Rationale for Proposed Revision to NAC 445A.

R149-24

Prepared by:
Nevada Division of Environmental Protection
Bureau of Water Quality Planning
2025

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Contents

Acronyms and Abbreviations

BWQP	Bureau of Water Quality Planning
CFR	Code of Federal Regulations
EPA	U.S. Environmental Protection Agency
µg/L	micrograms per liter
NAC	Nevada Administrative Code
NDEP	Nevada Division of Environmental Protection
NRS	Nevada Revised Statutes

Rationale for Proposed Revisions to NAC 445A.1236 and Water Quality Standards for Algal Toxins

1.0 Introduction

Nevada state law (Nevada Revised Statutes [NRS] 445A.520) requires the state to establish water quality standards to protect beneficial uses of surface waters of the state. Additionally, Section 303 of the Federal Water Pollution Control Act, also known as the Clean Water Act (CWA), and other Federal regulations (40 CFR 131.20) require that States and authorized tribes routinely review and, as appropriate, modify water quality standards that protect the designated uses of surface waters. Such standards provide a basis for controlling discharges or releases of pollutants into a waterbody.

The U.S. Environmental Protection Agency (EPA) has, through Section 303 of the CWA, delegated authority to Nevada to establish water quality standards for all waterbodies or segments of waterbodies within the state. Additionally, the CWA requires that EPA periodically update water quality criteria. Criteria are an important component of the water quality standards, which consist of (1) designated beneficial uses, (2) numeric or narrative criteria that are protective of these uses and (3) antidegradation provisions.

Section 303(c)(1) of the CWA prescribes that States and authorized Tribes shall adopt criteria to protect designated uses into their water quality standards. 40 CFR 131.11 defines that such criteria:

- Must be based on sound scientific rationale
- Must contain sufficient parameters or constituents to protect the designated use
- For waters with multiple use designations, the criteria shall support the most sensitive use.

40 CFR 131.11(b) states that in establishing criteria states/tribes should establish numerical values based on CWA 304(a) guidance, CWA 304(a) guidance modified to reflect site-specific conditions, or be developed by other scientifically defensible methods. EPA publishes recommendations developed based on the latest scientific knowledge, issued periodically as guidance to states/tribes for use in developing their own criteria. These 304(a) criteria form the basis for Federal promulgation should a state/tribe fail to adopt adequately protective criteria on their own. See 40 CFR 131.36(d)(11) for those criteria Federally promulgated on the State of Nevada.

This rationale prepared by the Nevada Division of Environmental Protection (NDEP), Bureau of Water Quality Planning (BWQP) reviews and discusses the revisions proposed to update

Nevada's water quality standards for toxic materials applicable to designated waters, NAC 445A.1236. The proposed regulation will add *Recreation Involving Contact With the Water* beneficial use to the table of standards for toxic materials, add the analytes *Microcystins* and *Cylindrospermopsin* to the list of chemicals in the table, and add numerical criteria for those analytes. A footnote will be added to the end of the table to describe the exceedance duration and frequency requirements to qualify as an impairment. Additionally, this regulation makes editorial corrections to: (1) add a footnote to the water quality standards for cyanide; and (2) the spelling of the term "Heptachlor Epoxide".

It is not until EPA approval and adoption of these revisions as part of the State water quality standards, that the criteria values proposed become active for CWA purposes.

2.0 Background

Cyanobacteria, also commonly referred to as blue-green algae, are photosynthetic bacteria that are ubiquitous in nature and are found in surface waters (US EPA, 2019). Environmental conditions that promote excessive growth of cyanobacteria in surface waters can lead to situations in which cyanobacterial cell density is high, known as blooms. Some cyanobacteria, but not all, can produce toxins. The toxin-producing cyanobacteria contain genes that confer the ability to produce toxins and are referred to as toxigenic cells. The abundance of toxigenic cyanobacteria can vary within the overall cyanobacteria population, between waterbody to waterbody, and over time within a single waterbody.

Microcystins, a group of algal toxins, can be produced by a variety of toxigenic cyanobacteria genera. Some of these species can be distributed through the water column, concentrate in the upper layers, or form surface scums depending on environmental conditions. The EPA evaluated the health effects of microcystins and derived a reference dose (RfD) in its 2015 *Health Effects Support Document for the Cyanobacterial Toxin Microcystins* (US EPA, 2015). Exposure to elevated levels of microcystins can potentially lead to liver damage. The critical study for the derivation of the microcystins RfD was based on rat exposure to microcystin-LR in drinking water. The critical effect from this study was slight to moderate liver lesions with necrosis and increased liver weight and enzymes associated with tissue damage.

Cylindrospermopsin, another algal toxin, can also be produced by a variety of toxigenic cyanobacteria species. Some of these species tend not to form visible surface scums, and the highest concentrations of total cyanobacterial cells typically occur below the water surface. The EPA evaluated the health effects of cylindrospermopsin and derived an RfD in its 2015 *Health Effects Support Document for the Cyanobacterial Toxin Cylindrospermopsin* (US EPA, 2015). The kidneys and liver appear to be the primary target organs for cylindrospermopsin toxicity. The

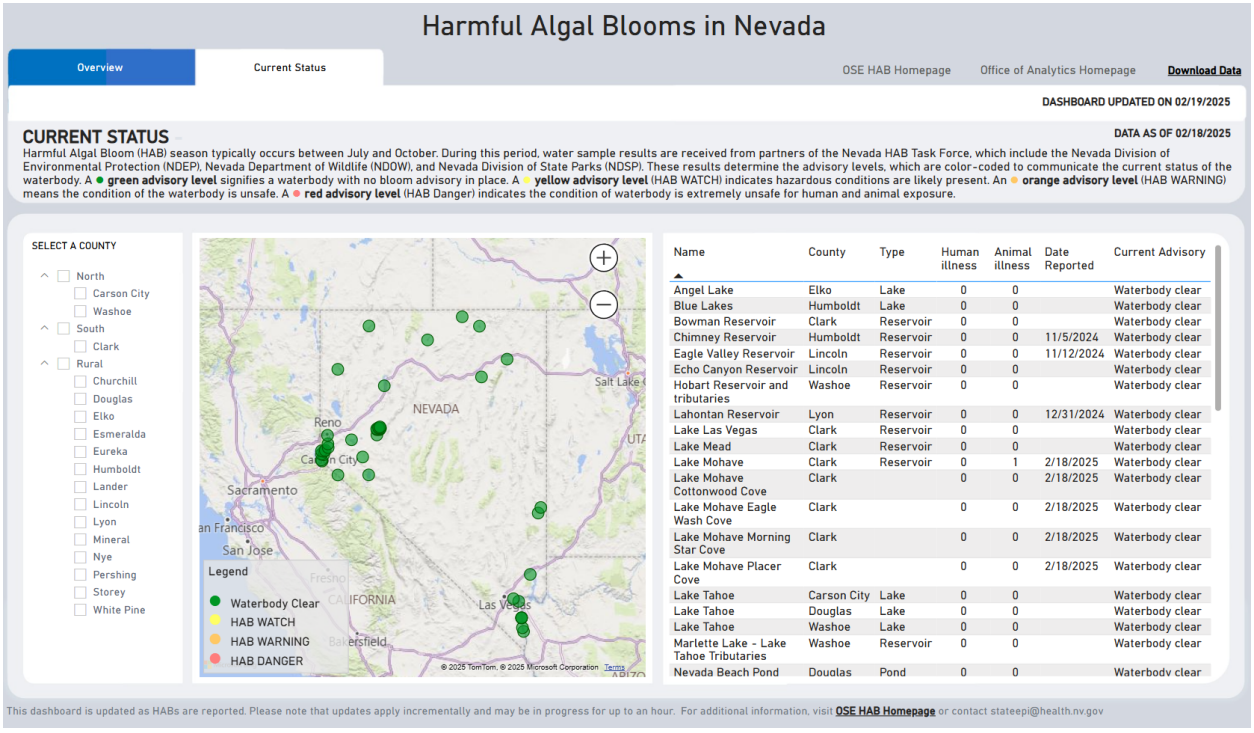
critical study that the EPA used to derive the cylindrospermopsin RfD was based on drinking water exposure to mice. Adverse effects on the kidneys were manifested by decreases in urinary protein concentration and increased relative kidney weight. Upon considering all effects, increased relative kidney weight was considered the most appropriate basis for quantitation.

2.1 Algal toxins in Nevada

NDEP monitors Harmful Algal Blooms (HABS) and algal toxins in state surface waters as part of its ambient surface water quality monitoring and targeted HAB monitoring programs. Toxin producing cyanobacteria blooms have been confirmed in waterbodies across the state, with the highest frequency and magnitude occurring during the warm summer months.

Potentially hazardous algal toxin concentrations have been detected in waterbodies that experience moderate to high recreational use. In 2024, twenty-one recreational advisories were issued on twelve separate waterbodies to protect public health, with four of those waters experiencing algal toxin concentrations above the proposed criteria values. The highest algal toxin concentration detected was 6962.5 µg/l of microcystins.

Figure 1: Nevada's Harmful Algal Bloom Dashboard



3.0 Nationally Recommended Criteria

In 2019, EPA issued its national CWA Section 304(a) recreational water quality criteria recommendations for two algal toxins, microcystins and cylindrospermopsin, reflecting the latest peer-reviewed scientific knowledge (US EPA, 2021). The criteria are designed to protect the public from incidental exposure to harmful levels of these algal toxins while participating in water-contact activities in freshwater where immersion and incidental ingestion of water are likely. Such activities include, but are not limited to, swimming, water skiing, tubing, skin diving, water play by children, or similar water-contact activities in waterbodies designated for such recreational uses. EPA issued its 2019 recommended criteria under the statutory authority of CWA Section 304(a).

EPA's 2019 recommended criteria for microcystins and cylindrospermopsin are summarized in **Table 1**, below. EPA's recommended 304(a) criteria document is included as **Attachment 2**, and may be accessed on EPA's website at this address: https://www.epa.gov/sites/default/files/2019-05/documents/hh-rec-criteria-habs-document-2019.pdf.

Table 1. 2019 National CWA Section 304(a) Recommendations for Recreational Water Quality Criteria for Microcystins and Cylindrospermopsin

Microcystins Magnitude (µg/L)	**Cylindrospermopsin Magnitude** (µg/L)	**Duration**	**Frequency**
8	15	1 in 10-day assessment period across a recreational season	More than 3 excursions in a recreational season, not to be exceeded in more than one year[a]

[a] An excursion is defined as a 10-day assessment period with any toxin concentration higher than the criteria magnitude. When more than three excursions occur within a recreational season and that pattern reoccurs in more than one year, it is an indication the water quality has been or is becoming degraded and is not supporting its recreational use.

4.0 Nevada Proposed Criteria

NDEP is proposing to use a "water year" approach for impairment determination instead of a "recreational season". This change is more restrictive and allows for more comprehensive assessments as opposed to only considering exceedances during a defined date range within a water year.

An excursion is defined as a 10-day assessment period with any toxin concentration higher than the recommended criteria magnitude. When more than three excursions occur within a recreational season and that pattern occurs in more than one year, it is an indication the water quality has been or is becoming degraded and is not supporting its recreational use.

NDEP is proposing to adopt cyanotoxin criteria to protect the recreation involving contact with the water (RWC) beneficial use, as this use most closely aligns with the exposure pathways identified as the focus of EPA's 2019 recommended cyanotoxin criteria. EPA's 2019 cyanotoxin criteria, "focus on human exposure as a result of primary contact recreation activities, such as swimming, during which immersion and incidental ingestion of ambient water are likely." NDEP has determined that it is most appropriate to adopt the recommended cyanotoxin criteria for protection of the RWC beneficial use.

Once final approval is received from EPA, these proposed criteria will be used programmatically for CWA purposes, including assessing waterbody attainment of beneficial uses for 303(d)/305(b) reports and permitting activities.

The adoption of these criteria will not preclude the issuance of recreational health advisories for any water of the State. See NDEP's harmful algal bloom program website (https://ndep.nv.gov/water/rivers-streams-lakes/water-quality-monitoring/harmful-algal-bloom-program) for additional information on the issuance of recreational health advisories for harmful algal blooms in Nevada.

An abbreviated table of NAC 445A.1236 amended with the proposed criteria is shown in **Table 2** below. The full text of the proposed regulation R149-24 is included as **Attachment 1**.

Table 2. NDEP Proposed Recreational Water Quality Criteria for Microcystins and Cylindrospermopsin

Chemical	Municipal or Domestic Supply (µg/L)	Aquatic Life[1,2] (µg/L)	Irrigation (µg/L)	Watering of Livestock (µg/L)	**Recreation Involving Contact With the Water (µg/L)**
Cylindrospermopsin	-	-	-	-	***15*** [i,j,(8)]
Microcystins	-	-	-	-	***8*** [i,j,(8)]

Footnotes:

(8) The applicable criterion value must not be exceeded in more than three separate 10-day non-rolling periods in consecutive water years. As used in this footnote, "water year" means the 12-month period beginning on October 1 and ending on September 30 of the immediately following calendar year.

References:

i. U.S. Environmental Protection Agency, Pub. No. EPA 823-R-21-002, Implementing the 2019 National Clean Water Act Section 304(a) Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin, July 2021.

j. U.S. Environmental Protection Agency, Pub. No. EPA 822-R-19-001, Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin, May 2019.

References

US EPA. (2015). *2015 Drinking Water Health Advisories for Two Cyanobacterial Toxins.* Retrieved from https://www.epa.gov/sites/default/files/2017-06/documents/cyanotoxins-fact_sheet-2015.pdf

US EPA. (2015). *Health Effects Support Document for the Cyanobacterial toxin Cylindropsermopsin.* Retrieved from https://www.epa.gov/sites/default/files/2017-06/documents/cylindrospermopsin-support-report-2015.pdf

US EPA. (2015). *Health Effects Support Document for the Cyanobacterial Toxin Microcystins.* Retrieved from https://www.epa.gov/sites/default/files/2017-06/documents/microcystins-support-report-2015.pdf

US EPA. (2019). *Recreational Water Quality Criteria and Methods.* Retrieved from https://www.epa.gov/sites/default/files/2019-05/documents/hh-rec-criteria-habs-document-2019.pdf

US EPA. (2021). *Final Technical Support Document: Implementing the 2019 National Clean Water Act Section 304(a) Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin.* Retrieved from https://www.epa.gov/system/files/documents/2021-08/final-tsd-implement-2019-rwqc.pdf.pdf

Attachment 1: Proposed Regulation LCB Draft R149-24

PROPOSED REGULATION OF THE

STATE ENVIRONMENTAL COMMISSION

LCB File No. R149-24

July 25, 2024

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 certain toxins 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 water quality standards at a level designed to protect and ensure a continuation of the designated beneficial use or uses which the Commission has determined to be applicable to each stream segment or other body of surface water in the State. The Commission is further required to base its water quality standards on water quality criteria which: (1) numerically or descriptively define the conditions necessary to maintain the designated beneficial use or uses of the water; and (2) provide for recreation in and on the water if these objectives are reasonably attainable. (NRS 445A.520)

Existing regulations set forth the standards for toxic materials that are applicable to certain designated waters in this State. (NAC 445A.1236) This regulation makes various changes to the standards for toxic materials.

Section 1 of this regulation sets forth certain water quality standards for cylindrospermopsin and microcystin relating to the designated beneficial use of recreation involving contact with the water. These standards are based on certain publications of the United States Environmental Protection Agency, as cited in section 1.

Section 1 further makes technical corrections to: (1) add a footnote to the water quality standards for cyanide; and (2) the spelling of the term "Heptachlor Epoxide."

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 reporting limit of a method that is acceptable to the Division, laboratory results which show that the substance was not detected at a quantifiable level 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)	*Recreation Involving Contact With the Water (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	4[i]	-	100[c]	-	-
Boron	-	-	750[a]	5,000[d]	-
Cadmium	5[b]	-	10[d]	50[d]	-
1-hour average	-	$(1.136672-\{\ln(hardness)(0.041838)\})*e^{(0.9789\{\ln(hardness)\}-3.866)}$ h,(4)	-	-	-
96-hour average	-	$(1.101672-\{\ln(hardness)(0.041838)\})*e^{(0.7977\{\ln(hardness)\}-3.909)}$ h,(4)	-	-	-
Chromium (total)	100[b]	-	100[d]	1,000[d]	-
Chromium (VI)	-	-	-	-	-

Chemical	Municipal or Domestic Supply (µg/L)	Aquatic Life[1,2] (µg/L)	Irrigation (µg/L)	Watering of Livestock (µg/L)	*Recreation Involving Contact With the Water (µg/L)*
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)	-	-	-
Cyanide	200[a,(5)]	-	-	-	-
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(hardness)(0.145712)})* e$^{(1.273\{\ln(\text{hardness})\} - 1.460)}$ f,(4)	-	-	-
96-hour average	-	(1.46203-{ln(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]	See NAC 445A.1237	20[d]	50[d]	-
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]	-	-	-	-
Cylindrospermopsin	-	-	-	-	***15[j,k,(8)]***
Chlordane	0[a]	-	-	-	-

Chemical	Municipal or Domestic Supply (µg/L)	Aquatic Life[1,2] (µg/L)	Irrigation (µg/L)	Watering of Livestock (µg/L)	*Recreation Involving Contact With the Water (µg/L)*
1-hour average	-	2.4[f]	-	-	-
96-hour average	-	0.0043[f]	-	-	-
Chloroethylene (vinyl chloride)	2[b]	-	-	-	-
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]	-	-	-
~~[Heptachlor]~~ *Heptachlor* 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]	-	-	-

Chemical	Municipal or Domestic Supply (µg/L)	Aquatic Life[1,2] (µg/L)	Irrigation (µg/L)	Watering of Livestock (µg/L)	*Recreation Involving Contact With the Water (µg/L)*
Microcystin	-	-	-	-	***8[j,k(8)]***
Mirex	0[a]	-	-	-	-
96-hour average	-	0.001[f]	-	-	-
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.

(8) The applicable criterion value must not be exceeded in more than three separate 10-day non-rolling periods in consecutive water years. As used in this footnote, "water year" means the 12-month period beginning on October 1 and ending on September 30 of the immediately following calendar year.

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.

i. U.S. Environmental Protection Agency, Pub. No. EPA 811-Z-92-002, *40 CFR Parts 141 and 142, National Primary Drinking Water Regulations; Synthetic Organic Chemicals and Inorganic Chemicals; Final Rule* (Table 1-MCLGs and MCLs for Inorganic Contaminants) (July 1992).

j. U.S. Environmental Protection Agency, Pub. No. EPA 823-R-21-002, Implementing the 2019 National Clean Water Act Section 304(a) Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin, July 2021.

k. U.S. Environmental Protection Agency, Pub. No. EPA 822-R-19-001, Recommended Human Health Recreational Ambient Water Quality Criteria or Swimming Advisories for Microcystins and Cylindrospermopsin, May 2019.