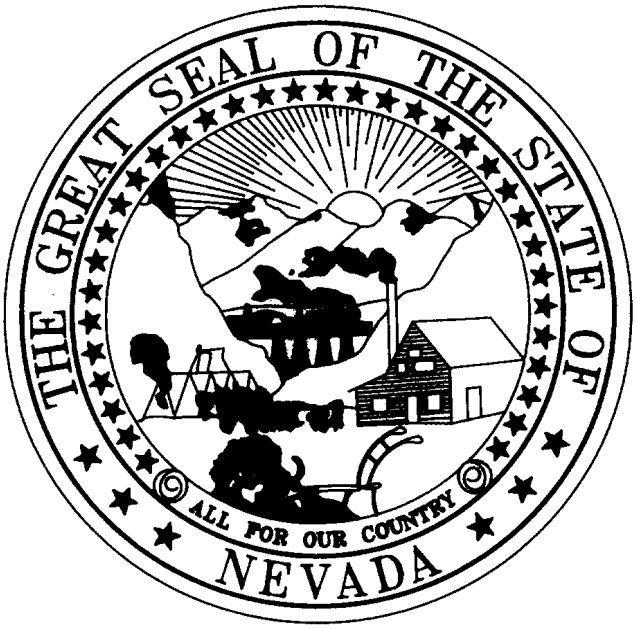
Revisions to Nevada's Water Quality Regulations for Consistency



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Introduction

Water quality standards regulations promulgated by the U.S. Environmental Protection Agency (EPA) at 40 CFR 131.11(a) (1) require states to adopt protective criteria that are based on established scientific rationale. The Nevada Division of Environmental Protection (NDEP) is proposing to amend Nevada Administration Code (NAC) 445A.070 – 445A.2234, *Standards for Water Quality*, by making changes to numeric criteria and formatting to provide clarity and consistency throughout the water quality standards (WQS) tables.

Background

The NAC contains criteria that reference "natural conditions" or "no adverse effects" for alkalinity, color and turbidity for many waterbodies; however, natural baseline conditions have not been established for these waterbodies. The lack of well-established baseline conditions makes it problematic to assess if the standards are being met and to establish discharge permit limits. Numeric criteria based on the most recent EPA-recommended criteria are herein proposed for alkalinity (single value [S.V.] ≥ 20 milligrams per liter [mg/L] as $CaCO_3$), color (S.V. ≤ 75 platinum cobalt units [PCU]), and turbidity (≤ 10 nephelometric turbidity units [NTU]).

The existing numeric criterion for total dissolved solids (TDS) in many streams is "S.V. ≤500 mg/l or the 95th percentile (whichever is less)". All references to the 95th percentile value will be removed because this is not appropriate as a beneficial use standard. Higher water quality is protected through antidegradation requirements.

Several nitrogen species are currently combined into one row in some of the WQS tables. For clarification, each species (total nitrogen, nitrate, and nitrite) will be placed in a separate row. No changes to the numeric criteria are proposed at this time for any of the nitrogen species.

Water quality criteria for toxic materials applicable to all named waters are contained in NAC 445A.1236. For clarification, a footnote specifying this NAC reference is being added to the WQS table for each named water.

The numeric criteria shown under the column heading, "Water Quality to Protect Beneficial Uses," in the WQS tables are designed to protect the most restrictive use. The most restrictive use is indicated by an asterisk (*) in the "Beneficial Uses" columns. Inconsistencies throughout the WQS tables as to the most restrictive use protected by a given parameter are being corrected for consistency. The current practice of indicating secondary uses with an "X" is confusing and is inconsistent throughout the WQS tables. It is assumed that any secondary uses associated with a particular parameter would be protected under the most restrictive use, so the "Xs" indicating secondary uses are not necessary. Removing the "Xs" simplifies the "Beneficial Uses" columns and makes it easier to see which beneficial use is the most restrictive use.

Other revisions to the NAC tables to improve clarity, correctness and consistency include the following:

1) Changing “mg/l” to “mg/L”
2) Changing “Total Phosphates” to “Total Phosphorus” and “Ortho Phosphate” to “Orthophosphate”
3) Changing “Suspended Solids” to “Total Suspended Solids”
4) Updating the reference to the “Colorado River Salinity Standards” to 2014
5) Changing “Alkalinity as CO_3” to “Alkalinity as $CaCO_3$”
6) Making other formatting changes for clarity and consistency of parameter names and units throughout all the WQS tables

Specific Changes to NAC 445A.11704 to 2214

The proposed updates to the NAC are shown below with ~~deletions in red and strikeout~~ and ***additions in blue***. For a complete citation of the changes, see LCB File No. R109-16

Definitions

Updates are being made to the definitions section starting at NAC 445A.070. These definitions will add to the terminology used in the water quality sections of the NAC (445A.070 through 2234).

The definitions to be added are shown below.

NAC 445A.????? "BOD" defined. (NRS 445A.425, 445A.520) "BOD" means biochemical oxygen demand. It is a measure of the amount of oxygen that bacteria will consume while decomposing organic matter under aerobic conditions.

NAC445A.????? "Log mean" defined (NRS 445A.425, 445A.520) A logarithmic or "log mean" is calculated by converting each data point into its log, then calculating the mean of these values, then taking the anti-log of this log transformed mean.

NAC445A.????? Mean defined (NRS 445A.425, 445A.520) The average of a group of numbers or data points.

NAC445A.????? Median defined. (NRS 445A.425, 445A.520) **The median is the 50th percentile (50%) of a set of numbers.**

NAC445A.11741 "MF" defined. (NRS 445A.425, 445A.520) "MF" means membrane filter, a measure for bacteria.

NAC 445A.????? "MPN" defined. **(NRS 445A.425, 445A.520)** ***"MPN" means "most probable number" and is a statistical testing method used to estimate the number of colony forming units (of bacteria) in a sample of water.***

NAC 445A.????? "µg/L" defined. (NRS 445A.425, 445A.520) "µg/L" is a unit of concentration describing the mass of a substance, in milligrams, present in one liter of the water.

NAC 445A.11744 "~~No./100ml~~ *No./100mL*" defined. (NRS 445A.425, 445A.520) "~~No./100ml~~ *No./100mL*" means the number of organisms present in 100 milliliters of the water.
(Added to NAC by Environmental Comm'n, eff. 6-29-84)—(Substituted in revision for NAC 445A.135)

NAC 445A.????? ">" defined. (NRS 445A.425, 445A.520) ">" means greater than.

NAC 445A.????? "<" defined. (NRS 445A.425, 445A.520) "<" means less than.

NDEP is updating the reference to the Colorado River Salinity Standards in NAC 445A.1233 from the 2011 Review to the "2014 Review - Water Quality Standards for Salinity, Colorado River System."

UPDATE TO THE REFERENCE FOR THE COLORADO RIVER DOCUMENT

445A.1233 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 the Interstate Waters of the Colorado River and its Tributaries.

2. Pursuant to the **[**"2011**]** ***"2014*** Review - Water Quality Standards for Salinity, Colorado River System," **[**as**]** ***and any subsequent version*** adopted by the Colorado River Basin Salinity Control Forum, the flow-weighted annual average concentrations for the calendar year for total dissolved solids in mg/L at the three lower main-stem stations of the Colorado River are as follows:

Station	Salinity in mg/L
Below Hoover Dam	723
Below Parker Dam	747
At Imperial Dam	879

3. Each new version of the water quality standards for salinity adopted by the Colorado River Basin Salinity Control Forum shall be deemed approved by the Commission for the purposes of this section unless the Commission disapproves the revision within 60 days after the date of publication.

Changes to Beneficial Use Tables.

Following an explanation of the proposed changes, examples of NAC WQS tables show specific changes, as discussed below.

The NAC contains criteria that reference "natural conditions" or "no adverse effects" for alkalinity, color and turbidity in many waterbodies; however, natural baseline conditions have not been established for these waterbodies. The lack of well-established baseline conditions makes it problematic to assess if the standards are being met and to establish discharge permit limits. Numeric criteria based on the most recent EPA-recommended criteria are proposed to replace the references to "no adverse effects" or "natural conditions" and to add EPA's recommended

criteria for alkalinity ((S.V. ≥ 20 mg/L), color (S.V. ≤ 75 PCU), and turbidity (≤ 10 NTU for cold water fisheries, ≤ 50 NTU for warm water fisheries).

The existing numeric criterion for total dissolved solids (TDS) in many streams is "S.V. ≤ 500 mg/l or the 95th percentile (whichever is less)". All references to the "95th percentile" value will be removed because it is not appropriate as a beneficial use standard. Instead, the TDS standard will be established as "S.V. ≤ 500 mg/L." Higher water quality is protected through antidegradation requirements.

The numeric criteria shown under the column heading, "Water Quality to Protect Beneficial Uses," in the WQS tables are designed to protect the most restrictive use, which is indicated by an asterisk (*) in the "Beneficial Uses" columns. Inconsistencies throughout the WQS tables as to the most restrictive use protected by a given parameter are being corrected for consistency. The current practice of indicating secondary uses with an "X" is confusing and is inconsistent throughout the WQS tables. It is assumed that any secondary uses associated with a particular parameter would be protected under the most restrictive use, so the "Xs" indicating secondary uses are not necessary. Removing the "Xs" simplifies the "Beneficial Uses" columns and makes it easier to understand which beneficial use is the most restrictive use.

Below are examples of NAC Tables showing the proposed changes:

Table NAC 445A.1886 shows

- WATER QUALITY ~~**STANDARDS FOR**~~ ***CRITERIA TO PROTECT*** BENEFICIAL USES
- Change ~~**mg/l**~~ to be italicized, with a capital L (***mg/L***)
- Change ~~**Total Phosphate**~~ to ***Total Phosphorus***
- Separate nitrogen species into an individual row for each species
- Add Total to Suspended Solids to read ***Total*** Suspended Solids
- Delete footnote referencing "natural conditions" for Turbidity and replace with ***SV ≤ 10*** (NTU) for cold-water fisheries and ***≤ 50*** (NTU) for warm-water fisheries
- The Beneficial Use Matrix was revised to show only the most restrictive or primary use marked with an asterisk (*).

NAC 445A.1886 Walker Region: Walker River, West Fork at the state line. (NRS 445A.425, 445A.520) The limits of this table apply to the body of water known as the West Fork of the Walker River at the California-Nevada state line. This segment of the West Fork of the Walker River is located in Douglas County.

STANDARDS OF WATER QUALITY
Walker River, West Fork at the state line

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY ~~STANDARDS FOR~~ *CRITERIA TO PROTECT* BENEFICIAL USES	Beneficial Use*s*[a]										
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh
Beneficial Uses			X	X	X	X	X	X	X	X			
Aquatic Life Species of Concern			Mountain whitefish, rainbow trout and brown trout.										
Temperature - °C ΔT^b - °C	S.V. Jul-Oct ≤ 22 $\Delta T = 0$	S.V. Nov-Apr ≤ 13 S.V. May-Jun ≤ 17 S.V. Jul-Oct ≤ 23 $\Delta T \leq 2$			*	~~X~~							
pH - SU		S.V. 6.5 - 9.0 $\Delta pH \pm 0.5$	~~X~~	~~X~~	*	~~*~~		~~X~~	~~X~~	~~X~~			
Dissolved Oxygen - ~~mg/l~~ *mg/L*		S.V. Nov-May ≥ 6.0 S.V. Jun-Oct ≥ 5.0	~~X~~		*	~~X~~	~~X~~	~~X~~		~~X~~			
Total *Phosphorus* ~~Phosphates~~ (as P) - ~~mg/l~~ *mg/L*		A-Avg. ≤ 0.1			*	*	~~X~~	~~X~~					
~~Nitrogen Species (as N) - mg/l~~	~~Total Nitrogen A-Avg. ≤ 0.6 S.V. ≤ 0.9~~	~~Nitrate S.V. ≤ 10 Nitrite S.V. ≤ 0.06~~	~~X~~		~~*~~	~~X~~	~~X~~	~~*~~		~~X~~			
Total Nitrogen (as N) - mg/L	*A-Avg. ≤ 0.6 S.V. ≤ 0.9*				*	*							
Nitrate (as N) - mg/L		*S.V. ≤ 10*						*					
Nitrite (as N) - mg/L		*S.V. ≤ 0.06*			*								
Total Ammonia (as N) - ~~mg/l~~ *mg/L*		[c]			*								
Total Suspended Solids - ~~mg/l~~ *mg/L*	A-Avg. ≤ 60	S.V. ≤ 80			*								
Turbidity - NTU		~~d~~ *S.V. ≤ 10*			*			~~X~~					
Color - PCU	S.V. ≤ 26	S.V. ≤ 75			~~X~~			*					
Total Dissolved Solids - ~~mg/l~~ *mg/L*	A-Avg. ≤ 165 S.V. ≤ 220	A-Avg. ≤ 500	~~X~~	~~X~~				*					
Chloride - ~~mg/l~~ *mg/L*	A-Avg. ≤ 15 S.V. ≤ 20	S.V. ≤ 250	~~X~~	~~X~~				*		~~X~~			
Sulfate - ~~mg/l~~ *mg/L*	S.V. ≤ 25	S.V. ≤ 250						*					
Sodium - SAR		A-Avg. ≤ 8		*				~~X~~					
Alkalinity (as $CaCO_3$) - ~~mg/l~~ *mg/L*		~~< 25% change from natural conditions~~ *S.V. ≥ 20*			*					~~X~~			

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY ~~STANDARDS FOR~~ ***CRITERIA TO PROTECT*** BENEFICIAL USES	Beneficial Use***s***[a]										
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh
E. Coli - No./100 ~~ml~~ ***mL***		A.G.M. ≤ 126 S.V. ≤ 410				*	~~X~~						
Toxic Materials		[d]											

* = The most restrictive beneficial use.

X = Beneficial use.

[a] Refer to NAC 445A.122 and 445A.1882 for beneficial use terminology.

[b] Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.

[c] The ~~ambient~~ water quality criteria for ammonia are specified in NAC 445A.118

~~[d] Increase in turbidity must not be more than 10 NTU above natural conditions.~~

[d] The water quality criteria for Toxic Materials are specified in NAC 445A.1236.

(Added to NAC by Environmental Comm'n by R160-06, eff. 8-26-2008)

Criteria in the NAC reference "natural conditions" for color for some waterbodies; however, natural baseline conditions have not been established for these waterbodies, making it problematic to assess if the standards are being met and to establish discharge permit limits. Numeric criteria based on the most recent EPA-recommended criteria are proposed to remove the references to "natural conditions" and add EPA's recommended criterion for color (S.V. ≤ 75 PCU).

Water quality criteria for toxic materials are applicable to all named waters and are contained in NAC 445A.1236. For clarification, a footnote specifying this NAC reference is being added to each WQS table, from NAC 445A.1242 to NAC 445A.2234.

The table under NAC 445A.1956 shows the following changes:

- Color – delete footnote referencing natural conditions; replace with ***SV ≤ 75*** (PCU) for the protection of Aquatic Life.
- Toxic Materials – Footnote d
  - **[d] The water quality criteria for Toxic Materials are specified in NAC 445A.1236.**
- Alkalinity as $CaCO_3$ revised from ~~**"< 25% change from natural conditions"**~~ to ***S.V. ≥ 20*** (mg/L)

NAC 445A.1956 Central Region: Chiatovich Creek. (NRS 445A.425, 445A.520) The limits of this table apply to the body of water known as Chiatovich Creek above the highway maintenance station. Chiatovich Creek is located in Esmeralda County.

STANDARDS OF WATER QUALITY
Chiatovich Creek

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY ~~STANDARDS FOR~~ ***CRITERIA TO PROTECT*** BENEFICIAL USES	Beneficial Uses[a]										
			Livestock	Irrigation	Aquatic	Contact	Nonconta	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh
Beneficial Uses			X	X	X	X	X	X	X	X			
Aquatic Life Species of Concern													
Temperature - °C ΔT^b - °C	$\Delta T = 0$	S.V. Nov-Apr ≤ 13 S.V. May-Jun ≤ 17 S.V. Jul-Oct ≤ 23 $\Delta T \leq 2$			*	~~X~~							
pH - SU		S.V. 6.5 - 9.0 $\Delta pH \pm 0.5$	~~X~~	~~X~~	~~X~~*	~~*~~		~~X~~	~~X~~	~~*~~			
Dissolved Oxygen - ~~mg/l~~ ***mg/L***		S.V. Nov-May ≥ 6.0 S.V. Jun-Oct ≥ 5.0	~~X~~		*	~~X~~	~~X~~	~~X~~		~~X~~			
Total ***Phosphorus*** ~~Phosphates~~ (as P) - ~~mg/l~~ ***mg/L***	A-Avg. ≤ 0.04 S.V. ≤ 0.06	A-Avg. ≤ 0.1			*	*	~~X~~	~~X~~					
~~Nitrogen Species (as N) - mg/l~~	~~Total Nitrogen A-Avg. ≤ 0.6 S.V. ≤ 0.8~~	~~Nitrate S.V. ≤ 10 Nitrite S.V. ≤ 0.06~~	~~X~~		~~*~~	~~X~~	~~X~~	~~*~~		~~X~~			
Total Nitrogen (as N) - mg/L	***A-Avg. ≤ 0.6 S.V. ≤ 0.8***				*****	*****							
Nitrate (as N) - mg/L		***S.V. ≤ 10***						*****					
Nitrite (as N) - mg/L		***S.V. ≤ 0.06***			*****								
Total Ammonia (as N) - ~~mg/l~~ ***mg/L***		[c]			*								
Total Suspended Solids - ~~mg/l~~ ***mg/L***		S.V. ≤ 25			*								
Turbidity - NTU		S.V. ≤ 10			*			~~X~~					
Color - PCU		~~d~~ ***S.V. ≤ 75***			~~*~~			~~X~~*					
Total Dissolved Solids - ~~mg/l~~ ***mg/L***	A-Avg. ≤ 50 S.V. ≤ 60	A-Avg. ≤ 500	~~X~~	~~X~~				*					
Chloride - ~~mg/l~~ ***mg/L***	A-Avg. ≤ 2 S.V. ≤ 3	S.V. ≤ 250	~~X~~	~~X~~				*		~~X~~			
Sulfate - ~~mg/l~~ ***mg/L***	A-Avg. ≤ 4 S.V. ≤ 5	S.V. ≤ 250						*					
Sodium - SAR	A-Avg. ≤ 1	A-Avg. ≤ 8		*				~~X~~					
Alkalinity (as $CaCO_3$) - ~~mg/l~~ ***mg/L***		~~< 25% change from natural conditions~~ ***S.V. ≥ 20***			*					~~X~~			

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY ~~STANDARDS FOR~~ *CRITERIA TO PROTECT* BENEFICIAL USES	Beneficial Use*s*[a]										
			Livestock	Irrigation	Aquatic	Contact	Nonconta	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh
E. Coli - No./100 ~~ml~~ *mL*		A.G.M. ≤ 126 S.V. ≤ 410				*	~~X~~						
Fecal Coliform - No./100 ~~ml~~ *mL*	A.G.M. ≤ 100 S.V. ≤ 200	S.V. ≤ 1,000	~~X~~	*			~~X~~	~~X~~		~~X~~			
Toxic Materials		[d]											

* = The most restrictive beneficial use.

X = Beneficial use.

[a] Refer to NAC 445A.122 and 445A.1952 for beneficial use terminology.

[b] Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.

[c] The ~~ambient~~ water quality criteria for ammonia are specified in ~~NAC 445A.118~~ ***NAC 445A.1234***.

~~[d] Increase in color must not be more than 10 PCU above natural conditions.~~

[d] The water quality criteria for Toxic Materials are specified in NAC 445A.1236.

(Added to NAC by Environmental Comm'n by R160-06, eff. 8-26-2008; A by R131-12, 12-20-2012)

The existing numeric criterion for total dissolved solids (TDS) in many streams is "S.V. ≤ 500 mg/l or the 95th percentile (whichever is less)". All references to the 95th percentile value will be removed because it is not appropriate as a beneficial use standard. Instead, the TDS standard will be established as "S.V. ≤ 500 mg/L." Higher water quality is protected through antidegradation requirements.

<u>The table under NAC 445A.1398 shows</u>

- The WQS for TDS reads **"**≤ 500 mg/l or the 95th percentile (whichever is less)." NDEP is proposing to remove ~~**or the 95th percentile (whichever is less)**~~ so the TDS criterion for this waterbody will read "≤ 500 mg/L."

NAC 445A.1398 Snake Region: Wild Horse Reservoir. (NRS 445A.425, 445A.520) The limits of this table apply to the entire body of water known as Wild Horse Reservoir. Wild Horse Reservoir is located in Elko County.

STANDARDS OF WATER QUALITY
Wild Horse Reservoir

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY ~~STANDARDS FOR~~ *CRITERIA TO PROTECT* BENEFICIAL USES	Beneficial Uses[a]										
			Livestock	Irrigation	Aquatic	Contact	Nonconta	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh
Beneficial Uses			X	X	X	X	X	X	X	X			
Aquatic Life Species of Concern			Trout.										
Temperature - °C ΔT[b] - °C		S.V. ≤ 20 ΔT = 0			*	~~X~~							
pH - SU		S.V. 6.5 - 9.0	~~X~~	~~X~~	*	*		~~X~~	~~X~~	*			
Dissolved Oxygen - ~~mg/l~~ *mg/L*		S.V. ≥ 6.0	~~X~~		*	~~X~~	~~X~~	~~X~~		~~X~~			
Total Phosphorus (as P) - ~~mg/l~~ *mg/L*		S.V. ≤ 0.10			*	*	~~X~~	~~X~~					
Total Ammonia (as N) - ~~mg/l~~ *mg/L*		[c]			*			~~X~~					
Total Dissolved Solids - ~~mg/l~~ *mg/L*		≤ 500 ~~or the 95th~~ S.V. ~~percentile (whichever is less).~~	~~X~~	~~X~~				*					
E. Coli - No./100 ~~ml~~ *mL*		A.G.M. ≤ 126 S.V. ≤ 410				*	~~X~~						
Fecal Coliform - No./100 ~~ml~~ *mL*		S.V. ≤ 1,000	~~X~~	*			~~X~~	~~X~~		~~X~~			
Toxic Materials		*[d]*											

* = The most restrictive beneficial use.
X = Beneficial use.
[a] Refer to NAC 445A.122 and 445A.1332 for beneficial use terminology.
[b] Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.
[c] The ~~ambient~~ water quality criteria for ammonia are specified in ~~NAC 445A.118~~ ***NAC 445A.1234***.
[d] The water quality criteria for Toxic Materials are specified in NAC 445A.1236.
(Added to NAC by Environmental Comm'n by R160-06, eff. 8-26-2008; A by R131-12, 12-20-2012)

Additional Revisions

Currently, two reaches on the Humboldt River overlap.

- NAC 445A.1444 "**Humboldt River at State Highway 789"** extends from the Battle Mountain Gage downstream to where State Highway 789 crosses the Humboldt River.
- The next segment of the Humboldt River, NAC 445A.1446 "**Humboldt River at State Highway 789,"** currently extends from the The Comus Gage to Imlay. From the Comus Gage downstream to where State Highway 789 crosses the Humboldt River is approximately 6 miles, therefore the two reaches overlap by 6 miles. NDEP is proposing to change the reach for NAC 445A1446 to read, "where State Highway 789 crosses the Humboldt River." The proposed changes to NAC445A.1444 and 1446 are shown below.

NAC 445A.1444 Humboldt Region: Humboldt River at State Highway 789. (NRS 445A.425, 445A.520) The limits of this table apply to the body of water known as the Humboldt River from the Battle Mountain Gage to where State Highway 789 crosses the Humboldt River. This segment of the Humboldt River is located in Humboldt and Lander Counties.

NAC 445A.1446 Humboldt Region: Humboldt River at Imlay. (NRS 445A.425, 445A.520) The limits of this table apply to the body of water known as the Humboldt River from ~~the Comus Gage~~ ***where State Highway 789 crosses the Humboldt River*** to Imlay. This segment of the Humboldt River is located in Humboldt and Pershing Counties.

Humboldt River TDS for Rogers Dam

The criterion for Total Dissolved Solids (TDS) in the Humboldt River from its origin to Imlay is an annual average (A-Avg.) of 500 mg/L to protect for the use "Municipal and Domestic Supply." The next reach downstream is the Humboldt River at Woolsey where the TDS criterion is increased to 1000 mg/L. The next reach downstream is the Humboldt River at Rogers Dam where the criterion is ≤ 500 mg/L or the 95th percentile (whichever is less). The next two downstream reaches do not have "Municipal and Domestic Supply" as a beneficial use; therefore, there is no TDS criterion for those reaches. NDEP is proposing to increase the TDS criterion at the Rogers Dam reach to 1000 mg/L to be consistent with the upstream reach. See the Table below.

HUMBOLDT RIVER - ROGERS DAM TDS

NAC 445A.1436	Humboldt River at Osino	A-Avg. 500 mg/L
NAC 445A.1438	Humboldt River at Palisade	A-Avg. 500 mg/L
NAC 445A.1442	Humboldt River at B.M.	A-Avg. 500 mg/L
NAC 445A.1444	Humboldt River at Comus	A-Avg. 500 mg/L
NAC 445A.1446	Humboldt River at Imlay	A-Avg. 500 mg/L
NAC 445A.1448	Humboldt River at Woolsey	A-Avg. 1000 mg/L
NAC 445A.1452	Humboldt River at Rogers Dam (Was a Class C Water)	~~**S.V. 500 or 95th –Percentile**~~ **A-Avg. 1000 mg/L**
NAC 445A.1454	Humboldt River at River at Humboldt Sink	No TDS Standard - does not have M&D
NAC 445A.1454	Humboldt Sink	No TDS Standard - does not have M&D

In the "Toxics Table," NAC 445A.1236, **footnote (2),** delete ~~**Aquatic life standards apply to surface waters only;** h~~ so the footnote reads "Hardness is expressed as mg/L $CaCO_3$; and "e" refers to the base of the natural logarithm whose value is 2.718."

On the Owyhee River, below Mill Creek, NAC 445A.1356, add "exterior" to the reach description, to read "From its confluence with Mill Creek to the ***exterior*** border of the Duck Valley Indian Reservation."

Change Color in WQS table from "No Adverse Effects" to ***S.V. ≤ 75 PCU*** for NAC 445A.1436 – 1448**.** Also add ***S.V. ≤ 75 PCU*** to the WQS table and remove footnote ~~***"Increase in color must not be more than 10 PCU above natural conditions"***~~ to NAC 445A.1956 – 1962, 445A.2096, 445A.2146, 445A.2148, 445A.2162 and 445A.2178.

On NAC 445A.1527, North Antelope Creek, under the table heading, delete ~~**This Segment of**~~ to change the reach description to "The limits of this table apply to the body of water known as North Antelope Creek from its origin to its confluence with Antelope Creek. North Antelope Creek is located in Elko County."

In the Index table for the Central region, NAC 445A.1952, Cave Creek NAC 445A.2056, the reach description should read **[**~~**Its**~~**]** ***The*** entire length.

Topaz Lake – NAC 445A.1888 - footnote [c] clarifies that the the dissolved oxygen criterion applies only to the epilimnion when the lake is stratified.

NAC 445A.1888 Walker Region: Topaz Lake. (NRS 445A.425, 445A.520) The limits of this table apply to the body of water known as Topaz Lake at various points in Topaz Lake. Topaz Lake is located in Douglas County.

STANDARDS OF WATER QUALITY
Topaz Lake

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY ~~STANDARDS FOR~~ *CRITERIA TO PROTECT* BENEFICIAL USES	Beneficial Uses[a]										
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh
Beneficial Uses			X	X	X	X	X	X	X	X			
Aquatic Life Species of Concern			Rainbow trout, cutthroat trout, brown trout, kokanee salmon and silver salmon.										
Temperature - °C ΔT^b - °C	$\Delta T = 0$	S.V. Nov-Apr ≤ 13 S.V. May-Jun ≤ 17 S.V. Jul-Oct ≤ 23 $\Delta T \leq 2$			*	~~X~~							
pH - SU		S.V. 6.5 - 9.0 $\Delta pH \pm 0.5$	~~X~~	~~X~~	*	~~*~~		~~X~~	~~X~~	~~X~~			
Dissolved Oxygen - ~~mg/l~~ *mg/L*		S.V. Nov-May ≥ 6.0 S.V. Jun-Oct[d] [c] ≥ 5.0	~~X~~		*	~~X~~	~~X~~	~~X~~		~~X~~			
Total *Phosphorus* ~~Phosphates~~ (as P) - ~~mg/l~~ *mg/L*		A-Avg. ≤ 0.05 S.V. ≤ 0.10			*	*	~~X~~	~~X~~					
~~Nitrogen Species (as N) - mg/l~~	~~Total Nitrogen A-Avg. ≤ 0.6 S.V. ≤ 1.0~~	~~Nitrate S.V. ≤ 10 Nitrite S.V. ≤ 0.06~~	~~X~~		~~*~~	~~X~~	~~X~~	~~*~~		~~X~~			
Total Nitrogen (as N) - mg/L	*A-Avg. ≤ 0.6 S.V. ≤ 1.0*				***	***							
Nitrate (as N) - mg/L		*S.V. ≤ 10*						*					
Nitrite (as N) - mg/L		*S.V. ≤ 0.06*			*								
Total Ammonia (as N) - ~~mg/l~~ *mg/L*		~~c~~ *d*			*								
Total Suspended Solids - ~~mg/l~~ *mg/L*	A-Avg. ≤ 6.0 S.V. ≤ 9.0	S.V. ≤ 25			*								
Turbidity - NTU	A-Avg. ≤ 3.0 S.V. ≤ 5.0	~~e~~ *S.V. ≤ 10*			*			~~X~~					
Color - PCU	S.V. ≤ 21	S.V. ≤ 75			~~X~~			*					
Total Dissolved Solids - ~~mg/l~~ *mg/L*	A-Avg. ≤ 105 S.V. ≤ 120	A-Avg. ≤ 500	~~X~~	~~X~~				*					
Chloride - ~~mg/l~~ *mg/L*	A-Avg. ≤ 7 S.V. ≤ 10	S.V. ≤ 250	~~X~~	~~X~~				*		~~X~~			
Sulfate - ~~mg/l~~ *mg/L*	S.V. ≤ 25	S.V. ≤ 250						*					
Sodium - SAR		A-Avg. ≤ 8		*				~~X~~					
Alkalinity (as $CaCO_3$) - ~~mg/l~~ *mg/L*		~~< 25% change from natural conditions~~ *S.V. ≥ 20*			*					~~X~~			
E. Coli - No./100 ~~ml~~ *mL*		A.G.M. ≤ 126 S.V. ≤ 235				*	~~X~~						
Toxic Materials		*e*											

- * = The most restrictive beneficial use.
  X = Beneficial use.
  [a] Refer to NAC 445A.122 and 445A.1882 for beneficial use terminology.
  [b] Maximum allowable increase in temperature above water temperature at the boundary of an approved mixing zone, but the increase must not cause a violation of the single value standard.
  ~~[d] [c] The dissolved oxygen standard from June to October applies only to the epilimnion~~. ***When lake is stratified, the dissolved oxygen criterion applies only to the epilimnion.***
  ~~[e]~~ [d] The ~~ambient~~ water quality criteria for ammonia are specified in ~~NAC 445A.118~~ ***NAC 445A.1234***.
  ~~[e] Increase in turbidity must not be more than 10 NTU above natural conditions.~~
  [e] ***The water quality criteria for Toxic Materials are specified in NAC 445A.1236.***

Summary

Below is a list of the changes that this petition makes to the NAC, followed by a list of the NAC numbers that are affected by these changes. The notations in **black** are comments, the notations in **green** are the NAC codes affected, the comments in ~~**red strike-out**~~ are deletions, and the comments in ***blue*** are additions.

- Definitions - **NAC 445A.070**
  - **BOD -** ***"BOD" or "biochemical oxygen demand" means a measure of the amount of oxygen that bacteria will consume while decomposing organic matter under aerobic conditions.***
  - **Log Mean –** "***Logarithmic mean" or "log mean" means a value calculated by:***
    1. Converting each data point into its log;
    2. Calculating the mean of the values determined pursuant to subsection 1; and
    3. Using the antilog of the log-transformed mean calculated pursuant to subsection 2.
  - **Mean -** ***means the average of a group of numbers or data points.***
  - **Median -** ***The median is the 50th percentile (50%) of a set of numbers.***
  - **MF -** ***means the membrane filter used to measure bacteria.***
  - **MPN -** ***means the most probable number determined using a statistical testing method to estimate the number of bacteria colony forming units in a sample of water.***
  - **µg/L -** ***unit of concentration describing the mass of a substance, in micrograms, present in one liter of the water.***
- Changes to Colorado Salinity - **NAC 445A.1233**
  Update the reference to the Colorado Salinity Standards to the 2014 version.
- Toxics Table Reference to Hardness – **NAC 445A.1236**
  Update Hardness footnotes in Table NAC 445A.1236
- In WQ Tables change from Standard to Criteria **– NAC 445A.1256 – 2214**
  Change the header in WQS tables from Water Quality ~~**Standards for**~~ to **Criteria to Protect** Beneficial Uses.
- Change ~~**mg/l**~~ to ***mg/L,*** ~~**ml**~~ ***to mL and*** ~~**µg/l**~~ to ***µg/L*** in tables **NAC 445A.1256 – 2214**
- Add Toxic Reference as a footnote to all WQS tables referring to the Toxic standards table in NAC445A.1236 **-- NAC 445A.1256 - 2214**
- Change Beneficial Use to Only Primary use, remove secondary uses - **NAC 445A.1256 - 2214**
- TDS Change "S.V. ≤ 500 mg/L **[**~~**or the 95th percentile (whichever is less)".]**~~ in tables NAC 445A.**1256 – 1268, 1288 – 1316, 1364 – 1418, 1452, 1456 – 1526, 1528 – 1578,**

1704 – 1724, 1728 – 1758, 1764, 1826 – 1862, 1918 – 1934, 1964 – 2028, 2036 – 2068, 2098 – 2112, 2182 – 2202, 2206 – 2214.

- Separate out Nitrogen species – instead of having all nitrogen species in one row, show each nitrogen species in a separate row – NAC 445A.**1286, 1336 – 1362, 1414 – 1422, 1436 – 1448, 1527, 1626 – 1702, 1796 – 1824, 1886 – 1916, 1956 – 1962, 2096, 2146 – 2178.**
- Owyhee River, below Mill Creek - **NAC 445A.1356** - "From its confluence with Mill Creek to the ***exterior*** border of the Duck Valley Indian Reservation."
- Change Suspended solids to **Total** Suspended Solids in NAC 445A.**1336 – 1362, 1414 – 1422, 1436 – 1448, 1527, 1682 – 1694, 1796 – 1824, 1886 – 1916, 1956 – 1962, 2096, 2146 – 2158, 2178.**
- Change "Alkalinity as CO_3" to "Alkalinity as $CaCO_3$", and change standard to "S.V. ≥ 20 mg/L" and remove reference to "< 25% change from natural conditions" – NAC 445A.**1336 – 1362, 1682 – 1694, 1796 – 1822, 1886 – 1908, 1916, 1956 – 1962, 2096, 2146 – 2148, 2162 - 2178**
- Humboldt River at Imlay - Adjust reach description in **NAC 445A.1446 -** -- ~~**the Comus Gage]**~~ to ***where State Highway 789 crosses the Humboldt River***
- Color – Change from "No Adverse Effects" to "***S.V. ≤ 75 PCU" (NAC 445A.1436 – 1448, 1956 – 1962, 2096, 2146, 2148, 2178)***
- North Antelope Creek – Delete "~~**This Segment of**~~ North Antelope Creek is located in Elko County…" **NAC 445A.1527**
- Change "Total Phosphate" to "Total Phosphorus" **(NAC 445A.1628 – 1694, 1796 - 1818)**
- Change "Ortho Phosphate" to "Orthophosphate (as P)" **(NAC 445A.1682 – 1686)**
- Diagonal Drain - **NAC 445A.1792** - **[**~~**Its**~~**]** ***The*** entire length. **NAC 445A.1792**
- Turbidity -- ***S.V. ≤ 10***[d] [d]~~**[Increase in turbidity must not be more han 10 NTU above natural conditions.]**~~ ***(NAC 445A.1886 – 1904, 1916)or 50 (1906 – 1908, 2162 - 2176)***
- Topaz Lake -– **NAC 445A.1888 -** footnote [c] ***When the lake is stratified,*** the dissolved oxygen criterion applies only to the epilimnion ~~**The dissolved oxygen standard from June to October applies only to the epilimnion.**~~ **NAC 445A.1888**
- Cave Creek -– **NAC 445A.1952** [~~Its~~] ***The*** entire length. **NAC 1952**
- Color – NAC 445A.2162 – 2176 -- footnote [e] deleted for the protection of Aquatic Life, would be protection of Municipal and Domestic Supply, but no there is no Municipal and Domestic Supply use on these waters. **NAC 445A.2162 - 2176**