PROPOSED REGULATION OF THE STATE

ENVIRONMENTAL COMMISSION

LCB File No. R036-19

August 27, 2019

EXPLANATION – Matter in ***italics*** is new; matter in brackets **[**~~omitted material~~**]** is material to be omitted.

AUTHORITY: §1, NRS 445A.425 and 445A.520.

A REGULATION relating to water quality; revising the standards for cadmium that are applicable to certain designated waters in this State; and providing other matters properly relating thereto.

Legislative Counsel's Digest:

Existing law requires the State Environmental Commission to adopt regulations establishing the standards of water quality and amounts of waste which may be discharged into the waters of this State. (NRS 445A.425) Each standard adopted by the Commission must ensure a continuation of the designated beneficial use or uses applicable to the body of water to which the standard applies. (NRS 445A.520)

Existing regulations set forth the standards for toxic materials applicable to certain designated waters of this State. (NAC 445A.1236) This regulation revises the standards for cadmium.

Section 1. NAC 445A.1236 is hereby amended to read as follows:

445A.1236 1. Except for waters which have site-specific standards for toxic materials or as otherwise provided in this section, the standards for toxic materials prescribed in subsection 2 are applicable to the waters specified in NAC 445A.123 to 445A.2234, inclusive. The following criteria apply to this section:

(a) If the standards are exceeded at a site and are not economically controllable, the Commission will review and may adjust the standards for the site.

(b) If a standard does not exist for each designated beneficial use, a person who plans to discharge waste must demonstrate that no adverse effect will occur to a designated beneficial use. If the discharge of a substance will lower the quality of the water, a person who plans to discharge waste must meet the requirements of NRS 445A.565.

(c) If a criterion is less than the detection limit of a method that is acceptable to the Division, laboratory results which show that the substance was not detected shall be deemed to show compliance with the standard unless other information indicates that the substance may be present.

2. The standards for toxic materials are:

Chemical	Municipal or Domestic Supply (µg/L)	Aquatic Life[1,2] (µg/L)	Irrigation (µg/L)	Watering of Livestock (µg/L)
INORGANIC CHEMICALS[3]				
Antimony	146[a]	-	-	-
Arsenic	50[b]	-	100[c]	200[d]
1-hour average	-	340[f,(4)]	-	-
96-hour average	-	150[f,(4)]	-	-
Barium	2,000[b]	-	-	-
Beryllium	0[a]	-	100[c]	-
Boron	-	-	750[a]	5,000[d]
Cadmium	5[b]	-	10[d]	50[d]
1-hour average	-	$(1.136672-\{\ln(\text{hardness})(0.041838)\})^* e^{\{(1.0166)(0.9789\{\ln(\text{hardness})\} - 3.924) f,(4)\} - 3.866) h,(4)}$	-	-
96-hour average	-	$(1.101672-\{\ln(\text{hardness})(0.041838)\})^* e^{\{(0.7409)(0.7977\{\ln(\text{hardness})\} - 4.719) f,(4)\} - 3.909) h,(4)}$	-	-
Chromium (total)	100[b]	-	100[d]	1,000[d]
Chromium (VI)	-	-	-	-
1-hour average	-	16[f,(4)]	-	-
96-hour average	-	11[f,(4)]	-	-
Chromium (III)	-	-	-	-
1-hour average	-	$(0.316) * e^{(0.8190\{\ln(\text{hardness})\} + 3.7256) f,(4)}$	-	-
96-hour average	-	$(0.860) * e^{(0.8190\{\ln(\text{hardness})\} + 0.6848) f,(4)}$	-	-
Copper	-	-	200[d]	500[d]
1-hour average	-	$(0.960) * e^{(0.9422\{\ln(\text{hardness})\} - 1.700) f,(4)}$	-	-
96-hour average	-	$(0.960) * e^{(0.8545\{\ln(\text{hardness})\} - 1.702) f,(4)}$	-	-

Chemical	Municipal or Domestic Supply (µg/L)	Aquatic Life[1,2] (µg/L)	Irrigation (µg/L)	Watering of Livestock (µg/L)
Cyanide	200[a]	-	-	-
1-hour average	-	22[f,(5)]	-	-
96-hour average	-	5.2[f,(5)]	-	-
Fluoride	-	-	1,000[d]	2,000[d]
Iron	-	-	5,000[d]	-
96-hour average	-	1,000[f]	-	-
Lead	50[a,b]	-	5,000[d]	100[d]
1-hour average	-	$(1.46203-\{\ln(\text{hardness})(0.145712)\})^* e^{(1.273\{\ln(\text{hardness})\} - 1.460)}$ f,(4)	-	-
96-hour average	-	$(1.46203-\{\ln(\text{hardness})(0.145712)\})^* e^{(1.273\{\ln(\text{hardness})\} - 4.705)}$ f,(4)	-	-
Manganese	-	-	200[d]	-
Mercury	2[b]	-	-	10[d]
1-hour average	-	1.4[f,(4)]	-	-
96-hour average	-	0.77[f,(4)]	-	-
Molybdenum	-	-	-	-
1-hour average	-	6,160[g]	-	-
96-hour average	-	1,650[g]	-	-
Nickel	13.4[a]	-	200[d]	-
1-hour average	-	$(0.998) * e^{(0.8460\{\ln(\text{hardness})\} + 2.255)}$ f,(4)	-	-
96-hour average	-	$(0.997) * e^{(0.8460\{\ln(\text{hardness})\} + 0.0584)}$ f,(4)	-	-
Selenium	50[b]	-	20[d]	50[d]
1-hour average	-	20[a]	-	-
96-hour average	-	5.0[f]	-	-
Silver	-	-	-	-
1-hour average	-	$(0.85) * e^{(1.72\{\ln(\text{hardness})\} - 6.59)}$ f,(4)	-	-
Sulfide (undissociated hydrogen sulfide)	-	-	-	-
96-hour average	-	2.0[f]	-	-
Thallium	13[a]	-	-	-
Zinc	-	-	2,000[d]	25,000[d]
1-hour average	-	$(0.978) * e^{(0.8473\{\ln(\text{hardness})\} + 0.884)}$ f,(4)	-	-
96-hour average	-	$(0.986) * e^{(0.8473\{\ln(\text{hardness})\} + 0.884)}$ f,(4)	-	-
ORGANIC CHEMICALS				
Acrolein	320[a]	-	-	-
1-hour average	-	3[f]	-	-
96-hour average	-	3[f]	-	-
Aldrin	0[a]	-	-	-
1-hour average	-	3.0[f]	-	-
alpha-Endosulfan	-	-	-	-
1-hour average	-	0.22[f]	-	-
96-hour average	-	0.056[f]	-	-
beta-Endosulfan	-	-	-	-
1-hour average	-	0.22[f]	-	-
96-hour average	-	0.056[f]	-	-
Benzene	5[b]	-	-	-
Bis (2-chloroisopropyl) ether	34.7[a]	-	-	-
Chlordane	0[a]	-	-	-
1-hour average	-	2.4[f]	-	-
96-hour average	-	0.0043[f]	-	-
Chloroethylene (vinyl chloride)	2[b]	-	-	-

Chemical	Municipal or Domestic Supply (μg/L)	Aquatic Life[1,2] (μg/L)	Irrigation (μg/L)	Watering of Livestock (μg/L)
Chlorpyrifos	-	-	-	-
1-hour average	-	0.083[f]	-	-
96-hour average	-	0.041[f]	-	-
2,4-D	100[a,b]	-	-	-
DDT & metabolites	0[a]	-	-	-
4,4'-DDT	-	-	-	-
1-hour average	-	1.1[f,(6)]	-	-
96-hour average	-	0.001[f,(6)]	-	-
Demeton	-	-	-	-
96-hour average	-	0.1[f]	-	-
Diazinon	-	-	-	-
1-hour average	-	0.17[f]	-	-
96-hour average	-	0.17[f]	-	-
Dibutyl phthalate	34,000[a]	-	-	-
m-dichlorobenzene	400[a]	-	-	-
o-dichlorobenzene	400[a]	-	-	-
p-dichlorobenzene	75[b]	-	-	-
1,2-dichloroethane	5[b]	-	-	-
1,1-dichloroethylene	7[b]	-	-	-
2,4-dichlorophenol	3,090[a]	-	-	-
Dichloropropenes	87[a]	-	-	-
Dieldrin	0[a]	-	-	-
1-hour average	-	0.24[f]	-	-
96-hour average	-	0.056[f]	-	-
Di-2-ethylhexyl phthalate	15,000[a]	-	-	-
Diethyl phthalate	350,000[a]	-	-	-
Dimethyl phthalate	313,000[a]	-	-	-
4,6-dinitro-2-methylphenol	13.4[a]	-	-	-
Dinitrophenols	70[a]	-	-	-
Endosulfan	75[a]	-	-	-
Endrin	0.2[b]	-	-	-
1-hour average	-	0.086[f]	-	-
96-hour average	-	0.036[f]	-	-
Ethylbenzene	1,400[a]	-	-	-
Fluoranthene (polynuclear aromatic hydrocarbon)	42[a]	-	-	-
Guthion	-	-	-	-
96-hour average	-	0.01[f]	-	-
Heptachlor	-	-	-	-
1-hour average	-	0.52[f]	-	-
96-hour average	-	0.0038[f]	-	-
Heptacholor Epoxide	-	-	-	-
1-hour average	-	0.52[f]	-	-
96-hour average	-	0.0038[f]	-	-
Hexachlorocyclopentadiene	206[a]	-	-	-
Isophorone	5,200[a]	-	-	-
Lindane	4[b]	-	-	-
1-hour average	-	0.95[f]	-	-
Malathion	-	-	-	-
96-hour average	-	0.1[f]	-	-
Methoxychlor	100[a,b]	-	-	-
96-hour average	-	0.03[f]	-	-
Mirex	0[a]	-	-	-
96-hour average	-	0.001[f]	-	-

Chemical	Municipal or Domestic Supply (μg/L)	Aquatic Life[1,2] (μg/L)	Irrigation (μg/L)	Watering of Livestock (μg/L)
Monochlorobenzene	488[a]	-	-	-
Nitrobenzene	19,800[a]	-	-	-
Nonylphenol	-	-	-	-
1-hour average	-	28[f]	-	-
96-hour average	-	6.6[f]	-	-
Parathion	-	-	-	-
1-hour average	-	0.065[a]	-	-
96-hour average	-	0.013[a]	-	-
Pentachlorophenol	1,010[a]	-	-	-
1-hour average	-	$e^{1.005(pH) - 4.869}$[f]	-	-
96-hour average	-	$e^{1.005(pH) - 5.134}$[f]	-	-
Phenol	3,500[a]	-	-	-
Polychlorinated biphenyls (PCBs)	0[a]	-	-	-
96-hour average	-	0.014[f]	-	-
Silvex (2,4,5-TP)	10[a,b]	-	-	-
Tetrachloromethane (carbon tetrachloride)	5[b]	-	-	-
Toluene	14,300[a]	-	-	-
Toxaphene	5[b]	-	-	-
1-hour average	-	0.73[a]	-	-
96-hour average	-	0.0002[a]	-	-
Tributyltin (TBT)	-	-	-	-
1-hour average	-	0.46[f]	-	-
96-hour average	-	0.072[f]	-	-
1,1,1-trichloroethane (TCA)	200[b]	-	-	-
Trichloroethylene (TCE)	5[b]	-	-	-
Trihalomethanes (total)[7]	100[b]	-	-	-

Footnotes:

(1) One-hour average and 96-hour average concentration limits may be exceeded only once every 3 years. See reference a.

(2) "Hardness" is expressed as mg/L $CaCO_3$; and "e" refers to the base of the natural logarithm whose value is 2.718.

(3) The standards for metals are expressed as total recoverable, unless otherwise noted.

(4) This standard applies to the dissolved fraction.

(5) This standard is expressed as free cyanide.

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

(7) The standard for trihalomethanes (TTHMs) is the sum of the concentration of bromodicholoromethane, dibromocholoromethane, tribromomethane (bromoform) and trichloromethane (chloroform). See reference b.

References:

a. U.S. Environmental Protection Agency, Pub. No. EPA 440/5-86-001, *Quality Criteria for Water* (Gold Book) (1986).

b. Federal Maximum Contaminant Level (MCL), 40 C.F.R. §§ 141.11, 141.61 and 141.62 (1992).

c. U.S. Environmental Protection Agency, Pub. No. EPA 440/9-76-023, *Quality Criteria for Water* (Red Book) (1976).

d. National Academy of Sciences, *Water Quality Criteria* (Blue Book) (1972).

e. Not used to avoid confusion with "e" as a natural logarithm.

f. U.S. Environmental Protection Agency, *National Recommended Water Quality Criteria*, May 2009.

g. Nevada Division of Environmental Protection, *Aquatic Life Water Quality Criteria for Molybdenum*, Tetra Tech, Inc., (June 2008).

h. U.S. Environmental Protection Agency, Pub. No. EPA-820-R-16-002, Aquatic Life Ambient Water Quality Criteria Cadmium - 2016, March 2016.