**Section 620.410 Groundwater Quality Standards for Class I: Potable Resource Groundwater**

a) Inorganic Chemical Constituents

 Except due to natural causes or as provided in Section 620.450, concentrations of the following chemical constituents must not be exceeded in Class I groundwater:

|  |  |  |
| --- | --- | --- |
| Constituent | Units | Standard |
|  |  |  |
| Antimony | mg/L | 0.006 |
| Arsenic\* | mg/L | 0.010 |
| Barium | mg/L | 2.0 |
| Beryllium | mg/L | 0.004 |
| Boron | mg/L | 2.0 |
| Cadmium | mg/L | 0.005 |
| Chloride | mg/L | 200.0 |
| Chromium | mg/L | 0.1 |
| Cobalt | mg/L | 1.0 |
| Copper | mg/L | 0.65 |
| Cyanide | mg/L | 0.2 |
| Fluoride | mg/L | 4.0 |
| Iron | mg/L | 5.0 |
| Lead | mg/L | 0.0075 |
| Manganese | mg/L | 0.15 |
| Mercury | mg/L | 0.002 |
| Nickel | mg/L | 0.1 |
| Nitrate as N | mg/L | 10.0 |
| Perchlorate | mg/L | 0.0049 |
| Radium-226 | pCi/l | 20.0 |
| Radium-228 | pCi/l | 20.0 |
| Selenium | mg/L | 0.05 |
| Silver | mg/L | 0.05 |
| Sulfate | mg/L | 400.0 |
| Thallium | mg/L | 0.002 |
| Total Dissolved |  |  |
| Solids (TDS) | mg/L | 1,200 |
| Vanadium | mg/L | 0.049 |
| Zinc | mg/L | 5.0 |

\*Denotes a carcinogen.

b) Organic Chemical Constituents

 Except due to natural causes or as provided in Section 620.450 or subsection (d), concentrations of the following organic chemical constituents shall not be exceeded in Class I groundwater:

|  |  |
| --- | --- |
| Constituent | Standard (mg/L) |
|  |
| Acenaphthene | 0.42 |
| Acetone | 6.3 |
| Alachlor\* | 0.002 |
| Aldicarb | 0.003 |
| Anthracene | 2.1 |
| Atrazine | 0.003 |
| Benzene\* | 0.005 |
| Benzo(a)anthracene\* | 0.00013 |
| Benzo(b)fluoranthene\* | 0.00018 |
| Benzo(k)fluoranthene\* | 0.00017 |
| Benzo(a)pyrene\* | 0.0002 |
| Benzoic acid | 28.0 |
| 2-Butanone (MEK) | 4.2 |
| Carbofuran | 0.04 |
| Carbon Disulfide | 0.7 |
| Carbon Tetrachloride\* | 0.005 |
| Chlordane\* | 0.002 |
| Chloroform\* | 0.07 |
| Chrysene\* | 0.012 |
| Dalapon | 0.2 |
| Dibenzo(a,h)anthracene\* | 0.0003 |
| Dicamba | 0.21 |
| Dichlorodifluoromethane | 1.4 |
| 1,1-Dichloroethane | 1.4 |
| Dichloromethane\* | 0.005 |
| Di(2-ethylhexyl)phthalate\* | 0.006 |
| Diethyl Phthalate | 5.6 |
| Di-n-butyl Phthalate | 0.7 |
| Dinoseb | 0.007 |
| Endothall | 0.1 |
| Endrin | 0.002 |
| Ethylene Dibromide\* | 0.00005 |
| Fluoranthene | 0.28 |
| Fluorene | 0.28 |
| Heptachlor\* | 0.0004 |
| Heptachlor Epoxide\* | 0.0002 |
| Hexachlorocyclopentadiene | 0.05 |
| Indeno(1,2,3-cd)pyrene\* | 0.00043 |
| Isopropylbenzene (Cumene) | 0.7 |
| Lindane (Gamma-Hexachlorocyclohexane) | 0.0002 |
| 2,4-D | 0.07 |
| ortho-Dichlorobenzene | 0.6 |
| para-Dichlorobenzene | 0.075 |
| 1,2-Dibromo-3-Chloropropane\* | 0.0002 |
| 1,2-Dichloroethane\* | 0.005 |
| 1,1-Dichloroethylene | 0.007 |
| cis-1,2-Dichloroethylene | 0.07 |
| trans-1,2-Dichloroethylene | 0.1 |
| 1,2-Dichloropropane\* | 0.005 |
| Ethylbenzene | 0.7 |
| MCPP (Mecoprop) | 0.007 |
| Methoxychlor | 0.04 |
| 2-Methylnaphthalene | 0.028 |
| 2-Methylphenol | 0.35 |
| Methyl Tertiary-Butyl Ether (MTBE) | 0.07 |
| Monochlorobenzene | 0.1 |
| Naphthalene | 0.14 |
| P-Dioxane\* | 0.0077 |
| Pentachlorophenol\* | 0.001 |
| Phenols | 0.1 |
| Picloram | 0.5 |
| Pyrene | 0.21 |
| Polychlorinated |  |
| Biphenyls (PCBs)(as decachloro-biphenyl)\* | 0.0005 |
| alpha-BHC (alpha-Benzene hexachloride)\* | 0.00011 |
| Simazine | 0.004 |
| Styrene | 0.1 |
| 2,4,5-TP (Silvex) | 0.05 |
| Tetrachloroethylene\* | 0.005 |
| Toluene | 1.0 |
| Toxaphene\* | 0.003 |
| 1,1,1-Trichloroethane | 0.2 |
| 1,1,2-Trichloroethane | 0.005 |
| 1,2,4-Trichlorobenzene | 0.07 |
| Trichloroethylene\* | 0.005 |
| Trichlorofluoromethane  | 2.1 |
| Vinyl Chloride\* | 0.002 |
| Xylenes | 10.0 |
|  |  |
| \*Denotes a carcinogen. |

c) Explosive Constituents

Concentrations of the following explosive constituents must not exceed the Class I groundwater standard:

|  |  |
| --- | --- |
| Constituent | Standard (mg/L) |
|  |
| 1,3-Dinitrobenzene | 0.0007 |
| 2,4-Dinitrotoluene\* | 0.0001 |
| 2,6-Dinitrotoluene\* | 0.00031 |
| HMX (High Melting Explosive, Octogen) | 1.4 |
| Nitrobenzene | 0.014 |
| RDX (Royal DemolitionExplosive, Cyclonite) | 0.084 |
| 1,3,5-Trinitrobenzene | 0.84 |
| 2,4,6-Trinitrotoluene (TNT) | 0.014 |
|  |
| \*Denotes a carcinogen. |  |

d) Complex Organic Chemical Mixtures

 Concentrations of the following chemical constituents of gasoline, diesel fuel, or heating fuel must not be exceeded in Class I groundwater:

|  |  |
| --- | --- |
| Constituent | Standard (mg/L) |
|  |
| Benzene\* | 0.005 |
| BETX | 11.705 |
|  |
| \*Denotes a carcinogen. |  |

e) pH

 Except due to natural causes, a pH range of 6.5 - 9.0 units must not be exceeded in Class I groundwater.

f) Beta Particle and Photon Radioactivity

1) Except due to natural causes, the average annual concentration of beta particle and photon radioactivity from man-made radionuclides shall not exceed a dose equivalent to the total body organ greater than 4 mrem/year in Class I groundwater. If two or more radionuclides are present, the sum of their dose equivalent to the total body, or to any internal organ shall not exceed 4 mrem/year in Class I groundwater except due to natural causes.

2) Except for the radionuclides listed in subsection (f)(3), the concentration of man-made radionuclides causing 4 mrem total body or organ dose equivalent must be calculated on the basis of a 2 liter per day drinking water intake using the 168-hour data in accordance with the procedure set forth in NCRP Report Number 22, incorporated by reference at Section 620.125(a).

3) Except due to natural causes, the average annual concentration assumed to produce a total body or organ dose of 4 mrem/year of the following chemical constituents shall not be exceeded in Class I groundwater:

|  |  |  |
| --- | --- | --- |
|   | Critical | Standard |
| Constituent | Organ | (pCi/L) |
|   |
| Tritium | Total body | 20,000.0 |
| Strontium-90 | Bone marrow | 8.0 |

(Source: Amended at 36 Ill. Reg. 15206, effective October 5, 2012)