

Table 8-4
 Hazard Quotient and Indices from Surface Water Exposures
 ESSROC
 Logansport, Indiana

Chemical	Typical Exposure Scenario						High End Exposure Scenario					
	Adult			Child			Adult			Child		
	Wabash River	France Park	Wabash River	France Park	Wabash River	France Park	Wabash River	France Park	Wabash River	France Park	Wabash River	France Park
Antimony	2.795E-07	3.069E-06	1.304E-06	1.432E-05	7.986E-07	8.767E-06	3.726E-06	4.09E-05	1.581E-06	1.734E-05	7.378E-06	8.092E-05
Arsenic	5.535E-07	6.071E-06	2.582E-06	2.832E-05	5.246E-08	5.758E-07	2.448E-07	2.686E-06	3.618E-10	4.156E-09	1.688E-09	1.939E-08
Barium	1.836E-08	2.015E-07	8.567E-08	9.402E-07	3.478E-06	3.825E-05	1.623E-05	0.0001785	8.178E-09	8.963E-08	3.816E-08	4.182E-07
Beryllium	1.266E-10	1.454E-09	5.908E-10	6.786E-09	1.19E-14	4.075E-13	5.553E-14	1.901E-12	7.089E-08	9.954E-07	3.307E-07	4.644E-06
Cadmium	1.217E-06	1.339E-05	5.679E-06	6.247E-05	1.449E-09	7.171E-08	6.759E-09	3.346E-07	3.675E-08	4.04E-07	1.715E-07	1.885E-06
Chromium (VI)	2.862E-09	3.137E-08	1.335E-08	1.464E-07	4.22E-07	4.621E-06	1.969E-06	2.156E-05	1.19E-14	4.075E-13	5.553E-14	1.901E-12
Chromium, total	4.166E-15	1.426E-13	1.944E-14	6.654E-13	3.991E-06	4.389E-05	1.862E-05	0.0002048	7.897E-13	1.99E-11	3.543E-12	8.926E-11
Divalent Mercury	2.481E-08	3.484E-07	1.158E-07	1.625E-06	7.741E-10	1.748E-08	2.896E-09	6.539E-08	1.449E-09	7.171E-08	6.759E-09	3.346E-07
Methyl Mercury	5.07E-10	2.51E-08	2.366E-09	1.171E-07	3.675E-08	4.04E-07	1.715E-07	1.885E-06	4.22E-07	4.621E-06	1.969E-06	2.156E-05
Nickel	1.286E-08	1.414E-07	6.002E-08	6.597E-07	7.897E-13	1.99E-11	3.543E-12	8.926E-11	7.741E-10	1.748E-08	2.896E-09	6.539E-08
Selenium	1.477E-07	1.617E-06	6.891E-07	7.545E-06	4.706E-08	1.781E-07	2.19E-07	8.29E-07	7.451E-10	5.667E-09	3.426E-09	2.606E-08
Thallium	1.397E-06	1.536E-05	6.517E-06	7.167E-05	7.451E-10	5.667E-09	3.426E-09	2.606E-08	1.64E-09	5.651E-09	7.626E-09	2.628E-08
Acenaphthene	2.764E-13	6.963E-12	1.24E-12	3.124E-11	7.908E-08	2.7E-07	3.687E-07	1.259E-06	2.02E-07	6.892E-07	9.419E-07	3.214E-06
Bis(2-ethyl hexyl)phthalate	2.709E-10	6.118E-09	1.013E-09	2.289E-08	4.10E-09	1.939E-08	1.769E-08	8.358E-08	4.706E-08	1.781E-07	2.19E-07	8.29E-07
2-Chlorophenol	1.647E-08	6.234E-08	7.665E-08	2.901E-07	7.908E-08	2.7E-07	3.687E-07	1.259E-06	7.451E-10	5.667E-09	3.426E-09	2.606E-08
1,4-dichlorobenzene	2.608E-10	1.983E-09	1.199E-09	9.119E-09	2.02E-07	6.892E-07	9.419E-07	3.214E-06	4.10E-09	1.939E-08	1.769E-08	8.358E-08
2,4-Dimethylphenol	5.74E-10	1.978E-09	2.669E-09	9.197E-09	9.54E-09	9.11E-08	4.33E-08	4.13E-07	1.64E-09	5.651E-09	7.626E-09	2.628E-08
2,4-Dinitrotoluene	2.768E-08	9.45E-08	1.291E-07	4.406E-07	9.54E-09	9.11E-08	4.33E-08	4.13E-07	2.881E-10	2.503E-09	1.31E-09	1.138E-08
2,6-Dinitrotoluene	7.069E-08	2.412E-07	3.297E-07	1.125E-06	2.881E-10	2.503E-09	1.31E-09	1.138E-08	3.551E-08	2.722E-07	1.639E-07	1.256E-06
Fluoranthene	1.436E-09	6.788E-09	6.19E-09	2.925E-08	3.121E-09	3.955E-08	1.433E-08	1.816E-07	1.044E-06	3.576E-06	4.848E-06	4.746E-05
Hexachlorobutadiene	3.34E-09	3.19E-08	1.515E-08	1.446E-07	1.505E-07	5.835E-07	6.988E-07	2.709E-06	5.714E-09	2.178E-08	2.331E-08	8.884E-08
Hexachlorocyclopentadiene	1.008E-10	8.759E-10	4.586E-10	3.984E-09	5.714E-09	2.178E-08	2.331E-08	8.884E-08	2.881E-10	2.503E-09	1.31E-09	1.138E-08
Hexachloroethane	1.243E-08	9.528E-08	5.736E-08	4.398E-07	3.551E-08	2.722E-07	1.639E-07	1.256E-06	3.121E-09	3.955E-08	1.433E-08	1.816E-07
Naphthalene	1.092E-09	1.384E-08	5.014E-09	6.355E-08	2.982E-06	3.576E-06	4.848E-06	4.746E-05	1.044E-06	3.576E-06	4.848E-06	4.746E-05
2-Nitroaniline	1.044E-06	3.576E-06	4.848E-06	1.661E-05	1.505E-07	5.835E-07	6.988E-07	2.709E-06	5.714E-09	2.178E-08	2.331E-08	8.884E-08
Nitrobenzene	5.268E-08	2.042E-07	2.446E-07	9.481E-07	2E-09	7.622E-09	8.159E-09	3.109E-08				
Pentachlorophenol												

Table 8-4
 Hazard Quotient and Indices from Surface Water Exposures
 ESSROC
 Logansport, Indiana

Chemical	Typical Exposure Scenario						High End Exposure Scenario					
	Adult			Child			Adult			Child		
	Wabash River	France Park	Wabash River	France Park	Wabash River	France Park	Wabash River	France Park	Wabash River	France Park	Wabash River	France Park
Phenol	2.597E-09	8.866E-09	1.21E-08	4.132E-08	7.42E-09	2.533E-08	3.458E-08	1.181E-07	8.575E-11	1.803E-09	3.673E-10	7.724E-09
Pyrene	3.001E-11	6.311E-10	1.286E-10	2.703E-09	2.298E-09	1.726E-08	1.047E-08	7.864E-08	1.12E-10	1.51E-09	4.133E-10	5.589E-09
1,2,4-Trichlorobenzene	8.044E-10	6.039E-09	3.666E-09	2.753E-08	7.98E-11	1.08E-09	2.945E-10	3.982E-09	3.92E-11	5.30E-10	1.446E-10	1.956E-09
Total Mono CB	2.79E-11	3.78E-10	1.031E-10	1.394E-09	1.03E-10	1.39E-09	3.793E-10	5.13E-09	2.79E-11	4.87E-10	1.328E-10	1.795E-09
Total Tri CB	3.60E-11	4.87E-10	1.328E-10	1.795E-09	7.59E-11	1.03E-09	2.8E-10	3.787E-09	3.60E-11	3.59E-10	1.325E-09	1.795E-09
Total Tetra CB	2.66E-11	3.59E-10	9.802E-11	1.325E-09	7.13E-11	9.64E-10	2.631E-10	3.557E-09	2.66E-11	3.38E-10	1.245E-09	1.795E-09
Total Penta CB	2.50E-11	3.38E-10	9.208E-11	1.245E-09	2.18E-10	2.95E-09	8.818E-10	1.192E-08	2.50E-11	1.03E-09	3.078E-10	4.163E-09
Total Hex CB	7.65E-11	1.03E-09	3.086E-10	4.174E-09	3.35E-10	4.54E-09	1.354E-09	1.831E-08	7.65E-11	1.59E-09	4.74E-10	6.409E-09
Total Hepta CB	1.17E-10	1.59E-09	4.74E-10	6.409E-09	7.63E-11	1.03E-09	3.078E-10	4.163E-09	1.17E-10	3.61E-10	1.077E-10	1.457E-09
Total Octa CB	2.67E-11	3.61E-10	1.077E-10	1.457E-09	1.71E-11	1.36E-10	6.912E-11	5.497E-10	2.67E-11	4.77E-11	2.419E-11	1.924E-10
Total Nona CB	5.99E-12	4.77E-11	2.419E-11	1.924E-10	6.42E-13	8.68E-12	2.59E-12	3.503E-11	5.99E-12	3.04E-12	9.066E-13	1.226E-11
Total Deca CB	2.25E-13	3.04E-12	9.066E-13	1.226E-11								

Total Hazard Indices 4.891E-06 4.462E-05 2.279E-05 0.0002081 1.397E-05 0.0001275 6.512E-05 0.0005945

Table 8-5
Hazard Quotient and Indices from Fish Exposure
ESSROC
Logansport, Indiana

DRAFT-FINAL

Chemical	Typical Exposure Scenario		High End Exposure Scenario	
	Adult	Child	Adult	Child
Antimony	3.07E-06	5.42E-06	3.39E-05	2.63E-05
Arsenic	3.04E-06	5.36E-06	3.35E-05	2.61E-05
Beryllium	1.46E-08	2.58E-08	1.61E-07	1.25E-07
Cadmium	8.35E-05	1.47E-04	9.21E-04	7.17E-04
Chromium (VI)	2.36E-09	4.16E-09	2.60E-08	2.02E-08
Chromium, total	3.24E-13	5.71E-13	3.57E-12	2.78E-12
Methyl Mercury	5.67E-01	1.00E+00	6.26E+00	4.87E+00
Nickel	1.08E-06	1.91E-06	1.20E-05	9.30E-06
Selenium	5.23E-06	9.23E-06	5.77E-05	4.49E-05
Thallium	5.48E-04	9.68E-04	6.05E-03	4.70E-03
Acenaphthene	4.32E-11	7.63E-11	4.77E-10	3.71E-10
Bis(2-ethyl hexyl)phthalate	1.83E-08	3.23E-08	2.02E-07	1.57E-07
2-Chlorophenol	1.17E-07	2.06E-07	1.29E-06	1.00E-06
1,4-dichlorobenzene	1.62E-08	2.85E-08	1.78E-07	1.39E-07
2,4-Dimethylphenol	5.74E-09	1.01E-08	6.33E-08	4.92E-08
2,4-Dinitrotoluene	4.49E-08	7.93E-08	4.96E-07	3.85E-07
2,6-Dinitrotoluene	1.15E-07	2.03E-07	1.27E-06	9.85E-07
Fluoranthene	5.43E-06	9.59E-06	5.99E-05	4.66E-05
Hexachlorobutadiene	4.88E-06	8.60E-06	5.38E-05	4.18E-05
Hexachlorocyclopentadiene	1.39E-08	2.46E-08	1.54E-07	1.20E-07
Hexachloroethane	2.11E-06	3.72E-06	2.33E-05	1.81E-05
Naphthalene	6.28E-08	1.11E-07	6.93E-07	5.39E-07
2-Nitroaniline	4.27E-06	7.53E-06	4.71E-05	3.66E-05
Nitrobenzene	8.49E-08	1.50E-07	9.37E-07	7.29E-07
Pentachlorophenol	1.74E-07	3.07E-07	1.92E-06	1.49E-06
Phenol	5.56E-09	9.81E-09	6.13E-08	4.77E-08
Pyrene	8.52E-08	1.50E-07	9.40E-07	7.31E-07
1,2,4-Trichlorobenzene	1.35E-07	2.38E-07	1.48E-06	1.15E-06
Total Mono CB	4.77E-06	8.41E-06	5.26E-05	4.09E-05
Total Di CB	3.40E-06	5.99E-06	3.75E-05	2.91E-05
Total Tri CB	4.38E-06	7.72E-06	4.83E-05	3.75E-05
Total Tetra CB	3.23E-06	5.70E-06	3.56E-05	2.77E-05
Total Penta CB	3.03E-06	5.35E-06	3.35E-05	2.60E-05
Total Hex CB	1.10E-05	1.93E-05	1.21E-04	9.40E-05
Total Hepta CB	1.68E-05	2.97E-05	1.86E-04	1.44E-04
Total Octa CB	3.83E-06	6.75E-06	4.22E-05	3.28E-05
Total Nona CB	8.59E-07	1.52E-06	9.48E-06	7.37E-06
Total Deca CB	3.22E-08	5.68E-08	3.55E-07	2.76E-07
Total Hazard Indices	5.68E-01	1.00E+00	6.26E+00	4.87E+00

Table 8-6
 Hazard Quotient and Indices from Plant Consumption
 ESSROC
 Logansport, Indiana

Chemical	Typical Exposure Scenario Maximum Exposure Area		High End Exposure Scenario Maximum Exposure Area	
	Adult	Child	Adult	Child
Antimony	1.50E-05	3.87E-06	2.93E-05	7.70E-06
Arsenic	1.67E-05	2.79E-06	3.25E-05	5.49E-06
Barium	9.22E-07	2.33E-07	1.79E-06	4.60E-07
Beryllium	8.87E-08	1.41E-08	1.72E-07	2.76E-08
Cadmium	2.06E-04	7.79E-05	4.02E-04	1.55E-04
Chromium (VI)	7.15E-08	1.19E-08	1.40E-07	2.45E-08
Chromium, total	8.54E-09	1.51E-09	1.66E-08	2.96E-09
Divalent Mercury	1.35E-04	5.57E-05	2.67E-04	1.16E-04
Methyl Mercury	9.84E-05	1.61E-05	1.91E-04	3.19E-05
Nickel	6.98E-07	1.50E-07	1.38E-06	3.22E-07
Selenium	3.22E-06	5.14E-07	6.26E-06	1.00E-06
Thallium	7.08E-05	1.26E-05	1.40E-04	2.81E-05
Acenaphthene	2.75E-12	3.82E-12	4.04E-12	7.46E-12
Bis(2-ethyl hexyl)phthalate	4.61E-06	6.45E-06	8.94E-06	1.25E-05
2-Chlorophenol	4.89E-06	6.66E-06	7.21E-06	1.31E-05
1,4-dichlorobenzene	8.21E-09	1.12E-08	1.22E-08	2.23E-08
2,4-Dimethylphenol	1.06E-08	1.47E-08	1.54E-08	2.86E-08
2,4-Dinitrophenol	8.26E-04	1.30E-03	2.10E-03	4.39E-03
2,4-Dinitrotoluene	8.63E-07	1.18E-06	1.28E-06	2.32E-06
2,6-Dinitrotoluene	2.32E-06	3.16E-06	3.43E-06	6.22E-06
Fluoranthene	6.27E-08	8.58E-08	1.26E-07	1.73E-07
Hexachlorobenzene	4.83E-07	6.64E-07	9.95E-07	1.38E-06
Hexachlorobutadiene	4.56E-06	6.15E-06	8.98E-06	1.21E-05
Hexachlorocyclopentadiene	1.97E-09	2.72E-09	4.12E-09	5.72E-09
Hexachloroethane	2.42E-07	3.29E-07	4.90E-07	6.68E-07
Naphthalene	1.27E-06	1.73E-06	1.88E-06	3.42E-06
2-Nitroaniline	5.36E-05	7.30E-05	7.92E-05	1.44E-04

Table 8-6
 Hazard Quotient and Indices from Plant Consumption
 ESSROC
 Logansport, Indiana

Chemical	Typical Exposure Scenario Maximum Exposure Area		High End Exposure Scenario Maximum Exposure Area	
	Adult	Child	Adult	Child
Nitrobenzene	3.82E-06	5.20E-06	5.64E-06	1.02E-05
Pentachlorophenol	9.89E-09	1.50E-08	3.00E-08	4.62E-08
Phenol	3.22E-08	4.53E-08	5.52E-08	1.05E-07
Pyrene	3.49E-07	4.89E-07	6.77E-07	9.48E-07
1,2,4-Trichlorobenzene	1.79E-08	2.44E-08	2.69E-08	4.93E-08
2,4,5-Trichlorophenol	8.92E-09	1.22E-08	1.35E-08	2.46E-08
Total Mono CB	1.47E-09	2.10E-09	3.46E-09	5.03E-09
Total Di CB	1.02E-09	1.46E-09	2.42E-09	3.51E-09
Total Tri CB	1.35E-09	1.92E-09	3.18E-09	4.62E-09
Total Tetra CB	9.95E-10	1.42E-09	2.35E-09	3.41E-09
Total Penta CB	9.11E-10	1.30E-09	2.16E-09	3.14E-09
Total Hex CB	3.29E-09	4.70E-09	7.80E-09	1.13E-08
Total Hepta CB	5.19E-09	7.40E-09	1.22E-08	1.78E-08
Total Octa CB	1.18E-09	1.68E-09	2.78E-09	4.04E-09
Total Nona CB	5.02E-11	7.19E-11	1.22E-10	1.79E-10
Total Deca CB	9.92E-12	1.42E-11	2.34E-11	3.40E-11

Total Hazard Indices 1.45E-03 1.57E-03 3.29E-03 4.94E-03

Table 8-7
 Hazard Quotient and Indices from Exposure to Animal Products
 ESSROC
 Logansport, Indiana

Chemical	Typical Exposure Scenario Maximum Exposure Area		High End Exposure Scenario Maximum Exposure Area	
	Adult	Child	Adult	Child
Antimony	1.25E-06	2.98E-06	4.25E-06	1.10E-05
Arsenic	2.93E-06	6.85E-06	9.55E-06	2.33E-05
Barium	1.62E-08	5.30E-08	1.02E-07	4.36E-07
Beryllium	1.26E-08	2.93E-08	4.06E-08	9.69E-08
Cadmium	3.72E-06	1.07E-05	1.73E-05	5.19E-05
Chromium (VI)	3.02E-08	7.44E-08	1.11E-07	3.20E-07
Chromium, total	6.79E-09	1.67E-08	2.47E-08	6.93E-08
Divalent Mercury	1.91E-04	4.69E-04	6.95E-04	2.07E-03
Methyl Mercury	2.53E-06	6.62E-06	1.06E-05	3.61E-05
Nickel	4.49E-07	1.08E-06	1.57E-06	4.20E-06
Selenium	2.66E-06	8.26E-06	1.42E-05	4.80E-05
Thallium	3.33E-04	7.83E-04	1.10E-03	2.72E-03
Acenaphthene	5.47E-11	1.77E-10	2.52E-10	9.35E-10
Bis(2-ethyl hexyl)phthalate	3.46E-05	8.95E-05	1.42E-04	4.74E-04
2-Chlorophenol	1.47E-10	4.75E-10	6.93E-10	2.60E-09
1,4-dichlorobenzene	6.04E-11	1.94E-10	3.03E-10	1.05E-09
2,4-Dimethylphenol	2.78E-12	8.40E-12	1.26E-11	4.55E-11
2,4-Dinitrophenol	8.97E-12	2.86E-11	4.20E-11	1.57E-10
2,4-Dinitrotoluene	2.88E-11	9.27E-11	1.35E-10	5.08E-10
2,6-Dinitrotoluene	5.63E-11	1.82E-10	2.65E-10	9.95E-10
Fluoranthene	1.34E-07	4.33E-07	6.08E-07	2.22E-06
Hexachlorobenzene	3.63E-06	1.18E-05	1.64E-05	6.00E-05
Hexachlorobutadiene	4.66E-06	1.52E-05	2.13E-05	7.86E-05
Hexachlorocyclopentadiene	2.31E-09	7.47E-09	1.05E-08	3.85E-08
Hexachloroethane	1.12E-08	3.62E-08	5.16E-08	1.91E-07
Naphthalene	1.62E-08	5.22E-08	7.52E-08	2.80E-07

Table 8-7
 Hazard Quotient and Indices from Exposure to Animal Products
 ESSROC
 Logansport, Indiana

Chemical	Typical Exposure Scenario Maximum Exposure Area		High End Exposure Scenario Maximum Exposure Area	
	Adult	Child	Adult	Child
2-Nitroaniline	7.65E-10	2.47E-09	3.61E-09	1.35E-08
Nitrobenzene	1.14E-10	3.67E-10	5.36E-10	2.01E-09
Pentachlorophenol	1.61E-09	5.13E-09	7.26E-09	2.64E-08
Phenol	8.77E-13	2.83E-12	4.13E-12	1.55E-11
Pyrene	2.19E-06	6.05E-06	9.28E-06	3.18E-05
1,2,4-Trichlorobenzene	6.36E-10	2.05E-09	2.93E-09	1.08E-08
2,4,5-Trichlorophenol	8.10E-11	2.62E-10	3.74E-10	1.39E-09
Total Mono CB	9.74E-08	3.10E-07	4.28E-07	1.53E-06
Total Di CB	6.94E-08	2.21E-07	3.05E-07	1.09E-06
Total Tri CB	8.94E-08	2.85E-07	3.93E-07	1.40E-06
Total Tetra CB	6.60E-08	2.10E-07	2.90E-07	1.04E-06
Total Penta CB	6.20E-08	1.97E-07	2.72E-07	9.73E-07
Total Hex CB	2.24E-07	7.13E-07	9.84E-07	3.52E-06
Total Hepta CB	3.44E-07	1.10E-06	1.51E-06	5.40E-06
Total Octa CB	7.82E-08	2.49E-07	3.44E-07	1.23E-06
Total Nona CB	3.93E-09	1.25E-08	1.73E-08	6.16E-08
Total Deca CB	6.58E-10	2.10E-09	2.89E-09	1.03E-08
Total Hazard Indices	5.84E-04	1.42E-03	2.05E-03	5.63E-03

Table 8-8
Carcinogenic Risk from Inhalation Exposure to Stack and LWDF Emissions
ESSROC
Logansport, Indiana

DRAFT-FINAL

Chemical	Maximum Exposure Area	
	Adult	Child
Dioxins		
2,3,7,8 TCDD	2.53E-10	1.71E-10
2,3,7,8-PeCDD	4.47E-10	3.01E-10
2,3,7,8-HxCDD	6.63E-10	4.47E-10
2,3,7,8-HpCDD	1.92E-10	1.29E-10
OCDD	9.94E-12	6.71E-12
2,3,7,8-TCDF	7.76E-10	5.23E-10
1,2,3,7,8-PeCDF	2.31E-10	1.56E-10
2,3,4,7,8-PeCDF	3.88E-09	2.62E-09
2,3,7,8-HxCDF	1.31E-09	8.82E-10
2,3,7,8-HpCDF	4.71E-11	3.18E-11
OCDF	1.32E-12	8.90E-13
Metals		
Arsenic	3.48E-09	2.35E-09
Beryllium	7.05E-11	4.76E-11
Cadmium	1.95E-08	1.32E-08
Chromium (VI)	4.27E-11	2.88E-11
Volatiles		
Acrylonitrile	8.34E-10	5.62E-10
Benzene *	1.58E-09	1.07E-09
Bromoform	7.73E-14	5.22E-14
1,3-Butadiene	9.81E-09	6.62E-09
Carbon tetrachloride	1.24E-11	8.40E-12
Chloroform *	5.02E-09	3.69E-09
Chloromethane	2.01E-10	1.35E-10
1,1-Dichloroethane	1.04E-12	6.99E-13
1,2-Dichloroethane	1.67E-12	1.13E-12
1,1-Dichloroethene	2.60E-11	1.76E-11
1,2-Dichloropropane	3.92E-12	2.65E-12
cis 1,3-Dichloropropene	1.44E-12	9.73E-13
Methylene Chloride *	1.40E-08	1.03E-08
1,1,2,2-Tetrachloroethane	4.06E-12	2.74E-12
Tetrachloroethylene *	3.24E-10	2.42E-10
Trichloroethene *	1.71E-09	1.26E-09
1,1,2-Trichloroethane *	4.68E-10	3.44E-10
Vinyl chloride	5.05E-10	3.40E-10

Table 8-8 DRAFT-FINAL
Carcinogenic Risk from Inhalation Exposure to Stack and LWDF Emissions
ESSROC
Logansport, Indiana

Chemical	Maximum Exposure Area	
	Adult	Child
Semi-Volatiles		
Benzo(a)pyrene	9.61E-10	6.48E-10
Benzo(a)anthracene	1.18E-10	7.93E-11
Benzo(b)fluoranthene	1.70E-10	1.15E-10
Benzo(k)fluoranthene	4.40E-12	2.97E-12
Bis(2-ethyl hexyl)phthalate	2.09E-10	1.41E-10
Chrysene	2.10E-12	1.42E-12
Dibenz(a,h)anthracene	3.08E-10	2.08E-10
1,4-dichlorobenzene	1.55E-11	1.05E-11
3,3,-Dichlorobenzidine	5.32E-11	3.59E-11
2,4-Dinitrotoluene	1.30E-10	8.75E-11
2,6-Dinitrotoluene	1.65E-10	1.11E-10
Hexachlorobenzene	2.52E-10	1.70E-10
Hexachlorobutadiene	1.47E-11	9.91E-12
Hexachloroethane	2.81E-12	1.90E-12
Indeno(1,2,3-cd)pyrene	4.13E-11	2.79E-11
n-Nitrosodiphenylamine	3.94E-13	2.66E-13
n-Nitroso-di-n-propylamine	8.24E-13	5.56E-13
Pentachlorophenol	2.85E-11	1.92E-11
2,4,6-Trichlorophenol	1.61E-12	1.09E-12
PCBs		
3,3'-Tetra CB	4.24E-13	2.86E-13
2,3,4,4',5-Penta CB	1.28E-12	8.66E-13
2,3',4,4',5-Penta CB	2.74E-13	1.98E-13
2',3,3',4,4'-Penta CB	1.06E-14	7.15E-15
2,3,3',4,4'-Penta CB	4.59E-14	3.10E-14
3,3',4,4',5-Penta CB	1.16E-11	7.85E-12
2,3',4,4',5,5'-Hexa CB	1.50E-14	1.01E-14
2,3,3',4,4',5-Hexa CB	1.50E-12	1.01E-12
2,3,3',4,4',5' Hexa CB	4.59E-13	3.08E-13
3,3',4,4',5,5'-Hexa CB	2.39E-12	1.61E-12
2,2',3,4,4',5,5'-Hepta CB	7.81E-13	5.27E-13
2,2',3,3',4,4',5-Hepta CB	7.79E-12	1.92E-12
2,3,3',4,4',5,5'-Hepta CB	3.31E-14	2.20E-14

Total Carcinogenic Risks **6.79E-08** **4.71E-08**

* Inhalation risk for this chemical is driven by estimated uncontrolled fugitive emission air concentrations.

Table 8-9
 Carcinogenic Risks from Direct Contact Exposures to Soil
 ESSROC
 Logansport, Indiana

Chemical	Typical Exposure Scenario		High End Exposure Scenario	
	Adult	Child	Adult	Child
2,3,7,8 TCDD	1.21E-09	2.09E-09	1.41E-09	2.18E-09
2,3,7,8-PeCDD	8.99E-10	1.55E-09	1.05E-09	1.62E-09
2,3,7,8-HxCDD	9.52E-10	1.64E-09	1.11E-09	1.71E-09
2,3,7,8-HpCDD	2.45E-10	4.23E-10	2.85E-10	4.41E-10
OCDD	1.22E-11	2.10E-11	1.42E-11	2.19E-11
2,3,7,8-TCDF	3.11E-09	5.37E-09	3.63E-09	5.60E-09
1,2,3,7,8-PeCDF	5.88E-10	1.02E-09	6.86E-10	1.06E-09
2,3,4,7,8-PeCDF	8.48E-09	1.46E-08	9.88E-09	1.53E-08
2,3,7,8-HxCDF	1.86E-09	3.20E-09	2.16E-09	3.34E-09
2,3,7,8-HpCDF	6.34E-11	1.09E-10	7.39E-11	1.14E-10
OCDF	1.26E-12	2.18E-12	1.47E-12	2.27E-12
Arsenic	9.99E-10	1.81E-09	1.06E-09	1.84E-09
Beryllium	1.52E-10	2.76E-10	1.61E-10	2.80E-10
Benzo(a)pyrene	6.64E-10	9.87E-10	9.59E-10	1.12E-09
Benzo(a)anthracene	1.99E-10	2.96E-10	2.87E-10	3.35E-10
Benzo(b)fluoranthene	2.53E-10	3.75E-10	3.65E-10	4.26E-10
Bis(2-ethyl hexyl)phthalate	1.47E-11	2.18E-11	2.12E-11	2.48E-11
Dibenz(a,h)anthracene	2.06E-10	3.07E-10	2.98E-10	3.48E-10
1,4-dichlorobenzene	2.16E-12	3.21E-12	3.12E-12	3.64E-12
2,4-Dinitrotoluene	2.43E-12	3.62E-12	3.52E-12	4.10E-12
2,6-Dinitrotoluene	2.68E-12	3.98E-12	3.86E-12	4.51E-12
Hexachlorobenzene	9.92E-10	1.47E-09	1.43E-09	1.67E-09
Hexachloroethane	7.63E-13	1.13E-12	1.10E-12	1.29E-12
n-Nitroso-di-n-propylamine	1.08E-11	1.60E-11	1.56E-11	1.82E-11
Pentachlorophenol	3.42E-12	5.08E-12	4.93E-12	5.76E-12

Table 8-9
Carcinogenic Risks from Direct Contact Exposures to Soil
ESSROC
Logansport, Indiana

Chemical	Typical Exposure Scenario		High End Exposure Scenario	
	Adult	Child	Adult	Child
	3,3'-Tetra CB	5.17E-14	8.93E-14	6.03E-14
2,3,4,4',5'-Penta CB	1.56E-13	2.70E-13	1.82E-13	2.82E-13
2,3',4,4',5'-Penta CB	3.34E-14	6.18E-14	4.17E-14	6.45E-14
2',3,3',4,4'-Penta CB	1.29E-15	2.23E-15	1.51E-15	2.33E-15
2,3,3',4,4'-Penta CB	5.59E-15	9.66E-15	6.52E-15	1.01E-14
3,3',4,4',5'-Penta CB	1.42E-12	2.45E-12	1.65E-12	2.55E-12
2,3',4,4',5,5'-Hexa CB	1.83E-15	3.16E-15	2.13E-15	3.29E-15
2,3,3',4,4',5'-Hexa CB	1.83E-13	3.16E-13	2.13E-13	3.29E-13
2,3,3',4,4',5',_Hexa CB	5.59E-14	9.62E-14	6.49E-14	1.00E-13
3,3',4,4',5,5'-Hexa CB	2.91E-13	5.04E-13	3.40E-13	5.25E-13
2,2',3,4,4',5,5'-Hepta CB	9.51E-14	1.64E-13	1.11E-13	1.71E-13
2,2',3,3',4,4',5'-Hepta CB	9.49E-13	6.00E-13	4.05E-13	6.26E-13
2,3,3',4,4',5,5'-Hepta CB	4.03E-15	6.87E-15	4.64E-15	7.16E-15

Total Carcinogenic Risk 2.09E-08 3.56E-08 2.49E-08 3.74E-08

Table 8-10
Carcinogenic Risk from Drinking Water Exposure
ESSROC
Logansport, Indiana

DRAFT-FINAL

Chemical	Eel River	
	Adult	Child
2,3,7,8 TCDD	6.64E-12	3.10E-12
2,3,7,8-PeCDD	3.74E-12	1.74E-12
2,3,7,8-HxCDD	1.92E-13	8.94E-14
2,3,7,8-HpCDD	1.70E-14	7.93E-15
OCDD	3.19E-15	1.49E-15
2,3,7,8-TCDF	2.27E-11	1.06E-11
1,2,3,7,8-PeCDF	1.81E-12	8.44E-13
2,3,4,7,8-PeCDF	1.53E-11	7.13E-12
2,3,7,8-HxCDF	1.24E-12	5.79E-13
2,3,7,8-HpCDF	8.56E-15	3.99E-15
OCDF	2.40E-17	1.12E-17
Arsenic	1.02E-08	4.75E-09
Beryllium	5.65E-11	2.64E-11
Benzo(a)pyrene	1.11E-11	5.20E-12
Benzo(a)anthracene	2.25E-11	1.05E-11
Benzo(b)fluoranthene	5.53E-12	2.58E-12
Bis(2-ethyl hexyl)phthalate	4.37E-12	2.04E-12
Dibenz(a,h)anthracene	1.10E-12	5.14E-13
1,4-dichlorobenzene	1.42E-10	6.64E-11
2,4-Dinitrotoluene	2.49E-09	1.16E-09
2,6-Dinitrotoluene	3.18E-09	1.48E-09
Hexachlorobenzene	4.33E-10	2.02E-10
Hexachloroethane	1.72E-11	8.05E-12
n-Nitroso-di-n-propylamine	4.32E-10	2.02E-10
Pentachlorophenol	4.15E-10	1.94E-10
3,3'-Tetra CB	2.78E-14	1.30E-14
2,3,4,4',5'-Penta CB	8.40E-14	3.92E-14
2,3',4,4',5'-Penta CB	1.79E-14	8.37E-15
2',3,3',4,4'-Penta CB	6.93E-16	3.24E-16
2,3,3',4,4'-Penta CB	3.00E-15	1.40E-15
3,3',4,4',5'-Penta CB	7.62E-13	3.56E-13
2,3',4,4',5,5'-Hexa CB	9.83E-16	4.59E-16
2,3,3',4,4',5'-Hexa CB	9.83E-14	4.59E-14
2,3,3',4,4',5' Hexa CB	3.00E-14	1.40E-14
3,3',4,4',5,5'-Hexa CB	1.57E-13	7.31E-14
2,2',3,4,4',5,5'-Hepta CB	5.11E-14	2.39E-14
2,2',3,3',4,4',5-Hepta CB	5.10E-13	2.38E-13
2,3,3',4,4',5,5'-Hepta CB	2.16E-15	1.01E-15
Total Carcinogenic Risk	1.74E-08	8.14E-09

Table 8-11
 Carcinogenic Risk from Exposure to Surface Water
 ESSROC
 Logansport, Indiana

Chemical	Typical Exposure Scenario						High End Exposure Scenario					
	Adult			Child			Adult			Child		
	Wabash River	France Park	Wabash River	France Park	Wabash River	France Park	Wabash River	France Park	Wabash River	France Park	Wabash River	France Park
3,3'-Tetra CB	2.01E-16	2.72E-15	1.48E-16	2.01E-15	1.48E-16	2.01E-15	5.74E-16	7.77E-15	4.23E-16	5.74E-15	7.77E-15	4.23E-16
2,3,4,4',5'-Penta CB	6.07E-16	8.23E-15	4.48E-16	6.07E-15	4.48E-16	6.07E-15	1.74E-15	2.35E-14	1.28E-15	1.74E-14	2.35E-14	1.28E-15
2,3',4,4',5'-Penta CB	1.30E-16	1.76E-15	9.57E-17	1.30E-15	9.57E-17	1.30E-15	3.71E-16	5.02E-15	2.73E-16	3.71E-15	5.02E-15	2.73E-16
2',3,3',4,4'-Penta CB	5.01E-18	6.80E-17	3.70E-18	5.01E-17	3.70E-18	5.01E-17	1.43E-17	1.94E-16	1.06E-17	1.43E-16	1.94E-16	1.06E-17
2,3,3',4,4'-Penta OB	2.17E-17	2.94E-16	1.60E-17	2.17E-16	1.60E-17	2.17E-16	6.21E-17	8.41E-16	4.58E-17	6.21E-16	8.41E-16	4.58E-17
3,3',4,4',5'-Penta CB	5.51E-15	7.47E-14	4.06E-15	5.51E-14	4.06E-15	5.51E-14	1.57E-14	2.13E-13	1.16E-14	1.57E-13	2.13E-13	1.16E-14
2,3',4,4',5'-Hexa CB	6.02E-18	8.16E-17	4.86E-18	6.59E-17	4.86E-18	6.59E-17	1.72E-17	2.33E-16	1.39E-17	1.72E-16	2.33E-16	1.39E-17
2,3,3',4,4',5'-Hexa CB	6.02E-16	8.16E-15	4.86E-16	6.59E-15	4.86E-16	6.59E-15	1.72E-15	2.33E-14	1.39E-15	1.72E-14	2.33E-14	1.39E-15
2,3,3',4,4',5'-Hexa CB	1.84E-16	2.50E-15	1.49E-16	2.02E-15	1.49E-16	2.02E-15	5.26E-16	7.13E-15	4.25E-16	5.26E-15	7.13E-15	4.25E-16
3,3',4,4',5'-Hexa CB	9.60E-16	1.30E-14	7.75E-16	1.05E-14	7.75E-16	1.05E-14	2.74E-15	3.72E-14	2.22E-15	2.74E-14	3.72E-14	2.22E-15
2,2',3,4,4',5,5'-Hepta CB	3.13E-16	4.25E-15	2.53E-16	3.43E-15	2.53E-16	3.43E-15	8.95E-16	1.21E-14	7.23E-16	8.95E-15	1.21E-14	7.23E-16
2,2',3,3',4,4',5-Hepta CB	3.13E-15	4.24E-14	2.52E-15	3.42E-14	2.52E-15	3.42E-14	8.93E-15	1.21E-13	7.21E-15	8.93E-14	1.21E-13	7.21E-15
2,3,3',4,4',5,5'-Hepta CB	1.33E-17	1.80E-16	1.07E-17	1.45E-16	1.07E-17	1.45E-16	3.79E-17	5.14E-16	3.06E-17	3.79E-16	5.14E-16	3.06E-17
Total Carcinogenic Risk	1.11E-10	3.33E-10	1.03E-10	8.40E-10	1.03E-10	8.40E-10	3.19E-10	9.52E-10	2.95E-10	3.19E-09	9.52E-09	2.95E-09

Table 8-12
Carcinogenic Risk from Exposure to Fish
ESSROC
Logansport, Indiana

DRAFT-FINAL

Chemical	Typical Exposure Scenario Wabash River		High End Exposure Scenario Wabash River	
	Adult	Child	Adult	Child
2,3,7,8 TCDD	3.94E-10	1.39E-10	5.88E-09	6.75E-10
2,3,7,8-PeCDD	2.18E-10	7.71E-11	3.26E-09	3.75E-10
2,3,7,8-HxCDD	6.77E-11	2.39E-11	1.01E-09	1.16E-10
2,3,7,8-HpCDD	1.90E-12	6.70E-13	2.82E-11	3.26E-12
OCDD	1.73E-15	6.12E-16	2.57E-14	2.97E-15
2,3,7,8-TCDF	1.04E-09	3.67E-10	1.55E-08	1.79E-09
1,2,3,7,8-PeCDF	1.50E-10	5.28E-11	2.23E-09	2.57E-10
2,3,4,7,8-PeCDF	1.68E-09	5.95E-10	2.52E-08	2.89E-09
2,3,7,8-HxCDF	1.26E-10	4.45E-11	1.88E-09	2.17E-10
2,3,7,8-HpCDF	5.01E-13	1.77E-13	7.45E-12	8.59E-13
OCDF	2.00E-16	7.05E-17	2.88E-15	3.43E-16
Arsenic	3.57E-10	1.26E-10	5.67E-09	6.12E-10
Beryllium	4.14E-11	1.46E-11	7.51E-10	7.10E-11
Benzo(a)pyrene	1.84E-10	6.50E-11	2.34E-09	3.16E-10
Benzo(a)anthracene	1.99E-10	7.02E-11	2.42E-09	3.41E-10
Benzo(b)fluoranthene	9.39E-11	3.32E-11	1.16E-09	1.61E-10
Bis(2-ethyl hexyl)phthalate	2.19E-12	7.74E-13	3.20E-11	3.76E-12
Dibenz(a,h)anthracene	2.24E-11	7.90E-12	3.07E-10	3.84E-11
1,4-dichlorobenzene	3.80E-11	1.34E-11	4.22E-10	6.52E-11
2,4-Dinitrotoluene	2.62E-11	9.24E-12	2.89E-10	4.49E-11
2,6-Dinitrotoluene	3.34E-11	1.18E-11	3.69E-10	5.74E-11
Hexachlorobenzene	1.02E-09	3.61E-10	1.37E-08	1.75E-09
Hexachloroethane	1.25E-11	4.41E-12	1.40E-10	2.15E-11
n-Nitroso-di-n-propylamine	4.11E-12	1.45E-12	4.64E-11	7.05E-12
Pentachlorophenol	2.67E-10	9.43E-11	2.97E-09	4.59E-10
3,3'-Tetra CB	2.44E-11	8.61E-12	2.87E-10	4.19E-11
2,3,4,4',5'-Penta CB	7.39E-11	2.61E-11	8.69E-10	1.27E-10
2,3',4,4',5'-Penta CB	1.58E-11	5.57E-12	1.86E-10	2.71E-11
2',3,3',4,4'-Penta CB	6.10E-13	2.15E-13	7.17E-12	1.05E-12
2,3,3',4,4'-Penta CB	2.64E-12	9.32E-13	3.11E-11	4.53E-12
3,3',4,4',5'-Penta CB	6.70E-10	2.36E-10	7.88E-09	1.15E-09
2,3',4,4',5,5'-Hexa CB	8.64E-13	3.05E-13	1.02E-11	1.48E-12
2,3,3',4,4',5-Hexa CB	8.64E-11	3.05E-11	1.02E-09	1.48E-10
2,3,3',4,4',5'_Hexa CB	2.64E-11	9.32E-12	3.11E-10	4.53E-11
3,3',4,4',5,5'-Hexa CB	1.38E-10	4.86E-11	1.62E-09	2.36E-10
2,2',3,4,4',5,5'-Hepta CB	4.49E-11	1.59E-11	5.29E-10	7.71E-11
2,2',3,3',4,4',5-Hepta CB	4.48E-10	1.58E-10	5.27E-09	7.69E-10
2,3,3',4,4',5,5'-Hepta CB	1.90E-12	6.72E-13	2.24E-11	3.26E-12
Total Carcinogenic Risk	7.52E-09	2.65E-09	1.04E-07	1.29E-08

Table 8-13
 Carcinogenic Risk from Plant Consumption
 ESSROC
 Logansport, Indiana

Chemical	Typical Exposure Scenario Maximum Exposure Area		High End Exposure Scenario Maximum Exposure Area	
	Adult	Child	Adult	Child
2,3,7,8 TCDD	2.53E-07	2.51E-07	2.57E-07	2.52E-07
2,3,7,8-PeCDD	1.89E-09	6.18E-11	4.91E-09	1.22E-10
2,3,7,8-HxCDD	2.90E-09	8.56E-11	7.51E-09	1.67E-10
2,3,7,8-HpCDD	8.14E-10	2.32E-11	2.11E-09	4.52E-11
OCDD	4.14E-11	1.20E-12	1.07E-10	2.34E-12
2,3,7,8-TCDF	1.63E-09	8.12E-11	4.28E-09	1.64E-10
1,2,3,7,8-PeCDF	7.86E-10	2.68E-11	2.04E-09	5.31E-11
2,3,4,7,8-PeCDF	1.39E-08	4.48E-10	3.61E-08	8.83E-10
2,3,7,8-HxCDF	5.30E-09	1.57E-10	1.37E-08	3.08E-10
2,3,7,8-HpCDF	3.89E-10	1.10E-11	1.01E-09	2.14E-11
OCDF	5.44E-12	1.53E-13	1.41E-11	2.98E-13
Arsenic	3.52E-10	9.82E-11	9.29E-10	1.92E-10
Beryllium	3.42E-11	9.54E-12	9.07E-11	1.86E-11
Benzo(a)pyrene	3.97E-09	1.21E-10	1.02E-08	2.35E-10
Benzo(a)anthracene	1.59E-10	9.66E-12	3.79E-10	1.94E-11
Benzo(b)fluoranthene	2.48E-10	1.03E-11	6.21E-10	2.05E-11
Bis(2-ethyl hexyl)phthalate	5.54E-09	1.55E-10	1.43E-08	3.01E-10
Dibenz(a,h)anthracene	3.77E-09	1.07E-10	9.74E-09	2.09E-10
1,4-dichlorobenzene	5.43E-11	5.20E-12	1.08E-10	1.03E-11
2,4-Dinitrotoluene	1.44E-09	1.36E-10	2.84E-09	2.68E-10
2,6-Dinitrotoluene	1.93E-09	1.83E-10	3.81E-09	3.60E-10
Hexachlorobenzene	5.50E-10	5.51E-11	1.37E-09	1.14E-10
Hexachlorobutadiene	2.30E-11	5.92E-12	5.69E-11	1.22E-11
Hexachloroethane	1.42E-12	3.87E-13	2.94E-12	7.85E-13
n-Nitroso-di-n-propylamine	8.01E-11	4.59E-12	1.94E-10	1.02E-11
Pentachlorophenol	2.22E-11	1.50E-11	6.09E-11	1.40E-11

Table 8-13
 Carcinogenic Risk from Plant Consumption
 ESSROC
 Logansport, Indiana

Chemical	Typical Exposure Scenario Maximum Exposure Area		High End Exposure Scenario Maximum Exposure Area	
	Adult	Child	Adult	Child
3,3'-Tetra CB	7.52E-15	1.97E-15	1.87E-14	4.80E-15
2,3,4,4',5'-Penta CB	2.27E-14	5.95E-15	5.67E-14	1.45E-14
2,3',4,4',5'-Penta CB	4.86E-15	1.27E-15	1.21E-14	3.10E-15
2',3,3',4,4'-Penta CB	1.88E-16	4.91E-17	4.68E-16	1.20E-16
2,3,3',4,4'-Penta CB	8.13E-16	2.13E-16	2.03E-15	5.20E-16
3,3',4,4',5'-Penta CB	2.01E-13	5.29E-14	5.00E-13	1.30E-13
2,3',4,4',5,5'-Hexa CB	2.66E-16	6.96E-17	6.63E-16	1.70E-16
2,3,3',4,4',5'-Hexa CB	2.66E-14	6.96E-15	6.63E-14	1.70E-14
2,3,3',4,4',5',5'-Hexa CB	8.13E-15	2.13E-15	2.03E-14	5.20E-15
3,3',4,4',5,5'-Hexa CB	4.24E-14	1.11E-14	1.06E-13	2.71E-14
2,2',3,4,4',5,5'-Hepta CB	1.38E-14	3.62E-15	3.45E-14	8.84E-15
2,2',3,3',4,4',5'-Hepta CB	1.38E-13	3.61E-14	3.44E-13	8.82E-14
2,3,3',4,4',5,5'-Hepta CB	5.86E-16	1.53E-16	1.46E-15	3.74E-16

Total Carcinogenic Risk 2.99E-07 2.53E-07 3.73E-07 2.55E-07

Table 8-14
 Carcinogenic Risk from Exposure to Animal Products
 ESSROC
 Logansport, Indiana

Chemical	Typical Exposure Scenario Maximum Exposure Area		High End Exposure Scenario Maximum Exposure Area	
	Adult	Child	Adult	Child
2,3,7,8 TCDD	1.12E-08	4.77E-09	5.32E-08	1.85E-08
2,3,7,8-PeCDD	1.15E-08	5.08E-09	5.52E-08	2.06E-08
2,3,7,8-HxCDD	7.48E-09	3.34E-09	3.57E-08	1.36E-08
2,3,7,8-HpCDD	3.01E-10	1.33E-10	1.44E-09	5.40E-10
OCDD	1.38E-11	6.04E-12	6.58E-11	2.41E-11
2,3,7,8-TCDF	8.31E-09	3.54E-09	3.96E-08	1.36E-08
1,2,3,7,8-PeCDF	1.23E-09	5.35E-10	5.88E-09	2.11E-09
2,3,4,7,8-PeCDF	7.98E-08	3.46E-08	3.81E-07	1.37E-07
2,3,7,8-HxCDF	1.03E-08	4.49E-09	4.91E-08	1.79E-08
2,3,7,8-HpCDF	2.61E-10	1.22E-10	1.27E-09	5.32E-10
OCDF	2.29E-12	1.34E-12	1.68E-11	9.88E-12
Arsenic	3.89E-10	1.81E-10	1.78E-09	6.13E-10
Beryllium	2.63E-11	1.22E-11	1.34E-10	3.99E-11
Benzo(a)pyrene	1.18E-08	6.35E-09	6.15E-08	3.28E-08
Benzo(a)anthracene	5.26E-10	3.08E-10	2.59E-09	1.54E-09
Benzo(b)fluoranthene	2.50E-09	1.44E-09	1.24E-08	7.20E-09
Bis(2-ethyl hexyl)phthalate	4.14E-09	2.10E-09	2.27E-08	1.11E-08
Dibenz(a,h)anthracene	4.61E-08	2.37E-08	2.51E-07	1.25E-07
1,4-dichlorobenzene	1.42E-13	8.78E-14	7.14E-13	4.75E-13
2,4-Dinitrotoluene	1.68E-14	1.02E-14	7.90E-14	5.62E-14
2,6-Dinitrotoluene	1.64E-14	1.00E-14	7.74E-14	5.51E-14
Hexachlorobenzene	1.51E-09	9.06E-10	8.06E-09	4.50E-09
Hexachlorobutadiene	2.24E-11	1.36E-11	1.25E-10	6.90E-11
Hexachloroethane	6.59E-14	3.98E-14	3.04E-13	2.08E-13
n-Nitroso-di-n-propylamine	8.33E-16	5.02E-16	3.98E-15	2.77E-15
Pentachlorophenol	2.47E-12	1.46E-12	1.13E-11	7.37E-12

Table 8-14
Carcinogenic Risk from Exposure to Animal Products
ESSROC
Logansport, Indiana

Chemical	Typical Exposure Scenario Maximum Exposure Area		High End Exposure Scenario Maximum Exposure Area	
	Adult	Child	Adult	Child
3,3'-Tetra CB	4.99E-13	3.17E-13	2.24E-12	1.56E-12
2,3,4,4',5'-Penta CB	1.51E-12	9.60E-13	6.77E-12	4.73E-12
2,3',4,4',5'-Penta CB	3.22E-13	2.05E-13	1.45E-12	1.01E-12
2',3,3',4,4'-Penta CB	1.25E-14	7.93E-15	5.59E-14	3.91E-14
2,3,3',4,4'-Penta CB	5.39E-14	3.43E-14	2.42E-13	1.69E-13
3,3',4,4',5'-Penta CB	1.37E-11	8.71E-12	6.14E-11	4.29E-11
2,3',4,4',5,5'-Hexa CB	1.76E-14	1.12E-14	7.92E-14	5.54E-14
2,3,3',4,4',5'-Hexa CB	1.76E-12	1.12E-12	7.92E-12	5.54E-12
2,3,3',4,4',5',5'-Hexa CB	5.39E-13	3.43E-13	2.42E-12	1.69E-12
3,3',4,4',5,5',5'-Hexa CB	2.81E-12	1.79E-12	1.26E-11	8.83E-12
2,2',3,4,4',5,5'-Hepta CB	9.18E-13	5.84E-13	4.12E-12	2.88E-12
2,2',3,3',4,4',5'-Hepta CB	9.15E-12	5.83E-12	4.11E-11	2.87E-11
2,3,3',4,4',5,5'-Hepta CB	3.89E-14	2.47E-14	1.74E-13	1.22E-13

Total Carcinogenic Risk 1.97E-07 9.16E-08 9.83E-07 4.07E-07

Table 8-15
 Comparison of CKD Waste Pile Fugitive Emissions to Kiln Stack Emissions
 ESSROC
 Logansport, Indiana

Chemical	CKD Pile Impact (Total Dep.) g/m2	Kiln Impact (Total Dep.) g/m2	CKD Pile Impact (Wet Dep.) g/m2	Kiln Impact (Wet Dep.) g/m2	CKD Pile Impact (Dry Dep.) g/m2	Kiln Impact (Dry Dep.) g/m2	Total Risk Indirect Pathways	Total HI Indirect Pathways
Antimony	3.76239E-07	2.3772E-06	2.2014E-08	1.0475E-06	3.5422E-07	2.3996E-07	2.80E-09	1.61E-05
Arsenic	2.14994E-07	2.76774E-06	1.258E-08	1.2196E-06	2.0241E-07	2.7938E-07	2.80E-09	2.13E-05
Barium	8.47271E-06	2.58096E-06	4.9575E-07	1.1373E-06	7.977E-06	2.6053E-07	2.90E-10	8.25E-07
Beryllium	4.88622E-08	1.00182E-07	2.859E-09	4.4144E-08	4.6003E-08	1.0113E-08		1.39E-07
Cadmium	5.27712E-07	3.70164E-05	3.0877E-08	1.6311E-05	4.9683E-07	3.7365E-06		1.77E-04
Chromium, total	1.8812E-06	6.85992E-06	1.1007E-07	3.0227E-06	1.7711E-06	6.9246E-07		3.52E-08
Lead	1.92615E-05	0.000521286	1.127E-06	0.0002297	1.8134E-05	5.262E-05		1.84E-03
Mercury	6.84071E-08	5.22984E-05	4.0026E-09	2.3045E-05	6.4405E-08	5.2791E-06		2.24E-06
Nickel	1.21178E-06	7.02972E-06	7.0904E-08	3.0975E-06	1.1409E-06	7.096E-07		1.53E-05
Selenium	5.13054E-07	9.0843E-06	3.002E-08	4.0029E-06	4.8303E-07	9.1699E-07		1.53E-05
Silver	3.81126E-07	1.34991E-06	2.23E-08	5.9482E-07	3.5883E-07	1.3626E-07		1.17E-03
Thallium	5.13054E-07	3.26016E-06	3.002E-08	1.4365E-06	4.8303E-07	3.2909E-07		1.17E-03

Table 8-16
 Summary of Hazard Indices and Carcinogenic Risks for All Pathways
 ESSROC
 Logansport, Indiana

Pathway	Typical Exposure Scenario Hazard Indices		High End Exposure Scenario Hazard Indices	
	Adult	Child	Adult	Child
Air	5.93E-04	2.38E-03	5.93E-04	2.38E-03
Soil	1.12E-03	1.02E-02	1.13E-03	1.03E-02
Plant	1.45E-03	1.57E-03	3.29E-03	4.95E-03
Animal Products	5.84E-04	1.42E-03	2.05E-03	5.63E-03
Drinking Water	7.65E-04	1.78E-03	7.65E-04	1.78E-03
Surface Water	4.47E-05	2.08E-04	1.28E-04	5.90E-04
Fish	5.69E-01	1.00E+00	6.26E+00	4.88E+00
Total	0.573557	1.017558	6.267956	4.905630

Pathway	Typical Exposure Scenario Carcinogenic Risks		High End Exposure Scenario Carcinogenic Risks	
	Adult	Child	Adult	Child
Air	6.79E-08	4.71E-08	6.79E-08	4.71E-08
Soil	2.09E-08	3.57E-08	2.49E-08	3.75E-08
Plant	2.97E-07	2.52E-07	3.73E-07	2.54E-07
Animal Products	1.98E-07	9.17E-08	9.84E-07	4.08E-07
Drinking Water	1.74E-08	8.14E-09	1.74E-08	8.14E-09
Surface Water	3.33E-10	8.40E-10	9.52E-10	2.40E-09
Fish	7.52E-09	2.65E-09	1.04E-07	1.29E-08
Total	6.09E-07	4.38E-07	1.57E-06	7.70E-07



Table 8-17
Tier 1A Metal Emission Rates
ESSROC
Logansport, Indiana

Chemical	2 Kilo Emission Rate (g/s)	Child Inhalation	Child High End Direct Contact	Child Drinking Water Ingestion	Child High End Swimming	Adult High End Fish Ingestion	Adult High End Plant Ingestion	Child High End Beef Ingestion	Total Hazard Index
		HQ	HQ	HQ	HQ	HQ	HQ	HQ	HQ
Antimony	1.0288	0.014395308	0.225017233	0.374992009	0.150296428	0.124378919	0.020479608	0.0404816	0.950041106
Barium	139.456	0.011150367	0.168161528	0.307541272	0.123232891		0.015302412	0.020020322	0.645408792
Divalent Mercury	6.1606E-03	7.0322E-07	0.009048232	9.02894E-06	4.64446E-06		0.000291371	0.00722661	0.016580589
Methyl Mercury	6.1606E-03	0.000193123	7.71337E-05	2.01461E-07	3.34595E-07	6.257450146	2.27666E-05	3.61317E-05	6.257779837
Nickel	10.88	0.003044731	0.053493847	0.061724649	0.024768493	0.157117483	0.002971771	0.055159933	0.358280907
Selenium	2.73	0.003055925	0.009386143	0.137575375	0.055003842	0.147180567	0.001834109	0.12244599	0.47648195
Silver	3.874	0.004336503	0.021663908	0.193380112	0.077332358	0.327160848	0.007450168	0.318261994	0.949585891
Thallium	0.0365	0.0025536	0.045904382	0.048487922	0.019463825	0.574891353	0.001843206	0.258544446	0.951688734

HQ - Hazard Quotient

Table 8-17A
 ESSROC Calculated Tier 1A Metals Feed Rate Limits
 ESSROC
 Logansport, Indiana

Chemical	Trial Burn System Removal Efficiency (Average SRE from Phase II)	Tier 1A Total Feed Stream Feed Rate Permit Limit Requested (one kiln - grams/hr)	Calculated Tier 1A Emission (@ Stack based on SRE) (one kiln - grams/hr)	Calculated Tier 1A Emission (@ Stack based on SRE) (two kiln - grams/s)
Antimony	99.891%	4,730	5.2	2.88E-03
Barium	99.987%	251,022	32.6	1.81E-02
Mercury	96.693%	325	10.7	5.94E-03
Nickel	99.866%	19,584	26.2	1.45E-02
Selenium	99.702%	17,322	51.6	2.87E-02
Silver	99.860%	11,893	16.7	9.28E-03
Thallium	99.891%	4,273	4.7	2.61E-03

Table 8-18A
 Comparison of Fish Ingestion Risks for Dioxin/Furan Emission Rates
 During Trial Burn Versus MACT Standard Emission Rate
 ESSROC
 Logansport, Indiana

Chemical	High End Exposure Scenario		Subsistence Fisherman	
	Wabash River		Wabash River	
	Trial Burn Emission Rate Adult	MACT 2,3,7,8 TCDD* Emission Rate Adult	Trial Burn Emission Rate Adult	MACT 2,3,7,8 TCDD* Emission Rate Adult
2,3,7,8 TCDD	5.88E-09		2.35E-08	
2,3,7,8-PeCDD	3.26E-09		1.30E-08	
2,3,7,8-HxCDD	1.01E-09		4.03E-09	
2,3,7,8-HpCDD	2.82E-11		1.13E-10	
OCDD	2.57E-14		1.03E-13	
2,3,7,8-TCDF	1.55E-08		6.22E-08	
1,2,3,7,8-PeCDF	2.23E-09		8.93E-09	
2,3,4,7,8-PeCDF	2.52E-08		1.01E-07	
2,3,7,8-HxCDF	1.88E-09		7.51E-09	
2,3,7,8-HpCDF	7.45E-12		2.98E-11	
OCDF	2.88E-15		1.15E-14	
Total	5.50E-08	5.24E-09	2.20E-07	4.96E-08

*Emission rate based on MACT Standard of 0.2 ng/dscem 2,3,7,8 TCDD Equivalents

Table 8-18B
Comparison of Plant Ingestion Risks for Dioxin/Furan Emission Rates
During Trial Burn Versus MACT Standard Emission Rate
ESSROC

Logansport, Indiana

Chemical	High End Exposure Scenario		Subsistence Farmer	
	MACT		MACT	
	Trial Burn Emission Rate Adult	2,3,7,8 TCDD* Emission Rate Adult	Trial Burn Emission Rate Adult	2,3,7,8 TCDD* Emission Rate Adult
2,3,7,8 TCDD	2.57E-07		2.70E-07	
2,3,7,8-PeCDD	4.91E-09		2.88E-08	
2,3,7,8-HxCDD	7.51E-09		2.62E-08	
2,3,7,8-HpCDD	2.11E-09		3.93E-09	
OCDD	1.07E-10		7.95E-11	
2,3,7,8-TCDF	4.28E-09		3.35E-08	
1,2,3,7,8-PeCDF	2.04E-09		1.02E-08	
2,3,4,7,8-PeCDF	3.61E-08		1.27E-07	
2,3,7,8-HxCDF	1.37E-08		1.68E-08	
2,3,7,8-HpCDF	1.01E-09		1.60E-08	
OCDF	1.41E-11		1.01E-11	
Total	3.28E-07	2.51E-07	5.33E-07	2.52E-07

*Emission rate based on MACT Standard of 0.2 ng/dscm 2,3,7,8 TCDD Equivalents

Table 8-18C
 Comparison of Beef Ingestion Risks for Dioxin/Furan Emission Rates
 During Trial Burn Versus MACT Standard Emission Rate

ESSROC

Logansport, Indiana

Chemical	High End Exposure Scenario		Subsistence Farmer	
	Trial Burn Emission Rate Adult	MACT 2,3,7,8 TCDD* Emission Rate Adult	Trial Burn Emission Rate Adult	MACT 2,3,7,8 TCDD* Emission Rate Adult
2,3,7,8 TCDD	5.32E-08		1.22E-07	
2,3,7,8-PeCDD	5.52E-08		1.27E-07	
2,3,7,8-HxCDD	3.57E-08		8.24E-08	
2,3,7,8-HpCDD	1.44E-09		3.33E-09	
OCDD	6.58E-11		1.52E-10	
2,3,7,8-TCDF	3.96E-08		9.09E-08	
1,2,3,7,8-PeCDF	5.88E-09		1.35E-08	
2,3,4,7,8-PeCDF	3.81E-07		8.77E-07	
2,3,7,8-HxCDF	4.91E-08		1.13E-07	
2,3,7,8-HpCDF	1.27E-09		2.95E-09	
OCDF	1.68E-11		4.01E-11	
Total	6.22E-07	1.28E-07	1.43E-06	3.05E-07

*Emission rate based on MACT Standard of 0.2 ng/dscm 2,3,7,8 TCDD Equivalents



