1.00E+00	1.62E-07	--	NC
n-Propylbenzene	103-65-1	3.85E-01	5.01E-07	1.00E+00	1.93E-07	--	NC
sec-Butylbenzene	135-98-8	3.93E-01	5.01E-07	1.00E+00	1.97E-07	--	NC
Tetrachloroethene	127-18-4	5.47E+01	5.01E-07	1.00E+00	2.74E-05	5.10E-02	1.40E-06
Toluene	108-88-3	2.04E+01	5.01E-07	1.00E+00	1.02E-05	--	NC
trans-1,2-Dichloroethene	156-60-5	5.35E-03	5.01E-07	1.00E+00	2.68E-09	--	NC
Trichloroethene	79-01-6	4.38E+01	5.01E-07	1.00E+00	2.19E-05	1.10E-02	2.41E-07
Vinyl Chloride	75-01-4	2.56E-01	5.01E-07	1.00E+00	1.28E-07	1.50E+00	1.92E-07
Xylenes (Total)	1330-20-7	1.27E+01	5.01E-07	1.00E+00	6.37E-06	--	NC
Semi-volatile Organic Compounds (SVOCs)							
2-Methylnaphthalene	91-57-6	2.95E-01	5.01E-07	3.60E-01	5.32E-08	--	NC
Acenaphthene	83-32-9	3.86E-01	5.01E-07	3.60E-01	6.97E-08	--	NC
Anthracene	120-12-7	6.30E-01	5.01E-07	3.60E-01	1.14E-07	--	NC
Benzo(a)anthracene	56-55-3	1.69E+00	5.01E-07	2.80E-01	2.36E-07	7.30E-01	1.73E-07
Benzo(a)pyrene	50-32-8	1.56E+00	5.01E-07	2.80E-01	2.18E-07	7.30E+00	1.59E-06
Benzo(b)fluoranthene	205-99-2	1.56E+00	5.01E-07	2.80E-01	2.19E-07	7.30E-01	1.60E-07
Benzo(g,h,i)perylene	191-24-2	1.37E+00	5.01E-07	3.60E-01	2.47E-07	--	NC
Benzo(k)fluoranthene	207-08-9	1.21E+00	5.01E-07	2.80E-01	1.70E-07	7.30E-02	1.24E-08
Chrysene	218-01-9	1.84E+00	5.01E-07	2.80E-01	2.58E-07	7.30E-02	1.88E-08
Dibenzo(a,h)anthracene	53-70-3	3.08E-01	5.01E-07	2.80E-01	4.32E-08	7.30E+00	3.15E-07
Fluoranthene	206-44-0	3.28E+00	5.01E-07	3.60E-01	5.92E-07	--	NC
Indeno(1,2,3-cd)pyrene	193-39-5	9.93E-01	5.01E-07	2.80E-01	1.39E-07	7.30E-01	1.02E-07
Phenanthrene	85-01-8	2.75E+00	5.01E-07	3.60E-01	4.97E-07	--	NC
Pyrene	129-00-0	2.73E+00	5.01E-07	3.60E-01	4.93E-07	--	NC
Petroleum Hydrocarbons							
C11-C22 Aromatic Hydrocarbons	NA c11-c22	1.01E+02	5.01E-07	3.60E-01	1.81E-05	--	NC
C19-C36 Aliphatic Hydrocarbons	NA c19-36	1.01E+02	5.01E-07	1.00E+00	5.07E-05	--	NC
C5-C8 Aliphatic Hydrocarbons	NA c5-8	4.37E+01	5.01E-07	1.00E+00	2.19E-05	--	NC
C9-C10 Aromatic Hydrocarbons	NA c9-10	2.20E+01	5.01E-07	1.00E+00	1.10E-05	--	NC
C9-C12 Aliphatic Hydrocarbons	NA c9-12	1.85E+01	5.01E-07	1.00E+00	9.27E-06	--	NC
C9-C18 Aliphatic Hydrocarbons	NA c9-18	3.38E+01	5.01E-07	1.00E+00	1.70E-05	--	NC
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	3.09E+00	5.01E-07	8.50E-01	1.32E-06	2.00E+00	2.64E-06
Aroclor 1232	11141-16-5	4.83E-01	5.01E-07	8.50E-01	2.06E-07	2.00E+00	4.12E-07
Inorganics							
Barium, Total	7440-39-3	4.41E+01	5.01E-07	1.00E+00	2.21E-05	--	NC
Chromium, Total	7440-47-3	1.68E+01	5.01E-07	1.00E+00	8.40E-06	--	NC
Mercury, Total	7439-97-6	6.50E-01	5.01E-07	1.00E+00	3.26E-07	--	NC
Silver, Total	7440-22-4	6.53E-01	5.01E-07	1.00E+00	3.27E-07	--	NC
CUMULATIVE ELCR							7.27E-06

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF
Excess Lifetime Cancer Risk (ELCR_{topc}) = LADD * CSF
Cumulative ELCR = ΣELCR_{topc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Resident
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Inhalation of Fugitive Dust

Noncancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC)	Noncancer Exposure Factor (EF)	Average Daily Exposure (ADE)	Inhalation Reference Concentration (RfC)	Hazard Quotient (HQ)
		mg/m ³		mg/m ³	mg/m ³	
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	1.63E-06	3.49E-02	5.70E-08	5.20E+00	1.10E-08
1,1-Dichloroethane	75-34-3	7.23E-08	3.49E-02	2.52E-09	5.00E-01	5.05E-09
1,1-Dichloroethene	75-35-4	3.07E-08	3.49E-02	1.07E-09	2.00E-01	5.36E-09
1,2,4-Trimethylbenzene	95-63-6	2.94E-08	3.49E-02	1.03E-09	6.00E-03	1.71E-07
1,2-Dichlorobenzene	95-50-1	3.65E-08	3.49E-02	1.27E-09	2.00E-01	6.37E-09
1,2-Dichloroethane	107-06-2	5.94E-09	3.49E-02	2.08E-10	5.50E-02	3.78E-09
1,3,5-Trimethylbenzene	108-67-8	1.59E-08	3.49E-02	5.56E-10	6.00E-03	9.27E-08
1,4-Dichlorobenzene	106-46-7	7.07E-09	3.49E-02	2.47E-10	8.00E-01	3.09E-10
2-Butanone	78-93-3	1.46E-09	3.49E-02	5.09E-11	5.00E+00	1.02E-11
4-Isopropyltoluene	99-87-6	4.84E-08	3.49E-02	1.69E-09	4.00E-01	4.22E-09
Acetone	67-64-1	1.47E-09	3.49E-02	5.13E-11	8.00E-01	6.41E-11
Bromoform	75-25-2	1.04E-10	3.49E-02	3.63E-12	7.00E-02	5.19E-11
Carbon Disulfide	75-15-0	9.87E-10	3.49E-02	3.45E-11	7.00E-01	4.93E-11
Chlorobenzene	108-90-7	3.00E-09	3.49E-02	1.05E-10	2.00E-02	5.24E-09
Chloroethane	75-00-3	1.18E-10	3.49E-02	4.14E-12	1.00E+01	4.14E-13
cis-1,2-Dichloroethene	156-59-2	1.43E-07	3.49E-02	5.00E-09	3.50E-02	1.43E-07
Ethylbenzene	100-41-4	1.93E-07	3.49E-02	6.74E-09	1.00E+00	6.74E-09
Isopropylbenzene	98-82-8	3.89E-09	3.49E-02	1.36E-10	4.00E-01	3.39E-10
Methyl tert butyl ether	1634-04-4	7.47E-11	3.49E-02	2.61E-12	3.00E+00	8.69E-13
Methylene Chloride	75-09-2	1.39E-08	3.49E-02	4.87E-10	3.00E+00	1.62E-10
Naphthalene	91-20-3	2.64E-08	3.49E-02	9.24E-10	3.00E-03	3.08E-07
n-Butylbenzene	104-51-8	1.03E-08	3.49E-02	3.60E-10	1.40E-01	2.57E-09
n-Propylbenzene	103-65-1	1.23E-08	3.49E-02	4.30E-10	1.40E-01	3.07E-09
sec-Butylbenzene	135-98-8	1.26E-08	3.49E-02	4.39E-10	1.40E-01	3.14E-09
Tetrachloroethene	127-18-4	1.75E-06	3.49E-02	6.12E-08	4.60E+00	1.33E-08
Toluene	108-88-3	6.54E-07	3.49E-02	2.29E-08	5.00E+00	4.57E-09
trans-1,2-Dichloroethene	156-60-5	1.71E-10	3.49E-02	5.98E-12	7.00E-02	8.54E-11
Trichloroethene	79-01-6	1.40E-06	3.49E-02	4.89E-08	1.80E-01	2.72E-07
Vinyl Chloride	75-01-4	8.18E-09	3.49E-02	2.86E-10	1.00E-01	2.86E-09
Xylenes (Total)	1330-20-7	4.07E-07	3.49E-02	1.42E-08	1.00E-01	1.42E-07
Semi-volatile Organic Compounds (SVOCs)						
2-Methylnaphthalene	91-57-6	9.43E-09	3.49E-02	3.29E-10	5.00E-02	6.59E-09
Acenaphthene	83-32-9	1.24E-08	3.49E-02	4.32E-10	5.00E-02	8.63E-09
Anthracene	120-12-7	2.02E-08	3.49E-02	7.05E-10	5.00E-02	1.41E-08
Benzo(a)anthracene	56-55-3	5.39E-08	3.49E-02	1.88E-09	5.00E-02	3.77E-08
Benzo(a)pyrene	50-32-8	4.98E-08	3.49E-02	1.74E-09	5.00E-02	3.48E-08
Benzo(b)fluoranthene	205-99-2	5.00E-08	3.49E-02	1.75E-09	5.00E-02	3.50E-08
Benzo(g,h,i)perylene	191-24-2	4.39E-08	3.49E-02	1.53E-09	5.00E-02	3.07E-08
Benzo(k)fluoranthene	207-08-9	3.89E-08	3.49E-02	1.36E-09	5.00E-02	2.71E-08
Chrysene	218-01-9	5.87E-08	3.49E-02	2.05E-09	5.00E-02	4.10E-08
Dibenzo(a,h)anthracene	53-70-3	9.85E-09	3.49E-02	3.44E-10	5.00E-02	6.88E-09
Fluoranthene	206-44-0	1.05E-07	3.49E-02	3.67E-09	5.00E-02	7.33E-08
Indeno(1,2,3-cd)pyrene	193-39-5	3.18E-08	3.49E-02	1.11E-09	5.00E-02	2.22E-08
Phenanthrene	85-01-8	8.81E-08	3.49E-02	3.08E-09	5.00E-02	6.15E-08
Pyrene	129-00-0	8.75E-08	3.49E-02	3.06E-09	5.00E-02	6.11E-08
Petroleum Hydrocarbons						
C11-C22 Aromatic Hydrocarbons	NA c11-c22	3.22E-06	3.49E-02	1.12E-07	5.00E-02	2.25E-06
C19-C36 Aliphatic Hydrocarbons	NA c19-36	3.24E-06	3.49E-02	1.13E-07	NA	NC
C5-C8 Aliphatic Hydrocarbons	NA c5-8	1.40E-06	3.49E-02	4.88E-08	2.00E-01	2.44E-07
C9-C10 Aromatic Hydrocarbons	NA c9-10	7.05E-07	3.49E-02	2.46E-08	5.00E-02	4.93E-07
C9-C12 Aliphatic Hydrocarbons	NA c9-12	5.92E-07	3.49E-02	2.07E-08	2.00E-01	1.03E-07
C9-C18 Aliphatic Hydrocarbons	NA c9-18	1.08E-06	3.49E-02	3.78E-08	2.00E-01	1.89E-07
Polychlorinated Biphenyls (PCBs)						
Aroclor 1248	12672-29-6	9.90E-08	3.49E-02	3.46E-09	2.00E-05	1.73E-04
Aroclor 1232	11141-16-5	1.55E-08	3.49E-02	5.40E-10	2.00E-05	2.70E-05
Inorganics						
Barium, Total	7440-39-3	1.41E-06	3.49E-02	4.93E-08	5.00E-04	9.85E-05
Chromium, Total	7440-47-3	5.37E-07	3.49E-02	1.87E-08	1.00E-04	1.87E-04
Mercury, Total	7439-97-6	2.08E-08	3.49E-02	7.27E-10	3.00E-04	2.42E-06
Silver, Total	7440-22-4	2.09E-08	3.49E-02	7.29E-10	1.40E-04	5.21E-06
CUMULATIVE HAZARD INDEX						4.98E-04

Average Daily Dose (ADD) = EPC * EF
Hazard Quotient (HQ_{conc}) = ADE / RfC
Cumulative Hazard Index (HI) = Σ HQ_{conc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Resident
EXPOSURE POINT:	Site
EXPOSURE PATHWAY:	Inhalation of Fugitive Dust

Cancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Cancer Exposure Factor (EF)	Lifetime Average Daily Dose (LADE) mg/m ³	Inhalation Unit Risk (IUR) (mg/m ³) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatle Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	1.63E-06	1.50E-02	2.44E-08	--	NC
1,1-Dichloroethane	75-34-3	7.23E-08	1.50E-02	1.08E-09	--	NC
1,1-Dichloroethene	75-35-4	3.07E-08	1.50E-02	4.60E-10	--	NC
1,2,4-Trimethylbenzene	95-63-6	2.94E-08	1.50E-02	4.39E-10	--	NC
1,2-Dichlorobenzene	95-50-1	3.65E-08	1.50E-02	5.46E-10	--	NC
1,2-Dichloroethane	107-06-2	5.94E-09	1.50E-02	8.90E-11	2.60E-02	2.31E-12
1,3,5-Trimethylbenzene	108-67-8	1.59E-08	1.50E-02	2.38E-10	--	NC
1,4-Dichlorobenzene	106-46-7	7.07E-09	1.50E-02	1.06E-10	6.86E-03	7.26E-13
2-Butanone	78-93-3	1.46E-09	1.50E-02	2.18E-11	--	NC
4-Isopropyltoluene	99-87-6	4.84E-08	1.50E-02	7.24E-10	--	NC
Acetone	67-64-1	1.47E-09	1.50E-02	2.20E-11	--	NC
Bromoform	75-25-2	1.04E-10	1.50E-02	1.56E-12	1.10E-03	1.71E-15
Carbon Disulfide	75-15-0	9.87E-10	1.50E-02	1.48E-11	--	NC
Chlorobenzene	108-90-7	3.00E-09	1.50E-02	4.49E-11	--	NC
Chloroethane	75-00-3	1.18E-10	1.50E-02	1.77E-12	--	NC
cis-1,2-Dichloroethene	156-59-2	1.43E-07	1.50E-02	2.14E-09	--	NC
Ethylbenzene	100-41-4	1.93E-07	1.50E-02	2.89E-09	--	NC
Isopropylbenzene	98-82-8	3.89E-09	1.50E-02	5.82E-11	--	NC
Methyl tert butyl ether	1634-04-4	7.47E-11	1.50E-02	1.12E-12	--	NC
Methylene Chloride	75-09-2	1.39E-08	1.50E-02	2.09E-10	4.70E-04	9.82E-14
Naphthalene	91-20-3	2.64E-08	1.50E-02	3.96E-10	--	NC
n-Butylbenzene	104-51-8	1.03E-08	1.50E-02	1.54E-10	--	NC
n-Propylbenzene	103-65-1	1.23E-08	1.50E-02	1.84E-10	--	NC
sec-Butylbenzene	135-98-8	1.26E-08	1.50E-02	1.88E-10	--	NC
Tetrachloroethene	127-18-4	1.75E-06	1.50E-02	2.62E-08	5.52E-02	1.45E-09
Toluene	108-88-3	6.54E-07	1.50E-02	9.79E-09	--	NC
trans-1,2-Dichloroethene	156-60-5	1.71E-10	1.50E-02	2.56E-12	--	NC
Trichloroethene	79-01-6	1.40E-06	1.50E-02	2.10E-08	1.70E-03	3.56E-11
Vinyl Chloride	75-01-4	8.18E-09	1.50E-02	1.23E-10	8.80E-03	1.08E-12
Xylenes (Total)	1330-20-7	4.07E-07	1.50E-02	6.09E-09	--	NC
Semi-volatile Organic Compounds (SVOCs)						
2-Methylnaphthalene	91-57-6	9.43E-09	1.50E-02	1.41E-10	--	NC
Acenaphthene	83-32-9	1.24E-08	1.50E-02	1.85E-10	--	NC
Anthracene	120-12-7	2.02E-08	1.50E-02	3.02E-10	--	NC
Benzo(a)anthracene	56-55-3	5.39E-08	1.50E-02	8.07E-10	2.09E-01	1.69E-10
Benzo(a)pyrene	50-32-8	4.98E-08	1.50E-02	7.45E-10	2.09E+00	1.56E-09
Benzo(b)fluoranthene	205-99-2	5.00E-08	1.50E-02	7.49E-10	2.09E-01	1.57E-10
Benzo(g,h,i)perylene	191-24-2	4.39E-08	1.50E-02	6.57E-10	--	NC
Benzo(k)fluoranthene	207-08-9	3.89E-08	1.50E-02	5.82E-10	2.09E-02	1.22E-11
Chrysene	218-01-9	5.87E-08	1.50E-02	8.79E-10	2.09E-02	1.84E-11
Dibenzo(a,h)anthracene	53-70-3	9.85E-09	1.50E-02	1.47E-10	2.09E+00	3.08E-10
Fluoranthene	206-44-0	1.05E-07	1.50E-02	1.57E-09	--	NC
Indeno(1,2,3-cd)pyrene	193-39-5	3.18E-08	1.50E-02	4.76E-10	2.09E-01	9.94E-11
Phenanthrene	85-01-8	8.81E-08	1.50E-02	1.32E-09	--	NC
Pyrene	129-00-0	8.75E-08	1.50E-02	1.31E-09	--	NC
Petroleum Hydrocarbons						
C11-C22 Aromatic Hydrocarbons	NA c11-c22	3.22E-06	1.50E-02	4.81E-08	--	NC
C19-C36 Aliphatic Hydrocarbons	NA c19-36	3.24E-06	1.50E-02	4.85E-08	--	NC
C5-C8 Aliphatic Hydrocarbons	NA c5-8	1.40E-06	1.50E-02	2.09E-08	--	NC
C9-C10 Aromatic Hydrocarbons	NA c9-10	7.05E-07	1.50E-02	1.06E-08	--	NC
C9-C12 Aliphatic Hydrocarbons	NA c9-12	5.92E-07	1.50E-02	8.86E-09	--	NC
C9-C18 Aliphatic Hydrocarbons	NA c9-18	1.08E-06	1.50E-02	1.62E-08	--	NC
Polychlorinated Biphenyls (PCBs)						
Aroclor 1248	12672-29-6	9.90E-08	1.50E-02	1.48E-09	1.00E-01	1.48E-10
Aroclor 1232	11141-16-5	1.55E-08	1.50E-02	2.32E-10	1.00E-01	2.32E-11
Inorganics						
Barium, Total	7440-39-3	1.41E-06	1.50E-02	2.11E-08	--	NC
Chromium, Total	7440-47-3	5.37E-07	1.50E-02	8.03E-09	1.20E+01	9.64E-08
Mercury, Total	7439-97-6	2.08E-08	1.50E-02	3.11E-10	--	NC
Silver, Total	7440-22-4	2.09E-08	1.50E-02	3.13E-10	--	NC
CUMULATIVE ELCR						1.00E-07

Lifetime Average Daily Dose (LADE) = EPC * EF
Excess Lifetime Cancer Risk (ELCR_{conc}) = LADE * CSF
Cumulative ELCR = ΣELCR_{conc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Resident
EXPOSURE POINT:	Hot Spot #1
EXPOSURE PATHWAY:	Dermal Contact with Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF)	Average Daily Dose (ADD) mg/kg-day	Dermal Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
<i>Volatile Organic Compounds (VOCs)</i>							
1,1,1-Trichloroethane	71-55-6	3.00E+03	4.28E-05	1.00E-01	1.28E-02	9.00E-02	1.43E-01
Tetrachloroethene	127-18-4	1.60E+03	4.28E-05	1.00E-01	6.85E-03	1.00E-02	6.85E-01
Toluene	108-88-3	6.80E+02	4.28E-05	1.20E-01	3.49E-03	8.00E-02	4.37E-02
Trichloroethene	79-01-6	1.90E+03	4.28E-05	1.00E-01	8.13E-03	2.00E-03	4.07E+00
<i>Polychlorinated Biphenyls (PCBs)</i>							
Aroclor 1248	12672-29-6	1.70E+00	4.28E-05	1.60E-01	1.16E-05	2.00E-05	5.82E-01
Aroclor 1232	11141-16-5	--	4.28E-05	1.60E-01	NC	2.00E-05	--
CUMULATIVE HAZARD INDEX							5.52E+00

$$\text{Average Daily Dose (ADD)} = \text{EPC} * \text{EF} * \text{RAF}$$

$$\text{Hazard Quotient (HQ}_{\text{copc}}) = \text{ADD} / \text{RfD}$$

$$\text{Cumulative Hazard Index (HI)} = \Sigma \text{HQ}_{\text{copc}}$$

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Dermal Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
<i>Volatile Organic Compounds (VOCs)</i>							
1,1,1-Trichloroethane	71-55-6	3.00E+03	4.10E-06	1.00E-01	1.23E-03	--	NC
Tetrachloroethene	127-18-4	1.60E+03	4.10E-06	1.00E-01	6.55E-04	5.10E-02	3.34E-05
Toluene	108-88-3	6.80E+02	4.10E-06	1.20E-01	3.34E-04	--	NC
Trichloroethene	79-01-6	1.90E+03	4.10E-06	1.00E-01	7.78E-04	1.10E-02	8.56E-06
<i>Polychlorinated Biphenyls (PCBs)</i>							
Aroclor 1248	12672-29-6	1.70E+00	4.10E-06	1.60E-01	1.11E-06	2.00E+00	2.23E-06
Aroclor 1232	11141-16-5	--	4.10E-06	1.60E-01	NC	2.00E+00	--
CUMULATIVE ELCR							4.42E-05

$$\text{Lifetime Average Daily Dose (LADD)} = \text{EPC} * \text{EF} * \text{RAF}$$

$$\text{Excess Lifetime Cancer Risk (ELCR}_{\text{copc}}) = \text{LADD} * \text{CSF}$$

$$\text{Cumulative ELCR} = \Sigma \text{ELCR}_{\text{copc}}$$

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Resident
EXPOSURE POINT:	Hot Spot #1
EXPOSURE PATHWAY:	Incidental Ingestion of Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Noncancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Average Daily Dose (ADD) mg/kg-day	Oral Reference Dose (RfD) mg/kg-day	Hazard Quotient (HQ)
<i>Volatile Organic Compounds (VOCs)</i>							
1,1,1-Trichloroethane	71-55-6	3.00E+03	6.34E-06	1.00E+00	1.90E-02	9.00E-02	2.11E-01
Tetrachloroethene	127-18-4	1.60E+03	6.34E-06	1.00E+00	1.01E-02	1.00E-02	1.01E+00
Toluene	108-88-3	6.80E+02	6.34E-06	1.00E+00	4.31E-03	8.00E-02	5.39E-02
Trichloroethene	79-01-6	1.90E+03	6.34E-06	1.00E+00	1.20E-02	2.00E-03	6.02E+00
<i>Polychlorinated Biphenyls (PCBs)</i>							
Aroclor 1248	12672-29-6	1.70E+00	6.34E-06	8.50E-01	9.16E-06	2.00E-05	4.58E-01
Aroclor 1232	11141-16-5	--	6.34E-06	8.50E-01	NC	2.00E-05	NC
CUMULATIVE HAZARD INDEX							7.76E+00

Average Daily Dose (ADD) = EPC * EF * RAF

Hazard Quotient (HQ_{copc}) = ADD / RfD

Cumulative Hazard Index (HI) = Σ HQ_{copc}

Cancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/kg	Cancer Exposure Factor (EF)	Oral Relative Absorption Factor (RAF)	Lifetime Average Daily Dose (LADD) mg/kg-day	Oral Cancer Slope Factor (CSF) (mg/kg-day) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
<i>Volatile Organic Compounds (VOCs)</i>							
1,1,1-Trichloroethane	71-55-6	3.00E+03	5.01E-07	1.00E+00	1.50E-03	--	NC
Tetrachloroethene	127-18-4	1.60E+03	5.01E-07	1.00E+00	8.02E-04	5.10E-02	4.09E-05
Toluene	108-88-3	6.80E+02	5.01E-07	1.00E+00	3.41E-04	--	NC
Trichloroethene	79-01-6	1.90E+03	5.01E-07	1.00E+00	9.52E-04	1.10E-02	1.05E-05
<i>Polychlorinated Biphenyls (PCBs)</i>							
Aroclor 1248	12672-29-6	1.70E+00	5.01E-07	8.50E-01	7.24E-07	2.00E+00	1.45E-06
Aroclor 1232	11141-16-5	--	5.01E-07	8.50E-01	NC	2.00E+00	NC
CUMULATIVE ELCR							5.28E-05

Lifetime Average Daily Dose (LADD) = EPC * EF * RAF

Excess Lifetime Cancer Risk (ELCR_{copc}) = LADD * CSF

Cumulative ELCR = Σ ELCR_{copc}

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Resident
EXPOSURE POINT:	Hot Spot #1
EXPOSURE PATHWAY:	Inhalation of Fugitive Dust

Noncancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Noncancer Exposure Factor (EF)	Average Daily Exposure (ADE) mg/m ³	Inhalation Reference Concentration (RfC) mg/m ³	Hazard Quotient (HQ)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	9.60E-05	3.49E-02	3.35E-06	5.20E+00	6.45E-07
Tetrachloroethene	127-18-4	5.12E-05	3.49E-02	1.79E-06	4.60E+00	3.89E-07
Toluene	108-88-3	2.18E-05	3.49E-02	7.60E-07	5.00E+00	1.52E-07
Trichloroethene	79-01-6	6.08E-05	3.49E-02	2.12E-06	1.80E-01	1.18E-05
Polychlorinated Biphenyls (PCBs)						
Aroclor 1248	12672-29-6	5.44E-08	3.49E-02	1.90E-09	2.00E-05	9.50E-05
Aroclor 1232	11141-16-5	NC	3.49E-02	NC	2.00E-05	NC
CUMULATIVE HAZARD INDEX						1.08E-04

$$\text{Average Daily Dose (ADD)} = \text{EPC} * \text{EF}$$

$$\text{Hazard Quotient (HQ}_{\text{copc}}) = \text{ADE} / \text{RfC}$$

$$\text{Cumulative Hazard Index (HI)} = \Sigma \text{HQ}_{\text{copc}}$$

Cancer Effects						
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC) mg/m ³	Cancer Exposure Factor (EF)	Lifetime Average Daily Dose (LADE) mg/m ³	Inhalation Unit Risk (IUR) (mg/m ³) ⁻¹	Excess Lifetime Cancer Risk (ELCR)
Volatile Organic Compounds (VOCs)						
1,1,1-Trichloroethane	71-55-6	9.60E-05	1.50E-02	1.44E-06	--	NC
Tetrachloroethene	127-18-4	5.12E-05	1.50E-02	7.66E-07	5.52E-02	4.23E-08
Toluene	108-88-3	2.18E-05	1.50E-02	3.26E-07	--	NC
Trichloroethene	79-01-6	6.08E-05	1.50E-02	9.10E-07	1.70E-03	1.55E-09
Polychlorinated Biphenyls (PCBs)						
Aroclor 1248	12672-29-6	5.44E-08	1.50E-02	8.14E-10	1.00E-01	8.14E-11
Aroclor 1232	11141-16-5	NC	1.50E-02	NC	1.00E-01	NC
CUMULATIVE ELCR						4.39E-08

$$\text{Lifetime Average Daily Dose (LADE)} = \text{EPC} * \text{EF}$$

$$\text{Excess Lifetime Cancer Risk (ELCR}_{\text{copc}}) = \text{LADE} * \text{CSF}$$

$$\text{Cumulative ELCR} = \Sigma \text{ELCR}_{\text{copc}}$$

CALCULATION OF HAZARD INDICES AND RISK ESTIMATES

Former Lewis Chemical Corporation
0 & 12-24 Fairmount Court
Hyde Park, MA

RECEPTOR:	Future Resident
EXPOSURE POINT:	Hot Spot #2
EXPOSURE PATHWAY:	Dermal Contact with Soil

Noncancer Effects							
Chemical of Potential Concern	CAS No.	Exposure Point Concentration (EPC)	Noncancer Exposure Factor (EF)	Dermal Relative Absorption Factor (RAF)	Average Daily Dose (ADD)	Dermal Reference Dose (RfD)	Hazard Quotient (HQ)
		mg/kg			mg/kg-day	mg/kg-day	
Volatile Organic Compounds (VOCs)							
1,1,1-Trichloroethane	71-55-6	2.20E+01	4.28E-05	1.00E-01	9.42E-05	9.00E-02	1.05E-03
1,1-Dichloroethene	75-35-4	3.33E+00	4.28E-05	1.00E-01	1.42E-05	5.00E-02	2.85E-04
1,2,4-Trimethylbenzene	95-63-6	3.58E+00	4.28E-05	1.00E-02	1.53E-06	5.00E-02	3.06E-05
1,2-Dichlorobenzene	95-50-1	1.22E+01	4.28E-05	1.00E-01	5.22E-05	9.00E-02	5.80E-04
1,3,5-Trimethylbenzene	108-67-8	2.90E+00	4.28E-05	1.00E-02	1.24E-06	5.00E-02	2.48E-05
1,4-Dichlorobenzene	106-46-7	1.20E+00	4.28E-05	1.00E-01	5.14E-06	9.00E-02	5.71E-05
4-Isopropyltoluene	99-87-6	2.88E+00	4.28E-05	1.00E-02	1.23E-06	1.00E-01	1.23E-05
Chlorobenzene	108-90-7	2.30E-01	4.28E-05	1.00E-02	9.84E-08	2.00E-02	4.92E-06
cis-1,2-Dichloroethene	156-59-2	2.35E+01	4.28E-05	1.00E-01	1.01E-04	1.00E-02	1.01E-02
Ethylbenzene	100-41-4	7.00E+00	4.28E-05	2.00E-01	5.99E-05	1.00E-01	5.99E-04
Isopropylbenzene	98-82-8	6.40E-01	4.28E-05	1.00E-02	2.74E-07	1.00E-01	2.74E-06
Naphthalene	91-20-3	1.90E+00	4.28E-05	1.00E-01	8.13E-06	2.00E-02	4.07E-04
n-Propylbenzene	103-65-1	2.70E+00	4.28E-05	1.00E-02	1.16E-06	4.00E-02	2.89E-05
sec-Butylbenzene	135-98-8	6.30E-01	4.28E-05	1.00E-02	2.70E-07	4.00E-02	6.74E-06
Tetrachloroethene	127-18-4	1.30E+01	4.28E-05	1.00E-01	5.56E-05	1.00E-02	5.56E-03
Toluene	108-88-3	5.88E+01	4.28E-05	1.20E-01	3.02E-04	8.00E-02	3.77E-03
Trichloroethene	79-01-6	1.03E+01	4.28E-05	1.00E-01	4.39E-05	2.00E-03	2.19E-02
Vinyl Chloride	75-01-4	1.20E+00	4.28E-05	1.00E-01	5.14E-06	3.00E-03	1.71E-03
Xylenes (Total)	1330-20-7	2.07E+01	4.28E-05	1.20E-01	1.06E-04	2.00E-01	5.30E-04
Polychlorinated Biphenyls (PCBs)							
Aroclor 1248	12672-29-6	2.44E-01	4.28E-05	1.60E-01	1.67E-06	2.00E-05	8.36E-02
Aroclor 1232	11141-16-5	--	4.28E-05	1.60E-01	NC	2.00E-05	NC
Inorganics							
Barium, Total	7440-39-3	3.09E+01	4.28E-05	5.00E-02	6.61E-05	1.40E-02	4.72E-03
Chromium, Total	7440-47-3	1.36E+01	4.28E-05	9.00E-02	5.24E-05	7.50E-05	6.98E-01
Mercury, Total	7439-97-6	1.50E-01	4.28E-05	5.00E-02	3.21E-07	3.00E-04	1.07E-03
Silver, Total	7440-22-4	5.10E-01	4.28E-05	2.50E-01	5.46E-06	2.00E-04	2.73E-02
CUMULATIVE HAZARD INDEX							8.62E-01

$$\text{Average Daily Dose (ADD)} = \text{EPC} * \text{EF} * \text{RAF}$$

$$\text{Hazard Quotient (HQ}_{\text{copc}}) = \text{ADD} / \text{RfD}$$

$$\text{Cumulative Hazard Index (HI)} = \sum \text{HQ}_{\text{copc}}$$