

**PROPOSED REGULATION OF THE
STATE ENVIRONMENTAL COMMISSION**

LCB File No. R129-12

August 10, 2012

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 standards; revising the water quality standards for various toxic materials; revising the list of toxic materials to include certain additional chemicals; and providing other matters properly relating thereto.

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 ^{f(+)†} (µg/l)	Aquatic Life ^(1,2) (µg/l)	Irrigation ^{f(†)} (µg/l)	Watering of Livestock ^{f(†)} (µg/l)
INORGANIC CHEMICALS⁽³⁾				
Antimony	146 ^a	-	-	-
Arsenic	50 ^b	-	100 ^c	200 ^d
1-hour average	-	340 ^{f(†) e,(4)}	-	-
96-hour average	-	150 ^{f(†) e,(4)}	-	-
Barium	2,000 ^b	-	-	-
Beryllium	0 ^a	-	100 ^c	-
hardness <= 75 mg/l	—	-	-	-
hardness >= 75 mg/l	—	-	-	†
Boron	-	-	750 ^a	5,000 ^d
Cadmium	5 ^b	-	10 ^d	50 ^d
1-hour average	-	$(1.136672 - \{\ln(\text{hardness})(0.041838)\})^*$ $e^{(0.10166\{\ln(\text{hardness})\} - 3.924)}$ ^{f(†) e,(4)}	-	-
96-hour average	-	$(1.101672 - \{\ln(\text{hardness})(0.041838)\})^*$ $e^{(0.7409\{\ln(\text{hardness})\} - 4.719)}$ ^{f(†) e,(4)}	-	-
Chromium (total)	100 ^b	-	100 ^d	1,000 ^d
Chromium (VI)	-	-	-	-
1-hour average	-	16 ^{f(†) e,(4)}	-	-
96-hour average	-	11 ^{f(†) e,(4)}	-	-
Chromium (III)	-	-	-	-

Chemical	Municipal or	Aquatic Life ^(1,2)	Irrigation ^f	Watering of
	Domestic Supply ^{f(+)†}			Livestock ^{f(+)†}
	(µg/l)	(µg/l)	(µg/l)	(µg/l)
1-hour average	-	$(0.316) * e^{(0.8190\{\ln(\text{hardness})\} + 3.7256)}$ ^{f(5),h} <i>e,(4)</i>	-	-
96-hour average	-	$(0.860) * e^{(0.8190\{\ln(\text{hardness})\} + 0.6848)}$ ^{f(5),h} <i>e,(4)</i>	-	-
Copper	-	-	200 ^d	500 ^d
1-hour average	-	$(0.960) * e^{(0.9422\{\ln(\text{hardness})\} - 1.700)}$ ^{f(5),h} <i>e,(4)</i>	-	-
96-hour average	-	$(0.960) * e^{(0.8545\{\ln(\text{hardness})\} - 1.702)}$ ^{f(5),h} <i>e,(4)</i>	-	-
Cyanide	200 ^a	-	-	-
1-hour average	-	22 ^{h† e,(5)}	-	-
96-hour average	-	5.2 ^{h† e,(5)}	-	-
Fluoride	-	-	1,000 ^d	2,000 ^d
Iron	-	-	5,000 ^d	-
96-hour average	-	1,000 ^{h† e}	-	-
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(5),h e,(4)}	-	-
96-hour average	-	$(1.46203 - \{\ln(\text{hardness})(0.145712)\}) * e^{(1.273\{\ln(\text{hardness})\} - 4.705)}$ ^{f(5),h e,(4)}	-	-
Manganese	-	-	200 ^d	-
Mercury	2 ^b	-	-	10 ^d
1-hour average	-	1.4 ^{f(5),h e,(4)}	-	-
96-hour average	-	0.77 ^{f(5),h e,(4)}	-	-
Molybdenum	-	-	-	-
1-hour average	-	6,160 ^{f(5),f}	-	-

Chemical	Municipal or		Aquatic Life ^(1,2)	Irrigation ^f	Watering of Livestock ^{f(+)}
	Domestic Supply ^{f(+)}				
	(µg/l)		(µg/l)	(µg/l)	(µg/l)
96-hour average	-	1,650 ^{g,f}	-	-	-
Nickel	13.4 ^a	-	200 ^d	-	-
1-hour average	-	$(0.998) * e^{(0.8460\{\ln(\text{hardness})\} + 2.255)}$ ^{g,h}	-	-	-
		<i>e,(4)</i>			
96-hour average	-	$(0.997) * e^{(0.8460\{\ln(\text{hardness})\} + 0.0584)}$ ^{g,h}	-	-	-
		<i>e,(4)</i>			
Selenium	50 ^b	-	20 ^d	50 ^d	-
1-hour average	-	20 ^a	-	-	-
96-hour average	-	5.0 ^h <i>e</i>	-	-	-
Silver	-	-	-	-	-
1-hour average	-	$(0.85) * e^{(1.72\{\ln(\text{hardness})\} - 6.59)}$ ^{g,h} <i>e,(4)</i>	-	-	-
Sulfide (undissociated hydrogen sulfide)	-	-	-	-	-
96-hour average	-	2.0 ^h <i>e</i>	-	-	-
Thallium	13 ^a	-	-	-	-
Zinc	-	-	2,000 ^d	25,000 ^d	-
1-hour average	-	$(0.978) * e^{(0.8473\{\ln(\text{hardness})\} + 0.884)}$ ^{g,h}	-	-	-
		<i>e,(4)</i>			
96-hour average	-	$(0.986) * e^{(0.8473\{\ln(\text{hardness})\} + 0.884)}$ ^{g,h}	-	-	-
		<i>e,(4)</i>			

ORGANIC CHEMICALS

Acrolein	320 ^a	-	-	-	-
<i>1-hour average</i>	-	3 ^e	-	-	-
<i>96-hour average</i>	-	3 ^e	-	-	-

Chemical	Municipal or	Aquatic Life ^(1,2)	Irrigation ^f	Watering of Livestock ^{f(+)}
	Domestic Supply ^{f(+)}			
	(µg/l)	(µg/l)	(µg/l)	(µg/l)
Aldrin	0 ^a	[3^a] -	-	-
<i>1-hour average</i>	-	3.0 ^e	-	-
<i>alpha-Endosulfan</i>	-	-	-	-
<i>1-hour average</i>	-	0.22 ^e	-	-
<i>96-hour average</i>	-	0.056 ^e	-	-
<i>beta-Endosulfan</i>	-	-	-	-
<i>1-hour average</i>	-	0.22 ^e	-	-
<i>96-hour average</i>	-	0.056 ^e	-	-
<i>Benzene</i>	5 ^b	-	-	-
<i>Bis (2-chloroisopropyl) ether</i>	34.7 ^a	-	-	-
Chlordane	0 ^a	[2.4^a] -	-	-
[24-hour average]	-	0.0043 ^a	-	+
<i>1-hour average</i>	-	2.4 ^e	-	-
<i>96-hour average</i>	-	0.0043 ^e	-	-
<i>Chloroethylene</i> (vinyl chloride)	2 ^b	-	-	-
<i>Chlorpyrifos</i>	-	-	-	-
<i>1-hour average</i>	-	0.083 ^e	-	-
<i>96-hour average</i>	-	0.041 ^e	-	-
2,4-D	100 ^{a,b}	-	-	-
DDT & metabolites	0 ^a	[1.1^a] -	-	-
[24-hour average]	-	0.0010 ^a	-	+
<i>4,4'-DDT</i>	-	-	-	-
<i>1-hour average</i>	-	1.1 ^{e,(6)}	-	-
<i>96-hour average</i>	-	0.001 ^{e,(6)}	-	-
Demeton	-	[0.1^a] -	-	-

Chemical	Municipal or Domestic Supply ^[(++)] (µg/l)	Aquatic Life ^(1,2) (µg/l)	Irrigation ^[(+)] (µg/l)	Watering of Livestock ^[(+)] (µg/l)
<i>96-hour average</i>	-	0.1 ^e	-	-
<i>Diazinon</i>	-	-	-	-
<i>1-hour average</i>	-	0.17 ^e	-	-
<i>96-hour average</i>	-	0.17 ^e	-	-
<i>Dibutyl phthalate</i>	34,000 ^a	-	-	-
<i>m-dichlorobenzene</i>	400 ^a	-	-	-
<i>o-dichlorobenzene</i>	400 ^a	-	-	-
<i>p-dichlorobenzene</i>	75 ^b	-	-	-
<i>1,2-dichloroethane</i>	5 ^b	-	-	-
<i>1,1-dichloroethylene</i>	7 ^b	-	-	-
<i>2,4-dichlorophenol</i>	3,090 ^a	-	-	-
<i>Dichloropropenes</i>	87 ^a	-	-	-
Dieldrin	0 ^a	{2.5^a}	-	-
{24-hour average}	-	0.0019 ^a	-	↓
<i>1-hour average</i>	-	0.24 ^e	-	-
<i>96-hour average</i>	-	0.056 ^e	-	-
<i>Di-2-ethylhexyl phthalate</i>	15,000 ^a	-	-	-
<i>Diethyl phthalate</i>	350,000 ^a	-	-	-
<i>Dimethyl phthalate</i>	313,000 ^a	-	-	-
<i>4,6-dinitro-2-methylphenol</i>	13.4 ^a	-	-	-
<i>Dinitrophenols</i>	70 ^a	-	-	-
Endosulfan	75 ^a	{0.22^a}	-	-
{24-hour average}	-	0.056 ^a	-	↓
Endrin	0.2 ^b	{0.18^a}	-	-
{24-hour average}	-	0.0023 ^a	-	↓
<i>1-hour average</i>	-	0.086 ^e	-	-

Chemical	Municipal or Domestic Supply ^{f(+)†} (µg/l)	Aquatic Life ^(1,2) (µg/l)	Irrigation ^{f(†)} (µg/l)	Watering of Livestock ^{f(†)} (µg/l)
<i>96-hour average</i>	-	0.036 ^e	-	-
<i>Ethylbenzene</i>	1,400 ^a	-	-	-
<i>Fluoranthene (polynuclear aromatic hydrocarbon)</i>	42 ^a	-	-	-
Guthion	-	{0.01[†]} -	-	-
<i>96-hour average</i>	-	0.01 ^e	-	-
Heptachlor	-	{0.52[†]} -	-	-
{24-hour average}	-	0.0038 [†]	-	†
<i>1-hour average</i>	-	0.52 ^e	-	-
<i>96-hour average</i>	-	0.0038 ^e	-	-
<i>Heptachlor Epoxide</i>	-	-	-	-
<i>1-hour average</i>	-	0.52 ^e	-	-
<i>96-hour average</i>	-	0.0038 ^e	-	-
<i>Hexachlorocyclopentadiene</i>	206 ^a	-	-	-
<i>Isophorone</i>	5,200 ^a	-	-	-
Lindane	4 ^b	{2.0[†]} -	-	-
{24-hour average}	-	0.080 [†]	-	†
<i>1-hour average</i>	-	0.95 ^e	-	-
Malathion	-	{0.1[†]} -	-	-
<i>96-hour average</i>	-	0.1 ^e	-	-
Methoxychlor	100 ^{a,b}	{0.03[†]} -	-	-
<i>96-hour average</i>	-	0.03 ^e	-	-
Mirex	0 ^a	{0.001[†]} -	-	-
<i>96-hour average</i>	-	0.001 ^e	-	-
<i>Monochlorobenzene</i>	488 ^a	-	-	-

Chemical	Municipal or Domestic Supply ^{f(++)} (µg/l)	Aquatic Life ^(1,2) (µg/l)	Irrigation ^{f(++)} (µg/l)	Watering of Livestock ^{f(++)} (µg/l)
<i>Nitrobenzene</i>	<i>19,800^a</i>	-	-	-
<i>Nonylphenol</i>	-	-	-	-
<i>1-hour average</i>	-	<i>28^e</i>	-	-
<i>96-hour average</i>	-	<i>6.6^e</i>	-	-
Parathion	-	-	-	-
1-hour average	-	0.065 ^a	-	-
96-hour average	-	0.013 ^a	-	-
<i>Pentachlorophenol</i>	<i>1,010^a</i>	-	-	-
<i>1-hour average</i>	-	<i>e^{1.005(pH) - 4.869e}</i>	-	-
<i>96-hour average</i>	-	<i>e^{1.005(pH) - 5.134e}</i>	-	-
<i>Phenol</i>	<i>3,500^a</i>	-	-	-
<i>Polychlorinated biphenyls</i>				
<i>(PCBs)</i>	<i>0^a</i>	-	-	-
<i>96-hour average</i>	-	<i>0.014^e</i>	-	-
Silvex (2,4,5-TP)	10 ^{a,b}	-	-	-
<i>Tetrachloromethane</i>	<i>5^b</i>	-	-	-
<i>(carbon tetrachloride)</i>				
<i>Toluene</i>	<i>14,300^a</i>	-	-	-
Toxaphene	5 ^b	-	-	-
1-hour average	-	0.73 ^a	-	-
96-hour average	-	0.0002 ^a	-	-
<i>Tributyltin (TBT)</i>	-	-	-	-
<i>1-hour average</i>	-	<i>0.46^e</i>	-	-
<i>96-hour average</i>	-	<i>0.072^e</i>	-	-
Benzene	5^b	-	-	-
Monochlorobenzene	488^a	-	-	-

Chemical	Municipal or Domestic Supply ^[(+)] (µg/l)	Aquatic Life ^(1,2) (µg/l)	Irrigation ^[(+)] (µg/l)	Watering of Livestock ^[(+)] (µg/l)
m-dichlorobenzene	400 ^a	-	-	-
o-dichlorobenzene	400 ^a	-	-	-
p-dichlorobenzene	75 ^b	-	-	-
Ethylbenzene	1,400 ^a	-	-	-
Nitrobenzene	19,800 ^a	-	-	-
1,2-dichloroethane	5 ^b	-	-	↓
1,1,1-trichloroethane (TCA)	200 ^b	-	-	-
[Bis-(2-chloroisopropyl) ether	34.7 ^a	-	-	-
Chloroethylene	2 ^b	-	-	-
—(vinyl chloride)				
1,1-dichloroethylene	7 ^b	-	-	↓
Trichloroethylene (TCE)	5 ^b	-	-	-
[Hexachlorocyclopentadiene	206 ^a	-	-	-
Isophorone	5,200 ^a	-	-	↓
Trihalomethanes (total) ^{[(+)] (7)}	100 ^b	-	-	-
[Tetrachloromethane	5 ^b	-	-	-
—(carbon tetrachloride)				
Phenol	3,500 ^a	-	-	-
2,4-dichlorophenol	3,090 ^a	-	-	-
Pentachlorophenol	1,010 ^a	-	-	-
—1-hour average	—	$\exp\{1.005(\text{pH}-4.830)\}^a$	-	-
—96-hour average	—	$\exp\{1.005(\text{pH}-5.290)\}^a$	-	-
Dinitrophenols	70 ^a	-	-	-
4,6-dinitro-2-methylphenol	13.4 ^a	-	-	-
Dibutyl-phthalate	34,000 ^a	-	-	-
Diethyl-phthalate	350,000 ^a	-	-	-

Chemical	Municipal or Domestic Supply ⁽⁴⁾ (µg/l)	Aquatic Life ^(1,2) (µg/l)	Irrigation ⁽⁵⁾ (µg/l)	Watering of Livestock ⁽⁶⁾ (µg/l)
Dimethyl phthalate	313,000 ^a	-	-	-
Di-2-ethylhexyl phthalate	15,000 ^a	-	-	-
Polychlorinated biphenyls (PCBs)	0 ^a	-	-	-
24-hour average		0.014 ^a	-	-
Fluoranthene (polynuclear aromatic hydrocarbon)	42 ^a	-	-	-
Dichloropropenes	87 ^a	-	-	-
Toluene	14,300 ^a	-	-	↓

Footnotes:

- (1) ~~[Single concentration limits and 24-hour average concentration limits must not be exceeded.]~~ One-hour average and 96-hour average concentration limits may be exceeded only once every 3 years. See reference a.
- (2) Aquatic life standards apply to surface waters only; “hardness” is expressed as mg/L CaCO₃; 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 bromodichloromethane, dibromochloromethane, 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. *U.S. Environmental Protection Agency, National Recommended Water Quality Criteria, May 2009.*
- f. Nevada Division of Environmental Protection, *Aquatic Life Water Quality Criteria for Molybdenum*, Tetra Tech, Inc., (June 2008).

~~f. The criteria for trihalomethanes (total) is the sum of the concentrations of bromodichloromethane, dibromochloromethane, tribromomethane (bromoform) and trichloromethane (chloroform). See reference b.~~

~~g. This standard applies to the dissolved fraction.~~

~~h. U.S. Environmental Protection Agency, National Recommended Water Quality Criteria, May 2005.~~