

STATE OF NEW MEXICO  
WATER QUALITY CONTROL COMMISSION

COPY



WQCC No. 14-05 (R)

IN THE MATTER OF THE PROPOSED  
AMENDMENTS TO STANDARDS FOR  
INTERSTATE AND INTRASTATE  
WATERS, 20.6.4 NMAC

**NEW MEXICO ENVIRONMENT DEPARTMENT, SURFACE WATER QUALITY  
BUREAU'S AMENDED PETITION TO REVISE THE SURFACE WATER QUALITY  
STANDARDS (20.6.4 NMAC)**

The New Mexico Environment Department, Surface Water Quality Bureau ("Bureau") herein submits, in accordance with the *Scheduling Order* dated July 10, 2014, as issued by the appointed Hearing Officer, its Amended Petition to Revise the Surface Water Quality Standards as found in 20.6.4 New Mexico Administrative Code ("NMAC"). *Scheduling Order*, WQCC No. 14-05 (R), p. 1. (July 10, 2014).

The Bureau is proposing two (2) amendments to the Bureau's original petition filed with the New Mexico Water Quality Control Commission on June 25, 2014. The proposed amendments are attached hereto and include the proposed amendments with a statement of basis for the change(s).

Respectfully submitted,

**NEW MEXICO ENVIRONMENT DEPARTMENT  
OFFICE OF GENERAL COUNSEL**



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CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing *New Mexico Environment Department, Surface Water Quality Bureau's Amended Petition to Revise the Surface Water Quality Standards (20.6.2 NMAC)* was served on the following parties on this the 20 day of October, 2014 via the stated delivery methods below:

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WQCC No. 14-05 (R)  
NMED Amendments to Proposed Changes to 20.6.4. NMAC  
October 20, 2014

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**2013 Triennial Review  
WQCC 14-04(R)  
AMENDED PROPOSED CHANGES  
October 2014**

The New Mexico Environment Department (“Department”) submits two changes to the amendments filed in the Triennial Review petition, which was presented to the Water Quality Control Commission (“WQCC”) on July 8, 2014. The proposed language in 20.6.4.900.I (1) and (2) New Mexico Administrative Code (“NMAC”) for the applicability of the aluminum criteria is revised based on the language in the United States Environmental Protection Agency’s (“EPA”) partial approval of the criteria. The Department is also updating 20.6.4.901.H NMAC to reflect the most recent publication of the Colorado River Basin Salinity Control Forum report (“Report”) entitled, “Review, Water Quality Standards for Salinity, Colorado River System.”

The following are the proposed amendments, including a statement of basis for the amendment, marked in ~~strikeout~~ and underline below, are as follows:

**20.6.4.900 NMAC**

I. Hardness-dependent acute and chronic aquatic life criteria for metals are calculated using the following equations. The criteria are expressed as a function of dissolved hardness (as mg CaCO<sub>3</sub>/L). With the exception of aluminum, the equations are valid only for dissolved hardness concentrations of 0-400 mg/L. For dissolved hardness concentrations above 400 mg/L, the criteria for 400 mg/L apply. For aluminum the equations are valid only for dissolved hardness concentrations of 0-220 mg/L. For dissolved hardness concentrations above 220 mg/L, the aluminum criteria for 220 mg/L apply.

(1) **Acute aquatic life criteria for metals.** The equation to calculate acute criteria in µg/L is  $\exp(m_A[\ln(\text{hardness})] + b_A)(CF)$ . Except for aluminum, the criteria are based on analysis of dissolved metal. For aluminum, the criteria are based on analysis of total recoverable aluminum in a sample that is filtered to minimize mineral phases as specified by the department.

~~EPA approved the hardness-based equation for total recoverable aluminum as applicable only where the pH is equal to or greater than 6.5 in the receiving stream after mixing. When pH is less than 6.5 in the receiving stream after mixing, the more stringent of either the 87 µg/L chronic total recoverable aluminum criterion or the criterion resulting from the chronic hardness-based equation is applicable.~~ The EPA has disapproved the hardness-based equation for total recoverable aluminum in waters where the pH is less than 6.5 in the receiving stream for federal purposes of the Clean Water Act. The equation parameters are as follows:

<b>Metal</b>	<b>m<sub>A</sub></b>	<b>b<sub>A</sub></b>	<b>Conversion factor (CF)</b>
Aluminum (Al)	1.3695	1.8308	
Cadmium (Cd)	0.8968	-3.5699	$1.136672 - [(\ln \text{hardness})(0.041838)]$
Chromium (Cr) III	0.8190	3.7256	0.316

Copper (Cu)	0.9422	-1.700	0.960
Lead (Pb)	1.273	-1.460	1.46203-[(ln hardness)(0.145712)]
Manganese (Mn)	0.3331	6.4676	
Nickel (Ni)	0.8460	2.255	0.998
Silver (Ag)	1.72	-6.59	0.85
Zinc (Zn)	0.9094	0.9095	0.978

(2) **Chronic aquatic life criteria for metals.** The equation to calculate chronic criteria in  $\mu\text{g/L}$  is  $\exp(m_C[\ln(\text{hardness})] + b_C)(CF)$ . Except for aluminum, the criteria are based on analysis of dissolved metal. For aluminum, the criteria are based on analysis of total recoverable aluminum in a sample that is filtered to minimize mineral phases as specified by the department. EPA approved the hardness-based equation for total recoverable aluminum as applicable only where the pH is equal to or greater than 6.5 in the receiving stream after mixing. When pH is less than 6.5 in the receiving stream after mixing, the more stringent of either the 87  $\mu\text{g/L}$  chronic total recoverable aluminum criterion or the criterion resulting from the chronic hardness-based equation is applicable. The EPA has disapproved the hardness-based equation for total recoverable aluminum in waters where the pH is less than 6.5 for federal purposes of the Clean Water Act. The equation parameters are as follows:

Metal	$m_C$	$b_C$	Conversion factor (CF)
Aluminum (Al)	1.3695	0.9161	
Cadmium (Cd)	0.7647	-4.2180	1.101672-[(ln hardness)(0.041838)]
Chromium (Cr) III	0.8190	0.6848	0.860
Copper (Cu)	0.8545	-1.702	0.960
Lead (Pb)	1.273	-4.705	1.46203-[(ln hardness)(0.145712)]
Manganese (Mn)	0.3331	5.8743	
Nickel (Ni)	0.8460	0.0584	0.997
Zinc (Zn)	0.9094	0.6235	0.986

**STATEMENT OF BASIS:** The EPA approved the hardness-based criteria for chromium III, copper, lead, manganese, nickel, and silver adopted during the 2009 Triennial Review without exception. The EPA initially declined to take action on the hardness-based criteria for three metals (aluminum, cadmium, and zinc) citing the need for additional review. After the State of New Mexico (“State”) provided clarification, the EPA, in a letter on April 30, 2012 and Record of Decision (“ROD”) Addendum, approved the hardness-based criteria adopted for cadmium and zinc. For aluminum, the EPA provided limited approval stating:

“EPA has determined that the hardness-based equations would be protective for waters within the pH range of 6.5 to 9.0, particularly at low hardness levels, but would not be protective for waters below that pH range. Therefore, EPA is approving the hardness-based equation for aluminum for only those waters of the State where pH is equal to or greater than 6.5, but is disapproving these equations in waters where the pH is less than 6.5. Consistent with EPA's regulations, the previously approved 304(a) criteria for aluminum are thus the applicable water quality standards for purposes of the CWA in waters where

the pH is at or below 6.5. In such cases, as the permitting authority in New Mexico, EPA will apply the previously approved 87 µg/L chronic total recoverable aluminum criterion.”

See Attachment A. The EPA later explained by letter dated June 18, 2012 that the ROD contained a mistake by erroneously referring to total recoverable instead of the dissolved fraction applicable to the chronic criterion, 87 µg/L aluminum (as dissolved). However, the EPA’s recommendations remain problematic. The State’s proposal for hardness-based equation for aluminum included separate equations for both acute and chronic criteria. The EPA’s pH limitation apparently applies to both as it “is disapproving these equations in waters where the pH is less than 6.5.” However the EPA states they will apply “the previously approved 304(a) criteria for aluminum ... 87 µg/L chronic [dissolved] aluminum criterion” presumably for both the acute and chronic criteria despite that fact that there is a previously approved 304(a) criteria for acute dissolved aluminum, which is 750 µg/L. EPA’s letter does not provide a justification to apply the chronic criterion in place of the previously approved acute aluminum criterion in low pH waters.

The Department’s goal is to clarify in the standards the applicable water quality criterion for aluminum. We understand clearly that EPA has disapproved the hardness-based equations for aluminum for water below pH 6.5. The Department finds the EPA’s further recommendation is not well justified and ambiguous about what criteria should apply in low pH waters. In this situation, the approach suggested by the EPA to resolve the disapproval appears to apply the criteria for aluminum in a different way than recommended in the EPA’s 304(a) criteria document, and also deviates from use of the acute criteria of 750 ug/L (as dissolved) previously adopted by the State and approved by the EPA. See Attachment B.

**20.6.4.901 PUBLICATION REFERENCES:** These documents are intended as guidance and are available for public review during regular business hours at the offices of the surface water quality bureau. Copies of these documents have also been filed with the New Mexico state records center in order to provide greater access to this information.

- A. American public health association. 1992. *Standard methods for the examination of water and wastewater, 18th Edition*. Washington, D.C. 1048 p.
- B. American public health association. 1995. *Standard methods for the examination of water and wastewater, 19th Edition*. Washington, D.C. 1090 p.
- C. American public health association. 1998. *Standard methods for the examination of water and wastewater, 20th Edition*. Washington, D.C. 1112 p.
- D. United States geological survey. 1987. *Methods for determination of inorganic substances in water and fluvial sediments, techniques of water-resource investigations of the United States geological survey*. Washington, D.C. 80 p.
- E. United States geological survey. 1987. *Methods for the determination of organic substances in water and fluvial sediments, techniques of water-resource investigations of the U.S. geological survey*. Washington, D.C. 80 p.
- F. United States environmental protection agency. 1974. *Methods for chemical analysis of water and wastes*. National environmental research center, Cincinnati, Ohio. (EPA-625-/6-74-003). 298 p.
- G. New Mexico water quality control commission. 2003. *(208) state of New Mexico water quality management plan*. Santa Fe, New Mexico. 85 p.

- H.** Colorado river basin salinity control forum. ~~2002~~2014. *2002~~11~~14 Review, water quality standards for salinity, Colorado river system*. Phoenix, Arizona. 99 p.
- I.** United States environmental protection agency. 2002. *Methods for measuring the acute toxicity of effluents and receiving waters to freshwater and marine organisms*. Office of research and development, Washington, D.C. (5<sup>th</sup> Ed., EPA 821-R-02-012). 293 p. <http://www.epa.gov/ostWET/disk2/atx.pdf>
- J.** United States environmental protection agency. 2002. *Short-term methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms*. Environmental monitoring systems laboratory, Cincinnati, Ohio. ([4<sup>th</sup> Ed., EPA 821-R-02-01). 335 p.
- K.** Ambient-induced mixing, in United States environmental protection agency. 1991. *Technical support document for water quality-based toxics control*. Office of water, Washington, D.C. (EPA/505/2-90-001). 2 p.
- L.** United States environmental protection agency. 1983. *Technical support manual: waterbody surveys and assessments for conducting use attainability analyses*. Office of water, regulations and standards, Washington, D.C. 251 p. <http://www.epa.gov/OST/library/wqstandards/uaavol123.pdf>
- M.** United States environmental protection agency. 1984. *Technical support manual: waterbody surveys and assessments for conducting use attainability analyses, volume III: lake systems*. Office of water, regulations and standards, Washington, D.C. 208 p. <http://www.epa.gov/OST/library/wqstandards/uaavol123.pdf>

**STATEMENT OF BASIS:** The reference in Subsection H of 20.6.4.901 NMAC is updated to reflect the date of the most recent version of the Colorado River Basin Salinity Control Forum Review Report, which is anticipated to be approved in October, 2014. See Attachment C. The Report is updated on a triennial basis and the current draft does not recommended any changes to the implementation of water quality standards for salinity in 20.6.4.54 NMAC.

**IN THE MATTER OF THE PROPOSED AMENDMENTS TO STANDARDS FOR  
INTERSTATE AND INTRASTATE WATERS, 20.6.4 NMAC**

**WQCC No. 14-05 (R)**

ATTACHMENT A



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
1445 ROSS AVENUE, SUITE 1200  
DALLAS, TX 75202-2733

APR 30 2012

James P. Bearzi, Chief  
Surface Water Quality Bureau  
New Mexico Environment Department  
Harold Runnels Building (N2050)  
P.O. Box 5469  
Santa Fe, NM 87502-5469

Dear Mr. Bearzi:

I am pleased to inform you that the Environmental Protection Agency (EPA or the Agency) has completed its review of the *Standards for Interstate and Intrastate Surface Waters 20.6.4. NMAC*. Revisions to New Mexico's water quality standards were adopted by the New Mexico Water Quality Control Commission and filed in accordance with the State's Water Quality Act on November 1, 2010. EPA initiated its review when these revisions became effective as State law on December 1, 2010. EPA reviewed and took action on the majority of the State's revisions on April 12, 2011. The Agency decided to take some additional time before acting on other revisions in order to allow both the New Mexico Environment Department an opportunity to provide additional supporting information and to enable a more detailed review of the State's new metals criteria. In today's decision, EPA is approving the majority of the remaining new/revised amendments with one exception, described below.

After further review, we have determined that the provisions found at section **20.6.4.10 D. Site-specific criteria** represent implementation procedures and do not constitute water quality standards that require EPA's review or action under Clean Water Act (CWA) Section 303(c) and, as such, will not be taking action on them. Furthermore, we had no obligation to act on section **20.6.4.10 D. Site-specific criteria** in our April 12, 2011, action and hereby rescind the previous EPA action on the provision. Any site-specific criteria adopted under this provision, however, would constitute new water quality standards subject to EPA review and approval or disapproval under CWA Section 303(c) on a case-by-case basis.

EPA is approving the revised language in section **20.6.4.13 J. Turbidity**, with the expectation that the revised provision will be implemented consistent with the antidegradation policy and implementation methods in the State's standards and Continuing Planning Process and related documents.

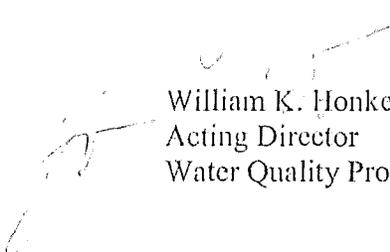
EPA previously took no action on the new or revised criteria for aluminum, cadmium, and zinc contained in section **20.6.4.900 I. (1) Acute and (2) Chronic Hardness-based Metals Criteria**. Based on an extensive review of the supporting documentation, we are approving the application of the hardness-dependent equation for aluminum to those waters of the State at a pH of 6.5 to 9.0 because it will yield criteria that are protective of applicable uses in waters within that pH range. However, EPA is disapproving the application of this equation in waters where the pH is below 6.5 as it may not be protective of applicable uses below that pH range.

Consistent with EPA's regulations, the previously approved 304(a) criteria for aluminum are thus the applicable water quality standards for purposes of the CWA in waters where the pH is at or below 6.5. In such cases, as the permitting authority in New Mexico, EPA will apply the previously approved 87 µg/L chronic total recoverable aluminum criterion. EPA is approving the hardness-dependent equations for both cadmium and zinc.

In acting on the State's revised water quality standards today, EPA is fulfilling its CWA Section 303(c) responsibilities. However, EPA's approval of water quality standards is considered a federal action which may be subject to the Section 7(a)(2) consultation requirements of the Endangered Species Act (ESA). EPA has initiated informal consultation under ESA Section 7(a)(2) with the U.S. Fish and Wildlife Service (USFWS) regarding our approval of certain new or revised water quality standards. EPA's approval of these standards is subject to the outcome of the ESA consultation process. Should the consultation process identify information regarding impacts on listed species or designated critical habitat that supports amending our approval, EPA will amend its approval decision for those new or revised water quality standards.

I appreciate the State's cooperative efforts to resolve these final few issues. If you need additional detail concerning this letter or the enclosed addendum to our original Record of Decision, please call me at (214) 665-3187, or have your staff may contact Russell Nelson at (214) 665-6646.

Sincerely,



William K. Honker, P.E.  
Acting Director  
Water Quality Protection Division

Enclosure

cc: James Hogan  
Surface Water Quality Bureau  
P.O. Box 5469  
New Mexico Environment Department

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**Attachment A**

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**IN THE MATTER OF THE PROPOSED AMENDMENTS TO STANDARDS FOR  
INTERSTATE AND INTRASTATE WATERS, 20.6.4 NMAC**

**WQCC No. 14-05 (R)**

**ATTACHMENT B**

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Water

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# Ambient Water Quality Criteria for

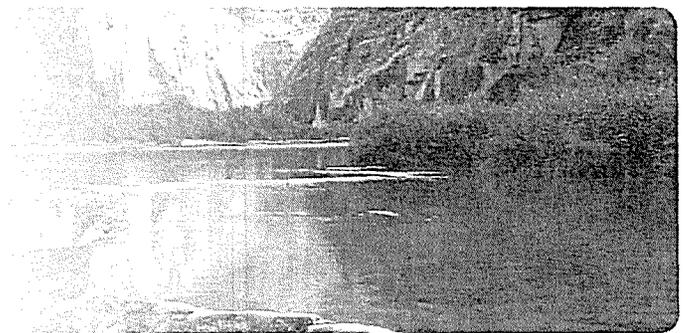
## Aluminum - 1988

**IN THE MATTER OF THE PROPOSED AMENDMENTS TO STANDARDS FOR  
INTERSTATE AND INTRASTATE WATERS, 20.6.4 NMAC**

**WQCC No. 14-05 (R)**

ATTACHMENT C

Attachment C



### News and Announcements

The Forum has approved its draft [2014 Review, Water Quality Standards for Salinity, Colorado River System](#), for public review and comment. Comments are due by September 15, 2014. It is anticipated that the Forum will adopt this Review, with any revisions, at its meeting in October. Please provide written comments to the Forum's Executive Director, Don Barnett, at the below address or by email to [dbarnett@barnettwater.com](mailto:dbarnett@barnettwater.com).

On May 27, Agriculture Secretary Vilsack announced that he has designated the Colorado River Basin as a Critical Conservation Area under the newly created [Regional Conservation Partnership Program](#) under the 2014 Farm Bill.

### Welcome to the Colorado River Basin Salinity Control Forum Website

Recognizing the rapidly increasing salinity concentration in the Lower Colorado River and its impact on water users, the Colorado River Basin States came together in 1973 and organized the Colorado River Basin Salinity Control Forum (Forum). In 1974, in coordination with the Department of the Interior and the U.S. State Department, the Forum worked with Congress in the passage of the Colorado River Basin Salinity Control Act (Act). Title I of the Act deals with the United States' salinity commitments to Mexico. Title II of the Act creates the Colorado River Basin Salinity Control Program (Program) which focuses on improving the water quality of the Colorado River to U.S. users above Imperial Dam.

Since implementation of the Program, measures have been put in place which now reduce the annual salt load of the Colorado River by more than 1.3 million tons. The salinity concentration at Imperial Dam has been reduced by about 90 mg/L. However, even with these efforts the *quantified* damages to U.S. users are still approximately \$382 million per year. Damages are projected to increase to \$614 million per year by 2035 if the Program does not continue to be aggressively implemented.