**State of Oregon Department of Environmental Quality**

2008 - 2011

**Proposed Revisions to Toxics Criteria Tables 20, 33A, and 33B and Addition of New Human Health Toxics Table 40**

**Toxics Rulemaking**

**OBJECTIVE OF PROPOSED TABLE CHANGES**

DEQ is proposing a new Table 40 which will only contain criteria applicable to human health. For this reason, the human health criteria will be deleted from Table 20, Table 33A, and Table 33B. These tables will remain a part of Oregon’s water quality standards and only contain the aquatic life criteria. The proposed table revisions will become effective upon EPA approval.

**Proposed New Human Health Criteria Table**

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

**DRAFT**

Note: The criteria in Table 40 are effective under state and federal law only after they are approved by the EPA.

**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 except as otherwise provided in OAR 340-041. Values in Table 40 are applicable to all waters of the state designated for fishing (organism only) or domestic water supply (water + organism) uses and are expressed as micrograms per liter (µg/L). Pollutants are listed in alphabetical order with the corresponding Chemical Abstract Service (CAS) number, whether the criterion is based on carcinogenic effects (can cause cancer in humans), and whether there is an aquatic life criterion for that pollutant (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. The “organism only” criteria are solely applicable in waters designated as having a fishing use, but not a domestic or private water supply. All the human health criteria were calculated using a fish consumption rate of 175 grams per day unless otherwise noted. A fish consumption rate of 175 grams per day 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. All metals criteria are for total metal concentration. Italicized pollutants represent non-priority pollutants.

| **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 | .0022 | .0175 |
|  | *A The arsenic criterion is expressed as 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 Thehuman health risks from asbestos are primarily from drinking water, therefore no “organism only” criterion was developed. The “water + organism” criterion is based on the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act.*  |
| 9 | *Barium* | 7440393 | n | n | 1000 | -- |
|  | *C The human health criterion for barium is the same as originally published in the 1976 EPA Red Book which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value was also published in the 1986 EPA Gold Book. Human health risks are primarily from drinking water, therefore no “organism only” criterion was developed. The “water + organism” criterion is based on the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act.* |
| 10 | Benzene [represents range] | 71432 | y | n | 1.6 | 5.1 |
| 11 | Benzene | 71432 | y | n | 0.44 | 1.4 |
| 12 | Benzidine | 92875 | y | n | 0.000018 | 0.000020 |
| 13 | Benzo(a)anthracene | 56553 | y | n | 0.0013 | 0.0018 |
| 14 | Benzo(a)pyrene | 50328 | y | n | 0.0013 | 0.0018 |
| 15 | Benzo(b)fluoranthene 3,4 | 205992 | y | n | 0.0013 | 0.0018 |
| 16 | Benzo(k)fluoranthene | 207089 | y | n | 0.0013 | 0.0018 |
| 17 | BHC Alpha | 319846 | y | n | 0.00045 | 0.00049 |
| 18 | BHC Beta | 319857 | y | n | 0.0016 | 0.0017 |
| 19 | BHC Gamma (Lindane) | 58899 | n | y | 0.17 | 0.18 |
| 20 | Bromoform | 75252 | y | n | 3.3 | 14 |
| 21 | Butylbenzyl Phthalate | 85687 | n | n | 190 | 190 |
| 22 | Carbon Tetrachloride | 56235 | y | n | 0.10 | 0.16 |
| 23 | Chlordane | 57749 | y | y | 0.000081 | 0.000081 |
| 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 | n | n | 260 | 1100 |
| 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 | -- |
|  | *D TheChlorophenoxy Herbicide (2,4,5,-TP) criterion is the same as originally published in the 1976 EPA Red Book which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value was also published in the 1986 EPA Gold Book. Human health risks are primarily from drinking water, therefore no “organism only” criterion was developed. The “water + organism” criterion is based on the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act.* |
| 33 | *Chlorophenoxy Herbicide (2,4-D)* | 94757 | n | n | 100 | -- |
|  | *E The Chlorophenoxy Herbicide (2,4-D) criterion is the same as originally published in the 1976 EPA Red Book which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value was also published in the 1986 EPA Gold Book. Human health risks are primarily from drinking water, therefore no “organism only” criterion was developed. The “water + organism” criterion is based on the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act. A more stringent MCL has been issued by EPA under the Safe Drinking Water Act.*  |
| 34 | Chrysene | 218019 | y | n | 0.0013 | 0.0018 |
| 35 | Copper | 7440508 | n | y | 1300 | -- |
|  | *F Human health risks from copper are primarily from drinking water, therefore no “organism only” criterion was developed. The “water + organism” criterion is based on the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act.* |
| 36 | Cyanide | 57125 | n | y | 130 | 130 |
|  | *G The cyanide criterion is expressed as total cyanide (CN)/L.*  |
| 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 | Dibenzo(a,h)anthracene | 53703 | y | n | 0.0013 | 0.0018 |
| 41 | Dichlorobenzene(m) 1,3 | 541731 | n | n | 80 | 96 |
| 42 | Dichlorobenzene(o) 1,2 | 95501 | n | n | 110 | 130 |
| 43 | Dichlorobenzene(p) 1,4 | 106467 | n | n | 16 | 19 |
| 44 | Dichlorobenzidine 3,3' | 91941 | y | n | 0.0027 | 0.0028 |
| 45 | Dichlorobromomethane | 75274 | y | n | 0.42 | 1.7 |
| 46 | Dichloroethane 1,2 | 107062 | y | n | 0.35 | 3.7 |
| 47 | Dichloroethylene 1,1 | 75354 | n | n | 230 | 710 |
| 48 | Dichloroethylene trans 1,2 | 156605 | n | n | 120 | 1000 |
| 49 | Dichlorophenol 2,4 | 120832 | n | n | 23 | 29 |
| 50 | Dichloropropane 1,2 | 78875 | y | n | 0.38 | 1.5 |
| 51 | Dichloropropene 1,3 | 542756 | y | n | 0.30 | 2.1 |
| 52 | Dieldrin | 60571 | y | y | 0.0000053 | 0.0000054 |
| 53 | Diethyl Phthalate | 84662 | n | n | 3800 | 4400 |
| 54 | Dimethyl Phthalate | 131113 | n | n | 84000 | 110000 |
| 55 | Dimethylphenol 2,4 | 105679 | n | n | 76 | 85 |
| 56 | Di-n-butyl Phthalate | 84742 | n | n | 400 | 450 |
| 57 | Dinitrophenol 2,4 | 51285 | n | n | 62 | 530 |
| 58 | *Dinitrophenols* | 25550587 | n | n | 62 | 530 |
| 59 | Dinitrotoluene 2,4 | 121142 | y | n | 0.084 | 0.34 |
| 60 | Dioxin (2,3,7,8-TCDD) | 1746016 | y | n | 0.00000000051 | 0.00000000051 |
| 61 | Diphenylhydrazine 1,2 | 122667 | y | n | 0.014 | 0.020 |
| 62 | Endosulfan Alpha | 959988 | n | y | 8.5 | 8.9 |
| 63 | Endosulfan Beta | 33213659 | n | y | 8.5 | 8.9 |
| 64 | Endosulfan Sulfate | 1031078 | n | n | 8.5 | 8.9 |
| 65 | Endrin | 72208 | n | y | 0.0060 | 0.0060 |
| 66 | Endrin Aldehyde | 7421934 | n | n | 0.030 | 0.030 |
| 67 | Ethylbenzene | 100414 | n | n | 160 | 210 |
| 68 | Ethylhexyl Phthalate bis 2 | 117817 | y | n | 0.20 | 0.22 |
| 69 | Fluoranthene | 206440 | n | n | 14 | 14 |
| 70 | Fluorene | 86737 | n | n | 390 | 530 |
| 71 | Heptachlor | 76448 | y | y | 0.0000079 | 0.0000079 |
| 72 | Heptachlor Epoxide | 1024573 | y | y | 0.0000039 | 0.0000039 |
| 73 | Hexachlorobenzene | 118741 | y | n | 0.000029 | 0.000029 |
| 74 | Hexachlorobutadiene | 87683 | y | n | 0.36 | 1.8 |
| 75 | *Hexachlorocyclo-hexane-Technical* | 608731 | y | n | 0.0014 | 0.0015 |
| 76 | Hexachlorocyclopentadiene | 77474 | n | n | 30 | 110 |
| 77 | Hexachloroethane | 67721 | y | n | 0.29 | 0.33 |
| 78 | Indeno(1,2,3-cd)pyrene | 193395 | y | n | 0.0013 | 0.0018 |
| 79 | Isophorone | 78591 | y | n | 27 | 96 |
| 80 | *Manganese* | 7439965 | n  | n | -- | 100 |
|  | *H The manganese criterion for “organism only” applies only to salt water and is for total manganese. The criterion is EPA’s recommended criterion and is based on potential human health concerns related to the consumption of marine mollusks, not on a fish ingestion calculation method or a fish consumption rate.*  |
| 81 | *Methoxychlor* | 72435 | n | y | 100 | -- |
|  | *I The human health criterion for methoxychlor is the same as originally published in the 1976 EPA Red Book which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value was also published in the1986 EPA Gold Book.* *Human health risks are primarily from drinking water, therefore no “organism only” criterion was developed. The “water + organism” criterion is based on the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act.*  |
| 82 | Methyl Bromide | 74839 | n | n | 37 | 150 |
| 83 | Methyl-4,6-dinitrophenol 2 | 534521 | n | n | 9.2 | 28 |
| 84 | Methylene Chloride | 75092 | y | n | 4.3 | 59 |
| 85 | Methylmercury (mg/kg) | 22967926 | n | n | -- | 0.040 |
|  | *J This value is expressed as the fish tissue concentration of methylmercury. Contaminated fish and shellfish is the primary human route of exposure to methylmercury* |
| 86 | Nickel | 7440020 | n | n | 140 | 170 |
| 87 | *Nitrates* | 14797558 | n | n | 10000 | -- |
|  | *K The human health criterion for nitrates is the same as originally published in the 1976 EPA Red Book which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value was also published in the 1986 EPA Gold Book. Human health risks are primarily from drinking water, therefore no “organism only” criterion was developed. The “water + organism” criterion is based on the Maximum Contaminant Level (MCL) established under the Safe Drinking Water Act.* |
| 88 | Nitrobenzene | 98953 | n | n | 14 | 69 |
| 89 | *Nitrosamines* | 35576911 | y | n | 0.00079 | 0.046 |
| 90 | *Nitrosodibutylamine, N* | 924163 | y | n | 0.0050 | 0.022 |
| 91 | *Nitrosodiethylamine, N* | 55185 | y | n | 0.00079 | 0.046 |
| 92 | Nitrosodimethylamine, N | 62759 | y | n | 0.00068 | 0.30 |
| 93 | Nitrosodi-n-propylamine, N | 621647 | y | n | 0.0046 | 0.051 |
| 94 | Nitrosodiphenylamine, N | 86306 | y | n | 0.55 | 0.60 |
| 95 | *Nitrosopyrrolidine, N* | 930552 | y | n | 0.016 | 3.4 |
| 96 | *Pentachlorobenzene* | 608935 | n | n | 0.15 | 0.15 |
| 97 | Pentachlorophenol | 87865 | y | y | 0.15 | 0.30 |
| 98 | Phenol | 108952 | n | n | 9400 | 86000 |
| 99 | Polychlorinated Biphenyls (PCBs) | NA  | y | y | 0.0000064 | 0.0000064 |
|  | *L This criterion applies to total PCBs (e.g. the sum of all congeners or all isomers or homolog or Arochlor analyses).* |
| 100 | Pyrene | 129000 | n | n | 290 | 400 |
| 101 | Selenium | 7782492 | n | n | 120 | 420 |
| 102 | *Tetrachlorobenzene, 1,2,4,5-* | 95943 | n | n | 0.11 | 0.11 |
| 103 | Tetrachloroethane 1,1,2,2 | 79345 | y | n | 0.12 | 0.40 |
| 104 | Tetrachloroethylene | 127184 | y | n | 0.24 | 0.33 |
| 105 | Thallium | 7440280 | n | n | 0.043 | 0.047 |
| 106 | Toluene | 108883 | n | n | 720 | 1500 |
| 107 | Toxaphene | 8001352 | y | y | 0.000028 | 0.000028 |
| 108 | Trichlorobenzene 1,2,4 | 120821 | n | n | 6.4 | 7.0 |
| 109 | Trichloroethane 1,1,2 | 79005 | y | y | 0.44 | 1.6 |
| 110 | Trichloroethylene | 79016 | y | n | 1.4 | 3.0 |
| 111 | Trichlorophenol 2,4,6 | 88062 | y | n | 0.23 | 0.24 |
| 112 | *Trichlorophenol, 2, 4, 5-* | 95954 | n | n | 330 | 360 |
| 113 | Vinyl Chloride | 75014 | y | n | 0.023 | 0.24 |
| 114 | Zinc | 7440666 | n | n | 2100 | 2600 |
|  |  |  |  |  |  |  |

**Table 20 Redline/Strikethrough**

**TABLE 20**

***AQUATIC LIFE WATER QUALITY CRITERIA SUMMARY* 1**

The concentration for each compound listed in Table 20 is a criterion not to be exceeded in waters of the state in order to protect aquatic life ~~and human health~~. All values are expressed as micrograms per liter (µg/L) except where noted. Compounds are listed in alphabetical order with the corresponding designations as to whether EPA has identified it as a priority pollutant and a carcinogen, aquatic life freshwater acute and chronic criteria, aquatic life marine acute and chronic criteria.~~, human health water & organism and fish consumption only criteria, and Drinking Water Maximum Contaminant Level (MCL).~~ The acute criteria refer to the average concentration for one (1) hour and the chronic criteria refer to the average concentration for 96 hours (4 days), and that these criteria should not be exceeded more than once every three (3) years.

| **Compound Name (or Class)** | **Priority Pollutant** | **Carcinogen** | **Concentration in Micrograms Per Liter****for Protection of Aquatic Life** | **~~Concentration in Units Per Liter~~****~~for Protection of Human Health~~** |
| --- | --- | --- | --- | --- |
|  |  |  |  |
| **Fresh Acute Criteria** | **Fresh Chronic Criteria** | **Marine Acute Criteria** | **Marine Chronic Criteria** | **~~Water and Fish Ingestion~~** | **~~Fish Consumption Only~~** | **~~Drinking Water M.C.L.~~** |
| ACENAPTHENE | Y | N |  |  |  |  |  |  |  |
| ACROLEIN | Y | N |  |  |  |  | ~~320ug~~ | ~~780ug~~ |  |
| ACRYLONITRILE | Y | Y |  |  |  |  | ~~0.058ug\*\*~~ | ~~0.65ug\*\*~~ |  |
| ALDRIN | Y | Y | 3 |  | 1.3 |  | ~~0.074ng\*\*~~ | ~~0.079ng\*\*~~ |  |
| ALKALINITY | N | N |  | 20,000 |  |  |  |  |  |
| AMMONIA | N | N | CRITERIA ARE pH AND TEMPERATURE DEPENDENT—SEE DOCUMENT USEPA JANUARY 1985 (Fresh Water)CRITERIA ARE pH AND TEMPERATURE DEPENDENT—SEE DOCUMENT USEPA APRIL 1989 (Marine Water) |
| ANTIMONY | Y | N |  |  |  |  | ~~146ug~~ | ~~45,000ug~~ |  |
| ARSENIC | Y | Y |  |  |  |  | ~~2.2ng\*\*~~ | ~~17.5ng\*\*~~ | ~~0.05mg~~ |
| ARSENIC (PENT) | Y | Y |  |  |  |  |  |  |  |
| ARSENIC (TRI) | Y | Y | 360 | 190 | 69 | 36 |  |  |  |
| ASBESTOS | Y | Y |  |  |  |  | ~~30K f/L\*\*~~ |  |  |
| BARIUM | N | N |  |  |  |  | ~~1mg~~ |  | ~~1.0mg~~ |
| BENZENE | Y | Y |  |  |  |  | ~~0.66ug\*\*~~ | ~~40 ug\*\*~~ |  |
| BENZIDINE | Y | Y |  |  |  |  | ~~0.12ng~~ | ~~0.53ng\*\*~~ |  |
| BERYLLIUM | Y | Y |  |  |  |  | ~~6.8ng\*\*~~ | ~~117ng\*\*~~ |  |
| BHC | Y | N |  |  |  |  |  |  |  |
| CADMIUM | Y | N | 3.9+ | 1.1+ | 43  | 9.3 | ~~10ug~~ |  | ~~0.010mg~~ |
| CARBON TETRACHLORIDE | Y | Y |  |  |  |  | ~~0.4ug\*\*~~ | ~~6.94ug\*\*~~ |  |
| CHLORDANE | Y | Y | 2.4 | 0.0043 | 0.09 | 0.004 | ~~0.46ng\*\*~~ | ~~0.48ng\*\*~~ |  |
| CHLORIDE | N | N | 860 mg/L | 230 mg/L |  |  |  |  |  |
| CHLORINATED BENZENES | Y | Y |  |  |  |  | ~~488 ug~~ |  |  |
| CHLORINATED NAPHTHALENES | Y | N |  |  |  |  |  |  |  |
| CHLORINE | N | N | 19 | 11 | 13 | 7.5 |  |  |  |
| CHLOROALKYL ETHERS | Y | N |  |  |  |  |  |  |  |
| CHLOROETHYL ETHER (BIS-2) | Y | Y |  |  |  |  | ~~0.03 ug~~ | ~~1.36 ug\*\*~~ |  |
|  |  |  |  |  |  |  |  |  |  |
| CHLOROFORM | Y | Y |  |  |  |  | ~~0.19ug\*\*~~ | ~~15.7ug\*\*~~ |  |
| CHLOROISOPROPYL ETHER (BIS-2) | Y | N |  |  |  |  | ~~34.7ug~~ | ~~4.36mg~~ |  |
| CHLOROMETHYL ETHER (BIS) | N | Y |  |  |  |  | ~~0.00000376ng\*\*~~ | ~~0.00184ug\*\*~~ |  |
| CHLOROPHENOL 2 | Y | N |  |  |  |  |  |  |  |
| CHLOROPHENOL 4 | N | N |  |  |  |  |  |  |  |
| CHLOROPHENOXY HERBICIDES (2,4,5,-TP) | N | N |  |  |  |  | ~~10ug~~ |  |  |
| CHLOROPHENOXY HERBICIDES (2,4-D) | N | N |  |  |  |  | ~~100ug~~ |  |  |
|  |  |  |  |  |  |  |  |  |  |
| CHLORPYRIFOS | N | N | 0.083 | 0.041 | 0.011 | 0.0056 |  |  |  |
| CHLORO-4 METHYL-3 PHENOL | N | N |  |  |  |  |  |  |  |
| CHROMIUM (HEX) | Y | N | 16 | 11 | 1,100 | 50 | ~~50ug~~ |  | ~~0.05mg~~ |
| CHROMIUM (TRI) | N | N | 1,700.+ | 210.+ |  |  | ~~170mg~~ | ~~3,433mg~~ | ~~0.05mg~~ |
| COPPER | Y | N | 18.+ | 12.+ | 2.9  | 2.9 |  |  |  |
| CYANIDE | Y | N | 22 | 5.2 | 1 | 1 | ~~200ug~~ |  |  |
| DDT | Y | Y | 1.1 | 0.001 | 0.13 | 0.001 | ~~0.024ng\*\*~~ | ~~0.024ng\*\*~~ |  |
| (TDE) DDT METABOLITE | Y | Y |  |  |  |  |  |  |  |
| (DDE) DDT METABOLITE | Y | Y |  |  |  |  |  |  |  |
| DEMETON | Y | N |  | 0.1 |  | 0.1 |  |  |  |
|  |  |  |  |  |  |  |  |  |  |
| DIBUTYLPHTHALATE | Y | N |  |  |  |  | ~~35mg~~ | ~~154mg~~ |  |
| DICHLOROBENZENES | Y | N |  |  |  |  | ~~400ug~~ | ~~2.6mg~~ |  |
| DICHLOROBENZIDINE | Y | Y |  |  |  |  | ~~0.01ug\*\*~~ | ~~0.020ug\*\*~~ |  |
| DICHLOROETHANE 1,2 | Y | Y |  |  |  |  | ~~0.94ug\*\*~~ | ~~243ug\*\*~~ |  |
| DICHLOROETHYLENES | Y | Y |  |  |  |  | ~~0.033ug\*\*~~ | ~~1.85ug\*\*~~ |  |
| DICHLOROPHENOL 2,4 | N | N |  |  |  |  | ~~3.09mg~~ |  |  |
| DICHLOROPROPANE | Y | N |  |  |  |  |  |  |  |
| DICHLOROPROPENE | Y | N |  |  |  |  | ~~87ug~~ | ~~14.1mg~~ |  |
| DIELDRIN | Y | Y | 2.5 | 0.0019 | 0.71 | 0.0019 | ~~0.071ng\*\*~~ | ~~0.076ng\*\*~~ |  |
| DIETHYLPHTHALATE | Y | N |  |  |  |  | ~~350mg~~ | ~~1.8g~~ |  |
| DIMETHYL PHENOL 2,4 | Y | N |  |  |  |  |  |  |  |
| DIMETHYL PHTHALATE | Y | N |  |  |  |  | ~~313mg~~ | ~~2.9g~~ |  |
| DINITROTOLUENE 2,4 | N | Y |  |  |  |  | ~~0.11ug\*\*~~ | ~~9.1ug\*\*~~ |  |
| DINITROTOLUENE | Y | N |  |  |  |  | ~~70ug~~ | ~~14.3mg~~ |  |
| DINITROTOLUENE | N | Y |  |  |  |  |  |  |  |
| DINITRO-O-CRESOL 2,4 | Y | N |  |  |  |  | ~~13.4~~ | ~~765ug~~ |  |
| DIOXIN (2,3,7,8-TCDD) | Y | Y |  |  |  |  | ~~0.000013ng\*\*~~ | ~~0.000014ng\*\*~~ |  |
| DIPHENYLHYDRAZINE | Y | N |  |  |  |  | ~~42ng\*\*~~ | ~~0.56ug\*\*~~ |  |
| DIPHENYLHYDRAZINE 1,2 | Y | N |  |  |  |  |  |  |  |
| DI-2-ETHYLHEXYL PHTHALATE | Y | N |  |  |  |  | ~~15mg~~ | ~~50mg~~ |  |
| ENDOSULFAN | Y | N | 0.22 | 0.056 | 0.034 | 0.0087 | ~~74ug~~ | ~~159ug~~ |  |
| ENDRIN | Y | N | 0.18 | 0.0023 | 0.037 | 0.0023 | ~~1ug~~ |  | ~~0.0002mg~~ |
| ETHYLBENZENE | Y | N |  |  |  |  | ~~1.4mg~~ | ~~3.28mg~~ |  |
| FLUORANTHENE | Y | N |  |  |  |  | ~~42ug~~ | ~~54ug~~ |  |
| GUTHION | N | N |  | 0.01 |  | 0.01 |  |  |  |
| HALOETHERS | Y | N |  |  |  |  |  |  |  |
| HALOMETHANES | Y | Y |  |  |  |  | ~~0.19ug\*\*~~ | ~~15.7ug\*\*~~ |  |
| HEPTACHLOR | Y | Y | 0.52 | 0.0038 | 0.053 | 0.0036 | ~~0.28ng\*\*~~ | ~~0.29ng\*\*~~ |  |
| HEXACHLOROETHANE | N | Y |  |  |  |  | ~~1.9ug~~ | ~~8.74ug~~ |  |
| HEXACHLOROBENZENE | Y | N |  |  |  |  | ~~0.72ng\*\*~~ | ~~0.74ng\*\*~~ |  |
| HEXACHLOROBUTADIENE | Y | Y |  |  |  |  | ~~0.45ug\*\*~~ | ~~50ug\*\*~~ |  |
| HEXACHLOROCYCLOHEXANE (LINDANE) | Y | Y | 2 | 0.08 | 0.16 |  |  |  | ~~0.004mg~~ |
| HEXACHLOROCYCLOHEXANE-ALPHA | Y | Y |  |  |  |  | ~~9.2ng\*\*~~ | ~~31ng\*\*~~ |  |
| HEXACHLOROCYCLOHEXANE-BETA | Y | Y |  |  |  |  | ~~16.3ng\*\*~~ | ~~54.7ng\*\*~~ |  |
| HEXACHLOROCYCLOHEXANE-GAMA | Y | Y |  |  |  |  | ~~18.6ng\*\*~~ | ~~62.5ng\*\*~~ |  |
| HEXACHLOROCYCLOHEXANE-TECHNICAL | Y | Y |  |  |  |  | ~~12.3ng\*\*~~ | ~~41.4ng\*\*~~ |  |
| HEXACHLOROCYCLOPENTADIENE | Y | N |  |  |  |  | ~~206ug~~ |  |  |
| IRON | N | N |  | 1,000 |  |  | ~~0.3mg~~ |  |  |
| ISOPHORONE | Y | N |  |  |  |  | ~~5.2mg~~ | ~~520mg~~ |  |
| LEAD | Y | N | 82.+ | 3.2+ | 140 | 5.6 | ~~50ug~~ |  | ~~0.05mg~~ |
| MALATHION | N | N |  | 0.1 |  | 0.1 |  |  |  |
| MANGANESE | N | N |  |  |  |  | ~~50ug~~ | ~~100ug~~ |  |
| MERCURY | Y | N | 2.4 | 0.012 | 2.1 | 0.025 | ~~144ng~~ | ~~146ng~~ | ~~0.002mg~~ |
| METHOXYCHLOR | N | N |  | 0.03 |  | 0.03 | ~~100ug~~ |  | ~~0.1mg~~ |
| MIREX | N | N |  | 0.001 |  | 0.001 |  |  |  |
| MONOCHLOROBENZENE | Y | N |  |  |  |  | ~~488ug~~ |  |  |
| NAPHTHALENE | Y | N |  |  |  |  |  |  |  |
| NICKEL | Y | N | 1,400.+ | 160+ | 75 | 8.3 | ~~13.4ug~~ | ~~100ug~~ |  |
| NITRATES | N | N |  |  |  |  | ~~10mg~~ |  | ~~10mg~~ |
| NITROBENZENE | Y | N |  |  |  |  | ~~19.8mg~~ |  |  |
| NITROPHENOLS | Y | N |  |  |  |  |  |  |  |
| NITROSAMINES | Y | Y |  |  |  |  | ~~0.8ng\*\*~~ | ~~1,240ng\*\*~~ |  |
| NITROSODIBUTYLAMINE N | Y | Y |  |  |  |  | ~~6.4ng\*\*~~ | ~~587ng\*\*~~ |  |
| NITROSODIETHYLAMINE N | Y | Y |  |  |  |  | ~~0.8ng\*\*~~ | ~~1,240ng\*\*~~ |  |
| NITROSODIMETHYLAMINE N | Y | Y |  |  |  |  | ~~1.4ng\*\*~~ | ~~16,000ng\*\*~~ |  |
| NITROSODIPHENYLAMINE N | Y | Y |  |  |  |  | ~~4,900ng\*\*~~ | ~~16,100ng\*\*~~ |  |
| NITROSOPYRROLIDINE N | Y | Y |  |  |  |  | ~~16ng\*\*~~ | ~~91,900ng\*\*~~ |  |
| PARATHION | N | N | 0.065 | 0.013 |  |  |  |  |  |
| PCB's | Y | Y | 2 | 0.014 | 10 | 0.03 | ~~0.079ng\*\*~~ | ~~0.079ng\*\*~~ |  |
| PENTACHLORINATED ETHANES | N | N |  |  |  |  |  |  |  |
| PENTACHLOROBENZENE | N | N |  |  |  |  | ~~74ug~~ | ~~85ug~~ |  |
| PENTACHLOROPHENOL | Y | N | \*\*\*20 | \*\*\*13 | 13 |  | ~~1.01mg~~ |  |  |
|  |  |  |  |  |  |  |  |  |  |
| PHENOL | Y | N |  |  |  |  | ~~3.5mg~~ |  |  |
| PHOSPHORUS ELEMENTAL | N | N |  |  |  | 0.1 |  |  |  |
| PHTHALATE ESTERS | Y | N |  |  |  |  |  |  |  |
| POLYNUCLEAR AROMATIC HYDROCARBONS | Y | Y |  |  |  |  | ~~2.8ng\*\*~~ | ~~31.1ng\*\*~~ |  |
| SELENIUM | Y | N | 260 | 35 | 410 | 54 | ~~10ug~~ |  | ~~0.01mg~~ |
| SILVER | Y | N | 4.1+ | 0.12 | 2.3 |  | ~~50ug~~ |  | ~~0.05mg~~ |
| SULFIDE HYDROGEN SULFIDE | N | N |  | 2 |  | 2 |  |  |  |
| TETRACHLORINATED ETHANES | Y | N |  |  |  |  |  |  |  |
| TETRACHLOROBENZENE 1,2,4,5 | Y | N |  |  |  |  | ~~38ug~~ | ~~48ug~~ |  |
| TETRACHLOROETHANE 1,1,2,2 | Y | Y |  |  |  |  | ~~0.17ug\*\*~~ | ~~10.7ug\*\*~~ |  |
| TETRACHLOROETHANES | Y | N |  |  |  |  |  |  |  |
| TETRACHLOROETHYLENE | Y | Y |  |  |  |  | ~~0.8ug\*\*~~ | ~~8.85ug\*\*~~ |  |
| TETRACHLOROPHENOL 2,3,5,6 | Y | N |  |  |  |  |  |  |  |
| THALLIUM | Y | N |  |  |  |  | ~~13ug~~ | ~~48ug~~ |  |
| TOLUENE | Y | N |  |  |  |  | ~~14.3mg~~ | ~~424mg~~ |  |
| TOXAPHENE | Y | Y | 0.73 | 0.0002 | 0.21 | 0.0002 | ~~0.71ng\*\*~~ | ~~0.73ng\*\*~~ | ~~0.005mg~~ |
| TRICHLORINATED EtHANES | Y | Y |  |  |  |  |  |  |  |
| TRICHLOROETHANE 1,1,1 | Y | N |  |  |  |  | ~~18.4mg~~ | ~~1.03g~~ |  |
| TRICHLOROETHANE 1,1,2 | Y | Y |  |  |  |  | ~~0.6ug\*\*~~ | ~~41.8ug\*\*~~ |  |
| TRICHLOROETHYLENE | Y | Y |  |  |  |  | ~~2.7ug\*\*~~ | ~~80.7ug\*\*~~ |  |
| TRICHLOROPHENOL 2,4,5 | N | N |  |  |  |  | ~~2,600ug~~ |  |  |
| TRICHLOROPHENOL 2,4,6 | Y | Y |  |  |  |  | ~~1.2ug\*\*~~ | ~~3.6ug\*\*~~ |  |
| VINYL CHLORIDE | Y | Y |  |  |  |  | ~~2ug\*\*~~ | ~~525ug\*\*~~ |  |
| ZINC | Y | N | 120+ | 110+ | 95 | 86 |  |  |  |

**MEANING OF SYMBOLS:**

 g = grams ~~M.C.L = Maximum Contaminant Level~~

 mg = milligrams + = Hardness Dependent Criteria (100 mg/L used).

 The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. Criteria values for hardness may be calculated from the following formulae (CMC refers to Acute Criteria; CCC refers to Chronic Criteria):

 CMC = (exp(mA\*[ln(hardness)] + bA))\*CF

 CCC = (exp(mC\*[ln(hardness)] + bC))\*CF

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chemical** | **mA** | **bA** | **mC** | **bC** |
| Cadmium | 1.128 | -3.828 | 0.7852 | -3.49 |
| Chromium III | 0.819 | 3.688 | 0.819 | 1.561 |
| Copper | 0.9422 | -1.464 | 0.8545 | -1.465 |
| Lead | 1.273 | -1.46 | 1.273 | -4.705 |
| Nickel | 0.846 | 3.3612 | 0.846 | 1.1645 |
| Silver | 1.72 | -6.52 |   |   |
| Zinc | 0.8473 | 0.8604 | 0.8473 | 0.7614 |

 ug = micrograms \* = Insufficient data to develop criteria; value presented is the L.O.E.L – Lower Observed Effect Level.

 ng = nanograms ~~\*\* = Human health criteria for carcinogens reported for three risk levels. Value presented is the 10-6 risk level, which means the probability of one concern case per million people at the stated concentration.~~

 pg = picograms \*\*\* = pH Dependent Criteria (7.8 pH used).

 ~~f = fibers~~

 Y = Yes

 N = No

1 = Values in Table 20 are applicable to all basins.

***~~Water and Fish Ingestion~~***

~~Values represent the maximum ambient water concentration for consumption of both contaminated water and fish or other aquatic organisms.~~

***~~Fish Ingestion~~***

~~Values represent the maximum ambient water concentrations for consumption of fish or other aquatic organisms~~

**Table 33A Redline/Strikethrough**

**TABLE 33A**

Note: The Environmental Quality Commission adopted the following criteria on May 20, 2004 to become effective February 15, 2005. However, EPA has not yet (as of June 2006) approved the criteria. Thus, Table 33A criteria may be used in NPDES permits, but not for the section 303(d) list of impaired waters.

***AQUATIC LIFE WATER QUALITY CRITERIA SUMMARY* A**

The concentration for each compound listed in Table 33A is a criterion not to be exceeded in waters of the state in order to protect aquatic life ~~and human health~~. All values are expressed as micrograms per liter (µg/L) except where noted. Compounds are listed in alphabetical order with the corresponding EPA number (from National Recommended Water Quality Criteria: 2002, EPA-822-R-02-047), the Chemical Abstract Service (CAS) number, aquatic life freshwater acute and chronic criteria, aquatic life saltwater acute and chronic criteria~~, human health water & organism and organism only criteria, and Drinking Water Maximum Contaminant Level (MCL)~~. The acute criteria refer to the average concentration for one (1) hour and the chronic criteria refer to the average concentration for 96 hours (4 days), and that these criteria should not be exceeded more than once every three (3) years.

| EPA No. | Compound |  |  | CAS Number |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Freshwater | Saltwater | ~~Human Health~~ ~~For Consumption of:~~ |  |
| Acute (CMC) | Effective Date | Chronic (CCC) | Effective Date | Acute (CMC) | Effective Date | Chronic (CCC) | Effective Date | ~~Water + Organism~~~~B~~ | ~~Effective Date~~ | ~~Organism only~~~~B~~ | ~~Effective Date~~ | ~~Drinking Water M.C.L.~~ |
| 56 | Acenaphthene |  |  | 83329 |  |  |  |  |  |  |  |  | ~~670~~ |  | ~~990~~ |  |  |
| 57 | Acenaphthylene |  |  | 208968 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 17 | Acrolein |  |  | 107028 |  |  |  |  |  |  |  |  | ~~190~~ |  | ~~290~~ |  |  |
| 18 | Acrylonitrile |  |  | 107131 |  |  |  |  |  |  |  |  | ~~0.051~~ |  | ~~0.250~~ |  |  |
| 102 | Aldrin |  |  | 309002 | 3 O | X |  |  | 1.3 O | X |  |  | ~~0.000049~~ |  | ~~0.000050~~ |  |  |
| 1 N | Alkalinity |  |  |  |  |  | 20,000 P |  |  |  |  |  |  |  |  |  |  |
| 2 N | Aluminum (pH 6.5 - 9.0) |  |  | 7429905 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 N | Ammonia |  |  | 7664417 |  |  |  |  | D | X | D | X |  |  |  |  |  |
| 58 | Anthracene |  |  | 120127 |  |  |  |  |  |  |  |  | ~~8300~~ |  | ~~40000~~ |  |  |
| 1 | Antimony |  |  | 7440360 |  |  |  |  |  |  |  |  | ~~5.6~~ |  | ~~640~~ |  |  |
| 2 | Arsenic |  |  | 7440382 |  |  |  |  |  |  |  |  |  |  |  |  | ~~0.05mg~~ |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 | Asbestos |  |  | 1332214 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 N | Barium |  |  | 7440393 |  |  |  |  |  |  |  |  | ~~1000~~ |  |  |  | ~~1.0mg~~ |
| 19 | Benzene |  |  | 71432 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 59 | Benzidine |  |  | 92875 |  |  |  |  |  |  |  |  | ~~0.000086~~ |  | ~~0.00020~~ |  |  |
| 60 | Benzo(a)Anthracene |  |  | 56553 |  |  |  |  |  |  |  |  | ~~0.0038~~ |  | ~~0.018~~ |  |  |
| 61 | Benzo(a)Pyrene |  |  | 50328 |  |  |  |  |  |  |  |  | ~~0.0038~~ |  | ~~0.018~~ |  |  |
| 62 | Benzo(b)Fluoranthene |  |  | 205992 |  |  |  |  |  |  |  |  | ~~0.0038~~ |  | ~~0.018~~ |  |  |
| 63 | Benzo(g,h,i)Perylene |  |  | 191242 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 64 | Benzo(k)Fluoranthene |  |  | 207089 |  |  |  |  |  |  |  |  | ~~0.0038~~ |  | ~~0.018~~ |  |  |
| 3 | Beryllium |  |  | 7440417 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 103 | BHC alpha- |  |  | 319846 |  |  |  |  |  |  |  |  | ~~0.0026~~ |  | ~~0.0049~~ |  |  |
| 104 | BHC beta- |  |  | 319857 |  |  |  |  |  |  |  |  | ~~0.0091~~ |  | ~~0.017~~ |  |  |
| 106 | BHC delta- |  |  | 319868 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 105 | BHC gamma- (Lindane) |  |  | 58899 | 0.95 |  | 0.08 | X | 0.16 O |  |  |  |  |  |  |  | ~~0.004mg~~ |
| 7 N | Boron |  |  | 7440428 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 20 | Bromoform |  |  | 75252 |  |  |  |  |  |  |  |  | ~~4.3~~ |  | ~~140~~ |  |  |
| 69 | Bromophenyl Phenyl Ether 4- |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 70 | Butylbenzyl Phthalate |  |  | 85687 |  |  |  |  |  |  |  |  | ~~1500~~ |  | ~~1900~~ |  |  |
| 4 | Cadmium |  |  | 7440439 |  |  |  |  |  |  |  |  |  |  |  |  | ~~0.010mg~~ |
| 21 | Carbon Tetrachloride |  |  | 56235 |  |  |  |  |  |  |  |  | ~~0.23~~ |  | ~~1.6~~ |  |  |
| 107 | Chlordane |  |  | 57749 | 2.4 O | X | 0.0043 O | X | 0.09 O | X | 0.004 O | X |  |  |  |  |  |
| 8 N | Chloride |  |  | 16887006 | 860000 |  | 230000 |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 N | Chlorine |  |  | 7782505 | 19 | X | 11 | X | 13 | X | 7.5 | X |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 22 | Chlorobenzene |  |  | 108907 |  |  |  |  |  |  |  |  | ~~130~~ |  | ~~1600~~ |  |  |
| 23 | Chlorodibromomethane |  |  | 124481 |  |  |  |  |  |  |  |  | ~~0.40~~ |  | ~~13~~ |  |  |
| 24 | Chloroethane |  |  | 75003 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 65 | ChloroethoxyMethane Bis2- |  |  | 111911 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 66 | ChloroethylEther Bis2- |  |  | 111444 |  |  |  |  |  |  |  |  | ~~0.030~~ |  | ~~0.53~~ |  |  |
| 25 | Chloroethylvinyl Ether 2- |  |  | 110758 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 26 | Chloroform |  |  | 67663 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 67 | ChloroisopropylEther Bis2- |  |  | 108601 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 15 N | ChloromethylEther, Bis  |  |  | 542881 |  |  |  |  |  |  |  |  |  |  | ~~0.00029~~ |  |  |
| 71 | Chloronaphthalene 2- |  |  | 91587 |  |  |  |  |  |  |  |  | ~~1000~~ |  | ~~1600~~ |  |  |
| 45 | Chlorophenol 2- |  |  | 95578 |  |  |  |  |  |  |  |  | ~~81~~ |  | ~~150~~ |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 N | Chlorophenoxy Herbicide (2,4,5,-TP) |  |  | 93721 |  |  |  |  |  |  |  |  | ~~10 H~~ |  |  |  |  |
| 11 N | Chlorophenoxy Herbicide (2,4-D) |  |  | 94757 |  |  |  |  |  |  |  |  | ~~100 H~~ |  |  |  |  |
| 72 | Chlorophenyl Phenyl Ether 4- |  |  | 7005723 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12 N | Chloropyrifos |  |  | 2921882 | 0.083 | X | 0.041 | X | 0.011 | X | 0.0056 | X |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ~~0.05mg~~ |
| 5a | Chromium (III) |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | ~~0.05mg~~ |
| 5b | Chromium (VI) |  |  | 18540299 |  |  |  |  |  |  |  |  |  |  |  |  | ~~0.05mg~~ |
| 73 | Chrysene |  |  | 218019 |  |  |  |  |  |  |  |  | ~~0.0038~~ |  | ~~0.018~~ |  |  |
| 6 | Copper |  |  | 7440508 |  |  |  |  |  |  |  |  | ~~1300 H~~ |  |  |  |  |
| 14 | Cyanide |  |  | 57125 | 22 S | X | 5.2 S | X | 1 S | X | 1 S | X | ~~140~~ |  | ~~140~~ |  |  |
| 108 | DDT 4,4'- |  |  | 50293 | 1.1 O,T | X | 0.001 O,T | X | 0.13 O,T | X | 0.001 O,T | X |  |  |  |  |  |
| 109 | DDE 4,4'- |  |  | 72559 |  |  |  |  |  |  |  |  | ~~0.00022~~ |  | ~~0.00022~~ |  |  |
| 110 | DDD 4,4'- |  |  | 72548 |  |  |  |  |  |  |  |  | ~~0.00031~~ |  | ~~0.00031~~ |  |  |
| 14 N | Demeton |  |  | 8065483 |  |  | 0.1 | X |  |  | 0.1 | X |  |  |  |  |  |
| 74 | Dibenzo(a,h)Anthracene |  |  | 53703 |  |  |  |  |  |  |  |  | ~~0.0038~~ |  | ~~0.018~~ |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 75 | Dichlorobenzene 1,2- |  |  | 95501 |  |  |  |  |  |  |  |  | ~~420~~ |  | ~~1300~~ |  |  |
| 76 | Dichlorobenzene 1,3- |  |  | 541731 |  |  |  |  |  |  |  |  | ~~320~~ |  | ~~960~~ |  |  |
| 77 | Dichlorobenzene 1,4- |  |  | 106467 |  |  |  |  |  |  |  |  | ~~63~~ |  | ~~190~~ |  |  |
| 78 | Dichlorobenzidine 3,3'- |  |  | 91941 |  |  |  |  |  |  |  |  | ~~0.021~~ |  | ~~0.028~~ |  |  |
| 27 | Dichlorobromomethane |  |  | 75274 |  |  |  |  |  |  |  |  | ~~0.55~~ |  | ~~17~~ |  |  |
| 28 | Dichloroethane 1,1- |  |  | 75343 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 29 | Dichloroethane 1,2- |  |  | 107062 |  |  |  |  |  |  |  |  | ~~0.38~~ |  | ~~37~~ |  |  |
| 30 | Dichloroethylene 1,1- |  |  | 75354 |  |  |  |  |  |  |  |  | ~~330~~ |  | ~~7100~~ |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 46 | Dichlorophenol 2,4- |  |  | 120832 |  |  |  |  |  |  |  |  | ~~77~~ |  | ~~290~~ |  |  |
| 31 | Dichloropropane 1,2- |  |  | 78875 |  |  |  |  |  |  |  |  | ~~0.50~~ |  | ~~15~~ |  |  |
| 32 | Dichloropropene 1,3- |  |  | 542756 |  |  |  |  |  |  |  |  | ~~0.34~~ |  | ~~21~~ |  |  |
| 111 | Dieldrin |  |  | 60571 | 0.24 |  |  |  | 0.71 O | X | 0.0019 O | X | ~~0.000052~~ |  | ~~0.000054~~ |  |  |
| 79 | DiethylPhthalate |  |  | 84662 |  |  |  |  |  |  |  |  | ~~17000~~ |  | ~~44000~~ |  |  |
| 47 | Dimethylphenol 2,4- |  |  | 105679 |  |  |  |  |  |  |  |  | ~~380~~ |  | ~~850~~ |  |  |
| 80 | DimethylPhthalate |  |  | 131113 |  |  |  |  |  |  |  |  | ~~270000~~ |  | ~~1100000~~ |  |  |
| 81 | Di-n-Butyl Phthalate |  |  | 84742 |  |  |  |  |  |  |  |  | ~~2000~~ |  | ~~4500~~ |  |  |
| 49 | Dinitrophenol 2,4- |  |  | 51285 |  |  |  |  |  |  |  |  | ~~69~~ |  | ~~5300~~ |  |  |
| 27 N | Dinitrophenols |  |  | 25550587 |  |  |  |  |  |  |  |  | ~~69~~ |  | ~~5300~~ |  |  |
| 82 | Dinitrotoluene 2,4- |  |  | 121142 |  |  |  |  |  |  |  |  | ~~0.11~~ |  | ~~3.4~~ |  |  |
| 83 | Dinitrotoluene 2,6- |  |  | 606202 |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 84 | Di-n-Octyl Phthalate |  |  | 117840 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 16 | Dioxin (2,3,7,8-TCDD) |  |  | 1746016 |  |  |  |  |  |  |  |  | ~~5.0E-09~~ |  | ~~5.1E-09~~ |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 85 | Diphenylhydrazine 1,2- |  |  | 122667 |  |  |  |  |  |  |  |  | ~~0.036~~ |  | ~~0.20~~ |  |  |
| 68 | EthylhexylPhthalate Bis2- |  |  | 117817 |  |  |  |  |  |  |  |  | ~~1.2~~ |  | ~~2.2~~ |  |  |
|  | Endosulfan |  |  |  | 0.22 I,P | X | 0.056 I,P | X | 0.034 I,P | X | 0.0087 I,P | X | ~~62 I~~ |  | ~~89 I~~ |  |  |
| 112 | Endosulfan alpha- |  |  | 959988 | 0.22 O |  | 0.056 O |  | 0.034 O |  | 0.0087 O |  | ~~62~~ |  | ~~89~~ |  |  |
| 113 | Endosulfan beta- |  |  | 33213659 | 0.22 O |  | 0.056 O |  | 0.034 O |  | 0.0087 O |  | ~~62~~ |  | ~~89~~ |  |  |
| 114 | Endosulfan Sulfate |  |  | 1031078 |  |  |  |  |  |  |  |  | ~~62~~ |  | ~~89~~ |  |  |
| 115 | Endrin |  |  | 72208 | 0.086 |  |  |  | 0.037 O |  | 0.0023 O |  | ~~0.059~~ |  | ~~0.060~~ |  | ~~0.0002mg~~ |
| 116 | Endrin Aldehyde |  |  | 7421934 |  |  |  |  |  |  |  |  | ~~0.29~~ |  | ~~0.30~~ |  |  |
| 33 | Ethylbenzene |  |  | 100414 |  |  |  |  |  |  |  |  | ~~530~~ |  | ~~2100~~ |  |  |
| 86 | Fluoranthene |  |  | 206440 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 87 | Fluorene |  |  | 86737 |  |  |  |  |  |  |  |  | ~~1100~~ |  | ~~5300~~ |  |  |
| 17 N | Guthion |  |  | 86500 |  |  | 0.01 | X |  |  | 0.01 | X |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 117 | Heptachlor |  |  | 76448 | 0.52 O | X | 0.0038 O | X | 0.053 O | X | 0.0036 O | X | ~~0.000079~~ |  | ~~0.000079~~ |  |  |
| 118 | Heptachlor Epoxide |  |  | 1024573 | 0.52 O |  | 0.0038 O |  | 0.053 O |  | 0.0036 O |  | ~~0.000039~~ |  | ~~0.000039~~ |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 88 | Hexachlorobenzene |  |  | 118741 |  |  |  |  |  |  |  |  | ~~0.00028~~ |  | ~~0.00029~~ |  |  |
| 89 | Hexachlorobutadiene |  |  | 87683 |  |  |  |  |  |  |  |  | ~~0.44~~ |  | ~~18~~ |  |  |
| 91 | Hexachloroethane |  |  | 67721 |  |  |  |  |  |  |  |  | ~~1.4~~ |  | ~~3.3~~ |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 19 N | Hexachlorocyclo-hexane-Technical |  |  | 319868 |  |  |  |  |  |  |  |  | ~~0.0123 J~~ |  | ~~0.0414 J~~ |  |  |
| 90 | Hexachlorocyclopentadiene |  |  | 77474 |  |  |  |  |  |  |  |  | ~~40~~ |  | ~~1100~~ |  |  |
| 92 | Ideno1,2,3-(cd)Pyrene |  |  | 193395 |  |  |  |  |  |  |  |  | ~~0.0038~~ |  | ~~0.018~~ |  |  |
| 20 N | Iron |  |  | 7439896 |  |  | 1,000 | X |  |  |  |  |  |  |  |  |  |
| 93 | Isophorone |  |  | 78591 |  |  |  |  |  |  |  |  | ~~35~~ |  | ~~960~~ |  |  |
| 7 | Lead |  |  | 7439921 |  |  |  |  |  |  |  |  |  |  |  |  | ~~0.05mg~~ |
| 21 N | Malathion |  |  | 121755 |  |  | 0.1 | X |  |  | 0.1 | X |  |  |  |  |  |
| 22 N | Manganese |  |  | 7439965 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 8a | Mercury |  |  | 7439976 | 2.4 | X | 0.012 | X | 2.1 | X | 0.025 | X |  |  |  |  | ~~0.002mg~~ |
| 23 N | Methoxychlor |  |  | 72435 |  |  | 0.03 | X |  |  | 0.03 | X | ~~100 J~~ |  |  |  | ~~0.1mg~~ |
| 34 | Methyl Bromide |  |  | 74839 |  |  |  |  |  |  |  |  | ~~47~~ |  | ~~1500~~ |  |  |
| 35 | Methyl Chloride |  |  | 74873 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 48 | Methyl-4,6-Dinitrophenol 2- |  |  | 534521 |  |  |  |  |  |  |  |  | ~~13~~ |  | ~~280~~ |  |  |
| 52 | Methyl-4-Chlorophenol 3- |  |  | 59507 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 36 | Methylene Chloride |  |  | 75092 |  |  |  |  |  |  |  |  | ~~4.6~~ |  | ~~590~~ |  |  |
| 8b | Methylmercury |  |  | 22967926 |  |  |  |  |  |  |  |  |  |  | ~~300ug/kg L~~ |  |  |
| 24 N | Mirex |  |  | 2385855 |  |  | 0.001 | X |  |  | 0.001 | X |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 94 | Naphthalene |  |  | 91203 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 | Nickel |  |  | 7440020 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 25 N | Nitrates |  |  | 14797558 |  |  |  |  |  |  |  |  | ~~10000 J~~ |  |  |  | ~~10mg~~ |
| 95 | Nitrobenzene |  |  | 98953 |  |  |  |  |  |  |  |  | ~~17~~ |  | ~~690~~ |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 50 | Nitrophenol 2- |  |  | 88755 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 51 | Nitrophenol 4- |  |  | 100027 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 26 N | Nitrosamines |  |  | 35576911 |  |  |  |  |  |  |  |  | ~~0.0008 J~~ |  | ~~1.24 J~~ |  |  |
| 28 N | Nitrosodibutylamine,N |  |  | 924163 |  |  |  |  |  |  |  |  | ~~0.0063~~ |  | ~~0.22~~ |  |  |
| 29 N | Nitrosodiethylamine,N |  |  | 55185 |  |  |  |  |  |  |  |  | ~~0.0008 J~~ |  | ~~1.24 J~~ |  |  |
| 96 | N-Nitrosodimethylamine |  |  | 62759 |  |  |  |  |  |  |  |  | ~~0.00069~~ |  | ~~3.0~~ |  |  |
| 98 | N-Nitrosodiphenylamine |  |  | 86306 |  |  |  |  |  |  |  |  | ~~3.3~~ |  | ~~6.0~~ |  |  |
| 30 N | Nitrosopyrrolidine,N |  |  | 930552 |  |  |  |  |  |  |  |  | ~~0.016~~ |  | ~~34~~ |  |  |
| 97 | N-Nitrosodi-n-Propylamine |  |  | 621647 |  |  |  |  |  |  |  |  | ~~0.0050~~ |  | ~~0.51~~ |  |  |
| 32 N | Oxygen, Dissolved |  |  | 7782447 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 33 N | Parathion |  |  | 56382 | 0.065 | X | 0.013 | X |  |  |  |  |  |  |  |  |  |
| 119 | Polychlorinated Biphenyls PCBs: |  |  | 1336363 | 2 U | X | 0.014 U | X | 10 U | X | 0.03 U | X | ~~0.000064 U~~ |  | ~~0.000064 U~~ |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 34 N | Pentachlorobenzene |  |  | 608935 |  |  |  |  |  |  |  |  | ~~1.4~~ |  | ~~1.5~~ |  |  |
| 53 | Pentachlorophenol |  |  | 87865 |  M |  |  |  | 13 |  | 7.9 |  | ~~0.27~~ |  | ~~3.0~~ |  |  |
| 99 | Phenanthrene |  |  | 85018 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 54 | Phenol |  |  | 108952 |  |  |  |  |  |  |  |  |  |  | ~~1700000~~ |  |  |
| 36 N | Phosphorus Elemental |  |  | 7723140 |  |  |  |  |  |  | 0.1 |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 100 | Pyrene |  |  | 129000 |  |  |  |  |  |  |  |  | ~~830~~ |  | ~~4000~~ |  |  |
| 10 | Selenium |  |  | 7782492 |  |  |  |  |  |  |  |  |  |  | ~~4200~~ |  | ~~0.01mg~~ |
| 11 | Silver |  |  | 7440224 |  |  |  |  |  |  |  |  |  |  |  |  | ~~0.05mg~~ |
| 40 N | Sulfide-Hydrogen Sulfide |  |  | 7783064 |  |  | 2 | X |  |  | 2 | X |  |  |  |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 43 N | Tetrachlorobenzene,1,2,4,5 |  |  | 95943 |  |  |  |  |  |  |  |  | ~~0.97~~ |  | ~~1.1~~ |  |  |
| 37 | Tetrachloroethane 1,1,2,2- |  |  | 79345 |  |  |  |  |  |  |  |  | ~~0.17~~ |  | ~~4.0~~ |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 38 | Tetrachloroethylene |  |  | 127184 |  |  |  |  |  |  |  |  | ~~0.69~~ |  | ~~3.3~~ |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 12 | Thallium |  |  | 7440280 |  |  |  |  |  |  |  |  | ~~0.24~~ |  | ~~0.47~~ |  |  |
| 39 | Toluene |  |  | 108883 |  |  |  |  |  |  |  |  | ~~1300~~ |  | ~~15000~~ |  |  |
| 120 | Toxaphene |  |  | 8001352 | 0.73 | X | 0.0002 | X | 0.21 | X | 0.0002 | X | ~~0.00028~~ |  | ~~0.00028~~ |  | ~~0.005mg~~ |
| 40 | Trans-Dichloroethylene 1,2- |  |  | 156605 |  |  |  |  |  |  |  |  | ~~140~~ |  | ~~10000~~ |  |  |
| 44 N | Tributyltin (TBT) |  |  | 688733 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 101 | Trichlorobenzene 1,2,4- |  |  | 120821 |  |  |  |  |  |  |  |  | ~~35~~ |  | ~~70~~ |  |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 41 | Trichloroethane 1,1,1- |  |  | 71556 |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 42 | Trichloroethane 1,1,2- |  |  | 79005 |  |  |  |  |  |  |  |  | ~~0.59~~ |  | ~~16~~ |  |  |
| 43 | Trichloroethylene |  |  | 79016 |  |  |  |  |  |  |  |  | ~~2.5~~ |  | ~~30~~ |  |  |
| 45 N | Trichlorophenol 2,4,5 |  |  | 95954 |  |  |  |  |  |  |  |  | ~~1800~~ |  | ~~3600~~ |  |  |
| 55 | Trichlorophenol 2,4,6- |  |  | 88062 |  |  |  |  |  |  |  |  |  |  | ~~2.4~~ |  |  |
| 44 | Vinyl Chloride |  |  | 75014 |  |  |  |  |  |  |  |  | ~~0.025~~ |  | ~~2.4~~ |  |  |
| 13 | Zinc |  |  | 7440666 |  |  |  |  |  |  |  |  | ~~7400~~ |  | ~~26000~~ |  |  |

**Footnotes for Tables 33A and 33B:**

A Values in Table 20 are applicable to all basins.

~~B Human Health criteria values were calculated using a fish consumption rate of 17.5 grams per day (0.6 ounces/day) unless otherwise noted.~~

C Ammonia criteria for freshwater may depend on pH, temperature, and the presence of salmonids or other fish with ammonia-sensitive early life stages. Values for freshwater criteria (of total ammonia nitrogen in mg N/L) can be calculated using the formulae specified in *1999 Update of Ambient Water Quality Criteria for Ammonia* (EPA-822-R-99-014; http://www.epa.gov/ost/standards/ammonia/99update.pdf):

Freshwater Acute:

salmonids present….CMC = 

salmonids not present…CMC=

Freshwater Chronic:

fish early life stages present

 CCC =)

fish early life stages not present

 CCC=

Note: these chronic criteria formulae would be applied to calculate the 30-day average concentration limit; in addition, the highest 4-day average within the 30-day period should not exceed 2.5 times the CCC.

D Ammonia criteria for saltwater may depend on pH and temperature. Values for saltwater criteria (total ammonia) can be calculated from the tables specified in *Ambient Water Quality Criteria for Ammonia (Saltwater)--1989* (EPA 440/5-88-004; <http://www.epa.gov/ost/pc/ambientwqc/ammoniasalt1989.pdf>).

E Freshwater and saltwater criteria for metals are expressed in terms of “dissolved” concentrations in the water column, except where otherwise noted (e.g. aluminum).

F The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. Criteria values for hardness may be calculated from the following formulae (CMC refers to Acute Criteria; CCC refers to Chronic Criteria):

 CMC = (exp(mA\*[ln(hardness)] + bA))\*CF

 CCC = (exp(mC\*[ln(hardness)] + bC))\*CF

where CF is the conversion factor used for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chemical** | **mA** | **bA** | **mC** | **bC** |
| Cadmium | 1.0166 | -3.924 | 0.7409 | -4.719 |
| Chromium III | 0.8190 | 3.7256 | 0.8190 | 0.6848 |
| Copper | 0.9422 | -1.700 | 0.8545 | -1.702 |
| Lead | 1.273 | -1.460 | 1.273 | -4.705 |
| Nickel | 0.8460 | 2.255 | 0.8460 | 0.0584 |
| Silver | 1.72 | -6.59 |  |  |
| Zinc | 0.8473 | 0.884 | 0.8473 | 0.884 |

 Conversion factors (CF) for dissolved metals (the values for total recoverable metals criteria were multiplied by the appropriate conversion factors shown below to calculate the dissolved metals criteria):

|  |  |  |
| --- | --- | --- |
| **Chemical** | **Freshwater** | **Saltwater** |
| **Acute** | **Chronic** | **Acute** | **Chronic** |
| Arsenic | 1.000 | 1.000 | 1.000 | 1.000 |
| Cadmium | 1.136672-[(ln hardness)(0.041838)] | 1.101672-[(ln hardness)(0.041838)] | 0.994 | 0.994 |
| Chromium III | 0.316 | 0.860 | -- | -- |
| Chromium VI | 0.982 | 0.962 | 0.993 | 0.993 |
| Copper | 0.960 | 0.960 | 0.83 | 0.83 |
| Lead | 1.46203-[(ln hardness)(0.145712)] | 1.46203-[(ln hardness)(0.145712)] | 0.951 | 0.951 |
| Nickel | 0.998 | 0.997 | 0.990 | 0.990 |
| Selenium | 0.996 | 0.922 | 0.998 | 0.998 |
| Silver | 0.85 | 0.85 | 0.85 | -- |
| Zinc | 0.978 | 0.986 | 0.946 | 0.946 |

~~G Human Health criterion is the same as originally published in the 1976 EPA Red Book (Quality Criteria for Water, EPA-440/9-76-023) which predates the 1980 methodology and did not use the fish ingestion BCF approach.~~

~~H This value is based on a Drinking Water regulation.~~

I 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.

~~J No BCF was available; therefore, this value is based on that published in the 1986 EPA Gold Book.~~

~~K Human Health criterion is for “dissolved” concentration based on the 1976 EPA Red Book conclusion that adverse effects from exposure at this level are aesthetic rather than toxic.~~

~~L This value is expressed as the fish tissue concentration of methylmercury.~~

M Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: CMC=(exp(1.005(pH)-4.869); CCC=exp(1.005(pH)-5.134).

N This number was assigned to the list of non-priority pollutants in National Recommended Water Quality Criteria: 2002 (EPA-822-R-02-047).

O This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines for minimum data requirements and derivation procedures. For example, a "CMC" derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

P Criterion shown is the minimum (i.e. CCC in water should not be below this value in order to protect aquatic life).

Q Criterion is applied as total arsenic (i.e. arsenic (III) + arsenic (V)).

~~R Arsenic criterion refers to the inorganic form only.~~

S This criterion is expressed as µg free cyanide (CN)/L.

T This criterion applies to DDT and its metabolites (i.e. the total concentration of DDT and its metabolites should not exceed this value).

U This criterion applies to total PCBs (e.g. the sum of all congener or all isomer or homolog or Arochlor analyses).

V The CMC=1/[(f1/CMC1)+(f2/CMC2)] where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively, and CMC1 and CMC2 are 185.9 μg/L and 12.82 μg/L, respectively.

W The acute and chronic criteria for aluminum are 750 μg/L and 87 μg/L, respectively. These values for aluminum are expressed in terms of “total recoverable” concentration of metal in the water column. The criterion applies at pH<6.6 and hardness<12 mg/L (as CaCO3).

X The effective date for the criterion in the column immediately to the left is 1991.

Y No criterion.

**Table 33B Redline/Strikethrough**

**TABLE 33B**

Note: The Environmental Quality Commission adopted the following criteria on May 20, 2004 to become effective on EPA approval. EPA has not yet (as of June 2006) approved these criteria. The Table 33B criteria may not be used until they are approved by EPA.

***AQUATIC LIFE WATER QUALITY CRITERIA SUMMARY* A**

The concentration for each compound listed in Table 33A is a criterion not to be exceeded in waters of the state in order to protect aquatic life ~~and human health~~. All values are expressed as micrograms per liter (µg/L) except where noted. Compounds are listed in alphabetical order with the corresponding EPA number (from National Recommended Water Quality Criteria: 2002, EPA-822-R-02-047), the Chemical Abstract Service (CAS) number, aquatic life freshwater acute and chronic criteria, aquatic life saltwater acute and chronic criteria~~, human health water & organism and organism only criteria, and Drinking Water Maximum Contaminant Level (MCL)~~. The acute criteria refer to the average concentration for one (1) hour and the chronic criteria refer to the average concentration for 96 hours (4 days), and that these criteria should not be exceeded more than once every three (3) years.

| EPA No. | Compound |  |  | CAS Number |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Freshwater | Saltwater | ~~Human Health~~ ~~For Consumption of:~~ |
| Acute (CMC) | Effective Date | Chronic (CCC) | Effective Date | Acute (CMC) | Effective Date | Chronic (CCC) | Effective Date | ~~Water + Organism~~~~B~~ | ~~Effective Date~~ | ~~Organism only~~~~B~~ | ~~Effective Date~~ |
| 2 N | Aluminum (pH 6.5 - 9.0) |  |  | 7429905 | W |  | W |  |  |  |  |  |  |  |  |  |
| 3 N | Ammonia |  |  | 7664417 | C |  | C |  |  |  |  |  |  |  |  |  |
| 2 | Arsenic |  |  | 7440382 |  |  |  |  |  |  |  |  | ~~0.018 R~~ |  | ~~0.14 R~~ |  |
| 15 | Asbestos |  |  | 1332214 |  |  |  |  |  |  |  |  | ~~7.0E+06 fibers/Liter~~ |  |  |  |
| 19 | Benzene |  |  | 71432 |  |  |  |  |  |  |  |  | ~~2.2~~ |  | ~~51~~ |  |
| 3 | Beryllium |  |  | 7440417 |  |  |  |  |  |  |  |  | ~~Y~~ |  | ~~Y~~ |  |
| 105 | BHC gamma- (Lindane) |  |  | 58899 |  |  |  |  |  |  |  |  | ~~0.98~~ |  | ~~1.8~~ |  |
| 4 | Cadmium |  |  | 7440439 | E,F |  | E,F |  | 40 E |  | 8.8 E |  | ~~Y~~ |  |  |  |
| 107 | Chlordane |  |  | 57749 |  |  |  |  |  |  |  |  | ~~0.00080~~ |  | ~~0.00081~~ |  |
|  | CHLORINATED BENZENES |  |  |  |  |  |  |  |  |  |  |  | ~~Y~~ |  | ~~Y~~ |  |
| 26 | Chloroform |  |  | 67663 |  |  |  |  |  |  |  |  | ~~5.7~~ |  | ~~470~~ |  |
| 67 | ChloroisopropylEther Bis2- |  |  | 108601 |  |  |  |  |  |  |  |  | ~~1400~~ |  | ~~65000~~ |  |
| 15 N | ChloromethylEther, Bis  |  |  | 542881 |  |  |  |  |  |  |  |  | ~~0.00010~~ |  |  |  |
| 5a | Chromium (III) |  |  |  | E,F |  | E,F |  |  |  |  |  | ~~Y~~ |  |  |  |
| 5b | Chromium (VI) |  |  | 18540299 | 16 E |  | 11 E |  |  |  |  |  | ~~Y~~ |  | ~~Y~~ |  |
| 6 | Copper |  |  | 7440508 | E,F |  | E,F |  | 4.8 E |  | 3.1 E |  |  |  |  |  |
| 108 | DDT 4,4’- |  |  | 50293 |  |  |  |  |  |  |  |  | ~~0.00022~~ |  | ~~0.00022~~ |  |
|  | DIBUTYLPHTHALATE |  |  |  |  |  |  |  |  |  |  |  | ~~Y~~ |  | ~~Y~~ |  |
|  | DICHLOROBENZENES |  |  |  |  |  |  |  |  |  |  |  | ~~Y~~ |  | ~~Y~~ |  |
|  | DICHLOROBENZIDINE |  |  |  |  |  |  |  |  |  |  |  | ~~Y~~ |  | ~~Y~~ |  |
|  | DICHLOROETHYLENES |  |  |  |  |  |  |  |  |  |  |  | ~~Y~~ |  | ~~Y~~ |  |
|  | DICHLOROPROPENE |  |  |  |  |  |  |  |  |  |  |  | ~~Y~~ |  | ~~Y~~ |  |
| 111 | Dieldrin |  |  | 60571 |  |  | 0.056 |  |  |  |  |  |  |  |  |  |
|  | DINITROTOLUENE |  |  |  |  |  |  |  |  |  |  |  | ~~Y~~ |  | ~~Y~~ |  |
|  | DIPHENYLHYDRAZINE |  |  |  |  |  |  |  |  |  |  |  | ~~Y~~ |  | ~~Y~~ |  |
| 115 | Endrin |  |  | 72208 |  |  | 0.036 |  |  |  |  |  |  |  |  |  |
| 86 | Fluoranthene |  |  | 206440 |  |  |  |  |  |  |  |  | ~~130~~ |  | ~~140~~ |  |
|  | HALOMETHANES |  |  |  |  |  |  |  |  |  |  |  | ~~Y~~ |  | ~~Y~~ |  |
| 20 N | Iron |  |  | 7439896 |  |  |  |  |  |  |  |  | ~~300 K~~ |  |  |  |
| 7 | Lead |  |  | 7439921 | E,F |  | E,F |  | 210 E |  | 8.1 E |  | ~~Y~~ |  |  |  |
| 22 N | Manganese |  |  | 7439965 |  |  |  |  |  |  |  |  | ~~50 K~~ |  | ~~100 K~~ |  |
| 8a | Mercury |  |  | 7439976 |  |  |  |  |  |  |  |  | ~~Y~~ |  | ~~Y~~ |  |
|  | MONOCHLOROBENZENE |  |  |  |  |  |  |  |  |  |  |  | ~~Y~~ |  | ~~Y~~ |  |
| 9 | Nickel |  |  | 7440020 | E,F |  | E,F |  | 74 E |  | 8.2 E |  | ~~610~~ |  | ~~4600~~ |  |
| 53 | Pentachlorophenol |  |  | 87865 |  |  |  M |  |  |  |  |  |  |  |  |  |
| 54 | Phenol |  |  | 108952 |  |  |  |  |  |  |  |  | ~~21000~~ |  |  |  |
|  | POLYNUCLEAR AROMATIC HYRDOCARBONS |  |  |  |  |  |  |  |  |  |  |  | ~~Y~~ |  | ~~Y~~ |  |
| 10 | Selenium |  |  | 7782492 | E,V |  | 5 E |  | 290 E |  | 71 E |  | ~~170~~ |  |  |  |
| 11 | Silver |  |  | 7440224 | E,F,P |  | 0.10 E |  | 1.9 E,P |  |  |  | ~~Y~~ |  |  |  |
| 44 N | Tributyltin (TBT) |  |  | 688733 | 0.46 |  | 0.063 |  | 0.37 |  | 0.01 |  |  |  |  |  |
| 41 | Trichloroethane 1,1,1- |  |  | 71556 |  |  |  |  |  |  |  |  | ~~Y~~ |  | ~~Y~~ |  |
| 55 | Trichlorophenol 2,4,6- |  |  | 88062 |  |  |  |  |  |  |  |  | ~~1.4~~ |  |  |  |
| 13 | Zinc |  |  | 7440666 | E,F |  | E,F |  | 90 E |  | 81 E |  |  |  |  |  |

**Footnotes for Tables 33A and 33B:**

A Values in Table 20 are applicable to all basins.

~~B Human Health criteria values were calculated using a fish consumption rate of 17.5 grams per day (0.6 ounces/day) unless otherwise noted.~~

C Ammonia criteria for freshwater may depend on pH, temperature, and the presence of salmonids or other fish with ammonia-sensitive early life stages. Values for freshwater criteria (of total ammonia nitrogen in mg N/L) can be calculated using the formulae specified in *1999 Update of Ambient Water Quality Criteria for Ammonia* (EPA-822-R-99-014; http://www.epa.gov/ost/standards/ammonia/99update.pdf):

Freshwater Acute:

salmonids present….CMC = 

salmonids not present…CMC=

Freshwater Chronic:

fish early life stages present

 CCC =)

fish early life stages not present

 CCC=

Note: these chronic criteria formulae would be applied to calculate the 30-day average concentration limit; in addition, the highest 4-day average within the 30-day period should not exceed 2.5 times the CCC.

D Ammonia criteria for saltwater may depend on pH and temperature. Values for saltwater criteria (total ammonia) can be calculated from the tables specified in *Ambient Water Quality Criteria for Ammonia (Saltwater)--1989* (EPA 440/5-88-004; <http://www.epa.gov/ost/pc/ambientwqc/ammoniasalt1989.pdf>).

E Freshwater and saltwater criteria for metals are expressed in terms of “dissolved” concentrations in the water column, except where otherwise noted (e.g. aluminum).

F The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. Criteria values for hardness may be calculated from the following formulae (CMC refers to Acute Criteria; CCC refers to Chronic Criteria):

 CMC = (exp(mA\*[ln(hardness)] + bA))\*CF

 CCC = (exp(mC\*[ln(hardness)] + bC))\*CF

where CF is the conversion factor used for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Chemical** | **mA** | **bA** | **mC** | **bC** |
| Cadmium | 1.0166 | -3.924 | 0.7409 | -4.719 |
| Chromium III | 0.8190 | 3.7256 | 0.8190 | 0.6848 |
| Copper | 0.9422 | -1.700 | 0.8545 | -1.702 |
| Lead | 1.273 | -1.460 | 1.273 | -4.705 |
| Nickel | 0.8460 | 2.255 | 0.8460 | 0.0584 |
| Silver | 1.72 | -6.59 |  |  |
| Zinc | 0.8473 | 0.884 | 0.8473 | 0.884 |

 Conversion factors (CF) for dissolved metals (the values for total recoverable metals criteria were multiplied by the appropriate conversion factors shown below to calculate the dissolved metals criteria):

|  |  |  |
| --- | --- | --- |
| **Chemical** | **Freshwater** | **Saltwater** |
| **Acute** | **Chronic** | **Acute** | **Chronic** |
| Arsenic | 1.000 | 1.000 | 1.000 | 1.000 |
| Cadmium | 1.136672-[(ln hardness)(0.041838)] | 1.101672-[(ln hardness)(0.041838)] | 0.994 | 0.994 |
| Chromium III | 0.316 | 0.860 | -- | -- |
| Chromium VI | 0.982 | 0.962 | 0.993 | 0.993 |
| Copper | 0.960 | 0.960 | 0.83 | 0.83 |
| Lead | 1.46203-[(ln hardness)(0.145712)] | 1.46203-[(ln hardness)(0.145712)] | 0.951 | 0.951 |
| Nickel | 0.998 | 0.997 | 0.990 | 0.990 |
| Selenium | 0.996 | 0.922 | 0.998 | 0.998 |
| Silver | 0.85 | 0.85 | 0.85 | -- |
| Zinc | 0.978 | 0.986 | 0.946 | 0.946 |

~~G Human Health criterion is the same as originally published in the 1976 EPA Red Book (Quality Criteria for Water, EPA-440/9-76-023) which predates the 1980 methodology and did not use the fish ingestion BCF approach.~~

~~H This value is based on a Drinking Water regulation.~~

I 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.

~~J No BCF was available; therefore, this value is based on that published in the 1986 EPA Gold Book.~~

~~K Human Health criterion is for “dissolved” concentration based on the 1976 EPA Red Book conclusion that adverse effects from exposure at this level are aesthetic rather than toxic.~~

~~L This value is expressed as the fish tissue concentration of methylmercury.~~

M Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: CMC=(exp(1.005(pH)-4.869); CCC=exp(1.005(pH)-5.134).

N This number was assigned to the list of non-priority pollutants in National Recommended Water Quality Criteria: 2002 (EPA-822-R-02-047).

O This criterion is based on EPA recommendations issued in 1980 that were derived using guidelines that differed from EPA's 1985 Guidelines for minimum data requirements and derivation procedures. For example, a "CMC" derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

P Criterion shown is the minimum (i.e. CCC in water should not be below this value in order to protect aquatic life).

~~Q Criterion is applied as total arsenic (i.e. arsenic (III) + arsenic (V)).~~

R Arsenic criterion refers to the inorganic form only.

S This criterion is expressed as µg free cyanide (CN)/L.

T This criterion applies to DDT and its metabolites (i.e. the total concentration of DDT and its metabolites should not exceed this value).

U This criterion applies to total PCBs (e.g. the sum of all congener or all isomer or homolog or Arochlor analyses).

V The CMC=1/[(f1/CMC1)+(f2/CMC2)] where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively, and CMC1 and CMC2 are 185.9 μg/L and 12.82 μg/L, respectively.

W The acute and chronic criteria for aluminum are 750 μg/L and 87 μg/L, respectively. These values for aluminum are expressed in terms of “total recoverable” concentration of metal in the water column. The criterion applies at pH<6.6 and hardness<12 mg/L (as CaCO3).

X The effective date for the criterion in the column immediately to the left is 1991.

Y No criterion.

**Crosswalk Between Currently Effective Human Health Criteria and Proposed Criteria**

| **Compound Name or Class [Table 40 Name, if different]**\*Criteria denoted in red indicate proposed additions to the human health criteria\* | **Priority Pollutant** | **Carcinogen** | **Concentration in Units Per Liter for Protection of Human Health****CURRENT** | **Concentration in Units Per Liter for Protection of Human Health****PROPOSED TABLE 40** |
| --- | --- | --- | --- | --- |
| **Water and Fish Ingestion (µg/L)** | **Fish Consumption Only (µg/L)** | **Water and Fish Ingestion (µg/L)** | **Fish Consumption Only (µg/L)** |
| ACENAPTHENE | Y | N | -- | -- | 95 | 99 |
| ACROLEIN | Y | N | 320 | 780 | 0.88 | 0.93 |
| ACRYLONITRILE | Y | Y | 0.058 | 0.65 | 0.018 | 0.025 |
| ALDRIN | Y | Y | 0.000074 | 0.000079 | 0.0000050 | 0.0000050 |
| ANTHRACENE | N | N | -- | -- | 2900 | 4000 |
| ANTIMONY | Y | N | 146 | 45,000 | 5.1 | 64 |
| ARSENIC | Y | Y | 0.0022 | 0.0175 | .0022\*separate rulemaking to revise criteria | .0175\*separate rulemaking to revise criteria |
| ASBESTOS | Y | Y | 7,000,000 fibers/L | -- | 7,000,000 fibers/L | -- |
| BARIUM | N | N | 1000 | -- | 1000 | -- |
| BENZENE [REPRESENTS RANGE] | N | Y | -- | -- | 1.6 | 5.1 |
| BENZENE | N | Y | 0.66 | 40 | 0.44 | 1.4 |
| BENZIDINE | N | Y | 0.00012 | 0.00053 | 0.000018 | 0.000020 |
| BENZO(A) ANTHRACENE | N | Y | -- | -- | 0.0013 | 0.0018 |
| BENZO(A)PYRENE | N | Y | -- | -- | 0.0013 | 0.0018 |
| BENZO(B)FLUORANTHENE 3,4 | N | Y | -- | -- | 0.0013 | 0.0018 |
| BENZO(K)FLUORANTHENE | N | Y | -- | -- | 0.0013 | 0.0018 |
| BROMOFORM | N | Y | -- | -- | 3.3 | 14 |
| BUTYLBENZYL PHTHALATE | N | N | -- | -- | 190 | 190 |
| CARBON TETRACHLORIDE | Y | Y | 0.4 | 6.94 | 0.10 | 0.16 |
| CHLORDANE | Y | Y | 0.00046 | 0.00048 | 0.000081 | 0.000081 |
| CHLORINATED BENZENES [CHLOROBENZENE] | Y | N | 488 | -- | 74 | 160 |
| CHLORODIBROMOMETHANE | N | Y | -- | -- | 0.31 | 1.3 |
| CHLOROETHYL ETHER (BIS-2) | Y | Y | 0.03 | 1.36 | 0.020 | 0.05 |
| CHLOROFORM | Y | N | 0.19 | 15.7 | 260 | 1100 |
| CHLOROISOPROPYL ETHER (BIS-2) | Y | N | 34.7 | 4360 | 1200 | 6500 |
| CHLOROMETHYL ETHER (BIS) | N | Y | 0.00000376 | 0.00184 | 0.000024 | 0.000029 |
| CHLORONAPHTHALENE 2 | N | N | -- | -- | 150 | 160 |
| CHLOROPHENOL 2 | Y | N | -- | -- | 14 | 15 |
| CHLOROPHENOXY HERBICIDES (2,4,5,-TP) | N | N | 10 | -- | 10 | -- |
| CHLOROPHENOXY HERBICIDES (2,4-D) | N | N | 100 | -- | 100 | -- |
| CHRYSENE | N | Y | -- | -- | 0.0013 | 0.0018 |
| COPPER | Y | N | 1300 | -- | 1300 | -- |
| CYANIDE | Y | N | 200 | -- | 130 | 130 |
| DDT [DDT 4,4’] | Y | Y | 0.000024 | 0.000024 | 0.000022 | 0.000022 |
| DDD 4, 4’ | Y | Y | -- | -- | 0.000031 | 0.000031 |
| DDE 4, 4’ | Y | Y | -- | -- | 0.000022 | 0.000022 |
| DIBENZO(A,H)ANTHRACENE | N | Y | -- | -- | 0.0013 | 0.0018 |
| DIBUTYLPHTHALATE [DI-N-BUTYL PHTHALATE] | Y | N | 35,000 | 154,000 | 400 | 450 |
| DICHLOROBENZENES [DICHLOROBENZENE(O)1,2] | Y | N | 400 | 2,600 | 110 | 130 |
| DICHLOROBENZENE(P) 1,4 | N | N | -- | -- | 16 | 19 |
| DICHLOROBENZIDINE [DICHLOROBENZIDINE 3,3'] | Y | Y | 0.01 | 0.020 | 0.0027 | 0.0028 |
| DICHLOROBROMOMETHANE | N | Y | -- | -- | 0.42 | 1.7 |
| DICHLOROETHANE 1,2 | Y | Y | 0.94 | 243 | 0.35 | 3.7 |
| DICHLOROETHYLENES [DICHLOROETHYLENE 1,1] | Y | N | 0.033 | 1.85 | 230 | 710 |
| DICHLOROETHYLENE TRANS 1,2 | N | N | -- | -- | 120 | 1000 |
| DICHLOROPHENOL 2,4 | N | N | 3,090 | -- | 23 | 29 |
| DICHLOROPROPANE [DICHLOROPROPANE 1,2] | Y | Y | -- | -- | 0.38 | 1.5 |
| DICHLOROPROPENE [DICHLOROPROPENE 1,3] | Y | Y | 87 | 14,100 | 0.30 | 2.1 |
| DIELDRIN | Y | Y | 0.000071 | 0.000076 | 0.0000053 | 0.0000054 |
| DIETHYLPHTHALATE | Y | N | 350,000 | 1,800,000 | 3800 | 4400 |
| DIMETHYL PHENOL 2,4 | Y | N | -- | -- | 76 | 85 |
| DIMETHYL PHTHALATE | Y | N | 313,000 | 2,900,000 | 84,000 | 110,000 |
| DINITROPHENOL 2,4 | Y | N | -- | -- | 62 | 530 |
| DINITROPHENOLS | Y | N | -- | -- | 62 | 530 |
| DINITROTOLUENE 2,4 | N | Y | 0.11 | 9.1 | 0.084 | 0.34 |
| DINITROTOLUENE | Y | N | 70 | 14,300 | No criteria | No criteria |
| DINITRO-O-CRESOL 2,4 | Y | N | 13.4 | 765 | No criteria | No criteria |
| DIOXIN (2,3,7,8-TCDD) | Y | Y | 0.000000013 | 0.000000014 | 0.00000000051 | 0.00000000051 |
| DIPHENYLHYDRAZINE | Y | N | 0.042 | 0.56 | No criteria | No criteria |
| DIPHENYLHYDRAZINE 1,2 | Y | Y | -- | -- | 0.014 | 0.02 |
| DI-2-ETHYLHEXYL PHTHALATE [BIS-2-ETHYLHEXYL PHTHALATE] | Y | Y | 15,000 | 50,000 | 0.20 | 0.22 |
| ENDOSULFAN | Y | N | 74 | 159 | No criteria | No criteria |
| ENDOSULFAN ALPHA | Y | N | -- | -- | 8.5 | 8.9 |
| ENDOSULFAN BETA | Y | N | -- | -- | 8.5 | 8.9 |
| ENDOSULFAN SULFATE | Y | N | -- | -- | 8.5 | 8.9 |
| ENDRIN | Y | N | 1 | -- | 0.0060 | 0.0060 |
| ENDRIN ALDEHYDE | Y | N | -- | -- | 0.03 | 0.03 |
| ETHYLBENZENE | Y | N | 1,400 | 3,280 | 160 | 210 |
| FLUORANTHENE | Y | N | 42 | 54 | 14 | 14 |
| FLUORENE | Y | N | -- | -- | 390 | 530 |
| HALOMETHANES | Y | Y | 0.19 | 15.7 | No criteria | No criteria |
| HEPTACHLOR | Y | Y | 0.00028 | 0.00029 | 0.0000079 | 0.0000079 |
| HEPTACHLOR EPOXIDE | Y | Y | -- | -- | 0.0000039 | 0.0000039 |
| HEXACHLOROETHANE | N | Y | 1.9 | 8.74 | 0.29 | 0.33 |
| HEXACHLOROBENZENE | Y | Y | 0.00072 | 0.00074 | 0.000029 | 0.000029 |
| HEXACHLOROBUTADIENE | Y | Y | 0.45 | 50 | 0.36 | 1.8 |
| HEXACHLOROCYCLOHEXANE-ALPHA [BHC ALPHA] | Y | Y | 0.0092 | 0.031 | 0.00045 | 0.00049 |
| HEXACHLOROCYCLOHEXANE-BETA [BHC BETA] | Y | Y | 0.0163 | 0.0547 | 0.0016 | 0.0017 |
| HEXACHLOROCYCLOHEXANE-GAMA [BHC GAMMA (LINDANE)] | Y | N | 0.0186 | 0.0625 | 0.17 | 0.18 |
| HEXACHLOROCYCLOHEXANE-TECHNICAL | Y | Y | 0.0123 | 0.0414 | 0.0014 | 0.0015 |
| HEXACHLOROCYCLOPENTADIENE | Y | N | 206 | -- | 30 | 110 |
| INDENO(1,2,3-CD)PYRENE | Y | Y | -- | -- | 0.0013 | 0.0018 |
| ISOPHORONE | Y | Y | 5,200 | 520,000 | 27 | 96 |
| MANGANESE | N | N | 50 | 100 | -- | 100 |
| METHOXYCHLOR | N | N | 100 | -- | 100 | -- |
| METHYL BROMIDE | Y | N | -- | -- | 37 | 150 |
| METHYL-4,6-DINITROPHENOL 2 | Y | N | -- | -- | 9.2 | 28 |
| METHYLENE CHLORIDE | Y | Y | -- | -- | 4.3 | 59 |
| METHYLMERCURY (MG/KG) | Y | N | -- | -- | -- | 0.040 |
| MONOCHLOROBENZENE | Y | N | 488 | -- | No criteria | No criteria |
| NICKEL | Y | N | 13.4 | 100 | 140 | 170 |
| NITRATES | N | N | 10,000 | -- | 10,000 | -- |
| NITROBENZENE | Y | N | 19,800 | -- | 14 | 69 |
| NITROSAMINES | Y | Y | 0.0008 | 1.24 | 0.00079 | 0.046 |
| NITROSODIBUTYLAMINE N | Y | Y | 0.0064 | 0.587 | 0.0050 | 0.02 |
| NITROSODIETHYLAMINE N | Y | Y | 0.0008 | 1.24 | 0.00079 | 0.046 |
| NITROSODIMETHYLAMINE N | Y | Y | 0.0014 | 16 | 0.00068 | 0.30 |
| NITROSODI-N-PROPYLAMINE, N | Y | Y | -- | -- | 0.0046 | 0.051 |
| NITROSODIPHENYLAMINE N | Y | Y | 4.9 | 16.1 | 0.55 | 0.60 |
| NITROSOPYRROLIDINE N | Y | Y | 0.016 | 91.9 | 0.016 | 3.4 |
| PCBS | Y | Y | 0.000079 | 0.000079 | 0.0000064 | 0.0000064 |
| PENTACHLOROBENZENE | N | N | 74 | 85 | 0.15 | 0.15 |
| PENTACHLOROPHENOL | Y | Y | 1,010 | -- | 0.15 | 0.30 |
| PHENOL | Y | N | 3,500 | -- | 9,400 | 86,000 |
| POLYNUCLEAR AROMATIC HYDROCARBONS | Y | Y | 0.0028 | 0.0311 | No criteria | No criteria |
| PYRENE | Y | N | -- | -- | 290 | 400 |
| SELENIUM | Y | N | 10 | -- | 120 | 420 |
| TETRACHLOROBENZENE 1,2,4,5 | Y | N | 38 | 48 | 0.11 | 0.11 |
| TETRACHLOROETHANE 1,1,2,2 | Y | Y | 0.17 | 10.7 | 0.12 | 0.40 |
| TETRACHLOROETHYLENE | Y | Y | 0.8 | 8.85 | 0.24 | 0.33 |
| THALLIUM | Y | N | 13 | 48 | 0.043 | 0.047 |
| TOLUENE | Y | N | 14,300 | 424,000 | 720 | 1500 |
| TOXAPHENE | Y | Y | 0.00071 | 0.00073 | 0.000028 | 0.000028 |
| TRICHLOROBENZENE 1,2,4 | Y | N | -- | -- | 6.4 | 7.0 |
| TRICHLOROETHANE 1,1,2 | Y | Y | 0.6 | 41.8 | 0.44 | 1.6 |
| TRICHLOROETHYLENE | Y | Y | 2.7 | 80.7 | 1.4 | 3.0 |
| TRICHLOROPHENOL 2,4,5 | N | N | 2,600 | -- | 330 | 360 |
| TRICHLOROPHENOL 2,4,6 | Y | Y | 1.2 | 3.6 | 0.23 | 0.24 |
| VINYL CHLORIDE | Y | Y | 2 | 525 | 0.02 | 0.24 |
| ZINC | Y | N | -- | -- | 2100 | 2600 |