

**There have been no changes from the May 2006 Draft**

July 2006

Rationale for Proposed Revisions to the  
Nevada Water Pollution Control Regulations  
NAC 445A.143,  
NAC 445A.195 and 197  
Colorado Salinity Standards



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**Rationale for Proposed Revisions to the Nevada Water Pollution Control Regulations  
NAC 445A.143,  
NAC 445A.195 and 197**

**Colorado Salinity Standards**

**INTRODUCTION**

Under section 303 of the Clean Water Act and 40 CFR 131, States have responsibility for setting, reviewing and revising water quality standards. The following rationale discusses the review of the proposed changes to the Nevada Administrative Code (NAC) referencing the Colorado Salinity Standards, contained in the NAC 445A.143, and changes to the footnotes for Lake Mead, NAC 445A.195 and Inner Las Vegas Bay NAC 445A.197. **No changes to the salinity criteria are proposed; only administrative changes will be made to NAC 445A.143, 195, and 197.**

**BACKGROUND**

In the 1960's and early 1970's, the seven Colorado River Basin states and federal representatives discussed the problem of increasing salinity levels in the lower reaches of the Colorado River. In 1972, Congress enacted the Clean Water Act, which mandated efforts to maintain water quality standards in the United States. At the same time, Mexico and the United States were discussing the increasing salinity of Colorado River water being delivered to Mexico.

In 1973, the Basin states established the Colorado River Basin Salinity Control Forum for interstate cooperation and to provide the information needed to comply with Section 303(a) and (b) of the Clean Water Act. Governors from each of the seven Basin states appoint representatives to the Forum. The EPA's December 1974 regulations set forth a basin wide salinity control policy for the Colorado River Basin. The Basin states, acting through the Forum, initially responded to this regulation by developing and submitting to the EPA a June 1975 report, *Water Quality Standards for Salinity Including Numeric Criteria and Plan of Implementation for Salinity Control - Colorado River System*.

Since the states' initial adoption, the water quality standards have been reviewed every three years (1978, 1981, 1984, 1987, 1990, 1993, 1996, 1999, 2002, and 2005) as required by Section 303(c)(1) of the Clean Water Act.

The standards require that a plan be developed which will maintain the flow-weighted average annual salinity at or below the 1972 levels while the Basin states continue to develop their compact-apportioned water supply. The Forum selected three stations on the main stem of the lower Colorado River to measure the salinity of the Colorado River:

1. Below Hoover Dam
2. Below Parker Dam
3. At Imperial Dam

Numeric criteria were established for these points as required by the 1974 regulation. The Forum and participating federal agencies developed an implementation plan as part of the standards. It was designed to ensure compliance with the numeric criteria for salinity. Every three years, the numeric criteria are reviewed and the implementation plan is updated to ensure continuing compliance with the standards.

## PROPOSED REVISIONS

### NAC 445A.143

NDEP is proposing to update subsection 2 in NAC 445A.143 to reflect the most recent reference to the Colorado River Basin Salinity Control Recommendations for Salinity control of the Colorado River. **No changes to the salinity criteria are proposed.** NDEP is only adding the reference to the "2005 Review - Water Quality Standards for Salinity, Colorado River System" into NAC 445A.143. Also to be consistent with the Forum NDEP will add a reference that the flow weighted annual average applies to the "(calendar year)." The proposed changes to NAC 445A.143 are shown below with **deletions in red and strikeout** and **additions in blue**:

NAC 445A.143 Cooperation regarding Colorado River; salinity standards

1. The State of Nevada will cooperate with the other Colorado River Basin states and the Federal Government to support and carry out the conclusions and recommendations adopted April 27, 1972, by the reconvened 7th session of the conference in the matter of pollution of interstate waters of the Colorado River and its tributaries.

2. Pursuant to the **subsection 1 Colorado River Basin Salinity Control Forum presented in the "2005 Review - Water Quality Standards for Salinity, Colorado River System"**, the flow weighted annual average concentrations (**calendar year**) for total dissolved solids in mg/l at the three lower main stem stations of the Colorado River are as follows:

|                       |     |
|-----------------------|-----|
| BELOW HOOVER DAM..... | 723 |
| BELOW PARKER DAM..... | 747 |
| IMPERIAL DAM.....     | 879 |

### NAC 445A.195 and 197

Additional changes involve revising the water quality standards footnotes for Lake Mead (footnote <sup>d</sup>) and Inner Las Vegas Bay (footnote <sup>c</sup>) in NAC 445A.195 and 445A.197, respectively. The language in each footnote is the same and both pertain to the Colorado River Basin Salinity Control Recommendations for salinity control. The existing footnote reads **The details of this standard are set forth in the "1996 Review-Water Quality Standards for Salinity, Colorado River System" approved by the Commission on March 25, 1998.** It is proposed to replace each footnote with **The salinity standard for the Colorado River System is specified in NAC 445A.143.**

All other Nevada tributaries in the Colorado River Basin that reference the Colorado River Basin salinity standards already have the proposed footnote language. This change will make the salinity references for all of Nevada's waters in the Colorado River Basin Salinity Control system uniform. The changes to NAC 445A.195 and 445A.197 are shown below.

**NAC 445A.195 Lake Mead excluding area covered by NAC 445A.197.**

**Lake Mead**

| PARAMETER                                  | REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY  | WATER QUALITY STANDARDS FOR BENEFICIAL USES   | BENEFICIAL USES AS DESIGNATED IN <u>NAC 445A.194</u> (Most Stringent Use Listed First)   |
|--|---|---|--|
| Temperature<br>Single Value                | □T 0°C <sup>a</sup>   | ≤ T 2°C <sup>a</sup>  | Propagation of aquatic life, including, without limitation, a warm-water fishery.  |
| pH<br>Single Value                         | 95% of samples not to exceed 8.8 SU   | Within Range 6.5-9.0 SU   | Propagation of aquatic life, including, without limitation, a warm-water fishery, recreation involving contact with water, propagation of wildlife, municipal or domestic supply, or both, industrial supply, irrigation and watering of livestock.                |
| Dissolved Oxygen<br>Single Value           | —   | ≥ 5 mg/l in the epilimnion or average in water column during periods of nonstratification | Propagation of aquatic life, including, without limitation, a warm-water fishery, watering of livestock, recreation involving contact with water, recreation not involving contact with water, municipal or domestic supply, or both, and propagation of wildlife. |
| Chlorophyll <u>a</u> -µg/l                 | b   |   | Recreation involving contact with water, propagation of aquatic life, including, without limitation, a warm-water fishery, recreation not involving contact with water and municipal or domestic supply, or both.  |
| Total Ammonia (as N)-mg/l                  | —   | c   | Propagation of aquatic life, including, without limitation, a warm-water fishery.  |
| Total Dissolved Solids<br><br>Single Value | Flow Weighted Annual Average Concentration ≤ 723 mg/l measured below Hoover Dam <sup>d</sup><br>— | —<br>≤ 1000 mg/l  | Municipal or domestic supply, or both, and irrigation.   |
| Chloride<br>Single Value                   | e   | ≤ 400 mg/l <sup>e</sup>   | Municipal or domestic supply, or both, watering of livestock and propagation of wildlife.  |
| Sulfate<br>Single Value                    | e   | ≤ 500 mg/l <sup>e</sup>   | Municipal or domestic water supply, or both.   |
| Suspended Solids<br>Single Value           | —   | ≤ 25 mg/l   | Propagation of aquatic life, including, without limitation, a warm-water fishery, and recreation not involving contact with water.   |
| Nitrogen Species as N<br>Single Value      | Total Inorganic Nitrogen<br>95% of Samples □4.5 mg/l  | Nitrate ≤ 10 mg/l<br>Nitrite ≤ 1 mg/l   | Municipal or domestic supply, or both, watering of livestock, propagation of aquatic life, including, without limitation, a warm-water fishery, and propagation of wildlife.   |
| Turbidity<br>Single Value                  | f   | ≤ 25 NTU  | Propagation of aquatic life, including, without limitation, a warm-water fishery, municipal or domestic supply, or both, recreation involving contact with water and recreation not involving contact with water.  |
| Fecal Coliform                             |   | ≤ 200/400 <sup>g</sup><br>MF or MPN/100ml   | Recreation involving contact with water, irrigation, recreation not involving contact with water, municipal or domestic supply, or both, propagation of wildlife and watering of livestock.  |
| E. Coli<br>30-day Log Mean<br>Single Value | —<br>—  | ≤ 126 MF/100ml<br>≤ 235 MF/100ml  | Recreation involving contact with water, recreation not involving contact with water, municipal or domestic supply, or both, irrigation and watering of livestock.   |
| Color-Pt-Co Units<br>Single Value          | h   | —   | Recreation not involving contact with water and municipal or domestic supply, or both.   |

a. Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone.

b. The requirements for chlorophyll a are:

- (1) Not more than one monthly mean in a calendar year at Station LWLVB 1.85 may exceed 45µg/l. “Station LWLVB 1.85” is located at the center of the channel at a distance of 1.85 miles into Las Vegas Bay from the confluence of the Las Vegas Wash with Lake Mead.
  - (2) The mean for chlorophyll a in summer (July 1-September 30) must not exceed 40 µg/l at Station LWLVB 1.85, and the mean for 4 consecutive summer years must not exceed 30 µg/l. The sample must be collected from the center of the channel and must be representative of the top 5 meters of the channel. “Station LWLVB 1.85” is located at the center of the channel at a distance of 1.85 miles into Las Vegas Bay from the confluence of the Las Vegas Wash with Lake Mead.
  - (3) The mean for chlorophyll a in the growing season (April 1-September 30) must not exceed 16 µg/l at Station LWLVB 2.7 and 9 µg/l at Station LWLVB 3.5. “Station LWLVB 2.7” is located at a distance of 2.7 miles into Las Vegas Bay from the confluence of the Las Vegas Wash with Lake Mead. “Station LWLVB 3.5” is located at a distance of 3.5 miles into Las Vegas Bay from the confluence of the Las Vegas Wash with Lake Mead.
  - (4) The mean for chlorophyll a in the growing season (April 1-September 30) must not exceed 5 µg/l in the open water of Boulder Basin, Virgin Basin, Gregg Basin and Pierce Basin. The single value must not exceed 10 µg/l for more than 5 percent of the samples.
  - (5) Not less than two samples per month must be collected between the months of March and October. During the months when only one sample is available, that value must be used in place of the monthly mean.
- c. The requirement for water quality with regard to the concentration of total ammonia is provided pursuant to the provisions of NAC 445A.118.
  - d. **The salinity standard for the Colorado River System is specified in NAC 445A.143. ~~The details of this standard are set forth in the “1996 Review Water Quality Standards for Salinity, Colorado River System” approved by the Commission on March 25, 1998.~~**
  - e. The combination of this constituent with other constituents comprising TDS must not result in the violation of the TDS standards for Lake Mead and the Colorado River.
  - f. Turbidity must not exceed that characteristic of natural conditions by more than 10 Nephelometric Units.
  - g. Based on a minimum of not less than five samples taken over a 30-day period, the fecal coliform bacterial level must not exceed a log mean of 200 per 100ml nor must more than 10 percent of the total samples taken during any 30-day period exceed 400 per 100ml.
  - h. Color must not exceed that characteristic of natural conditions by more than 10 units Platinum-Cobalt Scale.
- The Commission recognizes that at entrances of tributaries to Lake Mead, localized violations of standards may occur.

**NAC 445A.197 Lake Mead from 1.2 miles into Las Vegas Bay from confluence of Las Vegas Wash with Lake Mead.** Control point at 1.2 miles into Las Vegas Bay from the confluence of the Las Vegas Wash with Lake Mead.

Inner Las Vegas Bay

| PARAMETER                                      | REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY     | WATER QUALITY STANDARDS FOR BENEFICIAL USES | BENEFICIAL USES AS DESIGNATED IN <u>NAC 445A.196</u> (Most Stringent Use Listed First)  |
|--|--|---|---|
| Temperature<br>Single Value                    | □T 0°C <sup>a</sup>                                  | ≤ T 2°C <sup>a</sup>                        | Propagation of aquatic life, including, without limitation, a warm-water fishery.   |
| pH<br>Single Value                             | 95% of samples not to exceed 8.9 SU                  | Within Range 6.5-9.0 SU                     | Propagation of aquatic life, including, without limitation, a warm-water fishery, propagation of wildlife, irrigation, industrial supply and watering of livestock.               |
| Dissolved Oxygen<br>Single Value               | —  | ≥ 5 mg/l                                    | Propagation of aquatic life, including, without limitation, a warm-water fishery, watering of livestock, recreation not involving contact with water and propagation of wildlife. |
| Nitrogen Species as<br>Single Value            | Total Inorganic Nitrogen<br>95% of Samples □5.3 mg/l | Nitrate ≤ 90 mg/l<br>Nitrite ≤ 5 mg/l       | Propagation of aquatic life, including, without limitation, a warm-water fishery, watering of livestock and propagation of wildlife.  |
| Total Ammonia (as N)-mg/l                      | —  | b   | Propagation of aquatic life, including, without limitation, a warm-water fishery.   |
| Total Dissolved Solids<br>Single Value         | c  | ≤ 3000 mg/l                                 | Watering of livestock and irrigation.   |
| Suspended Solids<br>Single Value               | —  | ≤ 25 mg/l                                   | Propagation of aquatic life, including, without limitation, a warm-water fishery and recreation not involving contact with water.   |
| Turbidity<br>Single Value                      | d  | ≤ 25 NTU                                    | Propagation of aquatic life, including, without limitation, a warm-water fishery and recreation not involving contact with water.   |
| Fecal Coliform<br>MF or MPN/100ml Single Value | —  | e   | Propagation of wildlife, recreation not involving contact with water, irrigation and watering of livestock.   |

- a. Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone.
- b. The requirement for water quality with regard to the concentration of total ammonia is provided pursuant to the provisions of NAC 445A.118. Data must be collected at Station LWLVB 1.2. “Station LWLVB 1.2” is located at the center of the channel at a distance of 1.2 miles into Las Vegas Bay from the confluence of the Las Vegas Wash with Lake Mead.
- c. **The salinity standard for the Colorado River System is specified in NAC 445A.143. Any increase in total dissolved solids must not result in a violation of the standards set forth in “1996 Review Water Quality Standards for Salinity, Colorado River System” approved by the Commission on March 25, 1998.**
- d. Turbidity must not exceed that characteristic of natural conditions by more than 10 Nephelometric Units.
- e. Any discharge from a point source into the Las Vegas Wash must not exceed a log mean of 200 per 100ml based on a minimum of not less than five samples taken over a 30-day period nor may more than 10 percent of the total samples taken during any 30-day period exceed 400 per 100ml.

The Commission recognizes that, because of discharges of tributaries, localized violations of standards may occur in the inner Las Vegas Bay.

## **CONCLUSION**

These proposed changes to NAC 445A.143, 195, and 197 are to reference the current Colorado River Basin Salinity Control Recommendations for salinity control of the Colorado River. These changes will make it easier to update the reference to the most current review, reduce future administrative changes to NAC 445A.195 and 197, and make the salinity references for all of Nevada's waters in the Colorado River Basin Salinity Control system uniform.