

LCB File No. R186-08

PROPOSED REGULATION OF THE STATE ENVIRONMENTAL COMMISSION

SEC File No. P2008-17

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

AUTHORITY: §§1-318, NRS 445A.425 and 445A.520.

A REGULATION relating to water controls; revising the water quality standard for molybdenum for protection of aquatic life applicable to designated waters; and providing other matters properly relating thereto.

SECTION 1. NAC 445A.144 is hereby amended to read as follows:

NAC 445A.144 Standards for toxic materials applicable to designated waters. (NRS 445A.425, 445A.520)

1. ~~{Except as otherwise provided in this section,}~~ ~~{t}~~The standards for toxic materials prescribed in subsection 2 are applicable to the waters specified in NAC 445A.123 to 445A.127, inclusive, and 445A.145 to 445A.225, inclusive, *except waters which have site-specific standards for toxic materials or as otherwise provided in this section.* 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 ⁽¹⁾ (µg/l) | Aquatic Life ^(1,2) (µg/l) | Irrigation ⁽¹⁾ (µg/l) | Watering of Livestock ⁽¹⁾ (µg/l) |
|--|---|---|-------------------------------------|---|
| INORGANIC CHEMICALS⁽³⁾ | | | | |
| Antimony | 146 ^a | - | - | - |
| Arsenic | 50 ^b | - | 100 ^c | 200 ^d |
| 1-hour average | - | 340 ^{g,h} | - | - |
| 96-hour average | - | 150 ^{g,h} | - | - |
| Barium | 2,000 ^b | - | - | - |
| Beryllium | 0 ^a | - | 100 ^c | - |
| hardness <75 mg/l | - | - | - | - |
| hardness >= 75 mg/l | - | - | - | - |

| Chemical | Municipal or Domestic Supply ⁽¹⁾ (µg/l) | Aquatic Life ^(1,2) (µg/l) | Irrigation ⁽¹⁾ (µg/l) | Watering of Livestock ⁽¹⁾ (µg/l) |
|--|---|--|-------------------------------------|--|
| Boron | - | - | 750 ^a | 5,000 ^d |
| Cadmium | 5 ^b | - | 10 ^d | 50 ^d |
| 1-hour average | - | (1.136672- {ln(hardness)(0.041838)}) * e ^{(1.0166{ln(hardness)} - 3.924) g,h} | - | - |
| 96-hour average | - | (1.101672- {ln(hardness)(0.041838)}) * e ^{(0.7409{ln(hardness)} - 4.719) g,h} | - | - |
| Chromium (total) | 100 ^b | - | 100 ^d | 1,000 ^d |
| Chromium (VI) | - | - | - | - |
| 1-hour average | - | 16 ^{g,h} | - | - |
| 96-hour average | - | 11 ^{g,h} | - | - |
| Chromium (III) | - | - | - | - |
| 1-hour average | - | (0.316) * e ^{(0.8190{ln(hardness)} + 3.7256) g,h} | - | - |
| 96-hour average | - | (0.860) * e ^{(0.8190{ln(hardness)} + 0.6848) g,h} | - | - |
| Copper | - | - | 200 ^d | 500 ^d |
| 1-hour average | - | (0.960) * e ^{(0.9422{ln(hardness)} - 1.700) g,h} | - | - |
| 96-hour average | - | (0.960) * e ^{(0.8545{ln(hardness)} - 1.702) g,h} | - | - |
| Cyanide | 200 ^a | - | - | - |
| 1-hour average | - | 22 ^h | - | - |
| 96-hour average | - | 5.2 ^h | - | - |
| Fluoride | - | - | 1,000 ^d | 2,000 ^d |
| Iron | - | - | 5,000 ^d | - |
| 96-hour average | - | 1,000 ^h | 5,000^d | - |
| Lead | 50 ^{a,b} | - | 5,000 ^d | 100 ^d |
| 1-hour average | - | (1.46203- {ln(hardness)(0.145712)}) * e ^{(1.273{ln(hardness)} - 1.460) g,h} | - | - |
| 96-hour average | - | (1.46203- {ln(hardness)(0.145712)}) * e ^{(1.273{ln(hardness)} - 4.705) g,h} | - | - |
| Manganese | - | - | 200 ^d | - |
| Mercury | 2 ^b | - | - | 10 ^d |
| 1-hour average | - | 1.4 ^{g,h} | - | - |
| 96-hour average | - | 0.77 ^{g,h} | - | - |
| Molybdenum | - | 19e | - | - |
| 1-hour average | - | 6,160e | - | - |
| 96-hour average | - | 1,650e | - | - |
| Nickel | 13.4 ^a | - | 200 ^d | - |
| 1-hour average | - | (0.998) * e ^{(0.8460{ln(hardness)} + 2.255) g,h} | - | - |
| 96-hour average | - | (0.997) * e ^{(0.8460{ln(hardness)} + 0.0584) g,h} | - | - |
| Selenium | 50 ^b | - | 20 ^d | 50 ^d |
| 1-hour average | - | 20 ^a | - | - |
| 96-hour average | - | 5.0 ^h | - | - |
| Silver | - | - | - | - |
| 1-hour average | - | (0.85) * e ^{(1.72{ln(hardness)} - 6.59) g,h} | - | - |
| Sulfide (undissociated hydrogen sulfide) | - | - | - | - |
| 96-hour average | - | 2.0 ^h | - | - |
| Thallium | 13 ^a | - | - | - |
| Zinc | - | - | 2,000 ^d | 25,000 ^d |
| 1-hour average | - | (0.978) * e ^{(0.8473{ln(hardness)} + 0.884) g,h} | - | - |
| 96-hour average | - | (0.986) * e ^{(0.8473{ln(hardness)} + 0.884) g,h} | - | - |

| Chemical | Municipal or Domestic Supply ⁽¹⁾ (µg/l) | Aquatic Life ^(1,2) (µg/l) | Irrigation ⁽¹⁾ (µg/l) | Watering of Livestock ⁽¹⁾ (µg/l) |
|--|---|---|-------------------------------------|---|
| ORGANIC CHEMICALS | | | | |
| Acrolein | 320 ^a | - | - | - |
| Aldrin | 0 ^a | 3 ^a | - | - |
| Chlordane | 0 ^a | 2.4 ^a | - | - |
| 24-hour average | - | 0.0043 ^a | - | - |
| 2,4-D | 100 ^{a,b} | - | - | - |
| DDT & metabolites | 0 ^a | 1.1 ^a | - | - |
| 24-hour average | - | 0.0010 ^a | - | - |
| Demeton | - | 0.1 ^a | - | - |
| Dieldrin | 0 ^a | 2.5 ^a | - | - |
| 24-hour average | - | 0.0019 ^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 | - | - |
| Guthion | - | 0.01 ^a | - | - |
| Heptachlor | - | 0.52 ^a | - | - |
| 24-hour average | - | 0.0038 ^a | - | - |
| Lindane | 4 ^b | 2.0 ^a | - | - |
| 24-hour average | - | 0.080 ^a | - | - |
| Malathion | - | 0.1 ^a | - | - |
| Methoxychlor | 100 ^{a,b} | 0.03 ^a | - | - |
| Mirex | 0 ^a | 0.001 ^a | - | - |
| Parathion | - | - | - | - |
| 1-hour average | - | 0.065 ^a | - | - |
| 96-hour average | - | 0.013 ^a | - | - |
| Silvex (2,4,5-TP) | 10 ^{a,b} | - | - | - |
| Toxaphene | 5 ^b | - | - | - |
| 1-hour average | - | 0.73 ^a | - | - |
| 96-hour average | - | 0.0002 ^a | - | - |
| 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 | - | - | - |
| Trihalomethanes (total) ^f | 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 (pH)-4.830} ^a | - | - |
| 96-hour average | - | exp{1.005 (pH)-5.290} ^a | - | - |
| Dinitrophenols | 70 ^a | - | - | - |
| 4,6-dinitro-2-methylphenol | 13.4 ^a | - | - | - |

| Chemical | Municipal or Domestic Supply ⁽¹⁾ (µg/l) | Aquatic Life ^(1,2) (µg/l) | Irrigation ⁽¹⁾ (µg/l) | Watering of Livestock ⁽¹⁾ (µg/l) |
|---|---|---|-------------------------------------|--|
| 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 (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.

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, 141.12, 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. California State Water Resources Control Board, Regulation of Agricultural Drainage to the San Joaquin River: Appendix D, Water Quality Criteria (March 1988 revision).~~
- e. 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.