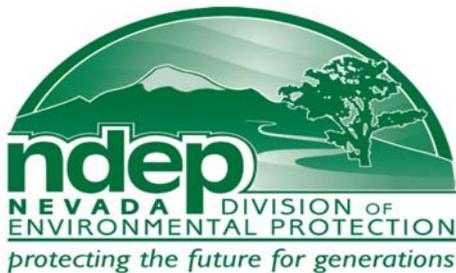


**Water Quality Standards Review
Nevada Waters in the Snake River Drainage Basin
DRAFT Rationale Document**



Jarbidge River



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

May 2010

Table of Contents

Introduction	1
Background	1
Overview of Water Quality Standard Review	1
Discussion of Proposed Revisions	4
Addition of Reach Designations and Revisions to Water Body Nomenclature	4
Addition of Sulfate Water Quality Standard	6
Revision to Fecal Coliform Water Quality Standard	6
Revision to Color Beneficial Use Standard	8
Addition of New Tributary Waters	8
Water Quality Standards for New Tributary Waters	10
Summary	12
 Figures	
Figure 1. Location of Snake River Drainage Basin in the State of Nevada	2
Figure 2. The Nevada Waterbodies in the Snake River Drainage Basin	3
Figure 3. New Tributary Waters in the Snake River Drainage Basin	9
 Appendix A	
<i>Proposed NDEP Nutrient Criteria Strategy/Plan</i>	
 Appendix B	
<i>Proposed Regulations for Nevada Waters in the Snake River Drainage Basin – Draft Revisions</i>	

Introduction

Background

Section 303 of the Clean Water Act and 40 Code of Federal Regulations (40CFR) Part 131 require that States and authorized tribes routinely review and, as appropriate, modify surface water quality standards that protect the designated uses of a water body and provide a basis for controlling discharges or releases of pollutants. The following rationale discusses the revisions proposed by the Nevada Division of Environmental Protection, Bureau of Water Quality Planning (NDEP-BWQP) to the water quality regulations for the Nevada waterbodies which are in the Snake River Drainage Basin (NAC 445A.1332-1362). The location of the Snake River Drainage Basin in the State of Nevada is shown in Figure 1. These waters include the following: South Fork Owyhee River; Owyhee River; Bruneau River; Jarbidge River; East Fork Jarbidge River; Salmon Falls Creek; Shoshone Creek; and Goose Creek. All of these waters are located in the Northern Elko County as shown in Figure 2.

Overview of Water Quality Standards Review

The beneficial uses and water quality standards for the aforementioned Snake River Basin waters were last reviewed and amended in September, 1990. Beneficial uses for these waters include propagation of aquatic life and wildlife; recreation involving both contact and non-contact with the water; irrigation; watering of livestock; municipal or domestic supply; and industrial supply. These beneficial uses will be retained. During this water quality standards review, the following revisions are proposed.

- Define the reach or segment of the rivers/streams that the water quality standards apply to. Currently, the water quality regulations for the waters in the Snake River Drainage system of Nevada only contain monitoring control point designations.
- Adopt a sulfate water quality standard of 250 mg/l to protect municipal and domestic supply beneficial use associated with the Snake River Basin waters.
- Revise the fecal coliform bacteria standard as an indicator for evaluating recreational water quality. Fecal coliform would still be retained as a water quality standard but the criteria value would be revised to protect beneficial uses other than recreation involving contact with the water. The current *E. coli* bacteria water quality standards would be used as the primary standard to protect the waters for swimming and other recreational activities.

Nevada HydroRegions

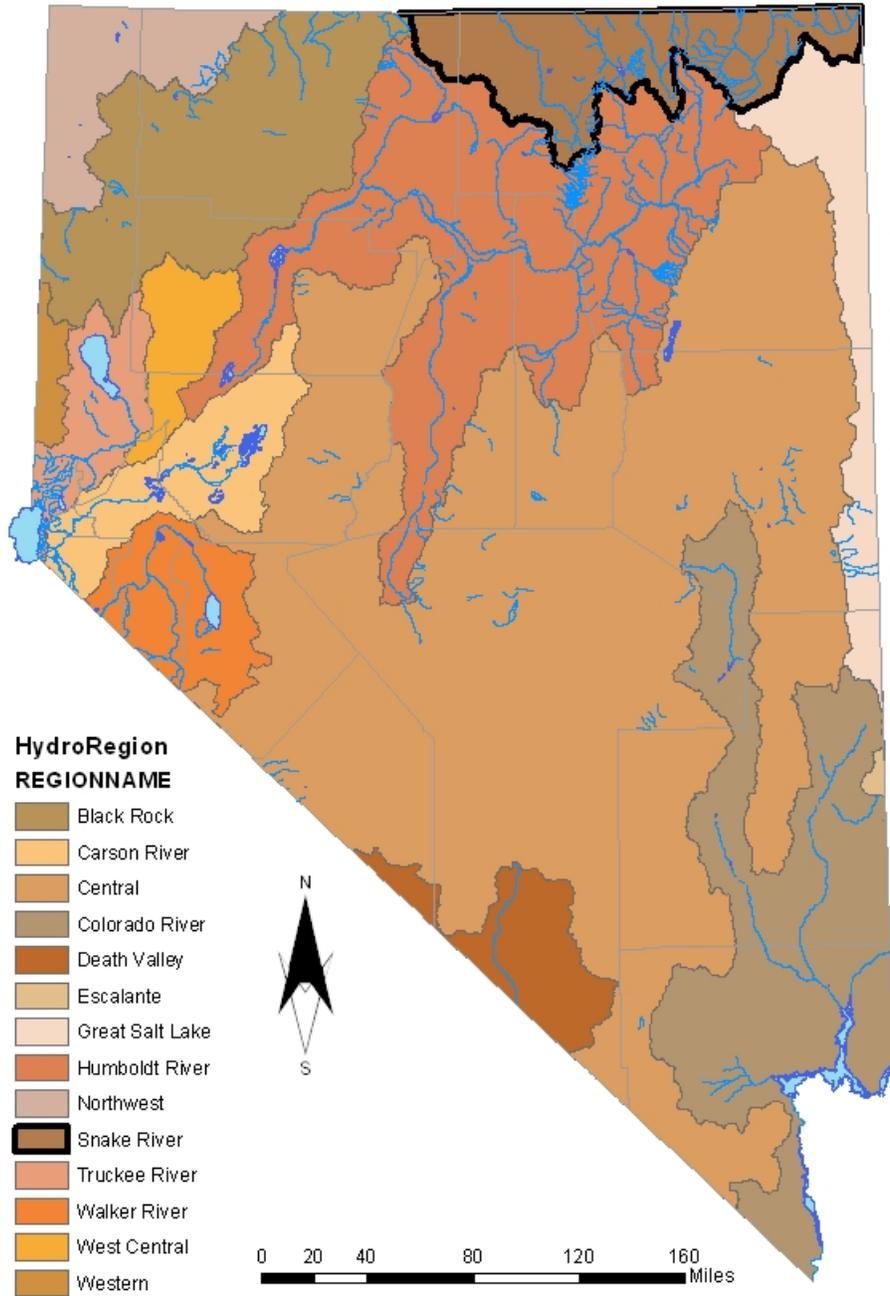


Figure 1. Location of the Snake River Drainage Basin in the State of Nevada.

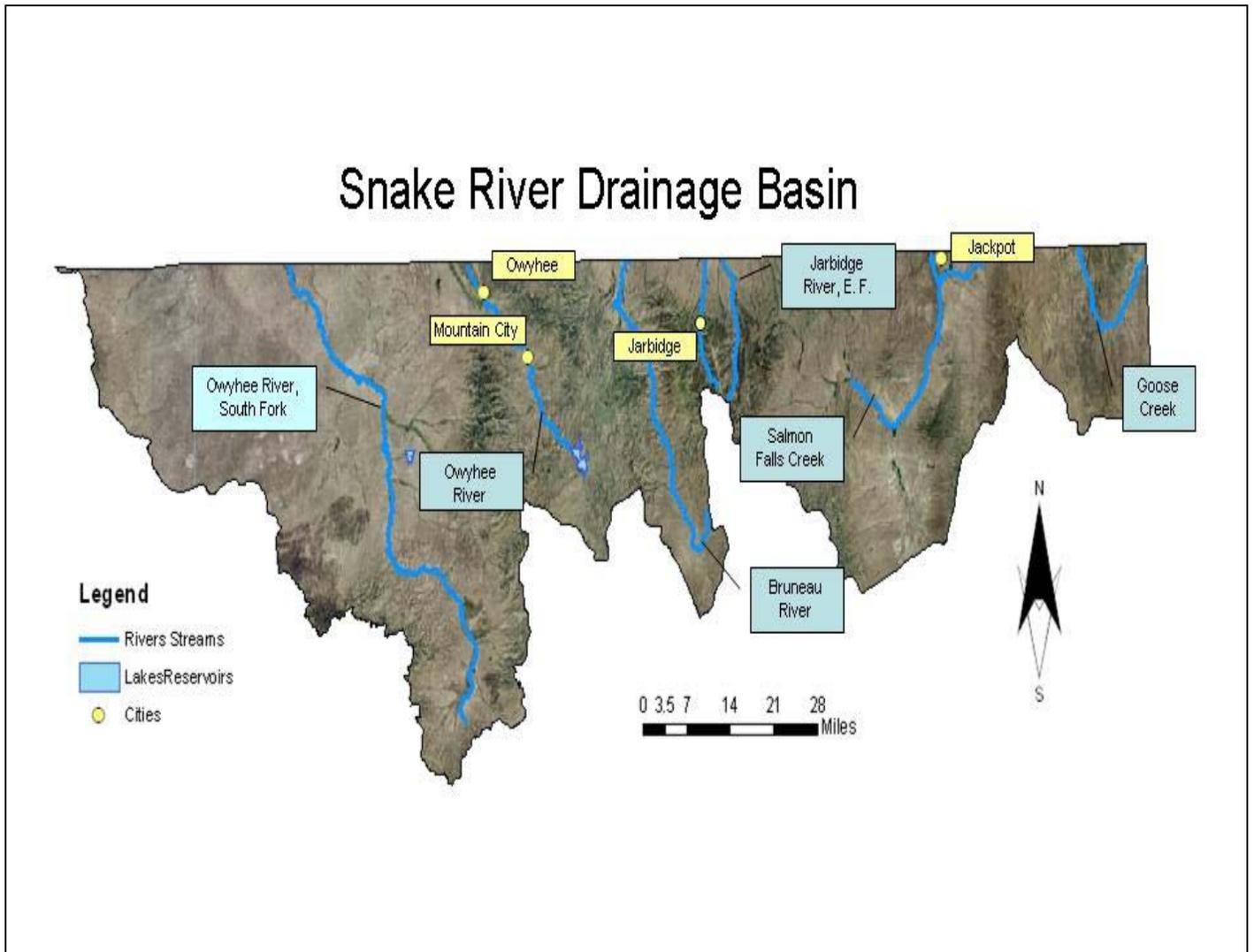


Figure 2. The Nevada Waterbodies in the Snake River Drainage Basin

- Replace the existing narrative color criteria of “increase in color must not be more than 10 color units above natural conditions” with a numerical standard of ≤ 75 color units to protect municipal and domestic supply beneficial use.
- Add new waters to the Snake River Drainage Basin water quality regulations. The new waters are Jack Creek, a tributary to the Jarbidge River; Taylor Canyon Creek, a tributary to the South Fork Owyhee River; and two separate Trout Creeks, one a tributary to Goose Creek and the other an intermittent tributary to Salmon Falls Creek (see Figure 2).

- Change the mathematical operational nomenclature associated with the water quality standard numerical values from “<” to “≤”. This would be consistent with how the standards for all other waterbodies are defined in the Nevada Administrative Code (NAC) water quality regulations.

Other than the proposed changes to the fecal coliform bacteria and color criteria values, and the adoption of a sulfate beneficial use standard, no other revisions are proposed to either the existing beneficial uses or water quality standards for the Nevada waters which are part of the Snake River Drainage Basin.

During the public review process of proposed regulation and water quality standards changes, stakeholders and entities whom may be affected by the proposed changes are provided the opportunity to address their concerns during the public workshops and State Environmental Commission (SEC) regulation adoption hearing. Proposed changes to the water quality standards and NAC regulations are not effective until acted approved by the SEC, reviewed by the Nevada Legislative Commission’s Subcommittee, and approved by the USEPA.

Discussion of Proposed Revisions

Addition of Reach Designations and Revisions to Water Body Nomenclature

It is proposed to include a reach designation in the standards of water quality for the Snake River Drainage Basin waters. A reach designation defines the segment or length of the river or stream that the water quality standards apply to. The proposed reach descriptions to be included in the water quality standards for each body of water are summarized below.

It is proposed to revise the names of select Snake River Drainage rivers and streams. The nomenclature used by the United States Geological Survey (USGS) for identifying the waterbodies in question is used. Proposed revisions to the water body names are shown below as ~~[omitted material]~~.

~~[Big]~~ Goose Creek. Water quality standards would apply to the body of water known as Goose Creek that flows within the Nevada state borders.

Salmon Falls Creek. Water quality standards would apply to the body of water known as Salmon Falls Creek from the confluence of the North and South Forks of Salmon Falls Creek to the Nevada-Idaho state line.

Shoshone Creek. Water quality standards would apply to the body of water known as Shoshone Creek from the Nevada-Idaho state line to its confluence with Salmon Falls Creek.

Jarbidge River, East Fork. Water quality standards would apply to the body of water known as East Fork of Jarbidge River from its origin to the Nevada-Idaho state line.

Jarbidge River, ~~[-upstream from]~~ above Jarbidge. Water quality standards would apply to the body of water known as Jarbidge River from its origin to the bridge above town of Jarbidge.

Jarbidge River, ~~[-downstream from]~~ below Jarbidge. Water quality standards would apply to the body of water known as Jarbidge River from the bridge above the town of Jarbidge to the Nevada-Idaho state line.

~~[-West Fork]~~ Bruneau River. Water quality standards would apply to the body of water known as Bruneau River from its origin to the Nevada-Idaho state line.

Owyhee River, ~~[-East Fork]~~ above Mill Creek. Water quality standards would apply to the body of water known as Owyhee River from Wildhorse Reservoir to confluence of Mill Creek with the Owyhee River.

Owyhee River, ~~[-East Fork south of Owyhee]~~ below Mill Creek. Water quality standards would apply to the body of water known as Owyhee River from confluence of Mill Creek with the Owyhee River to the Duck Valley Indian Reservation border.

Owyhee River, South Fork ~~[at Petan Access Road]~~. Water quality standards would apply to the body of water known as the South Fork Owyhee River from its origin to the Nevada-Idaho state line.

The majority of waters described above originate in Nevada and flow into Idaho becoming tributaries to the Snake River (see Figure 2). Exceptions include Shoshone Creek which originates in Idaho, flows into Nevada and ultimately into Salmon Falls Creek south of Jackpot, Nevada. Goose Creek located in the northeast section of Elko county, originates in Idaho, flows through Nevada and across the Nevada-Utah state line. The State of Nevada water quality standards and regulations would not apply to the segment of the Owyhee River that flows through the Duck Valley Indian Reservation to the Nevada-Idaho state line. As a sovereign nation, the Duck Valley Shoshone-Paiute Tribe has responsibility for regulating the water quality of the Owyhee River within the boundaries of their land. The water quality regulations currently contain water quality standards for the Owyhee River at the Nevada-Idaho state line. Since the State standards would not be applicable on tribal lands, it is proposed to remove these standards (NAC 445A.1358) from the water quality regulations.

Addition of Sulfate Water Quality Standard

It is proposed to add a sulfate standard of ≤ 250 mg/l to the water quality standards for the Snake River Drainage Basin waters discussed in this document (NAC 445A.1336-1362). The proposed standard is intended to protect the beneficial use of municipal and domestic water supply. Excess sulfate in water supplies can produce a laxative effect and affect the taste of water. The sulfate levels in water chemistry samples collected from the Snake River Drainage Basin waters, over the time period 1992 to 2009, have been below the proposed sulfate water quality standard. A sulfate standard of ≤ 250 mg/l has been adopted for the surface waters in the drainage basins of the Carson, Walker, Truckee, and Humboldt Rivers for protection of municipal or domestic water supply beneficial use. Adoption of a similar sulfate standard for the Snake Basin Drainage Basin waters will coincide with the water quality standards existing on the other major river systems in Nevada.

Revision to Fecal Coliform Water Quality Standard

The EPA recommended in 1986 that *E. coli* criteria be included in states and tribal water quality programs and used as the indicator organism for bacteria in waters used for recreational activities (Ambient Water Quality Criteria for Bacteria, EPA 1986). Waterbodies may contain many different pathogens that cannot

be measured directly; therefore, an indicator organism is used to evaluate the presence and level of harmful pathogens residing in the water. EPA found that *E. coli* rather than fecal coliform was a better indicator organism in fresh waters for evaluating the suitability of the waters for swimming and other water recreational activities.

In November 2002, NDEP-BWQP completed a state-wide revision to the bacteria water quality criteria. This revision involved incorporating *E. coli* criteria into the State of Nevada water quality standards to provide a similar level of protection as provided by existing fecal coliform criteria. To ensure consistency and continuity in state's water quality programs, EPA recommended that both fecal coliform and *E. coli* be included in the water quality standards for a limited period of time. This would ensure protection of human health during water contact recreational activities and allow states to establish an adequate database of *E. coli* levels in state waterbodies and support subsequent transition to the recommended *E. coli* protective criteria levels. *E. coli* criteria of ≤ 126 per 100 ml as an annual geometric mean (A.G.M.) and ≤ 410 per 100 ml as a single value, to protect human health during water contact recreational activities, were added to the water quality standards of the Snake River Drainage Basin waters during the state-wide revision. These *E. coli* water quality standards were adopted by the State Environmental Commission on November 19, 2002 and approved by the EPA in March 2003.

It is proposed to revise the fecal coliform criteria that currently exist in the Snake River Drainage Basin water quality standards. The existing fecal coliform criteria of < 200 per 100 ml A.G.M. and < 400 per 100 ml single-value will be replaced with a criteria value of ≤ 1000 per 100 ml, which is the recommendation of the National Academy of Sciences (Water Quality Criteria 1972) for protection of waterbody beneficial uses other than water contact recreational use. The revised Fecal coliform criteria would provide a level of protection for the other beneficial uses associated with the waters such as propagation of aquatic life and wildlife, agricultural use, and potential water supply use. Fecal coliform bacterial levels in the Snake River Drainage Basin waters have consistently been below the proposed protective criteria of ≤ 1000 per 100ml. The existing *E. coli* bacteria water quality standards would be used as the primary standard to protect the waters for swimming and other recreational activities.

Revision to Color Beneficial Use Standard

It is proposed to replace the existing narrative color beneficial use standard which states “increase in color must not be more than 10 color units (platinum cobalt standard unit; PCU) above natural conditions” with a numeric criteria of ≤ 75 PCU. This proposed action would apply to the water quality standards for Goose Creek, Salmon Falls Creek, Shoshone Creek, East Fork Jarbidge River, Jarbidge River, Bruneau River, Owyhee River, and South Fork Owyhee River (NAC 445A.1336-1362).

The color of a surface water body is an important constituent in terms of aesthetic consideration. Color in water results primarily from degradation of naturally occurring organic matter. EPA’s national criteria recommend that waters to be potentially used for municipal and domestic water supplies should not exceed 75 color units (Quality Criteria for Water, EPA 440/5-86-001, 1986). Source water supplies at or below this level can be effectively treated with coagulant chemicals to meet drinking water standards (Report of the Committee on Water Quality Criteria, FWPCA-USDI, 1968).

Surface waters in the Truckee, Carson, and Walker Drainage Basins have a color water quality standard of ≤ 75 PCU for protection of municipal and domestic supply beneficial use. Adoption of this numerical color limit for the above mentioned Snake River Drainage Basin waters will coincide with the color water quality standard adopted for other state waterbodies and allow compliance with the standard to be more easily evaluated.

Addition of New Tributary Waters

The following tributary waters are proposed to be added to the Snake River Drainage Basin water quality regulations as new waters. These new waters are shown in Figure 2.

- Taylor Canyon Creek which originates on the western side of the Independence Mountain Range and flows into the South Fork Owyhee River in Independence Valley.
- Trout Creek in the Goose Creek drainage basin and which originates in southern Idaho and flows across the state line, through northeast Elko County and into Goose Creek.
- Jack Creek which originates in the Jarbidge Mountains and flows into the Jarbidge River approximately 3 miles downstream of the town of Jarbidge.

- Trout Creek located southeast of Jackpot, Nevada and is an intermittent tributary to Salmon Falls Creek.

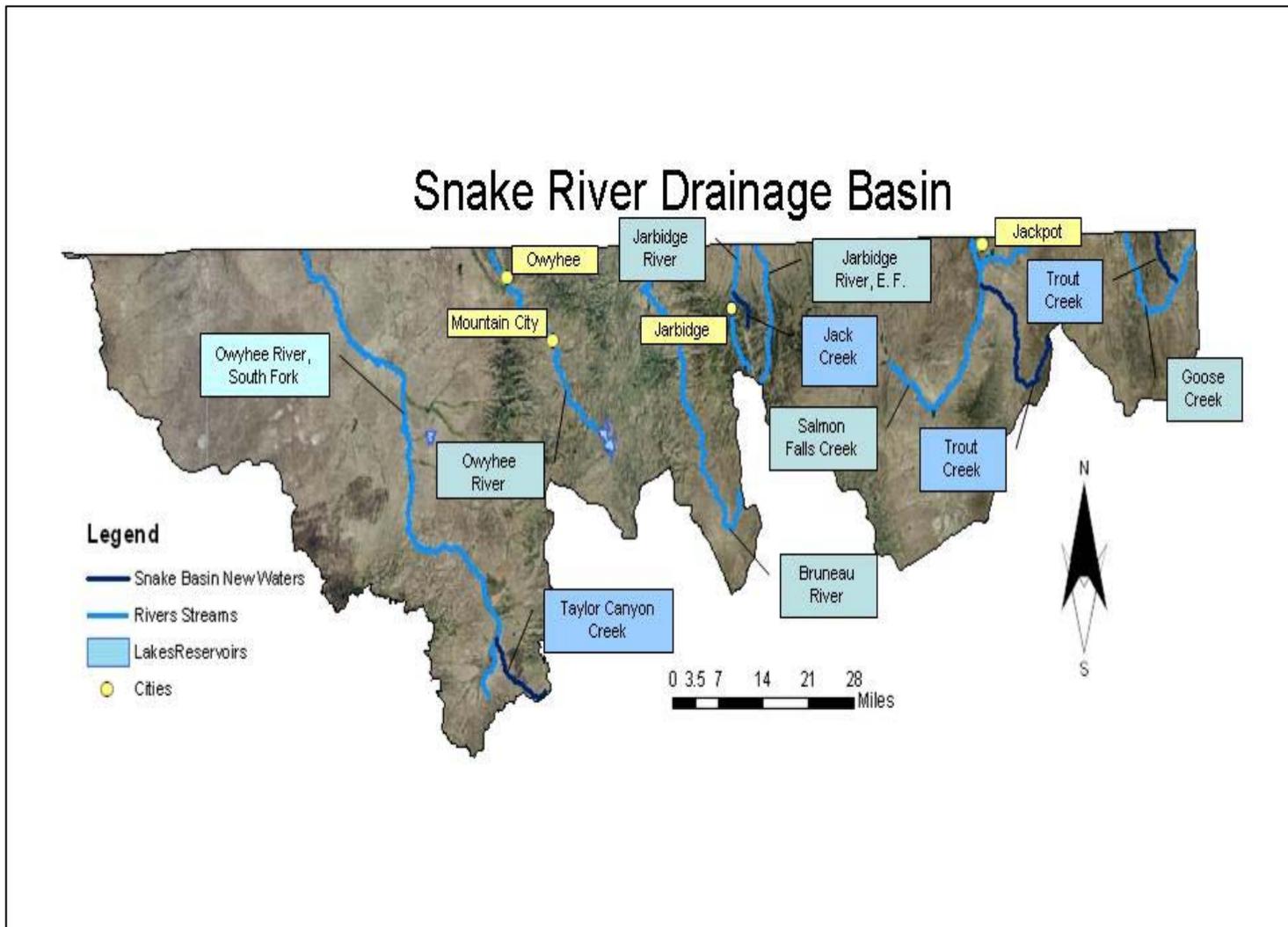


Figure 3. New Tributary Waters in the Snake River Drainage Basin

The above mentioned waters are currently not contained in Nevada’s water quality regulations. Taylor Canyon, Trout Creek (tributary to Goose Creek), and Jack Creek have been identified as high quality tributary waters and in need of protection from future impairment. The Trout Creek which flows into Salmon Falls Creek on an intermittent basis is considered a high-risk water due to its proximity to ongoing/potential land use activities. This creek has also been recommended by the Nevada Division of Wildlife (NDOW) as being historical habitat for cutthroat trout. These new tributary creeks were sampled

on a limited basis from Summer 2005 to Fall 2007. Evaluation of the chemistry results indicated that the quality of water in these tributary creeks would support attainment of the following beneficial uses: propagation of aquatic life and wildlife; recreational activities involving contact and noncontact with the water; agricultural use including irrigation and livestock watering; and municipal or domestic and industrial supply uses.

Water Quality Standards for New Tributary Waters

The beneficial use water quality standards proposed for these new waters are based on EPA national recommended criteria (Quality Criteria for Water, EPA 440/5-86-001, 1986) with the exception of the standards for water temperature and nutrients (Total Nitrogen and Total Phosphorous). Proposed water quality temperature values are based, in part, on Nevada Department of Wildlife (NDOW) recommendations of temperature requirements needed to support different stages of various aquatic life species found in the Nevada waters of the Snake River Drainage system. Temperature criteria proposed for the tributary waters are based on the temperature standards of the major water body that each water flows into. The proposed standards for water quality parameters are the recommended criteria values to protect the most sensitive beneficial use. The color and sulfate beneficial use values proposed for the new tributary waters are similar to the standards which are proposed in this document for the major river systems in the Snake River Drainage Basin.

Historically, NDEP (Division) has generally assigned a phosphorous water quality standard to control algae and associated eutrophication problems (such as depressed dissolved oxygen levels). However, this recommended phosphorous standard was based upon 20-year old guidance from EPA that may be better suited for surface waters in the eastern United States. Additionally, the contribution of nitrogen species to algae growth have been largely ignored in EPA nutrient guidance documents. Therefore, nitrogen nutrient (eutrophication) water quality standards have generally not been promulgated by NDEP.

Numerous investigations across the county have demonstrated that phosphorous and nitrogen levels alone are inconsistent indicators of waterbody impairment. Levels of nutrients in a stream that might cause impairment of the aquatic life use or aesthetic/recreational issues under one set of conditions, may not negatively impact these beneficial uses in a different stream. It is difficult to impossible to reduce complex water systems to a simple set of numeric nutrient values (total phosphorous and total nitrogen) and apply them as standards to all surface waterbodies, in a “one number fits all” approach.

The NDEP has developed a proposed *Nutrient Criteria Plan/Strategy* that will provide a more robust approach for addressing nutrient pollution and impacts to aquatic life and aesthetic/recreational uses in Nevada waters. This assessment approach that would measure both causal and response variables and utilize a weight of evidence framework to manage and evaluate nutrient levels on a site specific basis. The proposed *Nutrient Criteria Plan/Strategy* is included in Appendix A.

Rather than assign total phosphorous and total nitrogen numerical water quality standards for Taylor Canyon Creek, Trout Creek (Goose Creek tributary), Jack Creek, and Trout Creek (Salmon Falls Creek tributary), the following narrative standard would be used instead.

Waters shall be free from nutrient concentrations from other than natural sources that cause the growth of algal or aquatic plants in amounts that interfere with any beneficial uses of the water.

This narrative standard will allow a multiple line of evidence approach; incorporating factors such as water chemistry, dissolved oxygen levels, algae growth conditions, biological data, and physical habitat conditions, such as stream flow, shading, and substrate types, to more effectively evaluate and to determine whether nutrient pollution is a problem in these waters as well as other Nevada surface waters. The recommended beneficial uses and proposed water quality standards for these waters are shown in Appendix B.

At this time, no anti-degradation water quality criteria are proposed for the aforementioned new tributary waters. Anti-degradation objectives (Requirements to Maintain Existing Higher Quality – RMHQs) are established when existing water quality is significantly better than the beneficial use standards. RMHQs are not proposed due to insufficient water chemistry data (less than 5 years available) to accurately develop proposed anti-degradation protective values. Protection of existing water quality conditions in these waters will be provided by the Division’s *Anti-Degradation Policy and Implementation Procedures* currently under development.

Summary

The proposed revisions to the NAC regulations and water quality standards for the Nevada waters in the Snake River Drainage basin are shown in Appendix B. Proposed changes to be added to the regulations are shown as *italics* (blue bold italics) and matter in brackets ~~[omitted material]~~ (red strikethrough) is material to be omitted from the regulations. As discussed in the Introduction section of this report, it is proposed to change the mathematical operational nomenclature associated with the water quality standards from “<” (less than) to “≤” (less than equal to). This proposed action would apply to the majority of the water quality parameters except for the temperature and alkalinity standards.

During promulgation of the water quality standards for the Snake River Drainage Basin waters in 1990, NDOW provided temperature recommendations to protect aquatic life species present in the waters. These temperature values were recommended as maximum tolerable temperature limits for protection of aquatic species from thermal induced stress and mortality. The adopted temperature water quality standards have been interpreted as less than (<) the recommended temperature limits. The existing alkalinity standard is a narrative criteria set to protect aquatic life and requires “less than (<) 25% change from natural conditions”. NDEP-BWQP is currently in the process of defining criteria for evaluating and establishing natural conditions and for evaluating standards containing this type of criteria. Proposed changes to the mathematical equality nomenclature are shown in the following water quality standards tables.

The proposed regulation revision petition that will be presented to the SEC regarding changes to specific water quality standards and addition of new tributary waters to the Nevada regulations, as described in this document, will be finalized based on formal review comments and suggestions made by the public during public workshop meetings. The formal comments received regarding the proposed actions and any corresponding changes that are made will be summarized in the regulation revision petition for the Snake River Drainage Basin waters.

Formal written comments or requests for additional information may be submitted to:

Paul Comba (pcomba@ndep.nv.gov)
Nevada Division of Environmental Protection
Bureau of Water Quality Planning
901 South Stewart Street, Suite 4001
Carson City, NV 89701
(775) 687-9446

Appendix A

Proposed NDEP Nutrient Criteria Strategy/Plan

NDEP Nutrient Criteria Strategy – Rationale for Narrative

April 27, 2010

Background

Historically, Nevada has assigned phosphorus standards for many of its waters for the control of algae and associated eutrophication problems (such as depressed dissolved oxygen). However, these values were based upon 20-year old + guidance from EPA that may be better suited for the eastern United States. Additionally, nitrogen species are an important contributor to algae growth in Nevada waters and EPA guidance has been ambiguous. Therefore nitrogen eutrophication water quality standards have generally not been promulgated in Nevada.

Beginning in the late 1990s, EPA recognized the need to assist states in developing improved nutrient criteria. However, nutrient relationships can be very complex and variable from waterbody to waterbody. A few years later EPA issued a series of technical guidance documents for states to use in setting nutrient criteria with the intention that they serve as a starting point. These documents include suggested numeric criteria for various nutrients by ecoregions. One major shortcoming of these criteria recommendations is their lack of a connection to beneficial use support. These recommendations were based solely on the 25th percentile of the entire population of data for a given ecoregion, and were not derived from any cause-effect relationships. EPA recognizes these shortcomings and strongly encourages states and tribes to refine these recommendations as appropriate.

Further confounding the situation, numerous investigations across the county have demonstrated that nutrient concentrations alone are poor predictors of eutrophication problems. In response Benjamin Grumbles, EPA Administrator, issued a memorandum (2007) recommending that states adopt more robust nutrient standards including water chemistry, algae levels (chlorophyll-a) and transparency:

*“To be effective, nutrient criteria should address **causal (both nitrogen and phosphorus) and response (chlorophyll-a and transparency) variables** for all waters that contribute nutrient loadings to our waterways. EPA encourages the adoption of standards for **all four parameters** because of the interrelationships between these parameters and its experience showing that controlling **both nitrogen and phosphorus** is important for successfully combating nutrient pollution in all waters.”*

Many states are refining EPA recommendations and are using multiple lines of evidence in regulations and/or assessments to determine impairment status. Some (including Nevada) are concluding that a water should not be listed for aquatic life impairment without biological verification (algae, macroinvertebrates, etc.) of impairment. Nevada’s long term strategy is to incorporate water chemistry, algae levels, and other biological measures into its assessments (and potentially water quality standards). It is desirable that these chemical/biological thresholds be based upon cause and effect relationships applicable to Nevada waters. While the literature provides a variety of such thresholds (for nutrients, algae levels, water clarity, etc.), they are variable and need to be tested before being promulgating into the regulations. This process of testing and developing appropriate thresholds will be undertaken as part of the NDEP long term strategy. Due to the uncertainties in future budget and resources available to gather the information needed and perform the appropriate analyses, a time schedule for fully implementing this long term strategy can not be realistically set.

Nonetheless, NDEP has begun a new nutrient assessment approach which will assist in the development of appropriate eutrophication thresholds. Given that water chemistry alone is a poor indicator of eutrophication problems, NDEP is implementing a new assessment approach which addresses both causal and response variables. It is NDEP's desire to list only those waters where both causal and response measures indicate nutrient impairment. Multiple lines of evidence could include:

- Water chemistry
- Dissolved oxygen
- Algae biomass and coverage of streambottom
- Secchi disc
- Other biological indicators (macroinvertebrates, diatoms)

In implementing this approach, NDEP has developed the following protocols for wadeable streams and lakes/reservoirs:

- *Nutrient Assessment Protocols for Wadeable Streams in Nevada* (2009)
- *Nutrient Assessment Protocols for Lakes and Reservoirs in Nevada* (2008)

These documents are available at <http://ndep.nv.gov/bwqp/special01.htm>.

At this time, Nevada does not have macroinvertebrate or diatom thresholds to use in the assessment process. Future work is aimed at developing the needed thresholds for these biological indicators. Upon completion, these other biological indicators will be incorporated into the assessment process. For other response variables such as dissolved oxygen, algal coverage of streambottom, algae biomass and Secchi disc (water clarity), the literature provides guidance on thresholds. Initial thresholds for these variables have been incorporated in the *Assessment Protocols* and will be tested and refined as appropriate. Significant levels of best professional judgment will be used in making use support or impairment determinations.

Proposed Regulatory Change

Given that water column nutrient levels are a poor indicator of eutrophication problems, NDEP desires to take a different approach than nitrogen/phosphorus criteria for Jack Creek, Trout Creek (Goose Creek tributary), Trout Creek (Salmon Falls Creek tributary), and Taylor Canyon Creek. Since measures of algae (and other aquatic plant) coverage and biomass are a much better indicator of eutrophication, the following narrative standard is to be added to the NAC for these specific waters:

Waters shall be free from nutrient concentrations from other than natural sources that cause the growth of algae or aquatic plants in amounts that interfere with any beneficial uses of the water.

As described above, compliance with this narrative standard will be evaluated following protocols presented in *Nutrient Assessment Protocols for Wadeable Streams in Nevada* (NDEP, 2010). These protocols present an ever-evolving approach to incorporate multiple lines of evidence (algae, macroinvertebrate, diatoms) into the evaluation process. Significant work is needed to test this approach and refine thresholds for determining impairment or use support.

Appendix B

Proposed Regulations for Nevada Waters in the Snake River Drainage Basin – Draft Revision

Water Body Name	Segment Description	Beneficial Uses										Aquatic Species of Concern	Water Quality Standard NAC Reference				
		Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance			Marsh			
Owyhee River, {East Fork at New China Dam}	{At New China Dam.} <i>From confluence of Mill Creek with Owyhee River to Duck Valley Indian Reservation below Mill Creek border.</i>	X	X	X	X	X	X	X	X								445A.1356
{Owyhee River, East Fork at the state line}	{At the Nevada-Idaho state line.}	{X}	{X}	{X}	{X}	{X}	{X}	{X}	{X}								{445A.1358}
Owyhee River, South Fork {at Petan Access Road}	{At Petan Access Road.} <i>From its origin to the Nevada-Idaho state line.</i>	X	X	X	X	X	X	X	X								445A.1362
Salmon Falls Creek, North Fork	From the national forest boundary to its confluence with the South Fork of Salmon Falls Creek.	X	X	X	X	X	X	X	X						Trout		445A.1364
Salmon Falls Creek, South Fork	From the national forest boundary to its confluence with the North Fork of Salmon Falls Creek.	X	X	X	X	X	X	X	X						Trout		445A.1366
Camp Creek at the national forest boundary	From its origin to the national forest boundary.	X	X	X	X	X	X		X								445A.1368
Camp Creek at the South Fork of Salmon Falls Creek	From the national forest boundary to its confluence with the South Fork of Salmon Falls Creek.	X	X	X	X	X	X	X	X						Trout		445A.1372

Water Body Name	Segment Description	Beneficial Uses											Aquatic Species of Concern	Water Quality Standard NAC Reference			
		Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh					
Cottonwood Creek at the national forest boundary	From its origin to the national forest boundary.	X	X	X	X	X	X		X								445A.1374
Cottonwood Creek at the South Fork of Salmon Falls Creek	From the national forest boundary to its confluence with the South Fork of Salmon Falls Creek.	X	X	X	X	X	X	X	X						Trout		445A.1376
Canyon Creek at the national forest boundary	From its origin to the national forest boundary.	X	X	X	X	X	X		X								445A.1378
Canyon Creek at the South Fork of Salmon Falls Creek	From the national forest boundary to its confluence with the South Fork of Salmon Falls Creek.	X	X	X	X	X	X	X	X						Trout		445A.1382
Bear Creek	From its origin to the point of diversion for the Jarbidge municipal water supply, near the east line of section 17, T. 46 N., R. 58 E., M.D.B. & M.	X	X	X	X	X	X		X								445A.1384
76 Creek	The entire length.	X	X	X	X	X	X	X	X						Trout		445A.1386

Water Body Name	Segment Description	Beneficial Uses											Aquatic Species of Concern	Water Quality Standard NAC Reference		
		Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh				
Owyhee River, East Fork above Wildhorse Reservoir	From its origin to Wildhorse Reservoir.	X	X	X	X	X	X		X							445A.1388
Deep Creek	From its origin to Wildhorse Reservoir.	X	X	X	X	X	X		X							445A.1392
Penrod Creek, including tributaries	From its origin, including its tributaries, to Wildhorse Reservoir.	X	X	X	X	X	X		X							445A.1394
Hendricks Creek	From its origin to Wildhorse Reservoir.	X	X	X	X	X	X		X							445A.1396
Wildhorse Reservoir	The entire reservoir.	X	X	X	X	X	X	X	X					Trout		445A.1398
Brown's Gulch	From its origin to the point of diversion for the Mountain City municipal water supply, near the south line of section 24, T. 46 N., R. 53 E., M.D.B. & M.	X	X	X	X	X	X		X							445A.1402
Jack Creek	From its origin to its confluence with Harrington Creek.	X	X	X	X	X	X		X							445A.1404
Harrington Creek	From its confluence with Jack Creek to the South Fork of the Owyhee River.	X	X	X	X	X	X	X	X					Trout		445A.1406

Water Body Name	Segment Description	Beneficial Uses											Aquatic Species of Concern	Water Quality Standard NAC Reference		
		Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh				
Bull Run Reservoir	The entire reservoir.	X	X	X	X	X	X	X	X	X					Trout	445A.1408
Wilson Reservoir	The entire reservoir.	X	X	X	X	X	X	X	X						Trout	445A.1412
<i>Taylor Canyon Creek</i>	<i>From its origin to confluence with South Fork Owyhee River</i>	X	X	X	X	X	X	X	X							<i>section xx of this regulation</i>
<i>Trout Creek, tributary to Goose Creek</i>	<i>From the Nevada-Idaho state line to confluence with Goose Creek</i>	X	X	X	X	X	X	X	X							<i>section xx of this regulation</i>
<i>Jack Creek, tributary to Jarbidge River</i>	<i>From its origin to confluence with Jarbidge River</i>	X	X	X	X	X	X	X	X							<i>section xx of this regulation</i>
<i>Trout Creek, tributary to Salmon Falls Creek</i>	<i>From its origin to confluence with Salmon Falls Creek</i>	X	X	X	X	X	X	X	X							<i>section xx of this regulation</i>
Irrigation	Irrigation															
Livestock	Watering of livestock															
Contact	Recreation involving contact with the water															
Noncontact	Recreation not involving contact with the water															
Industrial	Industrial supply															
Municipal	Municipal or domestic supply, or both															
Wildlife	Propagation of wildlife															
Aquatic	Propagation of aquatic life															
Aesthetic	Waters of extraordinary ecological or aesthetic value															
Enhance	Enhancement of water quality															

NAC 445A.1334 Water Quality Standards for the Snake *River Drainage Basin* [Region]. The standards for water quality for the Snake *River Drainage Basin* [Region] are prescribed in NAC 445A.1336 to 445A.1412, inclusive. The Beneficial uses for the Snake *River Drainage Basin* [Region] are prescribed in NAC445A.1332.

STANDARDS OF WATER QUALITY

~~Big~~ Goose Creek

The limits of this table apply to the body of water known as ~~Big~~ Goose Creek *that flows within the Nevada state borders* ~~for the control point at the Ranch~~. ~~Big~~ Goose Creek is located in Elko County.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use ^a													
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh			
Beneficial Uses for NAC 445A.1336			X	X	X	X	X	X	X	X	X					
Aquatic Life Species of concern																
Temperature - °C		S.V. May-Oct < 21 S.V. Nov-Apr < 13														
ΔT^b - °C	$\Delta T = 0$	$\Delta T < 1$			*	X										
pH - SU	$\Delta pH \pm 0.5$	S.V. 6.5 - 9.0			*	X		X								
Total Phosphorus (as P) - mg/l		S.V. ≤ 0.1			*	*	X	X								
Nitrogen Species (as N) - mg/l	Nitrate S.V. ≤ 1.0	Nitrate S.V. ≤ 10 Nitrite S.V. ≤ 0.06			*	X	X	*								
Total Ammonia (as N) - mg/l		^c			*											
Dissolved Oxygen - mg/l		S.V. ≥ 6.0	X		*	X	X	X			X					
Suspended Solids - mg/l		S.V. ≤ 25			*			X								
Turbidity - NTU		S.V. ≤ 10			*			X								
Total Dissolved Solids - mg/l	S.V. ≤ 185	S.V. ≤ 500	X	X				*								
Chlorides - mg/l	S.V. ≤ 9.0	S.V. ≤ 250	X	X				*			X					
Sulfate - mg/l		S.V. ≤ 250						*								
Alkalinity (as CO ₃) - mg/l		< 25% change from natural conditions			*						X					
E coli - No./100 ml		A.G.M. ≤ 126 S.V. ≤ 410				*	X									
Fecal Coliform - No./100 ml		≤ 200/400^d S.V. ≤ 1000	*	≤	≤	≤	X	X			≤					
Color - PCU		≤ 10 S.V. ≤ 75						*								

* = 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.

~~^d The annual geometric mean must not exceed 200 per 100 milliliters nor may the number of fecal coliform in a single sample exceed 400 per 100 milliliters.~~

~~^e Increase in color must not be more than 10 color units above natural conditions.~~

**STANDARDS OF WATER QUALITY
Salmon Falls Creek**

The limits of this table apply to the body of water known as Salmon Falls Creek *from the confluence of the North and South Forks of Salmon Falls Creek to the Nevada-Idaho state line* ~~for the control point at U.S. Highway 93 south of Jackpot~~. Salmon Falls Creek is located in Elko County.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use ^a														
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh				
Beneficial Uses for NAC 445A.1338			X	X	X	X	X	X	X	X	X						
Aquatic Life Species of concern																	
Temperature - °C		S.V. May-Oct < 21															
ΔT ^b - °C	ΔT = 0	S.V. Nov-Apr < 13 ΔT < 1			*	X											
pH - SU	ΔpH ±0.5	S.V. 6.5 – 9.0			*	X			X								
Total Phosphorus (as P) - mg/l		S.V. ≤ 0.1			*	*	X	X									
Nitrogen Species (as N) - mg/l	Nitrate S.V. ≤ 1.0	Nitrate S.V. ≤ 10 Nitrite S.V. ≤ 0.06			*	X	X	*									
Total Ammonia (as N) - mg/l		^c			*												
Dissolved Oxygen - mg/l		S.V. ≥ 6.0	X		*	X	X	X			X						
Suspended Solids - mg/l		S.V. ≤ 25			*												
Turbidity – NTU		S.V. ≤ 10			*				X								
Total Dissolved Solids - mg/l	S.V. ≤ 250	S.V. ≤ 500	X	X					*								
Chlorides - mg/l	S.V. ≤ 14.0	S.V. ≤ 250	X	X					*		X						
Sulfate – mg/l		S.V. ≤ 250							*								
Alkalinity (as CO ₃) - mg/l		< 25% change from natural conditions			*						X						
E coli – No./100 ml		A.G.M. ≤ 126 S.V. ≤ 410				*	X										
Fecal Coliform - No./100 ml	S.V. ≤ 90	≤200/400^d S.V. ≤ 1000	*	{X}	*	{*}	X	X			{X}	*					
Color - PCU		≤10 S.V. ≤ 75							*								

* = 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.

~~^d The annual geometric mean must not exceed 200 per 100 milliliters nor may the number of fecal coliform in a single sample exceed 400 per 100 milliliters.~~

~~^e Increase in color must not be more than 10 color units above natural conditions.~~

**STANDARDS OF WATER QUALITY
Shoshone Creek**

The limits of this table apply to the body of water known as Shoshone Creek *from the Nevada-Idaho state line to its confluence with Salmon Falls Creek* ~~for the control point at Jackpot to Delaplain Road~~. Shoshone Creek is located in Elko County.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use ^a													
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh			
Beneficial Uses for NAC 445A.1342			X	X	X	X	X	X	X	X	X					
Aquatic Life Species of concern																
Temperature °C Maximum		S.V. May-Oct < 21 S.V. Nov-Apr < 13			*	X										
ΔT ^b - °C	ΔT = 0	ΔT < 1														
pH – SU	ΔpH ±0.5	S.V. 6.5 - 9.0			*	X			X							
Total Phosphorus (as P) - mg/l	—	S.V. ≤ 0.1			*	*	X	X								
Nitrogen Species (as N) - mg/l	Nitrate S.V. ≤ 1.0	Nitrate S.V. ≤ 10 Nitrite S.V. ≤ 0.06			*	X	X	*								
Total Ammonia (as N) - mg/l		c			*											
Dissolved Oxygen - mg/l		S.V. ≥ 6.0	X		*	X	X	X			X					
Suspended Solids - mg/l		S.V. ≤ 25			*				X							
Turbidity – NTU		S.V. ≤ 10			*				X							
Total Dissolved Solids - mg/l	S.V. ≤ 250	S.V. ≤ 500	X	X					*							
Chlorides - mg/l	S.V. ≤ 15.0	S.V. ≤ 250	X	X					*		X					
<i>Sulfate – mg/l</i>		<i>S.V. ≤ 250</i>							*							
Alkalinity (as CO ₃) - mg/l		< 25% change from natural conditions			*						X					
E coli - No./100 ml Annual Geometric Mean Single Value		A.G.M. ≤ 126 S.V. ≤ 410				*	X									
Fecal Coliform - No./100 ml		≤ 200/400^d <i>S.V. ≤ 1000</i>	*	× *		× *	X	X			× *					
Color-PCU		≤ 10 <i>S.V. ≤ 75</i>							*							

* = 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.

~~^d The annual geometric mean must not exceed 200 per 100 milliliters nor may the number of fecal coliform in a single sample exceed 400 per 100 milliliters.~~

~~^e Increase in color must not be more than 10 color units above natural conditions.~~

**STANDARDS OF WATER QUALITY
Jarbidge River, East Fork**

The limits of this table apply to the body of water known as East Fork of Jarbidge River *from its origin* ~~to~~ to the Nevada-Idaho state line. The East Fork of Jarbidge River is located in Elko County.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use ^a													
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh			
Beneficial Uses for NAC 445A.1344			X	X	X	X	X	X	X	X	X					
Aquatic Life Species of concern																
Temperature °C Maximum		S.V. May-Oct < 21 S.V. Nov-Apr < 7			*	X										
ΔT ^b - °C	ΔT = 0	ΔT < 1														
pH - SU	ΔpH ±0.5	S.V. 6.5 - 9.0			*	X			X							
Total Phosphorus (as P) - mg/l	—	S.V. ≤ 0.1			*	*	X	X								
Nitrogen Species (as N) - mg/l	Nitrate S.V. ≤ 1.0	Nitrate S.V. ≤ 10 Nitrite S.V. ≤ 0.06			*	X	X	*								
Total Ammonia (as N) - mg/l		c			*											
Dissolved Oxygen - mg/l		S.V. ≥ 6.0	X		*	X	X	X			X					
Suspended Solids - mg/l		S.V. ≤ 25			*				X							
Turbidity – NTU		S.V. ≤ 10			*				X							
Total Dissolved Solids - mg/l	S.V. ≤ 200	S.V. ≤ 500	X	X					*							
Chlorides - mg/l	S.V. ≤ 6.0	S.V. ≤ 250	X	X					*		X					
Sulfate – mg/l		S.V. ≤ 250							*							
Alkalinity (as CO ₃) - mg/l	—	< 25% change from natural conditions			*						X					
E coli - No./100 ml Annual Geometric Mean Single Value		A.G.M. ≤ 126 S.V. ≤ 410				*	X									
Fecal Coliform - No./100 ml	S.V. ≤ 100	≤ 200/400^d S.V. ≤ 1000	*	[X] *		[*]	X	X			[X] *					
Color – PCU		≤ S.V. ≤ 75							*							

* = 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.
^d ~~The annual geometric mean must not exceed 200 per 100 milliliters nor may the number of fecal coliform in a single sample exceed 400 per 100 milliliters.~~
^e ~~Increase in color must not be more than 10 color units above natural conditions.~~

STANDARDS OF WATER QUALITY
Jarbidge River, above Jarbidge

The limits of this table apply to the body of water known as Jarbidge River *from its origin to bridge above the town of Jarbidge* ~~[for the control point upstream from Jarbidge at bridge]~~. This segment of the Jarbidge River is located in Elko County.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use ^a													
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh			
Beneficial Uses for NAC 445A.1346			X	X	X	X	X	X	X	X	X					
Aquatic Life Species of concern																
Temperature °C Maximum		S.V. May-Oct < 21 S.V. Nov-Apr < 7			*	X										
ΔT ^b - °C	ΔT = 0	ΔT < 1														
pH - SU	ΔpH ±0.5	S.V. 6.5 - 9.0			*	X			X							
Total Phosphorus (as P) - mg/l	S.V. [X] ≤ 0.05	S.V. [X] ≤ 0.1			*	*	X	X								
Nitrogen Species (as N) - mg/l	Nitrate S.V. [X] ≤ 1.0	Nitrate S.V. [X] ≤ 10 Nitrite S.V. [X] ≤ 0.06			*	X	X	*								
Total Ammonia (as N) - mg/l		c			*											
Dissolved Oxygen - mg/l		S.V. [X] ≥ 6.0	X		*	X	X	X			X					
Suspended Solids - mg/l		S.V. [X] ≤ 25			*				X							
Turbidity – NTU		S.V. [X] ≤ 10			*				X							
Total Dissolved Solids - mg/l	S.V. [X] ≤ 65	S.V. [X] ≤ 500	X	X					*							
Chlorides - mg/l	S.V. [X] ≤ 7.0	S.V. [X] ≤ 250	X	X					*		X					
<i>Sulfate – mg/l</i>		<i>S.V. ≤ 250</i>							*							
Alkalinity (as CO ₃) - mg/l		< 25% change from natural conditions			*						X					
E coli - No./100 ml Annual Geometric Mean Single Value		A.G.M. ≤ 126 S.V. ≤ 410				*	X									
Fecal Coliform - No./100 ml	S.V. [X] ≤ 10	[X] ≤ 200/400 ^d <i>S.V. ≤ 1000</i>	*	[X] *		[X]	X	X			[X] *					
Color - PCU		^e <i>S.V. ≤ 75</i>							*							

* = 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.

~~[^d The annual geometric mean must not exceed 200 per 100 milliliters nor may the number of fecal coliform in a single sample exceed 400 per 100 milliliters.]~~

~~[^e Increase in color must not be more than 10 color units above natural conditions.]~~

STANDARDS OF WATER QUALITY
Jarbidge River, below Jarbidge

The limits of this table apply to the body of water known as Jarbidge River *from the bridge above town of Jarbidge to the Nevada-Idaho state line* ~~[for the control point downstream from Jarbidge at bridge].~~ This segment of the Jarbidge River is located in Elko County.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use ^a													
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh			
Beneficial Uses for NAC 445A.1348			X	X	X	X	X	X	X	X	X					
Aquatic Life Species of concern																
Temperature °C Maximum		S.V. May-Oct < 21 S.V. Nov-Apr < 7			*	X										
ΔT ^b - °C	ΔT = 0	ΔT < 1														
pH - SU	ΔpH ±0.5	S.V. 6.5 - 9.0			*	X			X							
Total Phosphorus (as P) - mg/l	S.V. [X] ≤ 0.05	S.V. [X] ≤ 0.1			*	*	X	X								
Nitrogen Species (as N) - mg/l	Nitrate S.V. [X] ≤ 1.0	Nitrate S.V. [X] ≤ 10 Nitrite S.V. [X] ≤ 0.06			*	X	X	*								
Total Ammonia (as N) - mg/l		c			*											
Dissolved Oxygen - mg/l		S.V. [X] ≥ 6.0	X		*	X	X	X			X					
Suspended Solids - mg/l		S.V. [X] ≤ 25			*				X							
Turbidity – NTU		S.V. [X] ≤ 10			*				X							
Total Dissolved Solids - mg/l	S.V. [X] ≤ 80	S.V. [X] ≤ 500	X	X					*							
Chlorides - mg/l	S.V. [X] ≤ 7.0	S.V. [X] ≤ 250	X	X					*		X					
<i>Sulfate – mg/l</i>		<i>S.V. ≤ 250</i>							*							
Alkalinity (as CO ₃) - mg/l		< 25% change from natural conditions			*						X					
E coli - No./100 ml Annual Geometric Mean Single Value		A.G.M. ≤ 126 S.V. ≤ 410				*	X									
Fecal Coliform - No./100 ml		[X] ≤ 200/400 ^d <i>S.V. ≤ 1000</i>	*	[X] *		[X]	X	X			[X] *					
Color - PCU		^e <i>S.V. ≤ 75</i>							*							

* = 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.

~~[^d The annual geometric mean must not exceed 200 per 100 milliliters nor may the number of fecal coliform in a single sample exceed 400 per 100 milliliters.]~~

~~[^e Increase in color must not be more than 10 color units above natural conditions.]~~

STANDARDS OF WATER QUALITY
~~West Fork~~ Bruneau River

The limits of this table apply to the body of water known as the ~~West Fork~~ Bruneau River *from its origin to the Nevada-Idaho state line* ~~for the control point at Diamond "A" Road~~. The ~~West Fork~~ Bruneau River is located in Elko County.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use ^a													
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh			
Beneficial Uses for NAC 445A.1352			X	X	X	X	X	X	X	X	X					
Aquatic Life Species of concern																
Temperature °C Maximum		S.V. May-Oct < 21 S.V. Nov-Apr < 7			*	X										
ΔT ^b - °C	ΔT = 0	ΔT < 1														
pH - SU	ΔpH ±0.5	S.V. 6.5 - 9.0			*	X			X							
Total Phosphorus (as P) - mg/l		S.V. ≤ 0.1			*	*	X	X								
Nitrogen Species (as N) - mg/l	Nitrate S.V. ≤ 1.0	Nitrate S.V. ≤ 10 Nitrite S.V. ≤ 0.06			*	X	X	*								
Total Ammonia (as N) - mg/l		^c			*											
Dissolved Oxygen - mg/l		S.V. ≥ 6.0	X		*	X	X	X			X					
Suspended Solids - mg/l		S.V. ≤ 25			*				X							
Turbidity – NTU		S.V. ≤ 10			*				X							
Total Dissolved Solids - mg/l	S.V. ≤ 180	S.V. ≤ 500	X	X					*							
Chlorides - mg/l	S.V. ≤ 7.0	S.V. ≤ 250	X	X					*		X					
Sulfate - mg/l		S.V. ≤ 250							*							
Alkalinity (as CO ₃) - mg/l		< 25% change from natural conditions			*						X					
E coli - No./100 ml Annual Geometric Mean Single Value		A.G.M. ≤ 126 S.V. ≤ 410				*	X									
Fecal Coliform - No./100 ml	S.V. ≤ 80	≤200/400^d S.V. ≤ 1000	*	≤ *		≤ *	X	X			≤ *					
Color - PCU		^e S.V. ≤ 75							*							

* = 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.

~~^d The annual geometric mean must not exceed 200 per 100 milliliters nor may the number of fecal coliform in a single sample exceed 400 per 100 milliliters.~~

~~^e Increase in color must not be more than 10 color units above natural conditions.~~

STANDARDS OF WATER QUALITY
Owyhee River, ~~East Fork~~ above Mill Creek

The limits of this table apply to the body of water known as the ~~East Fork of the~~ Owyhee River *from Wildhorse Reservoir ~~above~~ to confluence of Mill Creek with the Owyhee River.* This segment of the ~~East Fork of the~~ Owyhee River is located in Elko County.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use ^a													
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh			
Beneficial Uses for NAC 445A.1354			X	X	X	X	X	X	X	X	X					
Aquatic Life Species of concern																
Temperature °C Maximum		S.V. May-Oct < 21 S.V. Nov-Apr < 7			*	X										
ΔT ^b - °C	ΔT = 0	ΔT < 1			*	X										
pH - SU	ΔpH ±0.5	S.V. 6.5 - 9.0			*	X		X								
Total Phosphorus (as P) - mg/l		S.V. ≤ 0.1			*	*	X	X								
Nitrogen Species (as N) - mg/l	Nitrate S.V. ≤ 1.0	Nitrate S.V. ≤ 10 Nitrite S.V. ≤ 0.06			*	X	X	*								
Total Ammonia (as N) - mg/l		^c			*											
Dissolved Oxygen - mg/l		S.V. ≥ 6.0	X		*	X	X	X		X						
Suspended Solids - mg/l		S.V. ≤ 25			*			X								
Turbidity – NTU		S.V. ≤ 10			*			X								
Total Dissolved Solids - mg/l	S.V. ≤ 200	S.V. ≤ 500	X	X				*								
Chlorides - mg/l	S.V. ≤ 8.0	S.V. ≤ 250	X	X				*		X						
Sulfate – mg/l		S.V. ≤ 250						*								
Alkalinity (as CO ₃) - mg/l		< 25% change from natural conditions			*					X						
E coli - No./100 ml Annual Geometric Mean Single Value		A.G.M. ≤ 126 S.V. ≤ 410				*	X									
Fecal Coliform - No./100 ml		≤ 200/400^d S.V. ≤ 1000	*	× *		× *	X	X		× *						
Color - PCU		^e S.V. ≤ 75						*								

* = 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.

~~^d The annual geometric mean must not exceed 200 per 100 milliliters nor may the number of fecal coliform in a single sample exceed 400 per 100 milliliters.~~

~~^e Increase in color must not be more than 10 color units above natural conditions.~~

NAC 445A.1356 Owyhee River, ~~[East Fork at New China Dam]~~ below Mill Creek. (NRS 445A.425, 445A.520)

STANDARDS OF WATER QUALITY
Owyhee River, ~~[East Fork at New China Dam]~~ below Mill Creek

The limits of this table apply to the body of water known as the ~~[East Fork of the]~~ Owyhee River from confluence of Mill Creek with the Owyhee River to the Duck Valley Indian Reservation border ~~[at New China Dam]~~. This segment of the ~~[East Fork of the]~~ Owyhee River is located in Elko County.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use ^a													
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh			
Beneficial Uses for NAC 445A.1356			X	X	X	X	X	X	X	X	X					
Aquatic Life Species of concern																
Temperature °C Maximum		S.V. May-Oct < 21 S.V. Nov-Apr < 7			*	X										
ΔT ^b - °C	ΔT = 0	ΔT < 1			*	X										
pH – SU	ΔpH ±0.5	S.V. 6.5 - 9.0			*	X		X								
Total Phosphorus (as P) - mg/l		S.V. [<] ≤ 0.1			*	*	X	X								
Nitrogen Species (as N) - mg/l	Nitrate S.V. [<] ≤ 1.0	Nitrate S.V. [<] ≤ 10 Nitrite S.V. [<] ≤ 0.06			*	X	X	*								
Total Ammonia (as N) - mg/l		^c			*											
Dissolved Oxygen - mg/l		S.V. [>] ≥ 6.0	X		*	X	X	X		X						
Suspended Solids - mg/l		S.V. [<] ≤ 25			*			X								
Turbidity – NTU		S.V. [<] ≤ 10			*			X								
Total Dissolved Solids - mg/l	S.V. [<] ≤ 250	S.V. [<] ≤ 500	X	X				*								
Chlorides - mg/l	S.V. [<] ≤ 8.0	S.V. [<] ≤ 250	X	X				*		X						
Sulfate – mg/l		S.V. ≤ 250						*								
Alkalinity (as CO ₃) - mg/l		< 25% change from natural conditions			*					X						
E coli - No./100 ml Annual Geometric Mean Single Value		A.G.M. ≤ 126 S.V. ≤ 410				*	X									
Fecal Coliform - No./100 ml	S.V. [<] ≤ 125	[<] ≤ 200/400^d S.V. ≤ 1000	*	[X] *		[*]	X	X		[X] *						
Color – PCU		^e S.V. ≤ 75						*								

* = 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.
~~^d The annual geometric mean must not exceed 200 per 100 milliliters nor may the number of fecal coliform in a single sample exceed 400 per 100 milliliters.~~
~~^e Increase in color must not be more than 10 color units above natural conditions.~~

~~NAC 445A.1358 — Owyhee River, East Fork at the state line. (NRS 445A.425, 445A.520)~~

**STANDARDS OF WATER QUALITY
Owyhee River, East Fork at the state line**

~~The limits of this table apply to the body of water known as the East Fork of the Owyhee River at the Nevada-Idaho state line. This segment of the East Fork of the Owyhee River is located in Elko County.~~

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use ^a													
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh			
Beneficial Uses for NAC 445A.1358			X	X	X	X	X	X	X	X	X					
Aquatic Life Species of concern																
Temperature °C Maximum		S.V. May-Oct < 21 S.V. Nov-Apr < 7														
ΔT ^b — °C	ΔT = 0	ΔT < 1			*	X										
pH — SU	ΔpH ± 0.5	S.V. 6.5 — 9.0			*	X		X								
Total Phosphorus (as P) — mg/l		S.V. < 0.1			*	*	X	X								
Nitrogen Species (as N) — mg/l	Nitrate S.V. < 1.0	Nitrate S.V. < 10 Nitrite S.V. < 0.06			*	X	X	*								
Dissolved Oxygen — mg/l		S.V. > 6.0	X		*	X	X	X		X						
Suspended Solids — mg/l		S.V. < 25			*			X								
Turbidity — NTU		S.V. < 10			*			X								
Total Dissolved Solids — mg/l	S.V. < 240	S.V. < 500	X	X				*								
Chlorides — mg/l	S.V. < 11.0	S.V. < 250	X	X				*		X						
Alkalinity (as CO ₃) — mg/l		< 25% change from natural conditions			*					X						
Fecal Coliform — No./100 ml		< 200/400 ^e		X		*	X	X		X						
Color — PCU		^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.

^e — The annual geometric mean must not exceed 200 per 100 milliliters nor may the number of fecal coliform in a single sample exceed 400 per 100 milliliters.

^d — Increase in color must not be more than 10 color units above natural conditions.

STANDARDS OF WATER QUALITY
Owyhee River, South Fork ~~[at Petan Access Road]~~

The limits of this table apply to the body of water known as the South Fork of the Owyhee River *from its origin to the Nevada-Idaho state line ~~[at Petan Access Road]~~*. The South Fork of the Owyhee River is located in Elko County.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use ^a													
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh			
Beneficial Uses for NAC 445A.1362			X	X	X	X	X	X	X	X	X					
Aquatic Life Species of concern																
Temperature °C Maximum		S.V. May-Oct < 21 S.V. Nov-Apr < 13			*	X										
ΔT ^b - °C	ΔT = 0	ΔT < 1														
pH – SU	ΔpH ±0.5	S.V. 6.5 - 9.0			*	X			X							
Total Phosphorus (as P) - mg/l		S.V. [X] ≤ 0.1			*	*	X	X								
Nitrogen Species (as N) - mg/l	Nitrate S.V. [X] ≤ 1.0	Nitrate S.V. [X] ≤ 10 Nitrite S.V. [X] ≤ 0.06			*	X	X	*								
Total Ammonia (as N) - mg/l		c			*											
Dissolved Oxygen - mg/l		S.V. [X] ≥ 6.0	X		*	X	X	X			X					
Suspended Solids - mg/l		S.V. [X] ≤ 25			*				X							
Turbidity – NTU		S.V. [X] ≤ 10			*				X							
Total Dissolved Solids - mg/l	S.V. [X] ≤ 280	S.V. [X] ≤ 500	X	X					*							
Chlorides - mg/l	S.V. [X] ≤ 15.0	S.V. [X] ≤ 250	X	X					*		X					
Sulfate – mg/l		S.V. ≤ 250							*							
Alkalinity (as CO ₃) - mg/l		< 25% change from natural conditions			*						X					
E coli - No./100 ml Annual Geometric Mean Single Value		A.G.M. ≤ 126 S.V. ≤ 410				*	X									
Fecal Coliform - No./100 ml		[X] ≤ 200/400 ^d S.V. ≤ 1000	*	[X] *		[*]	X	X			[X] *					
Color – PCU		[e] S.V. ≤ 75							*							

* = 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.
~~[^d The annual geometric mean must not exceed 200 per 100 milliliters nor may the number of fecal coliform in a single sample exceed 400 per 100 milliliters.]~~
~~[^e Increase in color must not be more than 10 color units above natural conditions.]~~

STANDARDS OF WATER QUALITY
Taylor Canyon Creek

The limits of this table apply to the body of water known as Taylor Canyon Creek from its origin to confluence with the South Fork of the Owyhee River. Taylor Canyon Creek is located in Elko County.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use ^a													
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh			
<i>Beneficial Uses for Section – of LCB File No. --</i>			X	X	X	X	X	X	X	X	X					
<i>Aquatic Life Species of concern</i>																
Temperature °C Maximum		S.V. May-Oct < 21 S.V. Nov-Apr < 13			*	X										
ΔT ^b - °C		ΔT < 1														
pH – SU		S.V. 6.5 – 9.0			*	X		X								
Total Phosphorus (as P) - mg/l		^c			*	*	X	X								
Nitrogen Species (as N) - mg/l		Nitrate S.V. ≤ 10 Nitrite S.V. ≤ 0.06 Total Nitrogen: ^c			X			*								
Total Ammonia (as N) - mg/l		^d			*											
Dissolved Oxygen - mg/l		S.V. ≥ 6.0	X		*	X	X	X			X					
Suspended Solids - mg/l		S.V. ≤ 25			*			X								
Turbidity – NTU		S.V. ≤ 10			*			X								
Total Dissolved Solids - mg/l		S.V. ≤ 500	X	X				*								
Chlorides - mg/l		S.V. ≤ 250	X	X				*			X					
Sulfate – mg/l		S.V. ≤ 250						*								
E coli - No./100 ml Annual Geometric Mean Single Value		A.G.M. ≤ 126 S.V. ≤ 410					*	X								
Fecal Coliform - No./100 ml		S.V. ≤ 1000	*	*				X	X		*					
Color – PCU		S.V. ≤ 75							*							

* = 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 Waters shall be free from nutrient concentrations from other than natural sources that cause the growth of algal or aquatic plants in amounts that interfere with any beneficial uses of the water.

^d The ambient water quality criteria for ammonia are specified in NAC 445A.118.

STANDARDS OF WATER QUALITY
Trout Creek, tributary to Goose Creek

The limits of this table apply to the body of water known as Goose Creek from the Nevada-Idaho state line to confluence with Goose Creek. Trout Creek is located in Elko County.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use ^a													
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh			
<i>Beneficial Uses for Section – of LCB File No. --</i>			X	X	X	X	X	X	X	X	X					
<i>Aquatic Life Species of concern</i>																
Temperature °C Maximum		S.V. May-Oct < 21 S.V. Nov-Apr < 13			*	X										
ΔT ^b - °C		ΔT < 1														
pH – SU		S.V. 6.5 – 9.0			*	X		X								
Total Phosphorus (as P) - mg/l		^c			*	*	X	X								
Nitrogen Species (as N) - mg/l		Nitrate S.V. ≤ 10 Nitrite S.V. ≤ 0.06 Total Nitrogen: ^c			X			*								
Total Ammonia (as N) - mg/l		^d			*											
Dissolved Oxygen - mg/l		S.V. ≥ 6.0	X		*	X	X	X			X					
Suspended Solids - mg/l		S.V. ≤ 25			*			X								
Turbidity – NTU		S.V. ≤ 10			*			X								
Total Dissolved Solids - mg/l		S.V. ≤ 500	X	X				*								
Chlorides - mg/l		S.V. ≤ 250	X	X				*			X					
Sulfate – mg/l		S.V. ≤ 250						*								
E coli - No./100 ml Annual Geometric Mean Single Value		A.G.M. ≤ 126 S.V. ≤ 410					*	X								
Fecal Coliform - No./100 ml		S.V. ≤ 1000	*	*				X	X		*					
Color – PCU		S.V. ≤ 75			*				*							

* = 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 Waters shall be free from nutrient concentrations from other than natural sources that cause the growth of algal or aquatic plants in amounts that interfere with any beneficial uses of the water.

^d The ambient water quality criteria for ammonia are specified in NAC 445A.118.

STANDARDS OF WATER QUALITY
Jack Creek, tributary to Jarbidge River

The limits of this table apply to the body of water known as Jack Creek from its origin to confluence with Jarbidge River. Jack Creek is located in Elko County.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use ^a													
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh			
<i>Beneficial Uses for Section – of LCB File No. --</i>			X	X	X	X	X	X	X	X	X					
<i>Aquatic Life Species of concern</i>																
Temperature °C Maximum		S.V. May-Oct < 21 S.V. Nov-Apr < 7			*	X										
ΔT ^b - °C		ΔT < 1														
pH – SU		S.V. 6.5 – 9.0			*	X		X								
Total Phosphorus (as P) - mg/l		^c			*	*	X	X								
Nitrogen Species (as N) - mg/l		Nitrate S.V. ≤ 10 Nitrite S.V. ≤ 0.06 Total Nitrogen: ^c			X			*								
Total Ammonia (as N) - mg/l		^d			*											
Dissolved Oxygen - mg/l		S.V. ≥ 6.0	X		*	X	X	X			X					
Suspended Solids - mg/l		S.V. ≤ 25			*			X								
Turbidity – NTU		S.V. ≤ 10			*			X								
Total Dissolved Solids - mg/l		S.V. ≤ 500	X	X				*								
Chlorides - mg/l		S.V. ≤ 250	X	X				*			X					
Sulfate – mg/l		S.V. ≤ 250						*								
E coli - No./100 ml Annual Geometric Mean Single Value		A.G.M. ≤ 126 S.V. ≤ 410					*	X								
Fecal Coliform - No./100 ml		S.V. ≤ 1000	*	*				X	X		*					
Color – PCU		S.V. ≤ 75							*							

* = 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 Waters shall be free from nutrient concentrations from other than natural sources that cause the growth of algal or aquatic plants in amounts that interfere with any beneficial uses of the water.

^d The ambient water quality criteria for ammonia are specified in NAC 445A.118.

STANDARDS OF WATER QUALITY
 Trout Creek, tributary to Salmon Falls Creek

The limits of this table apply to the body of water known as Trout Creek from its origin to confluence with Salmon Falls Creek. Trout Creek is located in Elko County.

PARAMETER	REQUIREMENTS TO MAINTAIN EXISTING HIGHER QUALITY	WATER QUALITY STANDARDS FOR BENEFICIAL USES	Beneficial Use ^a													
			Livestock	Irrigation	Aquatic	Contact	Noncontact	Municipal	Industrial	Wildlife	Aesthetic	Enhance	Marsh			
<i>Beneficial Uses for Section – of LCB File No. --</i>			X	X	X	X	X	X	X	X	X					
<i>Aquatic Life Species of concern</i>																
Temperature °C Maximum		S.V. May-Oct < 21 S.V. Nov-Apr < 13			*	X										
ΔT ^b - °C		ΔT < 1														
pH – SU		S.V. 6.5 - 9.0			*	X		X								
Total Phosphorus (as P) - mg/l		^c			*	*	X	X								
Nitrogen Species (as N) - mg/l		Nitrate S.V. ≤ 10 Nitrite S.V. ≤ 0.06 Total Nitrogen: ^c			X			*								
Total Ammonia (as N) - mg/l		^d			*											
Dissolved Oxygen - mg/l		S.V. ≥ 6.0	X		*	X	X	X			X					
Suspended Solids - mg/l		S.V. ≤ 25			*			X								
Turbidity – NTU		S.V. ≤ 10			*			X								
Total Dissolved Solids - mg/l		S.V. ≤ 500	X	X				*								
Chlorides - mg/l		S.V. ≤ 250	X	X				*			X					
Sulfate – mg/l		S.V. ≤ 250						*								
E coli - No./100 ml Annual Geometric Mean Single Value		A.G.M. ≤ 126 S.V. ≤ 410					*	X								
Fecal Coliform - No./100 ml		S.V. ≤ 1000	*	*				X	X		*					
Color – PCU		S.V. ≤ 75							*							

* = 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 Waters shall be free from nutrient concentrations from other than natural sources that cause the growth of algal or aquatic plants in amounts that interfere with any beneficial uses of the water.

^d The ambient water quality criteria for ammonia are specified in NAC 445A.118.