	Fresh Water Aquatic Criteria		Human Health Criteria*	

Substance	CASRN	Chronic Toxicity (ug/l)	Acute Toxicity (ug/l)	Fish Consumption and Other (Not to Exceed) (ug/l)	MCL (ug/l)
Acrolein	107-02-8	~~21+~~	~~68+~~	~~780~~ 290	--
Acrylonitrile	107-13-1	~~2600+~~	~~7550+~~	~~0.65~~ 0.25	--
Aldrin	309-00-2	~~--~~	3.0	~~0.079 ng~~ 0.00005	--
Aluminum	7429-90-5	750	750	--	--
Antimony	7440-36-0	~~1600+ --~~	~~9000+ --~~	~~45000 --~~	6[f]
Arsenic[a]	7440-38-2	150	340	~~17.5 ng~~ 3.6[i]	--
~~Arsenic (pent)~~		~~48+~~	~~850+~~	--	--
~~Arsenic (tri)~~[a]		~~190~~	~~360~~	--	--
Barium	7440-39-3	--	--	--	2000[f]
Benzene	71-43-2	--	~~5300+ --~~	~~40 --~~	5[f]
Benzidine	92-87-5	--	~~2500+ --~~	~~0.53 ng~~ 0.0002	--
Beryllium	7440-41-7	5.3	130	~~117 ng --~~	4[f]
~~Benzene Hexachloride~~		--	~~100+~~	--	--
Cadmium[a]	7440-43-9	~~e(0.7852[ln(hd)]-3.490~~ e(0.7409[ln(hd)]-4.719)(CF)	~~e(1.128[ln(hd)]-3.828~~ e(1.0166[ln(hd)]-3.924)(CF)	--	5[f]
Carbon Tetrachloride	56-23-5	--	~~35200+ --~~	~~6.94~~ 1.6	--
Chlordane	57-74-9	0.0043	2.4	~~0.48 ng~~ 0.00081	--
Chlorobenzene	108-90-7	--	--	20[d]	--
Chlorodibromomethane	124-48-1	--	--	~~34~~ 13	--
~~Chlorinated Benzenes~~		~~50+~~	~~250+~~	--	--
~~Chlorinated Naphthalenes~~		--	~~1600+~~	--	--

Substance	CASRN	Fresh Water Aquatic Criteria		Human Health Criteria*	
		Chronic Toxicity (ug/l)	Acute Toxicity (ug/l)	Fish Consumption and Other (Not to Exceed) (ug/l)	MCL (ug/l)
2-Chloronapthalene	91-58-7	--	--	1600	--
Chlorine	7782-50-5	~~11~~ 3	19	--	--
~~Chloroalkyl Ethers~~		--	~~238000+~~	--	--
~~Chloroethyl Ether (BIS-2)~~ Bis(2-Chloroethyl) Ether	111-44-4	--	--	~~1.36~~ 0.53	--
~~Chloroform~~	~~67-66-3~~	~~1240+~~	~~28900+~~	~~15.7~~	~~--~~
~~Chloroisopropyl Ether (BIS-2)~~ Bis(2-Chloroisopropyl) Ether	108-60-1	--	--	~~4.36 mg~~ 65000	--
~~Chloromethyl Ether (BIS)~~ Bis(Chloromethyl) Ether	542-88-1	--	--	~~0.00184~~ 0.00029	--
2-Chlorophenol ~~2~~	95-57-8	~~2000+~~ --	~~4380+~~ --	0.1[d]	--
~~Chloro-4-Methyl-3 Phenol~~ 3-Methyl-4-Chlorophenol	59-50-7	--	~~30+~~ --	3000[d]	--
Chlorpyrifos	2921-88-2	0.041	0.083	--	--
Chromium (~~tri~~III)[a]	16065-83-1	e(0.8190[ln(hd)]+ ~~1.561~~ 0.534)	e(0.8190[ln(hd)]+ ~~3.688~~ 2.5736)	~~3.433 mg~~	100
Chromium (~~hex~~VI)[a]	18540-29-9	~~11~~ 10.58	~~16~~ 15.71	--	100
Copper[a]	7440-50-8	e(0.8545[ln(hd)]- ~~1.465~~ 1.7428)	e(0.9422[ln(hd)]- ~~1.464~~ 1.7408)	1000[d]	--
Cyanide	57-12-5	5.2	22	--	--
4,4'-DDT	50-29-3	0.001	1.1	~~0.024ng~~ 0.00022	--

		Fresh Water Aquatic Criteria		Human Health Criteria*	
Substance	**CASRN**	**Chronic Toxicity (ug/l)**	**Acute Toxicity (ug/l)**	**Fish Consumption and Other (Not to Exceed) (ug/l)**	**MCL (ug/l)**
~~DDT Metabolite (DDE)~~ 4,4'-DDE	72-55-9	--	~~1050+~~ --	0.00022	--
~~DDE Metabolite (TDE)~~ 4,4'-DDD	72-54-8	--	~~0.06+~~ --	0.00031	--
Demeton	8065-48-3	0.1	--	--	--
Diazinon	33-41-5	0.17	0.17	--	--
~~Dibutylphthalate~~ Di-n-Butyl Phthalate	84-74-2	--	--	~~154 mg~~ 4500	--
1,2-Dichlorobenzene	95-50-1	~~763+~~ --	~~1120+~~ --	~~2.6 mg~~ --	600[f]
1,3-Dichlorobenzene	541-73-1	--	--	960	--
1,4-Dichlorobenzene	106-46-7	--	--	--	75[f]
~~Dichlorobenzidine~~ 3,3'-Dichlorobenzedine	91-94-1	--	--	~~0.020~~ 0.028	--
Dichlorobromomethane	75-27-4	--	--	17	--
1,2'-Dichloroethane ~~1,2~~	107-06-2	~~20000+~~ --	~~118000+~~ --	~~243~~ ---	5[f]
~~Dichlroethylenes~~		~~--~~	~~11600+~~	~~1.85 mg~~	~~--~~
1,1-Dichloroethylene	75-35-4	--	--	32	7[f]
1,2-Trans-Dichloroethylene	156-60-5	--	--	--	100[f]
2,4-Dichlorophenol ~~2,4~~	120-83-2	~~365+~~ --	~~2020+~~ --	0.3[d]	--
2,4-Dichlorophenoxy-acetic acid (2,4-D)	94-75-7	--	--	--	70[f]
1,2-Dichloropropane	78-87-5	~~5700+~~ --	~~23000+~~ --	--	5[f]
1,3-Dichloropropene	542-75-6	~~244+~~ --	~~6060+~~ --	~~14.1 mg~~ 1700	--
Dieldrin	60-57-1	~~0.0019~~ 0.056	~~2.5~~ 0.24	~~0.076 ng~~ 0.000054	--

	Fresh Water Aquatic Criteria		Human Health Criteria*	
Substance	**CASRN**	**Chronic Toxicity (ug/l)**	**Acute Toxicity (ug/l)**	**Fish Consumption and Other (Not to Exceed) (ug/l)**	**MCL (ug/l)**
Diethyl phthalate	84-66-2	--	--	~~1.8 g~~ 44000	--
2,4-Dimethyl Phenol	105-67-9	--	~~2120+~~ --	400[d]	--
Dimethyl phthalate	131-11-3	--	--	~~2.9 g~~ 1100000	--
2,4-Dinitrotoluene ~~2.4~~	121-14-2	--	--	~~9.1~~ 3.4	--
~~Dinitrotoluene~~		~~230+~~	~~330+~~	--	--
~~Dinitro Phenols~~		--	--	~~14.3 g~~	--
2,4-Dinitrophenol	51-28-5	--	--	~~14000~~ 5300	--
~~Dinitro-O-Cresol 2,4~~ 2-Methyl-4,6-Dinitrophenol	534-52-1	--	--	~~765~~ 280	--
Dioxin (2,3,7,8-TCDD)	1746-01-6	~~0.00001+~~ --	~~0.01+~~ --	~~0.000014ng~~ 0.0000000051	--
~~Diphenylhydrazine~~		--	--	~~0.56 mg~~	--
1,2-Diphenylhydrazine ~~1,2~~	122-66-7	--	~~270+~~ --	~~0.54~~ 0.20	--
~~Di-~~ Bis 2-Ethylhexylphthalate	117-81-7	--	--	~~50 mg~~ 2.2	--
Endosulfan, alpha	959-98-8	0.056	0.22	89	--
Endosulfan, beta	33213-65-9	0.056	0.22	89	--
Endosulfan Sulfate	1031-07-8	~~0.056~~ --	~~0.22~~ --	~~159~~ 89	--
Endrin	72-20-8	~~0.0023~~ 0.036	~~0.18~~ 0.086	0.81	--
Endrin Aldehyde	7421-93-4	--	--	0.30	--
Ethylbenzene	100-41-4	--	~~32000+~~ --	~~3.28 mg~~ --	700[f]
Fluoranthene	206-44-0	--	~~3980+~~ --	~~54~~ 140	--
Fluoride	16984-48-8	--	--	--	4000[f]

	Fresh Water Aquatic Criteria		Human Health Criteria*	
Substance	**CASRN**	**Chronic Toxicity (ug/l)**	**Acute Toxicity (ug/l)**	**Fish Consumption and Other (Not to Exceed) (ug/l)**	**MCL (ug/l)**
Guthion	86-50-0	0.01	--	--	--
~~Haloethers~~		~~122+~~	~~360+~~	--	--
~~Halomethanes~~		~~—~~	~~11000+~~	~~15.7 mg~~	--
Heptachlor	76-44-8	0.0038	0.52	~~0.29 ng~~ 0.000079	--
Heptachlor epoxide	1024-57-3	0.0038	0.52	0.000039	--
Hexachloroethane	67-72-1	~~540+~~ —	~~980+~~ —	~~8.74~~ 3.3	--
Hexachlorobenzene	118-74-1	--	--	~~0.74 ng~~ 0.00029	--
Hexachlorobutadiene	87-68-3	~~9.3+~~ —	~~90+~~ —	~~50~~ 18	--
~~Hexachlorocyclohexane (Lindane)~~		~~0.08~~	~~2~~	--	--
~~Hexachlorocyclohexane Alpha~~ alpha-BHC	319-84-6	--	--	~~31 ng~~ 0.0049	--
~~Hexachlorocyclohexane Beta~~ beta-BHC	319-85-7	--	--	~~54.7 ng~~ 0.017	--
~~Hexachlorocyclohexane Gama~~ gamma-BHC (Lindane)	58-89-9	--	0.95	~~62.5 ng~~ 0.063	--
~~Hexachlorocyclohexane Technical~~ delta-BHC	319-86-8	--	--	~~0.0414~~ --	--
Hexachlorocyclopentadiene	77-47-4	~~5.2+~~ —	~~7+~~ —	1[d]	--
Iron	7439-89-6	1000	--	--	--
Isophorone	78-59-1	--	~~117000+~~ —	~~520 mg~~ 960	--
Naphthalene	91-20-3	~~620+~~ —	~~2300+~~ —	e	--
Lead[a]	7439-92-1	e(1.273[ln(hd)]-4.705) (CF)	e(1.273[ln(hd)]-1.460) (CF)	~~50 mg~~ e	--
Malathion	121-75-5	0.1	--	--	--
Manganese	7439-96-5	--	--	100	--
Mercury[b]	7439-97-6	0.012	2.4	~~146 ng~~ 0.051	--

	Fresh Water Aquatic Criteria		Human Health Criteria*	
Substance	**CASRN**	**Chronic Toxicity (ug/l)**	**Acute Toxicity (ug/l)**	**Fish Consumption and Other (Not to Exceed) (ug/l)**	**MCL (ug/l)**
Methylmercury		--	--	0.3 mg/kg in fish tissue[g]	--
Methyl Bromide	74-83-9	--	--	1500	--
Methyl Chloride	74-87-3	--	--	e	--
Methylene Chloride	75-09-2	--	--	590	--
Methoxychlor	72-43-5	0.03	--	--	40[f]
Mirex	2385-85-5	0.001	--	--	--
Napthalene	91-20-3	~~620+~~ --	~~2300+~~ --	e	--
Nickel[a]	7440-02-0	e(0.8460[ln(hd)]+ ~~1.1645~~ 0.0554)	e(0.8460[ln(hd)]+ ~~3.3612~~ 2.253)	~~100~~ 4600	--
Nitrate	14797-55-8	--	--	--	10000[f]
Nitrobenzene	98-95-3	--	~~27000+~~ --	30[d]	--
~~Nitrophenols~~		~~150+~~	~~230+~~ --	--	--
Nitrosamines		--	~~5850+~~ --	~~1240 ng~~ 1.24	--
Nitrosodibutylamine N	924-16-3	--	--	~~587 ng~~ 0.22	--
Nitrosodiethylamine N	55-18-5	--	--	~~1240 ng~~ 1.24	--
N-Nitrosodimethylamine ~~N~~	62-75-9	--	--	~~16000 ng~~ 3.0	--
N-Nitrosodi-n-Propylamine	621-64-7	--	--	0.51	--
N-Nitrosodiphenylamine ~~N~~	86-30-6	--	--	~~16100 ng~~ 6.0	--
N-Nitrosopyrrolidine ~~N~~	930-55-2	--	--	~~91900 ng~~ 34	--

	Fresh Water Aquatic Criteria		Human Health Criteria*	
Substance	**CASRN**	**Chronic Toxicity (ug/l)**	**Acute Toxicity (ug/l)**	**Fish Consumption and Other (Not to Exceed) (ug/l)**	**MCL (ug/l)**
Nonylphenol	84852-15-3 25154-52-3	6.6	28	--	--
Parathion	56-38-2	0.013	0.065	--	--
Polychlorinated Biphenyls	xx-xx-x	0.014	~~2.0~~ --	~~0.079 ng~~ 0.000064	--
~~Pentachlorinated Ethanes~~		~~1100+~~	~~7240+~~	--	--
Pentachlorobenzene	608-93-5	--	--	~~85~~ 1.5	--
Pentachlorophenol	87-86-5	e(1.005(pH)-~~5.290~~ 5.134)	e(1.005 (pH)-~~4.830~~ 4.869)	--	1[f]
Phenol	108-95-2	~~2560+~~ --	~~10200+~~ --	300[d]	--
~~Phosphorus Elemental~~		--	--	--	--
~~Phthalate Esters~~		~~3+~~	~~940+~~	--	--
Polynuclear Aromatic Hydrocarbons (PAH's)		--	--	~~31.1 ng~~	--
	120-12-7				
Anthracene	56-55-3	--	--	40000	--
Benzo(a)Anthracene	50-32-8	--	--	0.018	--
Benzo(a)Pyrene	205-99-2	--	--	0.018	--
Benzo(b)Fluoranthene	191-24-2	--	--	0.018	--
Benzo(ghi)Perylene	207-08-9	--	--	e	--
Benzo(k)Fluoranthene	~~7005-72-3~~	--	--	0.018	--
4-Bromophenyl Phenyl Ether	~~218-01-9~~ 101-55-3	--	--	e	--
Chysene	~~53-70-3~~	--	--	~~0.049~~ --	--
Dibenzo(a,h)Anthracene	218-01-9	--	--	0.018	--
Flourene	~~86-73-7~~ 53-70-3	--	--	~~14000~~ 0.018	--
Ideno 1,2,3-cdPyrene	~~193-39-5~~	--	--	~~0.049~~ 5300	--
Phenanthrene	86-73-7	--	--	~~e~~ 0.018	--
Pyrene	~~85-01-8~~1 93-39-5	--	--	~~11000~~ e 4000	--
	~~129-00-0~~				
	85-01-8				
	129-00-0				

	Fresh Water Aquatic Criteria		Human Health Criteria*	
Substance	**CASRN**	**Chronic Toxicity (ug/l)**	**Acute Toxicity (ug/l)**	**Fish Consumption and Other (Not to Exceed) (ug/l)**	**MCL (ug/l)**
Selenium[b]	7782-49-2	~~35~~ 2	~~260~~ 20	--	--
Silver[~~b~~a]	7440-22-4	~~0.12~~ --	e(1.72[ln(hd)]-~~6.52~~ 6.7525)	--	--
Sulfide-Hydrogen Sulfide	7783-06-4	2	--	--	--
~~Tetrachlorinated Ethanes~~		--	~~9320+~~	--	--
Tetrachlorobenzene 1,2,4,5	95-94-3	--	--	~~48~~ 1.1	--
1,1,2,2-Tetrachloroethane	79-34-5	~~2400+~~ --	--	~~10.7~~ 4.0	--
~~Tetrachloroethanes~~		--	~~9320+~~	--	--
Tetrachloroethylene	127-18-4	~~840+~~ --	~~5280+~~ --	~~8.85~~ 3.3	--
Thallium	7440-28-0	~~40+~~ --	~~1400+~~ --	~~48~~ --	2[f]
Toluene	108-88-3	--	~~17500+~~ --	~~424 mg~~ --	1000[f]
Toxaphene	8001-35-2	0.0002	0.73	0.00028	--
~~Trichlorinated Ethanes~~		--	~~18000+~~	--	--
1,2,4 Trichlorobenzene	120-82-1	--	--	--	70[f]
1,1,1-Trichloroethane ~~1,1,1~~	71-55-6	--	--	~~1.03 g~~ --	200[f]
1,1,2-Trichloroethane ~~1,1,2~~	79-00-5	~~9400+~~ --	--	~~41.8~~ --	5[f]
Trichloroethylene	79-01-6	~~21900+~~ --	~~45000+~~ --	~~80.7~~ --	5[f]
2,4,6-Trichlorophenol ~~2,4,6~~	88-06-2	~~970+~~ --	--	~~3.6~~ 2.0	--
2-(2,4,5-Trichlorophenoxy) Propionic acid (Silvex)	93-72-1	--	--	--	50[f]

	Fresh Water Aquatic Criteria		Human Health Criteria*	
Substance	**CASRN**	**Chronic Toxicity (ug/l)**	**Acute Toxicity (ug/l)**	**Fish Consumption and Other (Not to Exceed) (ug/l)**	**MCL (ug/l)**
TTHM (Sum of total Trihalomethanes)					100[f]
Bromodichloromethane	75-27-4	--	--	17	--
Bromoform	75-25-2	--	--	140	--
Chloroform	67-66-3	--	--	470	--
Dibromochloromethane	124-48-1	--	--	13	--
Vinyl Chloride	75-01-4	--	--	~~525~~ --	2[f]
Zinc[a]	7440-66-6	e(0.8473[ln(hd)]+ ~~0.7614~~ 0.8699)	e(0.8473[ln(hd)]+ ~~0.8604~~ 0.8618)	--	--

* 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.

~~+ = Insufficient data to develop criteria. Value presented is the lowest observed effect level ("L.O.E.L."). Site specific information may be used to modify these L.O.E.L.'s.~~

-- = 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
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 = based on Gold Book Organoleptic effect criteria
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 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 74-97-5)
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

~~g = grams~~
~~mg = milligrams~~
ug = micrograms
~~ng = nanograms~~
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 ~~N~~ O, 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.