APA-1
11/96

TRANSMITTAL SHEET FOR NOTICE OF INTENDED ACTION

Control 335 Department or Agency **Environmental Management**
Rule No. **335-6-10-.07**
Rule Title: **Toxic Pollutant Criteria Applicable to State Waters**
____ New **X** Amend ____ Repeal ____ Adopt by Reference

Would the absence of the proposed rule significantly harm or endanger the public health, welfare, or safety? **YES**

Is there a reasonable relationship between the state's police power and the protection of the public health, safety, or welfare? **YES**

Is there another, less restrictive method of regulation available that could adequately protect the public? **NO**

Does the proposed rule have the effect of directly or indirectly increasing the costs of any goods or services involved and, if so, to what degree? **NO**

Is the increase in cost, if any, more harmful to the public than the harm that might result from the absence of the proposed rule? **NO**

Are all facts of the rulemaking process designed solely for the purpose of, and so they have, as their primary effect, the protection of the public? **YES**

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Does the proposed rule have an economic impact? **NO**

If the proposed rule has an economic impact, the proposed rule is required to be accompanied by a fiscal note prepared in accordance with subsection (f) of Section 41-22-23, Code of Alabama 1975.

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Certification of Authorized Official

I certify that the attached proposed rule has been proposed in full compliance with the requirements of Chapter 22, Title 41, Code of Alabama 1975, and that it conforms to all applicable filing requirements of the Administrative Procedure Division of the Legislative Reference Service.

Signature of certifying officer Marilyn Elliott

Date **October 21, 2013**

Date Filed
Stamp here

APA-2
11/96

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WATER DIVISION

NOTICE OF INTENDED ACTION

AGENCY NAME: Alabama Department of Environmental Management

RULE NO. & TITLE: 335-6-10-.07 Toxic Pollutant Criteria Applicable to State Waters (Amend)

INTENDED ACTION: The Alabama Department of Environmental Management proposes to amend rule 335-6-10-.07.

SUBSTANCE OF PROPOSED ACTION:
The Department proposes to amend rule 335-6-10-.07(1)(a) to correct a grammatical error and rule 335-6-10-.07, Table 1 to clarify that arsenic is expressed as the trivalent form.

TIME, PLACE, MANNER OF PRESENTING VIEWS:

Comments may be submitted in writing or orally at a public hearing to be held at 1:00 P.M., December 18, 2013, in the ADEM Main Hearing Room, 1400 Coliseum Boulevard, Montgomery, Alabama 36110.

FINAL DATE FOR COMMENT AND COMPLETION OF NOTICE: December 18, 2013

CONTACT PERSON AT AGENCY: Lynn Sisk (334) 271-7826

Mandy Elliott

Lance R. LeFleur
Director

335-6-10-.07 Toxic Pollutant Criteria Applicable to State Waters.

(1) The U. S. Environmental Protection Agency has listed the chemical constituents given in Table 1 as toxic pollutants pursuant to Section 307(a)(1) of the Federal Water Pollution Control Act (FWPCA). Concentrations of these toxic pollutants in State waters shall not exceed the criteria indicated in Table 1 to the extent commensurate with the designated usage of such waters.

(a) The freshwater and marine aquatic life criteria for certain ~~of the~~ pollutants are dependent on hardness or pH. For these pollutants, the criteria are given by the following equations. In the hardness-dependent equations for metals, a conversion factor converts the total recoverable value to a criterion expressed as the dissolved fraction in the water column. All numeric values listed for metals in Table 1 at the end of this chapter are expressed as dissolved metals unless otherwise noted.

1. Cadmium

(i) freshwater acute aquatic life:

$$\text{conc. } (\mu g/l) = (e^{(1.0166[\ln(\text{hardness in mg/l as } CaCO_3)]-3.924)})(CF); \quad \textbf{(Eq. 1)}$$

$$\text{conversion factor (CF)} = 1.136672-[\ln(\text{hardness})(0.041838)]$$

(ii) freshwater chronic aquatic life:

$$\text{conc. } (\mu g/l) = (e^{(0.7409[\ln(\text{hardness in mg/l as } CaCO_3)]-4.719)})(CF); \quad \textbf{(Eq. 2)}$$

$$\text{conversion factor (CF)} = 1.101672-[\ln(\text{hardness})(0.041838)]$$

2. Chromium (trivalent)

(i) freshwater acute aquatic life:

$$\text{conc. } (\mu g/l) = (e^{(0.8190[\ln(\text{hardness in mg/l as } CaCO_3)]+3.7256)})(CF); \quad \textbf{(Eq. 3)}$$

$$\text{conversion factor (CF)} = 0.316$$

(ii) freshwater chronic aquatic life:

$$\text{conc. } (\mu g/l) = (e^{(0.8190[\ln(\text{hardness in mg/l as } CaCO_3)]+0.6848)})(CF); \quad \textbf{(Eq. 4)}$$

$$\text{conversion factor (CF)} = 0.860$$

3. Copper

(i) freshwater acute aquatic life:

$$\text{conc. } (\mu g/l) = (e^{(0.9422[\ln(\text{hardness in mg/l as } CaCO_3)]-1.700)})(CF); \quad \textbf{(Eq. 5)}$$

conversion factor (CF) = 0.960

(ii) freshwater chronic aquatic life:

conc. (µg/l) = $(e^{(0.8545[\ln(\text{hardness in mg/l as } CaCO_3)]-1.702)})(CF)$; **(Eq. 6)**

conversion factor (CF) = 0.960

4. Lead

(i) freshwater acute aquatic life:

conc. (µg/l) = $(e^{(1.273[\ln(\text{hardness in mg/l as } CaCO_3)]-1.460)})(CF)$; **(Eq. 7)**

conversion factor (CF) = 1.46203-[ln(hardness)(0.145712)]

(ii) freshwater chronic aquatic life:

conc. (µg/l) = $(e^{(1.273[\ln(\text{hardness in mg/l as } CaCO_3)]-4.705)})(CF)$; **(Eq. 8)**

conversion factor (CF) = 1.46203-[ln(hardness)(0.145712)]

5. Nickel

(i) freshwater acute aquatic life:

conc. (µg/l) = $(e^{(0.8460[\ln(\text{hardness in mg/l as } CaCO_3)]+2.255)})(CF)$; **(Eq. 9)**

conversion factor (CF) = 0.998

(ii) freshwater chronic aquatic life:

conc. (µg/l) = $(e^{(0.8460[\ln(\text{hardness in mg/l as } CaCO_3)]+0.0584)})(CF)$; **(Eq. 10)**

conversion factor (CF) = 0.997

6. Pentachlorophenol

(i) freshwater acute aquatic life:

conc. (µg/l) = $e^{[1.005(pH)-4.869]}$ **(Eq. 11)**

(ii) freshwater chronic aquatic life:

conc. (µg/l) = $e^{[1.005(pH)-5.134]}$ **(Eq. 12)**

7. Silver

(i) freshwater acute aquatic life:

conc. (µg/l) = $(e^{(1.72[\ln(\text{hardness in mg/l as } CaCO_3)]-6.59)})(CF)$; **(Eq. 13)**

conversion factor (CF) = 0.85

8. Zinc

(i) freshwater acute aquatic life:

conc. ($\mu g/l$) = $(e^{(0.8473[\ln(\text{hardness in mg/l as } CaCO_3)]+0.884)})(CF)$; **(Eq. 14)**

conversion factor (CF) = 0.978

(ii) freshwater chronic aquatic life:

conc. ($\mu g/l$) = $(e^{(0.8473[\ln(\text{hardness in mg/l as } CaCO_3)]+0.884)})(CF)$; **(Eq. 15)**

conversion factor (CF) = 0.986

(b) The marine aquatic life criteria apply only to interstate and coastal waters of the Mobile River - Mobile Bay Basin and interstate and coastal waters of the Perdido River Basin, as identified in rule 335-6-11-.02 of the Department's regulations. The acute aquatic life criteria apply to all waters of the State. The chronic aquatic life criteria apply only to waters classified Outstanding Alabama Water, Public Water Supply, Swimming and Other Whole Body Water-Contact Sports, Shellfish Harvesting, Fish and Wildlife, and Limited Warmwater Fishery, as identified in rule 335-6-11-.02 of the Department's regulations.

(c) For the purpose of establishing effluent limitations pursuant to chapter 335-6-6 of the Department's regulations, the minimum 7-day low flow that occurs once in 10 years ($7Q_{10}$) shall be the basis for applying the chronic aquatic life criteria, except as noted in rule 335-6-10-.09(6), and the minimum 1-day low flow that occurs once in 10 years ($1Q_{10}$) shall be the basis for applying the acute aquatic life criteria, except as noted in rule 335-6-10-.09(7)(c)(5). Where a permit specifies a minimum flow greater than $7Q_{10}$, the specified minimum flow may be used as the basis for applying the acute and chronic aquatic life criteria for that permit.

(d) Except as noted in Table 1, two human health criteria are provided for each pollutant--a criterion for consumption of water and fish, and a criterion for consumption of fish only. For certain pollutants, the human health criterion for consumption of water and fish may represent a maximum contaminant level (MCL) developed under the Safe Drinking Water Act.

1. For pollutants classified by the U.S. Environmental Protection Agency as non-carcinogens, the criteria shall be given by the following equations, except where numeric values are given in Table 1.

(i) Consumption of water and fish:

conc. (mg/l) = $(HBW \times RfD \times RSC)/[(FCR \times BCF) + WCR]$ **(Eq. 16)**

(ii) Consumption of fish only:

conc. (mg/l) = $(HBW \times RfD \times RSC)/(FCR \times BCF)$ **(Eq. 17)**

where (in Equations 16 and 17):

HBW = human body weight, set at 70 kg

RfD = reference dose, in mg/(kg-day)

RSC = relative source contribution

FCR = fish consumption rate, set at 0.030 kg/day

BCF = bioconcentration factor, in l/kg

WCR = water consumption rate, set at 2 l/day

(iii) The values used for the reference dose (RfD) shall be values available through the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS), and values used for the bioconcentration factor (BCF) and relative source contribution (RSC) shall be values contained in ambient water quality criteria documents published by the U.S. Environmental Protection Agency, except where other values are established pursuant to subparagraph (1)(g). The RfD, RSC, and BCF values for specific pollutants are provided in Appendix A.

2. For pollutants classified by the U.S. Environmental Protection Agency as carcinogens, the criteria shall be given by the following equations, except where numeric values are given in Table 1.

(i) Consumption of water and fish:

$$\text{conc. (mg/l)} = (\text{HBW} \times \text{RL})/(\text{CPF} \times [(\text{FCR} \times \text{BCF}) + \text{WCR}]) \quad \textbf{(Eq. 18)}$$

(ii) Consumption of fish only:

$$\text{conc. (mg/l)} = (\text{HBW} \times \text{RL})/(\text{CPF} \times \text{FCR} \times \text{BCF}) \quad \textbf{(Eq. 19)}$$

where (in Equations 18 and 19):

HBW = human body weight, set at 70 kg

RL = risk level, set at 1×10^{-6} (except for arsenic which is set at 1×10^{-5})

CPF = cancer potency factor, in (kg-day)/mg

FCR = fish consumption rate, set at 0.030 kg/day

BCF = bioconcentration factor, in l/kg

WCR = water consumption rate, set at 2 l/day

(iii) The values used for the cancer potency factor (CPF) shall be values available through the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS), and values used for the bioconcentration factor (BCF) shall be values contained in ambient water quality criteria documents published by the U.S. Environmental Protection Agency, except where other values are established pursuant to subparagraph (1)(g). The CPF and BCF values for specific pollutants are provided in Appendix A.

(e) The criteria given in Table 1 for consumption of water and fish, or computed from equation 16 or equation 18 for consumption of water and fish, shall apply only to those waters of the State classified Public Water Supply, as identified in rule 335-6-11-.02 of the Department's regulations. The criteria given in Table 1 for consumption of fish only, or computed from equation 17 or equation 19 for consumption of fish only, shall apply to all waters of the State.

(f) For the purposes of establishing effluent limitations pursuant to chapter 335-6-6 of the Department's regulations, the minimum 7-day low flow that occurs once in 10 years ($7Q_{10}$) shall be the basis for applying the human health criteria for pollutants classified as non-carcinogens, and the mean annual flow shall be the basis for applying the human health criteria for pollutants classified as carcinogens; except that where a permit specifies a minimum flow greater than $7Q_{10}$, the specified minimum flow may be used as the basis for applying the human health criteria for pollutants classified as non-carcinogens for that permit.

(g) Numeric criteria may be computed by the Department from equations 16, 17, 18, and 19 using values for the reference dose (RfD), relative source contribution (RSC), cancer potency factor (CPF), and bioconcentration factor (BCF) determined by the Department in consultation with the State Department of Public Health after review of information available from sources other than the U.S. Environmental Protection Agency's Integrated Risk Information System (IRIS) or ambient water quality criteria documents. Such criteria, or the RfD, RSC, CPF, and BCF values used to compute criteria, shall not be effective until adopted following established rulemaking procedures.

Author: James E. McIndoe.
Statutory Authority: Code of Alabama 1975, §§ 22-22-9, 22-22A-5, 22-22A-6, 22-22A-8.
History: March 2, 1990. **Amended:** April 3, 1991; May 28, 1992; August 29, 1994; May 30, 1997; September 7, 2000; January 12, 2001; January 14, 2005; September 21, 2005; May 29, 2007; May 27, 2008; November 25, 2008; XXXXXX, 2014.