



STATE OF NEVADA

Department of Conservation & Natural Resources

DIVISION OF ENVIRONMENTAL PROTECTION

Jim Gibbons, Governor

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June 29, 2010

Ms. Stephanie L. Wilson
Water Division, WTR-10
United States Environmental Protection Agency
Region IX
75 Hawthorne Street
San Francisco, CA 94105-3901

Subject: Response to EPA Comments on the Proposed Changes to Select Water Quality Standards for Smoke, Bronco and Gray Creeks (NAC 445A.180, 181, and 182);
[Comment letter dated June 11, 2010]

Dear Ms. Wilson:

The Nevada Division of Environmental Protection, Bureau of Water Quality Planning (NDEP-BWQP) appreciates the written comments prepared and submitted by U.S. EPA regarding the abovementioned subject. The following are provided in response to the comments.

Comment 1. NDEP proposes to add beneficial uses to the water quality standards for Smoke Creek. These include Watering Livestock, Irrigation, Aquatic Live (warm water fishery), Contact Recreation, Noncontact Recreation, and Propagation of Wildlife. Please provide additional information/justification used to support the warm water fishery designation since this designation affects the protectiveness of several of the criteria include DO. We will need to satisfy US Fish and Wildlife Service that this is the correct designation. Is the water temperature always too high; is the habitat unsuitable, etc?

Reponse: An e-mail response regarding the warm water vs. cold water status for Smoke Creek from Kim Tisdale's, Supervising Fisheries Biologist, Nevada Department of Wildlife, states that "Smoke Creek would only support a warm water fishery" and the 1973 Water for Nevada, Appendix D, Stream and Lake Inventory, Forecasts for the Future – Fish and Wildlife states that Smoke Creek is non-fishable.

Comment 2. NDEP proposed to establish nitrate standards based on Gold Book recommendations for municipal supply. The use of Gold Book recommendations does not really protect the uses. Aquatic life toxicity concerns related to nitrate-nitrite may dictate a more stringent individual criteria. In the past, NDEP has based nitrate numbers on toxicity for aquatic life using the dynamics of the nitrite-nitrate equilibrium. We recommend that you again consider using this method to develop nitrate standards.

*Response: The nitrate and nitrite standards proposed for the four tributary waters reflect EPA's recommended water quality criteria for protection of the beneficial uses proposed for these waters. NDEP's proposed **Nutrient Criteria Plan/Strategy** will evaluate the impact of nitrogen compounds (including nitrate and nitrite) in aquatic ecosystem eutrophication problems and will permit development of waterbody-specific nitrogen compound thresholds (over the long term) to protect designated aquatic life uses.*

Comment 3a (paraphrased). At a minimum, NDEP should consider the 1988 Chloride guidance which recommends concentrations for protection of aquatic life of 230 mg/l.

*Response: Chloride is a natural mineral salt that is ubiquitous throughout the different Nevada hydrobasins. Natural factors such as an arid climate; periodic drought conditions; and evaporation processes can inherently increase the chloride concentrations in surface waters. Except for select terminal waterbodies (e.g. Humboldt Sink and Walker Lake), the chloride concentrations routinely measured in Nevada surface waters are generally below the proposed 250 mg/l water quality standard. Although the basis for the proposed chloride criteria is a secondary municipal and domestic supply standard, the 250 mg/l chloride threshold also provides for protection of freshwater fish, invertebrates, and plants that are found in Nevada surface waters. Additionally, the Division's proposed **Antidegradation Policy** would minimize any anthropogenic changes in chloride concentrations from existing water quality levels that could impact resident aquatic life.*

Chloride is characterized by EPA as a "non-priority" pollutant and the recommended aquatic life protective values were based on work done by EPA in 1988 (Chloride, EPA 440/5-88-001). The appropriateness of the EPA recommended chloride aquatic life standards has been questioned in the scientific literature. The criteria values were based on the toxic effects of sodium chloride to aquatic life because that was the most complete data set and the assumption that chloride in the environment would most likely be due to anthropogenic use of sodium chloride. However, toxicity testing conducted on the chlorides of potassium, calcium, and magnesium indicated that they were generally more acutely toxic to aquatic life organisms than sodium chloride. In a natural environment, it is reasonable to assume that chloride would be associated with other ions than just sodium. Toxicological studies reported in the scientific literature do not provide overwhelming evidence that the toxicity to aquatic life was due to chloride rather than the associated metal ion.

References:

*Biesinger, K. E. and G.M. Christensen. 1972. Effects of various metals on survival, growth, reproduction, and metabolism of *Daphnia magna*. J. Fish. Res. Board Can. 29: 1691-1700.*

Dowden, B.F. and H.J. Bennett. 1965. Toxicity of selected chemicals to certain animals. J. Water Pollut. Control Fed. 37:1308-1316.

Hamilton, R.W., J.K. Buttner and R.G. Brunetti. 1975. Lethal levels of sodium chloride and potassium chloride for an oligochaete, a chironomid midge, and a caddisfly of Lake Michigan. Environ. Entomol. 4:1003-1006.

Trama, F.B. 1954. The acute toxicity of some common salts of sodium, potassium and calcium to the common bluegill (Lenomis macrochirus Raginesque). Proc. Acad. Nat. Sci. 106:185-205.

Comment 3b (paraphrased). At a minimum, NDEP should ... consider using the more conservative Gold Book TDS limit for irrigation of 500 mg/l which would prevent detrimental effects to crops.

Response: The only crops being irrigated in the Smoke Creek vicinity are high salinity tolerant grasses. There are no sensitive crops or the potential for sensitive crops to be irrigated in the Smoke Creek area as the only industry in the area is cattle ranching, thus NDEP feels the 1000 mg/l criteria is appropriate.

Comment 4. NDEP is proposing to lower the DO standard for Gray Creek from 7.0 to 6.0. We are concerned that reducing the minimum DO from 7 to 6 would provide less than full protection for cold water aquatic life. The Gold Book recommends 6.5 for protection of early life stages for cold water aquatic life designations. We recommend you also consider revising the Bronco DO standard as well.

Response: The beneficial use standard for dissolved oxygen (DO) of 6.0 mg/l has been adopted by the State Environmental Commission for the majority of major river systems in Nevada and is intended to assure sufficient intragravel DO for protection of early aquatic life stages in coldwater systems. Additionally, the Nevada Stateline DO standard is 6.0 from November – March and 5.0 from April – October where as the proposed standard is for 6.0 year round.

Comment 5. EPA supports NDEP's inclusion of a total phosphorus standard in addition to the nutrient narrative standard. This inclusion will provide additional protection to each waterbody.

Response: NDEP appreciates EPA support of the effort to develop and refine narrative nutrient standards. We feel that a narrative standard will allow a multiple lines of evidence approach to better evaluate and address nutrient pollution problems in Nevada surface waters.

Thank-you for the comments on the proposed water quality regulation changes and draft rationale that were presented at the May 13, 2010 public workshop in Carson City, NV. EPA's input has provided NDEP-BWQP the opportunity to develop a final rationale for the proposed actions to be considered by the State Environmental Commission in a public hearing that will be held in Reno, Nevada during the Fall of 2010. The final rationale and water quality regulation changes are available at <http://sec.nv.gov/main/hearing>.

Sincerely,

John O. Heggeness
Supervisor, Water Quality Standards

cc: Kathy Sertic, Water Quality Planning Bureau Chief, NDEP