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 of this rule 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 of this rule to the extent commensurate with the designated usage of such waters.

(a) The freshwater and marine aquatic life criteria for certain 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 of this rule are expressed as dissolved metals unless otherwise noted.

1. Cadmium

(i) freshwater acute aquatic life:

$$conc.\ (\mu g/l) = \left(e^{(0.9789\ [\ln(hardness\ in\ mg/l\ as\ CaCO_3)]-3.866}\right)(CF);\ \textbf{(Eq. 1)}$$

conversion factor (CF) = 1.136672 - [ln(*hardness*)(0.041838)]

(ii) freshwater chronic aquatic life:

$$conc.\ (\mu g/l) = \left(e^{(0.7977\ [\ln(hardness\ in\ mg/l\ as\ CaCO_3)]-3.909}\right)(CF);\ \textbf{(Eq. 2)}$$

conversion factor (CF) = 1.101672 - [ln(*hardness*)(0.041838)]

2. Chromium (trivalent)

(i) freshwater acute aquatic life:

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

conversion factor (CF) = 0.316

(ii) freshwater chronic aquatic life:

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

conversion factor (CF) = 0.860

3. Copper

(i) freshwater acute aquatic life:

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

conversion factor (CF) = 0.960

(ii) freshwater chronic aquatic life:

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

conversion factor (CF) = 0.960

4. Lead

(i) freshwater acute aquatic life:

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

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

(ii) freshwater chronic aquatic life:

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

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

5. Nickel

(i) freshwater acute aquatic life:

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

conversion factor (CF) = 0.998

(ii) freshwater chronic aquatic life:

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

conversion factor (CF) = 0.997

6. Pentachlorophenol

(i) freshwater acute aquatic life:

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

(ii) freshwater chronic aquatic life:

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

7. Silver

(i) freshwater acute aquatic life:

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

conversion factor (CF) = 0.85

8. Zinc

(i) freshwater acute aquatic life:

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

conversion factor (CF) = 0.978

(ii) freshwater chronic aquatic life:

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

conversion factor (CF) = 0.986

(b) The marine aquatic life criteria apply to coastal waters, 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 in coastal waters and 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 in coastal waters and 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 of this rule, 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 of this rule.

(i) Consumption of water and fish:

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

(ii) Consumption of fish only:

conc. (mg/l) = (HBW x RfD x RSC)/(FCR x 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 of this rule.

(i) Consumption of water and fish:

conc. (mg/l) = (HBW x RL)/(CPF x [(FCR x BCF) + WCR]) **(Eq. 18)**

(ii) Consumption of fish only:

conc. (mg/l) = (HBW x RL)/(CPF x FCR x BCF) **(Eq. 19)**

where (in Equations 18 and 19):

HBW = human body weight, set at 70 kg

RL = risk level, set at 1 x 10^{-6} (except for arsenic which is set at 1 x 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 of this rule 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 of this rule 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 in coastal waters; 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 Alabama 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.~~

Table 1

Toxic Pollutant Criteria

Pollutant	Aquatic Life Criteria (in µg/l unless otherwise noted)				Human Health Criteria (in µg/l unless otherwise noted)	
	Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic	Consumption of Water and Fish	Consumption of Fish Only
Acenaphthene					Eq. 16	Eq. 17
Acrolein	3	3			Eq. 16	Eq. 17
Acrylonitrile [1]					Eq. 18	Eq. 19
Aldrin [1]	3.0		1.3		Eq. 18	Eq. 19

Pollutant	Aquatic Life Criteria (in µg/l unless otherwise noted)				Human Health Criteria (in µg/l unless otherwise noted)	
	Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic	Consumption of Water and Fish	Consumption of Fish Only
Anthracene					Eq. 16	Eq. 17
Antimony					Eq. 16	Eq. 17
Arsenic [1] (Risk level = 1 x 10^{-5})	340 (tri)	150 (tri)	69 (tri)	36 (tri)	Eq. 18	Eq. 19
Asbestos					7,000,000 fibers/l (MCL)	
Benzene [1]					Eq. 18	Eq. 19
Benzidine [1]					Eq. 18	Eq. 19
Benzo(a)anthracene [1]					Eq. 18	Eq. 19
Benzo(a)pyrene [1]					Eq. 18	Eq. 19
Benzo(b)fluoranthene [1]					Eq. 18	Eq. 19
Benzo(k)fluoranthene [1]					Eq. 18	Eq. 19
Bis(2-chloroethyl)ether [1]					Eq. 18	Eq. 19
Bis(2-chloroisopropyl)ether					Eq. 16	Eq. 17
Bis(2-ethylhexyl)phthalate [1]					Eq. 18	Eq. 19
Bromoform [1]					Eq. 18	Eq. 19
Butylbenzyl phthalate					Eq. 16	Eq. 17
Cadmium	Eq. 1	Eq. 2	33	7.9		

Pollutant	Aquatic Life Criteria (in µg/l unless otherwise noted)				Human Health Criteria (in µg/l unless otherwise noted)	
	Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic	Consumption of Water and Fish	Consumption of Fish Only
Carbaryl	2.1	2.1	1.6			
Carbon tetrachloride [1]					Eq. 18	Eq. 19
Chlordane [1]	2.4	0.0043	0.09	0.004	Eq. 18	Eq. 19
Chlorine	19	11	13	7.5		
Chlorobenzene					Eq. 16	Eq. 17
Chlorodibromomethane [1]					Eq. 18	Eq. 19
Chloroform [1]					Eq. 18	Eq. 19
2-Chloronaphthalene					Eq. 16	Eq. 17
2-Chlorophenol					Eq. 16	Eq. 17
Chlorpyrifos	0.083	0.041	0.011	0.0056		
Chromium (trivalent)	Eq. 3	Eq. 4				
Chromium (hexavalent)	16	11	1100	50		
Chrysene [1]					Eq. 18	Eq. 19
Copper	Eq. 5	Eq. 6	4.8	3.1	1300 (MCL)	
Cyanide (free)	22	5.2	1.0	1.0	Eq. 16	Eq. 17
4,4'-DDD [1]					Eq. 18	Eq. 19
4,4'-DDE [1]					Eq. 18	Eq. 19
4,4'-DDT [1]	1.1	0.001	0.13	0.001	Eq. 18	Eq. 19
Diazinon	0.17	0.17	0.82	0.82		
Dibenzo(a,h)anthracene [1]					Eq. 18	Eq. 19
1,2-Dichlorobenzene					Eq. 16	Eq. 17
1,3-Dichlorobenzene					Eq. 16	Eq. 17

Pollutant	Aquatic Life Criteria (in µg/l unless otherwise noted)				Human Health Criteria (in µg/l unless otherwise noted)	
	Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic	Consumption of Water and Fish	Consumption of Fish Only
1,4-Dichlorobenzene					Eq. 16	Eq. 17
3,3'-Dichlorobenzidine [1]					Eq. 18	Eq. 19
Dichlorobromomethane [1]					Eq. 18	Eq. 19
1,2-Dichloroethane [1]					Eq. 18	Eq. 19
1,1-Dichloroethylene					Eq. 16	Eq. 17
2,4-Dichlorophenol					Eq. 16	Eq. 17
1,2 Dichloropropane [1]					Eq. 18	Eq. 19
1,3 Dichloropropylene [1]					Eq. 18	Eq. 19
Dieldrin [1]	0.24	0.056	0.71	0.0019	Eq. 18	Eq. 19
2,4-Dimethylphenol					Eq. 16	Eq. 17
Diethyl phthalate					Eq. 16	Eq. 17
Dimethyl phthalate					Eq. 16	Eq. 17
Di-n-butyl phthalate					Eq. 16	Eq. 17
4,6-Dinitro-2-methylphenol					Eq. 16	Eq. 17
2,4 Dinitrotoluene [1]					Eq. 18	Eq. 19
2,4-Dinitrophenol					Eq. 16	Eq. 17
Dioxin (2,3,7,8-TCDD) [1]					Eq. 18	Eq. 19
1,2-Diphenylhydrazine [1]					Eq. 18	Eq. 19
Endosulfan (alpha)	0.22	0.056	0.034	0.0087	Eq. 16	Eq. 17
Endosulfan (beta)	0.22	0.056	0.034	0.0087	Eq. 16	Eq. 17

Pollutant	Aquatic Life Criteria (in µg/l unless otherwise noted)				Human Health Criteria (in µg/l unless otherwise noted)	
	Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic	Consumption of Water and Fish	Consumption of Fish Only
Endosulfan sulfate					Eq. 16	Eq. 17
Endrin	0.086	0.036	0.037	0.0023	Eq. 16	Eq. 17
Endrin aldehyde					Eq. 16	Eq. 17
Ethylbenzene					Eq. 16	Eq. 17
Fluoranthene					Eq. 16	Eq. 17
Fluorene					Eq. 16	Eq. 17
Heptachlor [1]	0.52	0.0038	0.053	0.0036	Eq. 18	Eq. 19
Heptachlor epoxide [1]	0.52	0.0038	0.053	0.0036	Eq. 18	Eq. 19
Hexachlorobenzene [1]					Eq. 18	Eq. 19
Hexachlorobutadiene [1]					Eq. 18	Eq. 19
Hexachlorocyclohexane (alpha) [1]					Eq. 18	Eq. 19

Pollutant	Aquatic Life Criteria (in µg/l unless otherwise noted)				Human Health Criteria (in µg/l unless otherwise noted)	
	Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic	Consumption of Water and Fish	Consumption of Fish Only
Hexachlorocyclohexane (beta) [1]					Eq. 18	Eq. 19
Hexachlorocyclohexane (gamma)	0.95		0.16		Eq. 16	Eq. 17
Hexachlorocyclopentadiene					Eq. 16	Eq. 17
Hexachloroethane [1]					Eq. 18	Eq. 19
Indeno (1,2,3-cd) pyrene [1]					Eq. 18	Eq. 19
Isophorone [1]					Eq. 18	Eq. 19
Lead	Eq. 7	Eq. 8	210	8.1		
Malathion		0.1		0.1		
Mercury (total recoverable)	2.4	0.012	2.1	0.025	Eq. 16	Eq. 17
Methoxychlor		0.03		0.03		
Methyl bromide					Eq. 16	Eq. 17
Methylene chloride [1]					Eq. 18	Eq. 19
Mirex		0.001		0.001		

Pollutant	Aquatic Life Criteria (in µg/l unless otherwise noted)				Human Health Criteria (in µg/l unless otherwise noted)	
	Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic	Consumption of Water and Fish	Consumption of Fish Only
Nickel	Eq. 9	Eq. 10	74	8.2	Eq. 16	Eq. 17
Nitrobenzene					Eq. 16	Eq. 17
N-Nitrosodimethylamine [1]					Eq. 18	Eq. 19
N-Nitrosodi-n-propylamine [1]					Eq. 18	Eq. 19
N-Nitrosodiphenylamine [1]					Eq. 18	Eq. 19
Parathion	0.065	0.013				
PCB-1016 [1,2]		0.014		0.03	Eq. 18	Eq. 19
PCB-1221 [1,2]		0.014		0.03	Eq. 18	Eq. 19
PCB-1232 [1,2]		0.014		0.03	Eq. 18	Eq. 19
PCB-1242 [1,2]		0.014		0.03	Eq. 18	Eq. 19
PCB-1248 [1,2]		0.014		0.03	Eq. 18	Eq. 19
PCB-1254 [1,2]		0.014		0.03	Eq. 18	Eq. 19

Pollutant	Aquatic Life Criteria (in µg/l unless otherwise noted)				Human Health Criteria (in µg/l unless otherwise noted)	
	Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic	Consumption of Water and Fish	Consumption of Fish Only
PCB-1260 [1,2]		0.014		0.03	Eq. 18	Eq. 19
Pentachlorophenol [1]	Eq. 11	Eq. 12	13	7.9	Eq. 18	Eq. 19
Phenol					Eq. 16	Eq. 17
Pyrene					Eq. 16	Eq. 17
Selenium[3]	20	5.0	290	71	Eq. 16	Eq. 17
Silver	Eq. 13		1.9			
1,1,2,2-Tetrachloroethane [1]					Eq. 18	Eq. 19
Tetrachloroethylene [1]					Eq. 18	Eq. 19
Thallium					Eq. 16	Eq. 17
Toluene					Eq. 16	Eq. 17
Toxaphene [1]	0.73	0.0002	0.21	0.0002	Eq. 18	Eq. 19

Pollutant	Aquatic Life Criteria (in µg/l unless otherwise noted)				Human Health Criteria (in µg/l unless otherwise noted)	
	Freshwater Acute	Freshwater Chronic	Marine Acute	Marine Chronic	Consumption of Water and Fish	Consumption of Fish Only
1,2-Trans-dichloroethylene					Eq. 16	Eq. 17
Tributyltin (TBT)	0.46	0.072	0.42	0.0074		
1,2,4-Trichlorobenzene					Eq. 16	Eq. 17
1,1,2-Trichloroethane [1]					Eq. 18	Eq. 19
Trichloroethylene [1]					Eq. 18	Eq. 19
2,4,6-Trichlorophenol [1]					Eq. 18	Eq. 19
Vinyl chloride [1]					Eq. 18	Eq. 19
Zinc	Eq. 14	Eq. 15	90	81	Eq. 16	Eq. 17

1 Pollutants considered by EPA to be carcinogenic.

2 The criteria for Polychlorinated Biphenyls (PCBs) apply to total PCBs, which is defined as the sum of the seven particular Aroclors (1016, 1221, 1232, 1242, 1248, 1254, and 1260) listed in this table.

3 The freshwater aquatic life criteria for selenium are expressed in terms of total recoverable metal in the water column.

Author: James E. McIndoe, Chris L. Johnson

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335-6-10-.11 Water Quality Criteria Applicable To Specific Lakes.

(1) For certain lakes and reservoirs, waterbody-specific criteria are appropriate to enhance nutrient management. The response to nutrient input may vary significantly lake-to-lake, and for a given lake year-to-year, depending on a number of factors such as rainfall distribution and hydraulic retention time. For this reason, lake nutrient quality targets necessary to maintain and protect existing uses, expressed as chlorophyll a criteria, may also vary lake-to-lake. Because the relationship between nutrient input and lake chlorophyll a levels is not always well-understood, it may be necessary to revise the criteria as additional water quality data and improved assessment tools become available.

(2) The following lake-specific criteria apply to the waters listed below, in addition to any other applicable criteria commensurate with the designation usage of such waters.

(a) The Alabama River Basin

1. Claiborne Lake: those waters impounded by Claiborne Lock and Dam on the Alabama River. The lake has a surface area of 5,930 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 15 µg/l, as measured at the deepest point, main river channel, dam forebay.

2. Dannelly Lake: those waters impounded by Millers Ferry Lock and Dam on the Alabama River. The lake has a surface area of 17,200 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 17 µg/l, as measured at the deepest point, main river channel, dam forebay.

3. Woodruff Lake: those waters impounded by Robert F. Henry Lock and Dam on the Alabama River. The lake has a surface area of 12~~.~~, 510 acres at full pool.

(i) Chlorophyll *a* (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition,* 1998): the mean of the photic zone composite chlorophyll *a* samples collected monthly April through October shall not exceed 16 µg/l, as measured at the deepest point, main river channel, dam forebay.

(b) The Black Warrior River Basin

1. Warrior Lake: those waters impounded by Warrior Lock and Dam on the Black Warrior River. The lake has a surface area of 7,800 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 12 µg/l, as measured at the deepest point, main river channel, dam forebay.

2. Oliver Lake: those waters impounded by William Bacon Oliver Lock and Dam on the Black Warrior River. The lake has a surface area of 800 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 12 µg/l, as measured at the deepest point, main river channel, dam forebay.

3. Holt Lake: those waters impounded by Holt Lock and Dam on the Black Warrior River. The lake has a surface area of 3,200 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 16 µg/l, as measured at the deepest point, main river channel, dam forebay.

4. Lake Tuscaloosa: those waters impounded by Lake Tuscaloosa Dam on the North River. The lake has a surface area of 5,885 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 8 µg/l, as measured at the deepest point, main river channel, dam forebay.

5. Bankhead Lake: those waters impounded by John Hollis Bankhead Lock and Dam on the Black Warrior River. The lake has a surface area of 9,200 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 16 µg/l, as measured at the deepest point, main river channel, dam forebay.

6. Smith Lake: those waters impounded by Lewis M. Smith Dam on the Sipsey Fork River. The lake has a surface area of 21,200 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 5 µg/l, as measured at the deepest point, main river channel, dam forebay; 5 µg/l, as measured at the deepest point, main river channel, at Duncan Creek/Sipsey River confluence (downstream of the Alabama Highway 257 bridge); and 5 µg/l, as measured at the deepest point, main river channel, immediately downstream of Brushy Creek confluence.

7. Inland Lake: those waters impounded by Inland Lake Dam on the Blackburn Fork of the Little Warrior River. The lake has a surface area of 1,095 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 6 µg/l, as measured at the deepest point, main river channel, dam forebay.

(c) The Cahaba River Basin

1. Lake Purdy: those waters impounded by Lake Purdy Dam at the headwaters of the Cahaba River. The lake has a surface area of 1,050 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 16 µg/l, as measured at the deepest point, main river channel, dam forebay; or 18 µg/l, as measured at the deepest point, main river channel, immediately upstream of the Irondale Bridge.

(d) The Chattahoochee River Basin

1. Walter F. George Lake: those waters impounded by Walter F. George Lock and Dam on the Chattahoochee River. The lake has a surface area of 45,181 acres at full power pool, 18,672 acres of which are within Alabama. The Alabama-Georgia state line is represented by the west bank of the original river channel, and the points of measurement for the criteria given below are located in Georgia waters.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 15 µg/l, as measured at the deepest point, main river channel, dam forebay; or 18 µg/l, as measured at the deepest point, main river channel, approximately 0.25 miles upstream of U.S. Highway 82.

2. Lake Harding: those waters impounded by Bartletts Ferry Dam on the Chattahoochee River. The lake has a surface area of 5,850 acres at full pool, 2,176 acres of which are within Alabama. The point of measurement for the criterion given below is located in Georgia waters.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 15 µg/l, as measured at the deepest point, main river channel, dam forebay.

3. West Point Lake: those waters impounded by West Point Dam on the Chattahoochee River. The lake has a surface area of 25,864 acres at full power pool, 2,765 acres of which are within Alabama. The point of measurement for the criterion given below is located in Georgia waters.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 22 µg/1, as measured at the deepest point, main river channel, dam forebay; or 24 µg/l, as measured at the LaGrange Water Intake.

(e) The Coosa River Basin

1. Weiss Lake: those waters impounded by Weiss Dam on the Coosa River. The lake has a surface area of 30,200 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 20 µg/1, as measured at the deepest point, main river channel, power dam forebay; or 20 µg/1, as measured at the deepest point, main river channel, immediately upstream of causeway (Alabama Highway 9) at Cedar Bluff. If the mean of photic-zone composite chlorophyll a samples collected monthly April through October is significantly less than 20 µg/1 for a given year, the Department will re-evaluate the chlorophyll a criteria, associated nutrient management strategies, and available data and information, and recommend changes, if appropriate, to maintain and protect existing uses.

2. Neely Henry Lake: those waters impounded by Neely Henry Dam on the Coosa River. The lake has a surface area of 11,235 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 18 µg/l, as measured at the deepest point, main river channel, dam forebay; or 18 µg/l, as measured at the

deepest point, main river channel, immediately upstream of Alabama Highway 77 bridge.

3. Logan Martin Lake: those waters impounded by Logan Martin Dam on the Coosa River. The lake has a surface area of 15,263 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 17 µg/l, as measured at the deepest point, main river channel, dam forebay; or 17 µg/l, as measured at the deepest point, main river channel, approximately 1.5 miles downstream of Alabama Highway 34 bridge.

4. Lay Lake: those waters impounded by Lay Dam on the Coosa River. The lake has a surface area of 12,000 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 17 µg/l, as measured at the deepest point, main river channel, dam forebay; or 17 µg/l, as measured at the deepest point, main river channel, immediately downstream of Peckerwood Creek/Coosa River confluence.

5. Mitchell Lake: those waters impounded by Mitchell Dam on the Coosa River. The lake has a surface area of 5,850 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 14 µg/l, as measured at the deepest point, main river channel, dam forebay; or 16 µg/l, as measured at the deepest point, main river channel, downstream of Foshee Islands.

6. Jordan Lake: those waters impounded by Jordan Dam on the Coosa River. The lake has a surface area of 6,800 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 14 µg/l, as measured at the deepest point, main river channel, dam forebay.

(f) The Escambia River Basin

1. Point A Lake: those waters impounded by Point A Dam on the Conecuh River. The lake has a surface area of 900 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 9 µg/l, as measured at the deepest point, main river channel, dam forebay.

2. Gantt Lake: those waters impounded by Gantt Dam on the Conecuh River. The lake has a surface area of 2,767 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 11 µg/l, as measured at the deepest point, main river channel, dam forebay.

(g) The Escatawpa River Basin

1. Big Creek Lake (J.B. Converse Lake): those waters impounded on Big Creek. The lake is a tributary-storage reservoir and has a surface area of 3,600 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 11 µg/l, as measured at the deepest point, main river channel, dam forebay.

(h) The Tallapoosa River Basin

1. Thurlow Lake: those waters impounded by Thurlow Dam on the Tallapoosa River. The reservoir has a surface area of 574 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 5 µg/l, as measured at the deepest point, main river channel, dam forebay.

2. Yates Lake: those waters impounded by Yates Dam on the Tallapoosa River. The lake has a surface area of 2,000 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 5 µg/l, as measured at the deepest point, main river channel, dam forebay.

3. Lake Martin: those waters impounded by Martin Dam on the Tallapoosa River. The lake has a surface area of 40,000 acres at full pool.

(i) Chlorophyll a (corrected, as described in S*tandard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 5 µg/l, as measured at the deepest point, main river channel, dam forebay; or 5 µg/l, as measured at the deepest point main river channel, immediately upstream of Blue Creek embayment; or 5 µg/l as measured at the deepest point, main creek channel, immediately upstream of Alabama Highway 63 (Kowaliga) bridge.

4. R. L. Harris Lake: those waters impounded by R. L. Harris Dam on the Tallapoosa River. The lake has a surface area of 10,660 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic zone composite chlorophyll a samples collected monthly April through October shall not exceed 10µg/

l, as measured at the deepest point, main river channel, dam forebay; or 12 µg/l, as measured at the deepest point, main river channel, immediately upstream of the Tallapoosa River – Little Tallapoosa River confluence.

(i) The Tennessee River Basin

1. Pickwick Lake: those waters impounded by Pickwick Dam on the Tennessee River. The reservoir has a surface area of 43,100 acres at full pool, 33,700 acres of which are within Alabama. The point of measurement for the criterion given below is located in Tennessee waters.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through September shall not exceed 18 µg/l, as measured at the deepest point, main river channel, dam forebay.

2. Wilson Lake: those waters impounded by Wilson Dam on the Tennessee River. The lake has a surface area of 15,930 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through September shall not exceed 18 µg/l, as measured at the deepest point, main river channel, dam forebay.

3. Wheeler Lake: those waters impounded by Wheeler Dam on the Tennessee River. The lake has a surface area of 67,100 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through September shall not exceed 18 µg/l, as measured at the deepest point, main river channel, dam forebay.

4. Guntersville Lake: those waters impounded by Guntersville Dam on the Tennessee River. The lake

has a surface area of 69,700 acres at full pool, 67,900 of which are within Alabama.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll a samples collected monthly April through September shall not exceed 18 µg/l, as measured at the deepest point, main river channel, dam forebay.

5. Cedar Creek Lake: those waters impounded by Cedar Creek Dam on Cedar Creek. The reservoir has a surface area of 4,200 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 8 µg/l, as measured at the deepest point, main creek channel, dam forebay.

6. Little Bear Creek Lake: those waters impounded by Little Bear Dam on Little Bear Creek. The reservoir has a surface area of 1,600 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 8 µg/l, as measured at the deepest point, main creek channel, dam forebay.

7. Bear Creek Lake: those waters impounded by Bear Creek Dam on Bear Creek. The reservoir has a surface area of 670 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 16 µg/l, as measured at the deepest point, main creek channel, dam forebay.

8. Upper Bear Creek Lake: those waters impounded by Upper Bear Creek Dam on Upper Bear Creek. The

reservoir has a surface area of 1,850 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 16 µg/l, as measured at the deepest point, main creek channel, dam forebay.

(j) The Tombigbee River Basin

1. Coffeeville Lake: those waters impounded by Coffeeville Dam on the Tombigbee River. The lake has a surface area of 8,500 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 10 µg/l, as measured at the deepest point, main river channel, upstream of the lock canal.

2. Demopolis Lake: those waters impounded by Demopolis Dam downstream of the confluence of the Tombigbee and the Black Warrior Rivers. The lake has a surface area of 10,000 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 10 µg/l, as measured at the deepest point, main river channel, dam forebay.

3. Gainesville Lake: those waters impounded by Gainesville Dam on the Tombigbee River. The lake has a surface area of 6,400 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 14 µg/l, as measured at the deepest point, main river channel, dam forebay.

4. Aliceville Lake: those waters impounded by Tom Bevill Dam on the Tombigbee River. The lake has a surface area of 8,300 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 18 µg/l, as measured at the deepest point, main river channel, dam forebay.

(k) The Yellow River Basin

1. Lake Jackson: This natural lake, located in Florala, Alabama, has a surface area of 256 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 7 µg/l, as measured at mid-lake.

2. Lake Frank Jackson: those waters impounded on Lightwood Knot Creek. The lake has a surface area of 1,000 acres at full pool.

(i) Chlorophyll a (corrected, as described in *Standard Methods for the Examination of Water and Wastewater, 20th Edition*, 1998): the mean of the photic-zone composite chlorophyll a samples collected monthly April through October shall not exceed 12 µg/l, as measured at the deepest point, main creek channel, dam forebay.

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