

**ADOPTED REGULATION OF THE
STATE ENVIRONMENTAL COMMISSION**

LCB File No. R129-12

Effective December 20, 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		Watering of	
	Domestic Supply ^{(c)(4)}	Aquatic Life ^(1,2)	Irrigation ^{(c)(4)}	Livestock ^{(c)(4)}
	(µg/l)	(µg/l)	(µg/l)	(µg/l)
INORGANIC CHEMICALS⁽³⁾				
Antimony	146 ^a	-	-	-
Arsenic	50 ^b	-	100 ^c	200 ^d
1-hour average	-	340 ^{(c)(4)} ⁽⁴⁾	-	-
96-hour average	-	150 ^{(c)(4)} ⁽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	-	$(1.136672 - \{\ln(\text{hardness})(0.041838)\})^*$ $e^{(1.0166\{\ln(\text{hardness})\} - 3.924)}$ ^{(c)(4)} ⁽⁴⁾	-	-
96-hour average	-	$(1.101672 - \{\ln(\text{hardness})(0.041838)\})^*$ $e^{(0.7409\{\ln(\text{hardness})\} - 4.719)}$ ^{(c)(4)} ⁽⁴⁾	-	-
Chromium (total)	100 ^b	-	100 ^d	1,000 ^d
Chromium (VI)	-	-	-	-
1-hour average	-	16 ^{(c)(4)} ⁽⁴⁾	-	-
96-hour average	-	11 ^{(c)(4)} ⁽⁴⁾	-	-
Chromium (III)	-	-	-	-
1-hour average	-	$(0.316) * e^{(0.8190\{\ln(\text{hardness})\} + 3.7256)}$ ^{(c)(4)} ⁽⁴⁾	-	-

Chemical	Municipal or		Watering of	
	Domestic Supply ^{(c)(4)}	Aquatic Life ^(1,2)	Irrigation ^{(c)(4)}	Livestock ^{(c)(4)}
	(µg/l)	(µg/l)	(µg/l)	(µg/l)
96-hour average	-	$(0.860) * e^{(0.8190\{\ln(\text{hardness})\} + 0.6848)}$ ^{(g,h) e,(4)}	-	-
Copper	-	-	200 ^d	500 ^d
1-hour average	-	$(0.960) * e^{(0.9422\{\ln(\text{hardness})\} - 1.700)}$ ^{(g,h) e,(4)}	-	-
96-hour average	-	$(0.960) * e^{(0.8545\{\ln(\text{hardness})\} - 1.702)}$ ^{(g,h) e,(4)}	-	-
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	-	$(1.46203 - \{\ln(\text{hardness})(0.145712)\}) * e^{(1.273\{\ln(\text{hardness})\} - 1.460)}$ ^{(g,h) e,(4)}	-	-
96-hour average	-	$(1.46203 - \{\ln(\text{hardness})(0.145712)\}) * e^{(1.273\{\ln(\text{hardness})\} - 4.705)}$ ^{(g,h) e,(4)}	-	-
Manganese	-	-	200 ^d	-
Mercury	2 ^b	-	-	10 ^d
1-hour average	-	1.4 ^{(g,h) e,(4)}	-	-
96-hour average	-	0.77 ^{(g,h) e,(4)}	-	-
Molybdenum	-	-	-	-
1-hour average	-	6,160 ^{(e) f}	-	-
96-hour average	-	1,650 ^{(e) f}	-	-
Nickel	13.4 ^a	-	200 ^d	-
1-hour average	-	$(0.998) * e^{(0.8460\{\ln(\text{hardness})\} + 2.255)}$ ^{(g,h) e,(4)}	-	-
96-hour average	-	$(0.997) * e^{(0.8460\{\ln(\text{hardness})\} + 0.0584)}$ ^{(g,h) e,(4)}	-	-
Selenium	50 ^b	-	20 ^d	50 ^d
1-hour average	-	20 ^a	-	-

Chemical	Municipal or		Aquatic Life ^(1,2)	Watering of	
	Domestic Supply ^{f(++)}			Irrigation ^{f(++)}	Livestock ^{f(++)}
	(µg/l)		(µg/l)	(µg/l)	(µg/l)
96-hour average	-	5.0 ^{f(++) e}	-	-	-
Silver	-	-	-	-	-
1-hour average	-	$(0.85) * e^{(1.72\{\ln(\text{hardness})\} - 6.59)}$ ^{f(++) e,(4)}	-	-	-
Sulfide (undissociated hydrogen sulfide)	-	-	-	-	-
96-hour average	-	2.0 ^{f(++) e}	-	-	-
Thallium	13 ^a	-	-	-	-
Zinc	-	-	2,000 ^d	25,000 ^d	-
1-hour average	-	$(0.978) * e^{(0.8473\{\ln(\text{hardness})\} + 0.884)}$ ^{f(++) e,(4)}	-	-	-
96-hour average	-	$(0.986) * e^{(0.8473\{\ln(\text{hardness})\} + 0.884)}$ ^{f(++) e,(4)}	-	-	-

ORGANIC CHEMICALS

Acrolein	320 ^a	-	-	-	-
<i>1-hour average</i>	-	3 ^e	-	-	-
<i>96-hour average</i>	-	3 ^e	-	-	-
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 ^d	-	-	-	-
Chlordane	0 ^a	2.4^a -	-	-	-

Chemical	Municipal or	Aquatic Life ^(1,2)	Irrigation ⁽⁺⁾	Watering of
	Domestic Supply ⁽⁺⁾			Livestock ⁽⁺⁾
	(µg/l)	(µg/l)	(µg/l)	(µg/l)
24-hour average	-	0.0043 ^a	-	1
<i>1-hour average</i>	-	2.4 ^e	-	-
<i>96-hour average</i>	-	0.0043 ^e	-	-
<i>Chloroethylene</i>	2 ^b	-	-	-
<i>(vinyl chloride)</i>				
<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	-	1
<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]	-	-
<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	-	-	-

Chemical	Municipal or		Aquatic Life ^(1,2)	Watering of	
	Domestic Supply ⁽⁺⁾			Irrigation ⁽⁺⁾	Livestock ⁽⁺⁾
	(µg/l)		(µg/l)	(µg/l)	(µg/l)
Dieldrin	0 ^a	{2.5^a}	-	-	-
{24-hour average}	-	0.0019^a}	-	-	↓
<i>1-hour average</i>	-	<i>0.24^e</i>	-	-	-
<i>96-hour average</i>	-	<i>0.056^e</i>	-	-	-
<i>Di-2-ethylhexyl phthalate</i>	<i>15,000^a</i>	-	-	-	-
<i>Diethyl phthalate</i>	<i>350,000^a</i>	-	-	-	-
<i>Dimethyl phthalate</i>	<i>313,000^a</i>	-	-	-	-
<i>4,6-dinitro-2-methylphenol</i>	<i>13.4^a</i>	-	-	-	-
<i>Dinitrophenols</i>	<i>70^a</i>	-	-	-	-
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>	-	<i>0.086^e</i>	-	-	-
<i>96-hour average</i>	-	<i>0.036^e</i>	-	-	-
<i>Ethylbenzene</i>	<i>1,400^a</i>	-	-	-	-
<i>Fluoranthene (polynuclear aromatic hydrocarbon)</i>	<i>42^a</i>	-	-	-	-
Guthion	-	{0.01^a}	-	-	-
<i>96-hour average</i>	-	<i>0.01^e</i>	-	-	-
Heptachlor	-	{0.52^a}	-	-	-
{24-hour average}	-	0.0038^a}	-	-	↓
<i>1-hour average</i>	-	<i>0.52^e</i>	-	-	-
<i>96-hour average</i>	-	<i>0.0038^e</i>	-	-	-
<i>Heptachlor Epoxide</i>	-	-	-	-	-
<i>1-hour average</i>	-	<i>0.52^e</i>	-	-	-

Chemical	Municipal or		Aquatic Life ^(1,2)	Watering of	
	Domestic Supply ⁽⁺⁾			Irrigation ⁽⁺⁾	Livestock ⁽⁺⁾
	(µg/l)		(µg/l)	(µg/l)	(µg/l)
<i>96-hour average</i>	-	<i>0.0038^e</i>	-	-	-
<i>Hexachlorocyclopentadiene</i>	<i>206^a</i>	-	-	-	-
<i>Isophorone</i>	<i>5,200^a</i>	-	-	-	-
Lindane	4 ^b	[2.0^a] -	-	-	-
<i>[24-hour average]</i>	-	<i>0.080^a</i>	-	-	-
<i>1-hour average</i>	-	<i>0.95^e</i>	-	-	-
Malathion	-	[0.1^a] -	-	-	-
<i>96-hour average</i>	-	<i>0.1^e</i>	-	-	-
Methoxychlor	100 ^{a,b}	[0.03^a] -	-	-	-
<i>96-hour average</i>	-	<i>0.03^e</i>	-	-	-
Mirex	0 ^a	[0.001^a] -	-	-	-
<i>96-hour average</i>	-	<i>0.001^e</i>	-	-	-
<i>Monochlorobenzene</i>	<i>488^a</i>	-	-	-	-
<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>	-	-	-	-

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>	-	<i>0.014^e</i>	-	-
Silvex (2,4,5-TP)	10 ^{a,b}	-	-	-
<i>Tetrachloromethane</i> <i>(carbon tetrachloride)</i>	<i>5^b</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	-	-	-
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 (vinyl chloride)	2^b	-	-	-
1,1-dichloroethylene	7^b	-	-	+
Trichloroethylene (TCE)	5 ^b	-	-	-
Hexachlorocyclopentadiene	206^a	-	-	-
Isophorone	5,200^a	-	-	+

Chemical	Municipal or	Aquatic Life ^(1,2)	Irrigation ⁽⁺⁾	Watering of
	Domestic Supply ⁽⁺⁾			Livestock ⁽⁺⁾
	(µg/l)	(µg/l)	(µg/l)	(µg/l)
Trihalomethanes (total) ^{(+)(?)}	100 ^b	-	-	-
[Tetrachloromethane —(carbon tetrachloride)	—5 ^b	-	-	-
Phenol	—3,500 ^a	-	-	-
2,4-dichlorophenol	—3,090 ^a	-	-	-
Pentachlorophenol	—1,010 ^a	-	-	-
—1 hour average	—	$\exp\{1.005 \cdot (\text{pH} - 4.830)\}^a$	-	-
—96 hour average	—	$\exp\{1.005 \cdot (\text{pH} - 5.290)\}^a$	-	-
Dinitrophenols	—70 ^a	-	-	-
4,6-dinitro-2-methylphenol	—13.4 ^a	-	-	-
Dibutyl phthalate	—34,000 ^a	-	-	-
Diethyl phthalate	—350,000 ^a	-	-	-
Dimethyl phthalate	—313,000 ^a	-	-	-
Di-2-ethylhexyl phthalate	—15,000 ^a	-	-	-
Polychlorinated biphenyls				
—(PCBs)	—0 ^a	-	-	-
—24 hour average	—	0.014 ^a	-	-
Fluoranthene	—42 ^a	-	-	-
—(polynuclear aromatic —hydrocarbon)				
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.~~

Permanent Regulation - Filing Statement

A Regulation Relating to Water Quality Planning

Legislative Review of Adopted Regulations as Required
by Administrative Procedures Act, NRS 233B.066 & 233B.0603.10(f)

State Environmental Commission (SEC) LCB File No: R129-12

Regulation R129-12 – Aquatic Life Toxic Materials: This regulation updates the numeric criteria for protection of the aquatic life beneficial use contained in NAC 445A.1236 "Standards for Toxic Materials Applicable to Designated Waters". Nevada relies on the U.S. Environmental Protection Agency (EPA) to develop recommended water quality criteria for the majority of toxic compounds. The Nevada Division of Environmental Protection (NDEP) has reviewed the most recent toxic criteria published by EPA in 2002 and determined it is appropriate to revise the aquatic life numeric criteria for some metals and organic compounds.

1. A description of how public comment was solicited, a summary of public response and an explanation of how other interested persons may obtain a copy of the summary.

On May 8, 9 and 16, 2012 the NDEP held workshops in Carson City, Las Vegas, and Elko on this regulation. There were a total of six (6) comments presented at the workshops, which were responded to by NDEP staff – details are posted under agenda item 9 at:

http://www.sec.nv.gov/main/hearing_1012.htm .

Following the workshop, the SEC held a formal regulatory hearing on October 11, 2012 at the Reno Office of the Nevada Department of Wildlife on Valley Rd. in Reno, Nevada. A public notice and agenda for the regulatory meeting was posted at the meeting location, at the State Library in Carson City, and at NDEP Offices in Carson City and Las Vegas, at the Department of Wildlife in Reno, and at the Division of Minerals in Carson City.

Copies of the agenda, the public notice, and the proposed permanent regulation R129-12 were also made available at all public libraries throughout the state as well as to individuals on the SEC mailing list.

The public notice for the proposed regulation was published in the Las Vegas Review Journal and Reno Gazette Journal newspapers once a week for three consecutive weeks prior to the SEC regulatory meeting. Other information about this regulation was made available on the SEC website at: http://www.sec.nv.gov/main/hearing_1012.htm

2. The number of persons who attended the SEC Regulatory Hearing:

- (a) Attended October 11, 2012 hearing: 20 (approx.)
- (b) Testified on this Petition at the hearing: 0
- (c) Submitted to the agency written comments: 0

3. A description of how comment was solicited from affected businesses, a summary of their response, and an explanation of how other interested persons may obtain a copy of the summary.

Comments were solicited from affected parties and responded to at the public workshops noted above. In addition, NDEP staff created and disseminated a 30 page rationale for the regulation that described the changes in the Statewide Fecal Coliform standards proposed in the regulation. The rationale document is also posted under agenda item 9 at:
http://www.sec.nv.gov/main/hearing_1012.htm .

4. If the regulation was adopted without changing any part of the proposed regulation, a summary of the reasons for adopting the regulation without change.

The regulation was adopted without changes.

5. The estimated economic effect of the adopted regulation on the business which it is to regulate and on the public.

This regulation will not have an immediate or long-term adverse economic impact on the public or the business community

6. The estimated cost to the agency for enforcement of the adopted regulation.

There will be no additional costs to the agency for enforcement of the proposed regulation.

7. A description of any regulations of other state or government agencies which the proposed regulation overlaps or duplicates and a statement explaining why the duplication or overlapping is necessary. If the regulation overlaps or duplicates a federal regulation, the name of the regulating federal agency.

This regulation does not duplicate any other federal, state or local regulation.

8. If the regulation includes provisions which are more stringent than a federal regulation, which regulates the same activity, a summary of such provisions.

The regulation is not more stringent than any federal regulation or guidance.

9. If the regulation provides a new fee or increases an existing fee, the total annual amount the agency expects to collect and the manner in which the money will be used.

The regulation does not address specific fees.