

Maryland Department of the Environment  
**GENERIC NUMERIC CLEANUP STANDARDS FOR GROUNDWATER AND SOIL**

| Analyte                                       | Groundwater Standards |         | Soil Standards                |                                   |  |
|---|-----------------------|---------|-------------------------------|-----------------------------------|--|
|   | Type I & II Aquifers  |         | Residential Clean-up Standard | Non-Residential Clean-up Standard | Protection of Groundwater <sup>a</sup> |
|   | ug/L                  | mg/L    | mg/kg                         | mg/kg                             | mg/kg                                  |
| Acetone                                       | 550                   | 0.550   | 7000                          | 92000                             | 22                                     |
| Benzene                                       | 5.0                   | 0.005   | 12                            | 52                                | 0.0019                                 |
| Bromodichloromethane (THM) <sup>b</sup>       | 80                    | 0.080   | 10                            | 46                                | 0.0011                                 |
| Bromoform (THM) <sup>b</sup>                  | 80                    | 0.080   | 81                            | 360                               | 0.067                                  |
| Bromomethane                                  | 0.85                  | 0.00085 | 11                            | 140                               | 0.041                                  |
| 2-Butanone (Methyl Ethyl Ketone)              | 700                   | 0.700   | 4700                          | 61000                             | 29                                     |
| Carbon Disulfide                              | 100                   | 0.100   | 780                           | 10000                             | 19                                     |
| Carbon Tetrachloride                          | 5.0                   | 0.005   | 4.9                           | 22                                | 0.0021                                 |
| Chlorobenzene                                 | 100                   | 0.100   | 160                           | 2000                              | 0.680                                  |
| Chloroethane                                  | 3.6                   | 0.0036  | 220                           | 990                               | 0.019                                  |
| Chloroform (THM) <sup>b</sup>                 | 80                    | 0.080   | 78                            | 1000                              | 0.00091                                |
| Chloromethane                                 | 19                    | 0.019   | --                            | --                                | 0.930                                  |
| Dibromochloromethane (THM) <sup>b</sup>       | 80                    | 0.080   | 7.6                           | 34                                | 0.00083                                |
| Dibromochloropropane (DBCP) <sup>f</sup>      | 0.20                  | 0.0002  | 0.2                           | 3.6                               | 0.0000037                              |
| 1,2-Dibromoethane (Ethylene Dibromide, EDB)   | 0.05                  | 0.00005 | 0.3                           | 1.4                               | 0.00006                                |
| 1,1-Dichloroethane                            | 90                    | 0.090   | 1600                          | 20000                             | 5.1                                    |
| 1,2-Dichloroethane                            | 5.0                   | 0.005   | 7.0                           | 31                                | 0.0010                                 |
| 1,1-Dichloroethene                            | 7.0                   | 0.007   | 390                           | 5100                              | 2.9                                    |
| cis-1,2-Dichloroethene                        | 70                    | 0.070   | 78                            | 1000                              | --                                     |
| trans-1,2-Dichloroethene                      | 100                   | 0.100   | 160                           | 2000                              | 0.720                                  |
| 1,2-Dichloroethene (total)                    | 5.50                  | 0.0055  | 70                            | 920                               | 0.370                                  |
| 1,2-Dichloropropane                           | 5.0                   | 0.005   | 9.4                           | 42                                | 0.0034                                 |
| cis-1,3-Dichloropropene                       | 0.44                  | 0.00044 | 6.4                           | 29                                | 0.0031                                 |
| trans-1,3-Dichloropropene                     | 0.44                  | 0.00044 | 6.4                           | 29                                | 0.0031                                 |
| Ethylbenzene                                  | 700                   | 0.700   | 780                           | 10000                             | 15                                     |
| Isopropylbenzene (Cumene)                     | 66                    | 0.066   | 780                           | 10000                             | 64                                     |
| 4-Methyl-2-pentanone (Methyl Isobutyl Ketone) | 630                   | 0.630   | --                            | --                                | 59                                     |
| Methylene Chloride (Dichloromethane)          | 5.0                   | 0.005   | 85                            | 380                               | 0.019                                  |
| Methyl tert-butyl ether (MTBE) <sup>c</sup>   | 20                    | 0.020   | 160                           | 720                               | 0.012                                  |
| Styrene                                       | 100                   | 0.100   | 1600                          | 20000                             | 57                                     |
| Tetrachloroethene                             | 5.0                   | 0.005   | 1.2                           | 5.3                               | 0.0047                                 |
| 1,1,2,2-Tetrachloroethane                     | 0.05                  | 0.00005 | 3.2                           | 14                                | 0.001                                  |
| Toluene                                       | 1000                  | 1.000   | 630                           | 8200                              | 27                                     |
| 1,1,1-Trichloroethane                         | 200                   | 0.200   | 16000                         | 200000                            | 32                                     |
| 1,1,2-Trichloroethane                         | 5.0                   | 0.005   | 11                            | 50                                | 0.00078                                |
| Trichloroethene                               | 5.0                   | 0.005   | 1.6                           | 7.2                               | 0.00026                                |
| Vinyl Chloride (earlylife) <sup>f</sup>       | 2.0                   | 0.002   | 0.09                          | --                                | 0.00012                                |
| Vinyl Chloride (adult) <sup>f</sup>           | 2.0                   | 0.002   | --                            | 4.0                               | 0.00012                                |
| Xylenes                                       | 10000                 | 10      | 1600                          | 20000                             | 3.0                                    |

<sup>a</sup> Standard based on Region III SSLs for groundwater migration using a dilution attenuation factor (DAF) of 20. (10/31/2007)

<sup>b</sup> THM (trihalomethanes) Contaminants within this group are disinfection byproducts sometimes added to drinking water.

<sup>c</sup> MTBE action level in Maryland is 20 ug/L.

<sup>d</sup> bis(2-chloroisopropyl)ether (CAS:108601) was named 2,2'-Oxybis(1-chloropropane) in 2001 version.

<sup>e</sup> The vapor intrusion and inhalation of volatiles and fugitive dust exposure pathways must be evaluated when mercury detections on a site exceed the regional mercury Anticipated Typical Concentration (ATC).

<sup>f</sup> Carcinogenic chemicals with a Mutagenic Mode of Action (MOA).



Maryland Department of the Environment  
**GENERIC NUMERIC CLEANUP STANDARDS FOR GROUNDWATER AND SOIL**

| Analyte                                  | Groundwater Standards |         | Soil Standards                |                                   |  |
|--|-----------------------|---------|-------------------------------|-----------------------------------|--|
|  | Type I & II Aquifers  |         | Residential Clean-up Standard | Non-Residential Clean-up Standard | Protection of Groundwater <sup>a</sup> |
|  | ug/L                  | mg/L    | mg/kg                         | mg/kg                             | mg/kg                                  |
| Acenaphthene                             | 37                    | 0.037   | 470                           | 6100                              | 100                                    |
| Acenaphthylene                           | 37                    | 0.037   | 470                           | 6100                              | 100                                    |
| Anthracene                               | 180                   | 0.18    | 2300                          | 31000                             | 470                                    |
| Benz[a]anthracene <sup>f</sup>           | 0.20                  | 0.0002  | 0.22                          | 3.90                              | 0.48                                   |
| Benzo[a]pyrene <sup>f</sup>              | 0.20                  | 0.0002  | 0.022                         | 0.39                              | 0.12                                   |
| Benzo[b]fluoranthene <sup>f</sup>        | 0.20                  | 0.0002  | 0.22                          | 3.90                              | 1.50                                   |
| Benzo[g,h,i]perylene                     | 18                    | 0.018   | 230                           | 3100                              | 680                                    |
| Benzo[k]fluoranthene <sup>f</sup>        | 0.30                  | 0.0003  | 2.2                           | 39                                | 15                                     |
| bis(2-Chloroethyl)ether                  | 0.01                  | 0.00001 | 0.58                          | 2.6                               | 0.000044                               |
| bis(2-Ethylhexyl)phthalate               | 6.00                  | 0.006   | 46                            | 200                               | 2900                                   |
| Carbazole                                | 3.30                  | 0.0033  | 32                            | 140                               | 0.47                                   |
| 4-Chloroaniline                          | 15                    | 0.015   | 31                            | 410                               | 1.0                                    |
| 2-Chloronaphthalene                      | 49                    | 0.049   | 630                           | 8200                              | 32                                     |
| 2-Chlorophenol                           | 3.00                  | 0.003   | 39                            | 510                               | --                                     |
| Chrysene <sup>f</sup>                    | 3.00                  | 0.003   | 22                            | 390                               | 48                                     |
| Dibenz[a,h]anthracene <sup>f</sup>       | 0.20                  | 0.0002  | 0.022                         | 0.39                              | 0.46                                   |
| Dibenzofuran                             | 3.70                  | 0.0037  | 7.80                          | 100                               | --                                     |
| Di(2-ethylhexyl)adipate                  | 400                   | 0.40    | 53                            | 240                               | --                                     |
| 1,2-Dichlorobenzene                      | 600                   | 0.60    | 700                           | 9200                              | 4.60                                   |
| 1,3-Dichlorobenzene                      | 1.8                   | 0.0018  | 23                            | 310                               | 0.29                                   |
| 1,4-Dichlorobenzene                      | 75                    | 0.075   | 27                            | 120                               | 0.0042                                 |
| 3,3-Dichlorobenzidine                    | 0.15                  | 0.00015 | 1.4                           | 6.4                               | 0.0049                                 |
| 2,4-Dichlorophenol                       | 11                    | 0.011   | 23                            | 310                               | 1.2                                    |
| Diethylphthalate                         | 2900                  | 2.90    | 6300                          | 82000                             | 450                                    |
| 2,4-Dimethylphenol                       | 73                    | 0.073   | 160                           | 2000                              | 6.7                                    |
| Di-n-butylphthalate                      | 370                   | 0.37    | 780                           | 10000                             | 5000                                   |
| 2,4-Dinitrophenol                        | 7.3                   | 0.0073  | 16                            | 200                               | --                                     |
| 2,4-Dinitrotoluene                       | 7.3                   | 0.0073  | 16                            | 200                               | 0.57                                   |
| 2,6-Dinitrotoluene                       | 3.7                   | 0.0037  | 7.8                           | 100                               | 0.25                                   |
| Fluoranthene                             | 150                   | 0.15    | 310                           | 4100                              | 6300                                   |
| Fluorene                                 | 24                    | 0.024   | 310                           | 4100                              | 140                                    |
| Hexachlorobenzene                        | 1.00                  | 0.001   | 0.4                           | 1.8                               | 0.05                                   |
| Hexachlorobutadiene                      | 0.86                  | 0.00086 | 8.2                           | 37                                | 1.8                                    |
| Hexachlorocyclopentadiene                | 50                    | 0.05    | 47                            | 610                               | 1800                                   |
| Hexachloroethane                         | 4.8                   | 0.0048  | 46                            | 200                               | 0.36                                   |
| Indeno[1,2,3-c,d]pyrene <sup>f</sup>     | 0.20                  | 0.0002  | 0.2                           | 3.9                               | 4.2                                    |
| Isophorone                               | 70                    | 0.07    | 670                           | 3000                              | 0.41                                   |
| 2-Methylnaphthalene                      | 2.40                  | 0.0024  | 31                            | 410                               | 4.4                                    |
| 2-Methylphenol                           | 180                   | 0.18    | 390                           | 5100                              | --                                     |
| 4-Methylphenol                           | 18                    | 0.018   | 39                            | 510                               | --                                     |
| Naphthalene                              | 0.65                  | 0.00065 | 160                           | 2000                              | 0.15                                   |
| Nitrobenzene                             | 0.35                  | 0.00035 | 3.9                           | 51                                | 0.023                                  |
| N-Nitrosodiphenylamine                   | 14                    | 0.014   | 130                           | 580                               | 0.76                                   |
| N-Nitroso-di-n-propylamine               | 0.01                  | 0.00001 | 0.091                         | 0.41                              | 0.000047                               |
| Bis(2-Chloroisopropyl)ether <sup>d</sup> | 0.26                  | 0.00026 | 9.1                           | 41                                | 0.0017                                 |
| Pentachlorophenol                        | 1.0                   | 0.001   | 5.3                           | 24                                | --                                     |
| Phenanthrene                             | 180                   | 0.18    | 2300                          | 31000                             | 470                                    |
| Phenol                                   | 1100                  | 1.10    | 2300                          | 31000                             | 67                                     |
| Pyrene                                   | 18                    | 0.018   | 230                           | 3100                              | 680                                    |
| 1,2,4-Trichlorobenzene                   | 70                    | 0.07    | 78                            | 1000                              | 2.4                                    |
| 2,4,5-Trichlorophenol                    | 370                   | 0.37    | 780                           | 10000                             | --                                     |
| 2,4,6-Trichlorophenol                    | 6.10                  | 0.0061  | 58                            | 260                               | --                                     |

- PAH compounds

<sup>a</sup> Standard based on Region III SSLs for groundwater migration using a dilution attenuation factor (DAF) of 20. (10/31/2007)

<sup>b</sup> THM (trihalomethanes) Contaminants within this group are disinfection byproducts sometimes added to drinking water.

<sup>c</sup> MTBE action level in Maryland is 20 ug/L.

<sup>d</sup> bis(2-chloroisopropyl)ether (CAS:108601) was named 2,2'-Oxybis(1-chloropropane) in 2001 version.

<sup>e</sup> The vapor intrusion and inhalation of volatiles and fugitive dust exposure pathways must be evaluated when mercury detections on a site exceed the regional mercury Anticipated Typical Concentration (ATC).

<sup>f</sup> Carcinogenic chemicals with a Mutagenic Mode of Action (MOA).



Maryland Department of the Environment  
**GENERIC NUMERIC CLEANUP STANDARDS FOR GROUNDWATER AND SOIL**

| Analyte            | Groundwater Standards |           | Soil Standards                |                                   |  |
|--------------------|-----------------------|-----------|-------------------------------|-----------------------------------|--|
|                    | Type I & II Aquifers  |           | Residential Clean-up Standard | Non-Residential Clean-up Standard | Protection of Groundwater <sup>a</sup> |
|                    | ug/L                  | mg/L      | mg/kg                         | mg/kg                             | mg/kg                                  |
| Alachlor           | 2.0                   | 0.0020    | 8.0                           | 36                                | 0.0070                                 |
| Aldrin             | 0.0039                | 0.0000039 | 0.038                         | 0.2                               | 0.0077                                 |
| Atrazine           | 3.0                   | 0.0030    | 2.9                           | 13                                | 0.0088                                 |
| a-BHC (a-HCH)      | 0.0110                | 0.000011  | 0.10                          | 0.5                               | 0.00089                                |
| b-BHC (b-HCH)      | 0.0370                | 0.000037  | 0.35                          | 1.6                               | 0.0031                                 |
| d-BHC              | 0.20                  | 0.00020   | 0.49                          | 2.2                               | 0.0043                                 |
| g-BHC (Lindane)    | 0.20                  | 0.00020   | 0.49                          | 2.2                               | 0.0043                                 |
| Chlordane          | 2.0                   | 0.00200   | 1.8                           | 8.2                               | 0.92                                   |
| 2,4-D              | 70                    | 0.070     | 78                            | 1000                              | 9.0                                    |
| 4,4'-DDD           | 0.2800                | 0.00028   | 2.7                           | 12                                | 11                                     |
| 4,4'-DDE           | 0.20                  | 0.0002    | 1.9                           | 8.4                               | 35                                     |
| 4,4'-DDT           | 0.20                  | 0.0002    | 1.9                           | 8.4                               | 1.2                                    |
| Dalapon            | 200                   | 0.20      | 230                           | 3100                              | 7.1                                    |
| Dieldrin           | 0.0042                | 0.0000042 | 0.040                         | 0.18                              | 0.0022                                 |
| Dinoseb            | 7.0                   | 0.007     | 7.8                           | 100                               | 0.17                                   |
| Endosulfan         | 22                    | 0.022     | 47                            | 610                               | 20                                     |
| Endosulfan I       | 22                    | 0.022     | 47                            | 610                               | 20                                     |
| Endosulfan II      | 22                    | 0.022     | 47                            | 610                               | 20                                     |
| Endosulfan Sulfate | 22                    | 0.022     | 47                            | 610                               | 20                                     |
| Endrin             | 2.0                   | 0.0020    | 2.3                           | 31                                | 5.4                                    |
| Endrin Aldehyde    | 1.1                   | 0.0011    | 2.3                           | 31                                | 5.4                                    |
| Endrin Ketone      | 1.1                   | 0.0011    | 2.3                           | 31                                | 5.4                                    |
| Glyphosate         | 700                   | 0.70      | 780                           | 10000                             | 530                                    |
| Heptachlor         | 0.4                   | 0.0004    | 0.14                          | 0.64                              | 0.84                                   |
| Heptachlor Epoxide | 0.2                   | 0.0002    | 0.070                         | 0.31                              | 0.025                                  |
| Methoxychlor       | 40                    | 0.040     | 39                            | 510                               | 310                                    |
| Oxamyl             | 200                   | 0.200     | 200                           | 2600                              | 3.8                                    |
| Simazine           | 4.0                   | 0.0040    | 5.3                           | 24                                | 0.0033                                 |
| 2,4,5-TP (Silvex)  | 50                    | 0.05      | 78                            | 1000                              | 2.0                                    |
| Toxaphene          | 3.0                   | 0.003     | 0.58                          | 2.6                               | 0.63                                   |
| PCB(total)         | 0.50                  | 0.0005    | 0.32                          | 1.4                               | 0.41                                   |
| Aroclor 1016       | 1.0                   | 0.0010    | 0.55                          | 41                                | 4.2                                    |
| Aroclor 1221       | 0.50                  | 0.0005    | 0.32                          | 1.4                               | --                                     |
| Aroclor 1232       | 0.50                  | 0.0005    | 0.32                          | 1.4                               | --                                     |
| Aroclor 1242       | 0.50                  | 0.0005    | 0.32                          | 1.4                               | --                                     |
| Aroclor 1248       | 0.50                  | 0.0005    | 0.32                          | 1.4                               | --                                     |
| Aroclor 1254       | 0.50                  | 0.0005    | 0.32                          | 1.4                               | 1.1                                    |
| Aroclor 1260       | 0.50                  | 0.0005    | 0.32                          | 1.4                               | --                                     |

<sup>a</sup> Standard based on Region III SSLs for groundwater migration using a dilution attenuation factor (DAF) of 20. (10/31/2007)

<sup>b</sup> THM (trihalomethanes) Contaminants within this group are disinfection byproducts sometimes added to drinking water.

<sup>c</sup> MTBE action level in Maryland is 20 ug/L.

<sup>d</sup> bis(2-chloroisopropyl)ether (CAS:108601) was named 2,2'-Oxybis(1-chloropropane) in 2001 version.

<sup>e</sup> The vapor intrusion and inhalation of volatiles and fugitive dust exposure pathways must be evaluated when mercury detections on a site exceed the regional mercury Anticipated Typical Concentration (ATC).

<sup>f</sup> Carcinogenic chemicals with a Mutagenic Mode of Action (MOA).



Maryland Department of the Environment  
**GENERIC NUMERIC CLEANUP STANDARDS FOR GROUNDWATER AND SOIL**

| Analyte                                 | Groundwater Standards |        | Soil Standards                |                                   |  |
|---|-----------------------|--------|-------------------------------|-----------------------------------|--|
|   | Type I & II Aquifers  |        | Residential Clean-up Standard | Non-Residential Clean-up Standard | Protection of Groundwater <sup>a</sup> |
|   | ug/L                  | mg/L   | mg/kg                         | mg/kg                             | mg/kg                                  |
| Aluminum                                | 3700                  | 3.7    | 7800                          | 100000                            | --                                     |
| Antimony                                | 6.0                   | 0.0060 | 3.1                           | 41                                | 13                                     |
| Arsenic                                 | 10                    | 0.010  | 0.43                          | 1.9                               | 0.026                                  |
| Barium                                  | 2000                  | 2.0    | 1600                          | 20000                             | 6000                                   |
| Beryllium                               | 4.0                   | 0.0040 | 16                            | 200                               | 1200                                   |
| Cadmium                                 | 5.0                   | 0.0050 | 3.9                           | 51                                | 27                                     |
| Chromium (total)                        | 100                   | 0.10   | 23                            | 310                               | 42                                     |
| Chromium III                            | 100                   | 0.10   | 12000                         | 150000                            | 2000000000                             |
| Chromium VI                             | 100                   | 0.10   | 23                            | 310                               | 42                                     |
| Copper                                  | 1300                  | 1.3    | 310                           | 4100                              | 11000                                  |
| Iron                                    | 2600                  | 2.6    | 5500                          | 72000                             | --                                     |
| Lead                                    | 15                    | 0.015  | 400                           | 1000                              | --                                     |
| Manganese (nonfood)                     | 73                    | 0.073  | 160                           | 2000                              | 950                                    |
| Mercury (element) <sup>e</sup>          | 2.0                   | 0.0020 | --                            | --                                | --                                     |
| Mercury (inorganic/Mercuric Dichloride) | 2.0                   | 0.002  | 2.3                           | 31                                | --                                     |
| Nickel                                  | 73                    | 0.073  | 160                           | 2000                              | --                                     |
| Selenium                                | 50                    | 0.050  | 39                            | 510                               | 19                                     |
| Silver                                  | 18                    | 0.018  | 39                            | 510                               | 31                                     |
| Thallium                                | 2.0                   | 0.0020 | 0.55                          | 7.2                               | 3.6                                    |
| Tin                                     | 2200                  | 2.2    | 4700                          | 61000                             | --                                     |
| Vanadium                                | 3.7                   | 0.0037 | 7.8                           | 100                               | 730                                    |
| Zinc                                    | 1100                  | 1.1    | 2300                          | 31000                             | 14000                                  |
| Perchlorate                             | 2.6                   | 0.0026 | 5.5                           | 72                                | --                                     |
| Cyanide                                 | 200                   | 0.20   | 160                           | 2000                              | 150                                    |
| Methylmercury                           | 0.4                   | 0.0004 | 0.78                          | 10                                | --                                     |

<sup>a</sup> Standard based on Region III SSLs for groundwater migration using a dilution attenuation factor (DAF) of 20. (10/31/2007)

<sup>b</sup> THM (trihalomethanes) Contaminants within this group are disinfection byproducts sometimes added to drinking water.

<sup>c</sup> MTBE action level in Maryland is 20 ug/L.

<sup>d</sup> bis(2-chloroisopropyl)ether (CAS:108601) was named 2,2'-Oxybis(1-chloropropane) in 2001 version.

<sup>e</sup> The vapor intrusion and inhalation of volatiles and fugitive dust exposure pathways must be evaluated when mercury detections on a site exceed the regional mercury Anticipated Typical Concentration (ATC).

<sup>f</sup> Carcinogenic chemicals with a Mutagenic Mode of Action (MOA).



Maryland Department of the Environment  
**GENERIC NUMERIC CLEANUP STANDARDS FOR GROUNDWATER AND SOIL**

|                         | Groundwater Standards | Soil Standards                |                                   |  |
|-------------------------|-----------------------|-------------------------------|-----------------------------------|--|
|                         | Residential Standard  | Residential Clean-up Standard | Non-Residential Clean-up Standard | Protection of Groundwater <sup>a</sup> |
| Analyte                 | mg/L                  | mg/kg                         | mg/kg                             | mg/kg                                  |
| Gasoline Range Organics | 0.047                 | 230                           | 620                               |  |
| Diesel Range Organics   | 0.047                 | 230                           | 620                               |  |

