Appendix B Toxic Substances Table

|  |  | **Fresh Water Aquatic Criteria** | **Human Health Criteria**\* |
| --- | --- | --- | --- |
| **Substanceb** | **CASRN** | **Chronic Toxicityc (µg/L)** | **Acute Toxicityc (µg/L)** | **Fish consumption and other (µg/L)** | **Water Consumption (µg/L)** |
| Acenaphthene | 83-32-9 | — | — | 20j | — |
| Acrolein | 107-02-8 | 3 | 3 | 400 | — |
| Acrylonitrile | 107-13-1 | — | — | 7 | — |
| Aldrin | 309-00-2 | — | 3 | 0.00000077 | — |
| alpha-BHC | 319-84-6 | — | — | 0.00039 | — |
| Endosulfan, alpha | 959-98-8 | 0.056 | 0.22 | 30 | — |
| Aluminuma | 7429-90-5 | 750 | 750 | — | — |
| Anthracene | 120-12-7 | — | — | 400 | — |
| Antimonya | 7440-36-0 | — | — | — | 6f |
| Arsenica | 7440-38-2 | 150 | 340 | 3.6i | — |
| Bariuma | 7440-39-3 | — | — | — | 2000f |
| Benzene | 71-43-2 | — | — | — | 5f |
| Benzidine | 92-87-5 | — | — | 0.011 | — |
| Benzo(a)anthracene | 56-55-3 | — | — | 0.0013 | — |
| Benzo(a)pyrene | 50-32-8 | — | — | 0.00013 | — |
| Benzo(b)fluoranthene | 205-99-2 | — | — | 0.0013 | — |
| Benzo(ghi)Perylene | 191-24-2 |  |  | e |  |
| Benzo(k)fluoranthene | 207-08-9 | — | — | 0.013 | — |
| Beryllium | 7440-41-7 | 5.3 | 130 | — | 4f |
| beta-BHC | 319-85-7 | — | — | 0.014 | — |
| Endosulfan, beta | 33213-65-9 | 0.056 | 0.22 | 40 | — |
| Bis(2-Chloroethyl) Ether | 111-44-4 | — | — | 2.2 | — |
| Bis(2-Chloroisopropyl)Ether | 108-60-1 | — | — | 4000 | — |
| Bis 2-Ethylhexylphthalate | 117-81-7 | — | — | 0.37 | — |
| Bis(Chloromethyl) Ether | 542-88-1 | — | — | 0.017 | — |
| Bromoform |  | — | — | 120 | — |
|  Butylbenzyl Phthalate | 85-68-7 | — | — | 0.10 | — |
| Cadmiuma | 7440-43-9 | e(0.7977[ln(hd)]-3.909(CF) |  e(0.9789[ln(hd)]-3.866 (CF) | — | 5f |
| Carbaryl | 63-25-2 | 2.1 | 2.1 | — | — |
| Carbon Tetrachloride | 56-23-5 | — | — | 5 | — |
| Chlordane | 57-74-9 | 0.0043 | 2.4 | 0.00032 | — |
| Chlorine residual | 7782-50-5 | 11 | 19 | — | — |
| Chlorobenzene | 108-90-7 | — | — | 20j | — |
| Chlorodibromomethane | 124-48-1 | — | — | 21 | — |
| Chloroform | 67-66-3 | — | — | 2000 | — |
| Chlorpyrifos | 2921-88-2 | 0.041 | 0.083 | — | — |
| Chromium (III)a | 16065-83-1 | e(0.8190[ln(hd)]+0.6848)(0.860) | e(0.8190[ln(hd)]+3.7256)(0.316) | — | 100f |
| Chromium (VI)a | 18540-29-9 | 10.58 | 15.71 | — | 100f |
| Chrysene | 218-01-9 | — | — | 0.13 | — |
| Coppera | 7440-50-8 | e(0.8545[ln(hd)]-1.702)(0.96) |  e(0.9422[ln(hd)]-1.700)(0.96) | 1000j | — |
| Cyanide | 57-12-5 | 5.2 | 22 | 400 | —200f |
| Demeton | 8065-48-3 | 0.1 | — | — | — |
| Diazinon | 333-41-5 | 0.17 | 0.17 | — | — |
| Dibenzo(a,h)anthracene | 53-70-3 | — | — | 0.00013 | — |
| Dichlorobromomethane | 75-27-4 | — | — | 27 | — |
| Dieldrin | 60-57-1 | 0.056 | 0.24 | 0.0000012 | — |
| Diethyl Phthalate | 84-66-2 | — | — | 600 | — |
| Dimethyl Phthalate | 131-11-3 | — | — | 2000 | — |
| Di-n-Butyl Phthalate | 84-74-2 | — | — | 30 | — |
|  Dinitrophenols | 2555-05-87 | — | — | 1000 | — |
| Dioxin (2,3,4,8-TCDD) | 1746-01-6 | — | — | 5.1E-09 | — |
| Endosulfan Sulfate | 1031-07-8 | — | — | 40 | — |
| Endrin | 72-20-8 | 0.036 | 0.086 | 0.03 | — |
| Endrin Aldehyde | 7421-93-4 | — | — | 1 | — |
| Ethylbenzene | 100-41-4 | — | — | 130 |  |
| Fluoride | 16984-48-8 | — | — | — | 4000f |
| Fluoranthene | 206-44-0 | — | — | 20 | — |
| Fluorene | 86-73-7 | — | — | 70 | — |
| gamma-BHC (Lindane) | 58-89-9 | — | 0.95 |  | 0.2f |
| Guthion | 86-50-0 | 0.01 | — | — | — |
| Heptachlor | 76-44-8 | 0.0038 | 0.52 | 0.0000059 | — |
| Heptachlor Epoxide | 1024-57-3 | 0.0038 | 0.52 | 0.000032 | — |
| Hexachlorobenzene | 118-74-1 | — | — | 0.000079 | — |
| Hexachlorobutadiene | 87-68-3 | — | — | 0.01 | — |
| Hexachlorocyclohexane (HCH) - Technical | 60-87-31 | — | — | 0.010 | — |
| Hexachlorocyclopentadiene | 77-47-4 | — | — | 1j | — |
| Hexachloroethane | 67-72-1 | — | — | 0.1 | — |
| Indeno(1,2,3-cd)pyrene | 193-39-5 | — | — | 0.0013 | — |
| Irona | 7439-89-6 | 1000 | — | 300j | — |
| Isophorone | 78-59-1 | — | — | 1800 | — |
| Leada | 7439-92-1 | e(1.273[ln(hd)]-4.705)(CF) | e(1.273[ln(hd)]-1.460)(CF) | e | — |
| Malathion | 121-75-5 | 0.1 | — | — | — |
| Manganesea | 7439-96-5 | — | — | 100 | — |
| Mercury | 7439-97-6 | 0.012 | 2.4 | 0.051g | — |
| Methoxychlor | 72-43-5 | 0.03 | — | 0.02 |  |
| Methyl Bromide | 74-83-9 | — | — | 10000 | — |
| Methylene Chloride | 75-09-2 | — | — | 1000 | — |
| Methylmercury | 22967-92-6 | — | — | 0.3 mg/kg in fish tissueg | — |
| Mirex | 2385-85-5 | 0.001 | — | — | — |
| Napthalene | 91-20-3 | — | — | e | — |
| Nickela | 7440-02-0 | e(0.8460[ln(hd)]+0.0584)(0.997) | e(0.8460[ln(hd)]+2.255)(0.998) | 4600 | — |
| Nitrate | 14797-55-8 | — | — | — | 10000f |
| Nitrobenzene | 98-95-3 | — | — | 30j | — |
| Nitrosamines |  | — | — | 1.24 | — |
| Nitrosodibutylamine N | 924-16-3 | — | — | 0.22 | — |
| Nitrosodiethylamine N | 55-18-5 | — | — | 1.24 | — |
| Nitrosopyrrolidine | 930-55-2 | — | — | 34 | — |
| N-Nitrosodimethylamine | 62-75-9 | — | — | 3 | — |
| N-Nitrosodi-n-Propylamine | 621-64-7 | — | — | 0.51 | — |
| N-Nitrosodiphenylamine | 86-30-6 | — | — | 6 | — |
| Nonylphenol | 84852-15-325154-52-3 | 6.6 | 28 | — | — |
| Parathion | 56-38-2 | 0.013 | 0.065 | — | — |
| Pentachlorobenzene | 608-93-5 | — | — | 0.1 | — |
| Pentachlorophenol | 87-86-5 | e(1.005(pH)-5.134) | e(1.005(pH)-4.869) | 0.04 |  |
| Phenanthrene | 85-01-8 | — | — | e | — |
| Phenol | 108-95-2 | — | — | 300j | — |
| Polychlorinated Biphenyls (PCBs) | xx-xx-x | 0.014 | — | 0.000064 | — |
| Pyrene | 129-00-0 | — | — | 30 | — |
| Selenium | 7782-49-2 | 2 | 20 | — | — |
| Silvera | 7440-224 | — | e(1.72[ln(hd)]-6.59)(0.85) | — | — |
| 2-(2,4,5-Trichlorophenoxy) Propionic acid (Silvex) | 93-72-1 | — | — | — | 50f |
| Sulfide-Hydrogen Sulfide | 7783-06-4 | 2 | — | — | — |
| Tetrachloroethylene | 127-18-4 | — | — | 29 | — |
| Thalliuma | 7440-28-0 | — | — | 0.47 | — |
| Toluene | 108-88-3 | — | — | 520 |  |
| Toxaphene | 8001-35-2 | 0.0002 | 0.73 | 0.00071 | — |
| 1,2-Trans-Dichloroethylene | 156-60-5 | — | — | — | 100f |
| Tributyltin (TBT) | — | 0.072 | 0.46 | — | — |
| Trichloroethylene | 79-01-6 | — | — | — | 5f |
| TTHM (Sum of total Trihalomethanes) |  | — | — | — | 80f |
| Vinyl Chloride | 75-01-4 | — | — | 1.6 |  |
| Zinca | 7440-66-6 | e(0.8473[ln(hd)]+0.884)(0.986) | e(0.8473[ln(hd)]+0.884)(0.978) | 5000j | — |
| 1,1,1-Trichloroethane | 71-55-6 | — | — | — | 200f |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | — | — | 3 | — |
| 1,1,2-Trichloroethane | 79-00-5 | — | — | — | 5f |
| 1,1-Dichloroethylene | 75-35-4 | — | — | — | 7f |
| 1,2,4,5-Tetrachlorobenzene | 95-94-3 | — | — | 0.03 | — |
| 1,2,4-Trichlorobenzene | 120-82-1 | — | — | 0.076 | — |
| 1,2-Dichlorobenzene | 95-50-1 | — | — | — | 600f |
| 1,2-Dichloroethane | 107-06-2 | — | — | — | 5f |
| 1,2-Dichloropropane | 78-87-5 | — | — | — | 5f |
| 1,2-Diphenylhydrazine | 122-66-7 | — | — | 0.2 | — |
| 1,3-Dichlorobenzene | 541-73-1 | — | — | 10 | — |
| 1,3-Dichloropropene | 542-75-6 | — | — | 12 | — |
| 1,4-Dichlorobenzene | 106-46-7 | — | — | — | 75f |
| 2,4,5-Trichlorophenol | 95-95-4 | — | — | 1j | — |
| 2,4,6-Trichlorophenol | 88-06-2 | — | — | 2j | — |
| 2,4-Dichlorophenol | 120-83-2 | — | — | 0.3j | — |
| 2,4-Dichlorophenoxy-acetic acid (2,4-D) | 94-75-7 | — | — | — | 70f |
| 2,4-Dimethyl phenol | 105-67-9 | — | — | 400j | — |
| 2,4-Dinitrophenol | 51-28-5 | — | — | 300 | — |
| 2,4-Dinitrotoluene | 121-14-2 | — | — | 1.7 | — |
| 2-Chloronaphthalene | 91-58-7 | — | — | 1000 | — |
| 2-Chlorophenol | 95-57-8 | — | — | 0.1j | — |
| 2-Methyl-4,6-Dinitrophenol | 534-52-1 | — | — | 30 | — |
| 3,3'-Dichlorobenzidine | 91-94-1 | — | — | 0.15 | — |
| 3-Methyl-4-Chlorophenol | 59-50-7 | — | — | 2000 | — |
| 4-Bromophenyl Phenyl Ether | 101-55-3 | — | — | e | — |
| 4,4'-DDT | 50-29-3 | 0.001 | 1.1 | 0.00003 | — |
| 4,4'-DDE | 72-55-9 | — | — | 0.000018 | — |
| 4,4'-DDD | 72-54-8 | — | — | 0.00012 | — |
| 1,2-Trans-Dichloroethylene | 156-60-5 | — | — | — | 100 |

\* The values stated as Human Health Criteria for these substances are based on the assumption that fish from the surface waters covered by the PUEBLO OF SANDIA Water Quality Standards are consumed, but water from these surface waters is not regularly ingested. A risk 10-6 is assumed for carcinogens. Where no criterion exists based on fish consumption, MCLs and background conditions are used as the basis of the water quality standard of protection.

-- = no criterion exists

hd = hardness

ln = natural log of number

CF = Conversion Factor (for hardness dependent metals)

For Cadmium: Acute CF is 1.136672-[ln(hd)(0.041838)]

 Chronic CF is 1.101672-[ln(hd)(0.041838)]

For Lead: Acute CF is 1.46203-[ln(hd)(0.145712)]

 Chronic CF is 1.46203-[ln(hd)(0.145712)]

a = Value based on using a dissolved method.

b = Total recoverable portion, unless indicated

c = Chronic and acute toxicity averaging periods and exceedances are as specified by the U.S. Environmental Protection Agency in Quality Criteria for Water, 1986.

d = value based on current national recommended water quality criteria with respect to human health for the consumption of water + organism. These values can be found on [http://www.epa.gov/waterscience/criteria/wqctable/index.html.](http://www.epa.gov/waterscience/criteria/wqctable/index.html)

e = EPA has not calculated human health criterion for this contaminant. However, permit authorities should address this contaminant in NPDES permit actions using SANDIA's narrative criteria for toxics.

f = Based on Safe Drinking Water Act Maximum Contaminant Levels (MCLs).

g = Concentrations of mercury from all sources shall not result in methylmercury concentrations in fish tissue that exceed 0.3 mg/kg. This criterion is based on a fish consumption rate of 17.5 g/day.

h = This value cannot be exceeded by itself, or as part of Total Trihalomethanes that include: Bromodichloromethane (CASN 75-27-4)

 Dibromochloromethane (CASN 124-48-1)

Tribromomethane [Bromoform (CASN 75-25-2)]

Trichloromethane [Chloroform (CASN 67-66-3)]

i = Based on background conditions of the Rio Grande.

j = Value based on organoleptic effects criteria (e.g., taste and odor) in the current national recommended water quality criteria based on the "Gold Book" which is *Quality Criteria for Water:*1986.EPA 440/5-86-00l(see [http://www.epa.gov/waterscience/criteria/wqctable/index.html).](http://www.epa.gov/waterscience/criteria/wqctable/index.html%29)

ug = micrograms

mg/l = milligrams/liter

ug/l = micrograms/liter

As new criteria documents for toxic substances are published by EPA, these will become

incorporated into and made a part of this Subsection 0, TOXIC SUBSTANCES, during triennial

review, and the numeric criteria established by EPA shall equally apply. Numeric criteria for

carcinogens will reflect a risk level of one in a million.

For specific **segments** where the above criteria may need to be recalculated using appropriate

species or water quality factors, the PUEBLO OF SANDIA may, after public participation and

EPA approval, adopt site-specific criterion modifications. Since pesticides and PCB's can

accumulate in bottom sediments and tissues of aquatic organisms, sediment and tissue analysis

shall routinely be used to complement water analysis. Fish tissue levels in excess of FDA

**Action Limits** shall require investigation.