# Look-Up Tables

Transpiration

Evaporation

Field

SOIL VOLATILIZING TO INDOOR AIR

Lake

Groundwater

South Dakota Department of Agriculture and Natural Resources Inspection, Compliance, and Remediation Program
Pierre, SD 57501

Hydrologic Cycle

\*TABLE 1 - TOP OF SOIL CONTAMINATION LESS THAN FIVE FEET BELOW GROUND SURFACE

Residential Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.1	1.3	1.3
Toluene (mg/kg)	310	330	340
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	3,300	5,200	5,800
Residential Building > 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.4	1.6	1.7
Toluene (mg/kg)	390	410	420
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	4,000	6,500	7,100
Commercial Building < 1.200 equare feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Commercial Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	
Benzene (mg/kg)	4.7	5.3	5.6
Benzene (mg/kg) Toluene (mg/kg)	4.7 **>740	5.3 **>790	5.6 **>790
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg)	4.7 **>740 **>630	5.3 **>790 **>640	5.6 **>790 **>650
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg)	4.7 **>740 **>630 **>500	5.3 **>790 **>640 **>510	5.6 **>790 **>650 **>510
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg)	4.7 **>740 **>630 **>500 **>620	5.3 **>790 **>640 **>510 **>620	5.6 **>790 **>650 **>510 **>620
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg)	4.7 **>740 **>630 **>500	5.3 **>790 **>640 **>510	5.6 **>790 **>650 **>510
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg)	4.7 **>740 **>630 **>500 **>620	5.3 **>790 **>640 **>510 **>620	5.6  **>790  **>650  **>510  **>620  **>15,000
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg) Commercial Building > 1,200 square feet	4.7  **>740  **>630  **>500  **>620  **>8,300	5.3  **>790  **>640  **>510  **>620  **>13,000	5.6  **>790  **>650  **>510  **>620  **>15,000
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand	5.3  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt	5.6  **>790  **>650  **>510  **>620  **>15,000   Sandy Clay to Clay
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)  Commercial Building > 1,200 square feet Benzene (mg/kg) Toluene (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand  5.8	5.3  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt  6.6	5.6  **>790  **>650  **>510  **>620  **>15,000   Sandy Clay to Clay  6.9
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)  Commercial Building > 1,200 square feet Benzene (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand  5.8  **>740  **>630	5.3  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt  6.6  **>790	5.6  **>790  **>650  **>510  **>620  **>15,000   Sandy Clay to Clay  6.9  **>790
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)  Commercial Building > 1,200 square feet Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand  5.8  **>740  **>630	5.3  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt  6.6  **>790  **>640	5.6  **>790  **>650  **>510  **>620  **>15,000   Sandy Clay to Clay  6.9  **>790  **>650

<sup>\*</sup> Values in this table are NOT to be used if both contaminated soil and contaminated ground water are present under a building

<sup>\*\*&</sup>quot;>" indicates risk-based target concentration greater than constituent residual saturation value; concentrations exceeding these levels are indicative of product-saturated soil and soil removal is required

\*TABLE 2 - TOP OF SOIL CONTAMINATION FIVE FEET TO LESS THAN TEN FEET BELOW GROUND SURFACE

Residential Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.1	1.3	1.8
Toluene (mg/kg)	310	340	450
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	3,300	5,300	6,000
Residential Building > 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.4	1.6	2.1
Toluene (mg/kg)	390	420	530
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	4,000	6,600	7,400
Commercial Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Commercial Building < 1,200 square feet  Benzene (mg/kg)	Sand to Clayey Sand 4.7	Sandy Silt to Clayey Silt 5.4	Sandy Clay to Clay 7.3
<u> </u>			
Benzene (mg/kg)	4.7	5.4	7.3
Benzene (mg/kg) Toluene (mg/kg)	4.7 **>740	5.4 **>790	7.3 **>790
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg)	4.7 **>740 **>630	5.4 **>790 **>640	7.3 **>790 **>650
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg)	4.7 **>740 **>630 **>500	5.4 **>790 **>640 **>510	7.3 **>790 **>650 **>510
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg)	4.7  **>740  **>630  **>500  **>620	5.4 **>790 **>640 **>510 **>620	7.3  **>790  **>650  **>510  **>620  **>15,000
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg) Commercial Building > 1,200 square feet	4.7  **>740  **>630  **>500  **>620  **>8,300	5.4 **>790 **>640 **>510 **>620 **>13,000	7.3  **>790  **>650  **>510  **>620  **>15,000
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)  Commercial Building > 1,200 square feet Benzene (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand	5.4  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt	7.3  **>790  **>650  **>610  **>620  **>15,000   Sandy Clay to Clay
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg) Commercial Building > 1,200 square feet	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand  5.8	5.4  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt  6.7	7.3  **>790  **>650  **>510  **>620  **>15,000   Sandy Clay to Clay  8.6
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)  Commercial Building > 1,200 square feet Benzene (mg/kg) Toluene (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand  5.8  **>740	5.4  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt  6.7  **>790	7.3  **>790  **>650  **>510  **>620  **>15,000  Sandy Clay to Clay  8.6  **>790
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)  Commercial Building > 1,200 square feet Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand  5.8  **>740  **>630	5.4  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt  6.7  **>790  **>640	7.3  **>790  **>650  **>510  **>620  **>15,000  Sandy Clay to Clay  8.6  **>790  **>650

<sup>\*</sup> Values in this table are NOT to be used if both contaminated soil and contaminated ground water are present under a building

<sup>\*\*&</sup>quot;>" indicates risk-based target concentration greater than constituent residual saturation value; concentrations exceeding these levels are indicative of product-saturated soil and soil removal is required

\*TABLE 3 - TOP OF SOIL CONTAMINATION TEN FEET TO LESS THAN FIFTEEN FEET BELOW GROUND SURFACE

Residential Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.1	1.3	2.2
Toluene (mg/kg)	310	350	570
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	3,300	5,400	6,300
Residential Building > 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.4	1.6	2.5
Toluene (mg/kg)	390	430	650
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	4,000	6,700	7,600
Commercial Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Commercial Building < 1,200 square feet  Benzene (mg/kg)	Sand to Clayey Sand 4.7	Sandy Silt to Clayey Silt 5.6	9.2
Benzene (mg/kg)	4.7	5.6	9.2
Benzene (mg/kg) Toluene (mg/kg)	4.7 **>740	5.6 **>790	9.2 **>790
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg)	4.7 **>740 **>630	5.6 **>790 **>640	9.2 **>790 **>650
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg)	4.7 **>740 **>630 **>500	5.6 **>790 **>640 **>510	9.2 **>790 **>650 **>510
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg)	4.7  **>740  **>630  **>500  **>620	5.6 **>790 **>640 **>510 **>620	9.2  **>790  **>650  **>510  **>620  **>15,000
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg) Commercial Building > 1,200 square feet	4.7  **>740  **>630  **>500  **>620  **>8,300	5.6  **>790  **>640  **>510  **>620  **>13,000	9.2  **>790  **>650  **>510  **>620  **>15,000
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand	5.6  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt	9.2  **>790  **>650  **>510  **>620  **>15,000   Sandy Clay to Clay
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)  Commercial Building > 1,200 square feet Benzene (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand  5.8	5.6  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt  6.8	9.2  **>790  **>650  **>510  **>620  **>15,000   Sandy Clay to Clay
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)  Commercial Building > 1,200 square feet Benzene (mg/kg) Toluene (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand  5.8  **>740	5.6  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt  6.8  **>790	9.2  **>790  **>650  **>510  **>620  **>15,000  Sandy Clay to Clay  10  **>790
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)  Commercial Building > 1,200 square feet Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand  5.8  **>740  **>630	5.6  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt  6.8  **>790  **>640	9.2  **>790  **>650  **>510  **>620  **>15,000   Sandy Clay to Clay  10  **>790  **>650

<sup>\*</sup> Values in this table are NOT to be used if both contaminated soil and contaminated ground water are present under a building
\*\*">" indicates risk-based target concentration greater than constituent residual saturation value; concentrations exceeding these
levels are indicative of product-saturated soil and soil removal is required

\*TABLE 4 - TOP OF SOIL CONTAMINATION FIFTEEN FEET BELOW GROUND SURFACE AND DEEPER

Residential Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.1	1.4	2.7
Toluene (mg/kg)	320	360	690
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	3,300	5,500	6,600
Residential Building > 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	Sandy Clay to Clay
Benzene (mg/kg)	1.4	1.7	3.0
Toluene (mg/kg)	390	430	770
Ethyl Benzene (mg/kg)	**>630	**>640	**>650
Xylenes (mg/kg)	**>500	**>510	**>510
Naphthalene (mg/kg)	**>620	**>620	**>620
Methyl Tertiary Butyl Ether (mg/kg)	4,100	6,800	7,900
Commercial Building < 1,200 square feet	Sand to Clayey Sand	Sandy Silt to Clayey Silt	
Benzene (mg/kg)	4.7	5.7	11
Benzene (mg/kg) Toluene (mg/kg)	<b>4.7</b> **>740	5.7 **>790	11 **>790
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg)	4.7 **>740 **>630	5.7 **>790 **>640	11 **>790 **>650
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg)	4.7 **>740 **>630 **>500	5.7 **>790 **>640 **>510	11 **>790 **>650 **>510
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg)	4.7 **>740 **>630 **>500 **>620	5.7 **>790 **>640 **>510 **>620	11  **>790  **>650  **>610  **>620
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg)	4.7 **>740 **>630 **>500	5.7 **>790 **>640 **>510	11 **>790 **>650 **>510
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300	5.7  **>790  **>640  **>510  **>620  **>13,000	11  **>790  **>650  **>510  **>620  **>15,000
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg) Commercial Building > 1,200 square feet	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand	5.7  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt	11  **>790  **>650  **>510  **>620  **>15,000  Sandy Clay to Clay
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)  Commercial Building > 1,200 square feet Benzene (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand  5.9	5.7  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt  6.9	11  **>790  **>650  **>510  **>620  **>15,000  Sandy Clay to Clay  12
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)  Commercial Building > 1,200 square feet Benzene (mg/kg) Toluene (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand  5.9  **>740	5.7  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt  6.9  **>790	11  **>790  **>650  **>510  **>620  **>15,000  Sandy Clay to Clay  12  **>790
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)  Commercial Building > 1,200 square feet Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand  5.9  **>740  **>630	5.7  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt  6.9  **>790  **>640	11  **>790  **>650  **>510  **>620  **>15,000   Sandy Clay to Clay  12  **>790  **>650
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)  Commercial Building > 1,200 square feet Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand  5.9  **>740  **>630  **>500	5.7  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt  6.9  **>790  **>640  **>510	11  **>790  **>650  **>510  **>620  **>15,000  Sandy Clay to Clay  12  **>790  **>650  **>510
Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg) Xylenes (mg/kg) Naphthalene (mg/kg) Methyl Tertiary Butyl Ether (mg/kg)  Commercial Building > 1,200 square feet Benzene (mg/kg) Toluene (mg/kg) Ethyl Benzene (mg/kg)	4.7  **>740  **>630  **>500  **>620  **>8,300  Sand to Clayey Sand  5.9  **>740  **>630	5.7  **>790  **>640  **>510  **>620  **>13,000  Sandy Silt to Clayey Silt  6.9  **>790  **>640	11  **>790  **>650  **>510  **>620  **>15,000   Sandy Clay to Clay  12  **>790  **>650

<sup>\*</sup> Values in this table are NOT to be used if both contaminated soil and contaminated ground water are present under a building
\*\*">" indicates risk-based target concentration greater than constituent residual saturation value; concentrations exceeding these
levels are indicative of product-saturated soil and soil removal is required