**TABLE 40: Human Health Criteria for Toxic Pollutants**

**DRAFT**

Note: The Environmental Quality Commission adopted the following criteria on XXXX. The criteria are effective for Clean Water Act purposes only after EPA approval.

**Human Health Criteria Summary**

A human health criterion is the highest concentration of a pollutant in water that is not expected to pose a significant risk to human health. The concentration for each pollutant listed in Table 40 is a criterion not to be exceeded in waters of the state in order to protect human health. Values in Table 40 are applicable to all basins, and are expressed as micrograms per liter (µg/L). Pollutants are listed in alphabetical order with the corresponding Chemical Abstract Service (CAS) number, indication of whether the pollutant is categorized as a carcinogen (can cause cancer in humans), or if there is an associated aquatic life criterion (i.e. “y”= yes, “n” = no). The “water + organism” criteria refer to safe limits that have been established for the consumption of drinking water and fish, including shellfish. The “organism only” criteria refer to safe limits that have been established for the consumption of fish and shellfish only. All the human health criteria were calculated using a fish consumption rate of 175 grams per day, which is approximately equal to 23 8-ounce fish meals per month. For pollutants categorized as carcinogens, values represent a cancer risk of one additional case of cancer in one million people (i.e. 10-6), unless otherwise noted. In addition, analysis for all pollutants is for total of all forms and species of that pollutant, unless otherwise noted.

| **No.** | **Pollutant** | **CAS No.** | **Carcinogen** | **Aquatic Life Criterion** | ***Human Health Criteria for the Consumption of:*** | |
| --- | --- | --- | --- | --- | --- | --- |
| **Water + Organism (µg/L)** | **Organism Only (µg/L)** |
| 1 | Acenaphthene | 83329 | n | n | 95 | 99 |
| 2 | Acrolein | 107028 | n | n | 0.88 | 0.93 |
| 3 | Acrylonitrile | 107131 | y | n | 0.018 | 0.025 |
| 4 | Aldrin | 309002 | y | y | 0.0000050 | 0.0000050 |
| 5 | Anthracene | 120127 | n | n | 2900 | 4000 |
| 6 | Antimony | 7440360 | n | n | 5.1 | 64 |
| 7 | Arsenic | 7440382 | y | n | 2.3 | 2.7 |
|  | *A Arsenic criterion refers to total inorganic arsenic. The “organism only” criterion is based on a risk level of 10-6, while the “water + organism” criterion is based on a risk level of 10-4* | | | | | |
| 8 | Asbestos | 1332214 | y | n | 7,000,000 fibers/L | -- |
|  | *B This asbestos criterion is the Maximum Contaminant Level (MCL) developed under the Safe Drinking Water Act. The asbestos criterion is not dependent on a fish consumption rate. No criterion in 2004—this is the federal criterion* | | | | | |
| 9 | Benzene [represents range] | 71432 | y | n | 1.6 | 5.1 |
| 10 | Benzene | 71432 | y | n | 0.44 | 1.4 |
| 11 | Benzidine | 92875 | y | n | 0.000018 | 0.000020 |
| 12 | Benzo(a)anthracene | 56553 | y | n | 0.0013 | 0.0018 |
| 13 | Benzo(a)pyrene | 50328 | y | n | 0.0013 | 0.0018 |
| 14 | Benzo(b)fluoranthene 3,4 | 205992 | y | n | 0.0013 | 0.0018 |
| 15 | Benzo(k)fluoranthene | 207089 | y | n | 0.0013 | 0.0018 |
| 16 | BHC Alpha | 319846 | y | n | 0.00045 | 0.00049 |
| 17 | BHC Beta | 319857 | y | n | 0.0016 | 0.0017 |
| 18 | BHC Gamma (Lindane) | 58899 | n | y | 0.17 | 0.18 |
| 19 | Bromoform | 75252 | y | n | 3.3 | 14 |
| 20 | Butylbenzyl Phthalate | 85687 | n | n | 190 | 190 |
| 21 | Carbon Tetrachloride | 56235 | y | n | 0.10 | 0.16 |
| 22 | Chlordane | 57749 | y | y | 0.000081 | 0.000081 |
| 23 | Chlorinated benzenes |  |  |  |  |  |
| 24 | Chlorobenzene | 108907 | n | n | 74 | 160 |
| 25 | Chlorodibromomethane | 124481 | y | n | 0.31 | 1.3 |
| 26 | Chloroethyl Ether bis 2 | 111444 | y | n | 0.020 | 0.05 |
| 27 | Chloroform | 67663 | y | n | 4.3 | 17 |
| 28 | Chloroisopropyl Ether bis 2 | 108601 | n | n | 1200 | 6500 |
| 29 | Chloromethyl ether, bis | 542881 | y | n | 0.000024 | 0.000029 |
| 30 | Chloronaphthalene 2 | 91587 | n | n | 150 | 160 |
| 31 | Chlorophenol 2 | 95578 | n | n | 14 | 15 |
| 32 | Chlorophenoxy Herbicide (2,4,5,-TP) | 93721 | n | n | 10 | -- |
|  | *C Chlorophenoxy Herbicide (2,4,5,-TP) criterion is based on the Maximum Contaminant Level (MCL) developed under the Safe Drinking Water Act. This criterion is not dependent on a fish consumption rate* | | | | | |
| 33 | Chlorophenoxy Herbicide (2,4-D) | 94757 | n | n | 100 | -- |
|  | *D Chlorophenoxy Herbicide (2,4-D) criterion is based on the Maximum Contaminant Level (MCL) developed under the Safe Drinking Water Act. This criterion is not dependent on a fish consumption rate* | | | | | |
| 34 | Chrysene | 218019 | y | n | 0.0013 | 0.0018 |
| 35 | Copper | 7440508 | n | y | 1300 | -- |
|  | *E Copper criterion is based on the Maximum Contaminant Level (MCL) developed under the Safe Drinking Water Act. This criterion is not dependent on a fish consumption rate* | | | | | |
| 36 | Cyanide | 57125 | n | y | 130 | 130 |
| 37 | DDD 4,4' | 72548 | y | n | 0.000031 | 0.000031 |
| 38 | DDE 4,4' | 72559 | y | n | 0.000022 | 0.000022 |
| 39 | DDT 4,4' | 50293 | y | y | 0.000022 | 0.000022 |
| 40 | Di-2-ethylhexyl Phthalate |  |  |  |  |  |
| 41 | Dibenzo(a,h)anthracene | 53703 | y | n | 0.0013 | 0.0018 |
| 42 | Dibutylphthalate | 84742 | n | n |  |  |
| 43 | Dichlorobenzene(m) 1,3 | 541731 | n | n | 80 | 96 |
| 44 | Dichlorobenzene(o) 1,2 | 95501 | n | n | 110 | 130 |
| 45 | Dichlorobenzene(p) 1,4 | 106467 | n | n | 16 | 19 |
| 46 | Dichlorobenzenes |  |  |  |  |  |
| 47 | Dichlorobenzidine 3,3' | 91941 | y | n | 0.0027 | 0.0028 |
| 48 | Dichlorobromomethane | 124481 | y | n | 0.42 | 1.7 |
| 49 | Dichloroethane 1,2 | 107062 | y | n | 0.35 | 3.7 |
| 50 | Dichloroethylene 1,1 | 75354 | n | n | 230 | 710 |
| 51 | Dichloroethylene trans 1,2 | 156605 | n | n | 120 | 1000 |
| 52 | Dichloroethylenes |  |  |  |  |  |
| 53 | Dichlorophenol 2,4 | 120832 | n | n | 23 | 29 |
| 54 | Dichloropropane 1,2 | 78875 | y | n | 0.38 | 1.5 |
| 55 | Dichloropropene 1,3 | 542756 | y | n | 0.30 | 2.1 |
| 56 | Dieldrin | 60571 | y | y | 0.0000053 | 0.0000054 |
| 57 | Diethyl Phthalate | 84662 | n | n | 3800 | 4400 |
| 58 | Dimethyl Phthalate | 131113 | n | n | 84000 | 110000 |
| 59 | Dimethylphenol 2,4 | 105679 | n | n | 76 | 85 |
| 60 | Di-n-butyl Phthalate | 84742 | n | n | 400 | 450 |
| 61 | Dinitrophenol 2,4 | 51285 | n | n | 62 | 530 |
| 62 | Dinitrophenols | 25550587 | n | n | 62 | 530 |
| 63 | Dinitrotoluene 2,4 | 121142 | y | n | 0.084 | 0.34 |
| 64 | Dioxin (2,3,7,8-TCDD) | 1746016 | y | n | 0.00000000051 | 0.00000000051 |
| 65 | Diphenylhydrazine |  |  |  |  |  |
| 66 | Diphenylhydrazine 1,2 | 122667 | y | n | 0.014 | 0.02 |
| 67 | Endosulfan |  |  | y | Not on calc sheet? | Not on calc sheet? |
|  | *F This value is based on criterion published in Ambient Water Quality Criteria for Endosulfan (EPA 440/5-80-046) and should be applied as the sum of alpha- and beta-endosulfan.* | | | | | |
| 68 | Endosulfan Alpha | 959988 | n | y | 8.5 | 8.9 |
| 69 | Endosulfan Beta | 33213659 | n | y | 8.5 | 8.9 |
| 70 | Endosulfan Sulfate | 1031078 | n | n | 8.5 | 8.9 |
| 71 | Endrin | 72208 | n | y | 0.0060 | 0.0060 |
| 72 | Endrin Aldehyde | 7421934 | n | n | 0.03 | 0.03 |
| 73 | Ethylbenzene | 100414 | n | n | 160 | 210 |
| 74 | Ethylhexyl Phthalate bis 2 | 117817 | y | n | 0.20 | 0.22 |
| 75 | Fluoranthene | 206440 | n | n | 14 | 14 |
| 76 | Fluorene | 86737 | n | n | 390 | 530 |
| 77 | Heptachlor | 76448 | y | y | 0.0000079 | 0.0000079 |
| 78 | Heptachlor Epoxide | 1024573 | y | y | 0.0000039 | 0.0000039 |
| 79 | Hexachlorobenzene | 118741 | y | n | 0.000029 | 0.000029 |
| 80 | Hexachlorobutadiene | 87683 | y | n | 0.36 | 1.8 |
| 81 | Hexachlorocyclopentadiene | 77474 | n | n | 30 | 110 |
| 82 | Hexachloroethane | 67721 | y | n | 0.29 | 0.33 |
| 83 | Indeno(1,2,3-cd)pyrene | 193395 | y | n | 0.0013 | 0.0018 |
| 84 | Isophorone | 78591 | y | n | 27 | 96 |
| 85 | Manganese | 7439965 | n | n | -- | 100 |
|  | *G Manganese criterion for “organism only” will apply only to marine waters. This criterion is not dependent on a fish consumption rate* | | | | | |
| 86 | Methoxychlor | 72435 | n | y | 100 | -- |
|  | *H No BCF was available; therefore, the methoxychlor value is based on that published in the 1986 Gold Book. This criterion is not dependent on a fish consumption rate* | | | | | |
| 87 | Methyl Bromide | 74839 | n | n | 37 | 150 |
| 88 | Methyl-4,6-dinitrophenol 2 | 534521 | n | n | 9.2 | 28 |
| 89 | Methylene Chloride | 75092 | y | n | 4.3 | 59 |
| 90 | Methylmercury (mg/kg) | 22967926 | n | n | Not applicable | 0.029 |
|  | *I This value is expressed as the fish tissue concentration of methylmercury. Contaminated fish and shellfish is the primary human route of exposure to methylmercury* | | | | | |
| 91 | Nickel | 7440020 | n | n | 140 | 170 |
| 92 | Nitrates | 14797558 | n | n | 10000 | -- |
|  | *J No BCF was available; therefore, this value is based on that published in the 1986 EPA Gold Book. This criterion is not dependent on a fish consumption rate* | | | | | |
| 93 | Nitrobenzene | 98953 | n | n | 14 | 69 |
| 94 | Nitrosodibutylamine, N | 924163 | y | n | 0.0050 | 0.02 |
| 95 | Nitrosodimethylamine, N | 62759 | y | n | 0.00068 | 0.30 |
| 96 | Nitrosodi-n-propylamine, N | 621647 | y | n | 0.0046 | 0.051 |
| 97 | Nitrosodiphenylamine, N | 86306 | y | n | 0.55 | 0.60 |
| 98 | Nitrosopyrrolidine, N | 930552 | y | n | 0.016 | 3.4 |
| 99 | Pentachlorobenzene | 608935 | n | n | 0.15 | 0.15 |
| 100 | Pentachlorophenol | 87865 | y | y | 0.15 | 0.30 |
| 101 | Phenol\* | 108952 | n | n | 9400 | 86000 |
| 102 | Polychlorinated Biphenyls (PCBs) |  | y | y | 0.0000064 | 0.0000064 |
|  | *K This criterion applies to total PCBs (e.g. the sum of all congeners or all isomers or homolog or Arochlor analyses).* | | | | | |
| 103 | Pyrene | 129000 | n | n | 290 | 400 |
| 104 | Selenium | 7782492 | n | n | 120 | 420 |
| 105 | Tetrachlorobenzene, 1,2,4,5- | 95943 | n | n | 0.11 | 0.11 |
| 106 | Tetrachloroethane 1,1,2,2 | 79345 | y | n | 0.12 | 0.40 |
| 107 | Tetrachloroethylene | 127184 | y | n | 0.24 | 0.33 |
| 108 | Thallium | 7440280 | n | n | 0.043 | 0.047 |
| 109 | Toluene | 108883 | n | n | 720 | 1500 |
| 110 | Toxaphene | 8001352 | y | y | 0.000028 | 0.000028 |
| 111 | Trichlorobenzene 1,2,4 | 120821 | n | n | 6.4 | 7.0 |
| 112 | Trichloroethane 1,1,2 | 79005 | y | y | 0.44 | 1.6 |
| 113 | Trichloroethylene | 79016 | y | n | 1.4 | 3.0 |
| 114 | Trichlorophenol 2,4,6 | 88062 | y | n | 0.23 | 0.24 |
| 115 | Trichlorophenol, 2, 4, 5- | 95954 | n | n | 330 | 360 |
| 116 | Vinyl Chloride | 75014 | y | n | 0.02 | 0.24 |
| 117 | Zinc | 7440666 | n | n | 2100 | 2600 |
|  |  |  |  |  |  |  |