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Statutory Authority: 48-1-10 et seq.
Document Number: 4670
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Subject: Water Classifications and Standards

History: 4670

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Document No. 4670
DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
CHAPTER 61
Statutory Authority: 1976 Code Sections 48-1-10 et seq.

61-68. Water Classifications and Standards

Preamble:

The Department proposes to amend R.61-68 to strengthen and improve the existing regulation and make appropriate revisions of the State's water quality standards in accordance with 33 U.S.C. Section 303(c)(2)(B) of the Federal Clean Water Act ("CWA"). In accordance with Section 303(c)(2)(B) of the CWA, the Department reviews, and amend at its discretion, this regulation once every three years in order to incorporate desirable most recently published Federal criterion recommendations and guidance. Hence, this review process is often referred to as the "triennial review." The Department proposes to adopt a revised standard for ambient water quality criteria for the protection of human health for ninety-four chemical pollutants, and a revised standard for aquatic life water quality criteria for cadmium to reflect the most current final published criteria in accordance with Sections 304(a) and 307(a) of the CWA.

A Notice of Drafting was published in the *State Register* on February 26, 2016. The notice was placed on the Department's water quality standards webpage and circulated to stakeholders and other interested parties. The Notice of Drafting was also published on the Department's Regulatory Page in its DHEC Regulation Development Update. Comments were received and used in the drafting of the proposed regulation.

Discussion of Proposed Revisions

Section Citation and Explanation of Change

(1) Revision of Federal toxics criteria to reflect the most current final published criteria in accordance with Sections 304(a) and 307(a) of the CWA.

R.61-68 APPENDIX, Water Quality Numeric Criteria for the Protection of Aquatic Life and Human Health "Priority Toxic Pollutants", "Non Priority Pollutants" and "Attachment 2 - Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent" - The proposed revised language is added to reflect the EPA's most recent recommendations and guidance concerning ambient water quality criteria for the protection of human health for ninety-four chemical pollutants and concerning aquatic life water quality criteria for cadmium.

Notice of Public Hearing and Opportunity for Public Comment:

DHEC Staff-Conducted Informational Forum:

Staff of the Department of Health and Environmental Control invites the public and regulated community to attend a staff-conducted informational forum to be held on October 24, 2016, at 1:00 p.m. in the Linton Room (4011), fourth floor of the Sims Building at the South Carolina Department of Health and Environmental Control, 2600 Bull Street, Columbia, SC. The purpose of the forum is to answer questions, clarify any issues, and receive comments from interested persons on the proposed amendments to R.61-68, Water Classifications and Standards.

Public Comment Period:

Interested persons are also provided an opportunity to submit written comments on the proposed amendments by writing to Andrew Edwards at Bureau of Water, South Carolina Department of Health and Environmental Control, 2600 Bull Street, Columbia, SC 29201; by email at edwardaj@dhec.sc.gov or fax at (803) 898-4215.

Comments received at the forum and/or submitted in writing by the close of the comment period on October 24, 2016, no later than 5:00 p.m. shall be considered by staff in formulating the final proposed regulations for public hearing on December 8, 2016, as noticed below. Comments received shall be submitted in a Summary of Public Comments and Department Responses for the Board of Health and Environmental Control's consideration at the public hearing noticed below.

Copies of the proposed amendments for public comment as published in the State Register on September 23, 2016, may be obtained in the Department's Regulation Development Update on the Department's Regulatory Internet site under the Water category at: http://www.dhec.sc.gov/Agency/RegulationsAnd/RegulationDevelopmentUpdate/. A copy can also be obtained by contacting Andrew Edwards, Water Quality Standards Coordinator at the above address or by calling (803) 898-1271, or by email at edwardaj@dhec.sc.gov.

Notice of Public Hearing Pursuant to S.C. Code Section 1-23-111:

Interested members of the public and regulated community are also invited to make oral and/or written comments on the proposed amendments of 61-68 at a public hearing to be conducted by the Board of Health and Environmental Control at its regularly scheduled meeting on December 8, 2016. The Board will conduct the public hearing in the Board Room, Third floor, Aycock Building of the Department of Health and Environmental Control at 2600 Bull Street, Columbia, South Carolina 29201. The Board meeting commences at 10:00 a.m. at which time the Board will consider items on its agenda in the order presented. The order of presentation for public hearings will be noted in the Board's agenda published by the Department twenty-four (24) hours in advance of the meeting at the following address: http://www.scdhec.gov/Agency/docs/AGENDA.PDF. Persons desiring to make oral comments at the hearing are asked to limit their statements to five minutes or less and, as a courtesy, are asked to provide written copies of their presentation for the record. Due to admittance procedures at the DHEC Building, all visitors should enter through the Bull Street entrance and register at the front desk.

Preliminary Fiscal Impact Statement:

No costs to the State or significant cost to its political subdivisions as a whole should be incurred by these amendments. See Statement of Need and Reasonableness below.

Statement of Need and Reasonableness:

The statement of need and reasonableness was determined by staff analysis pursuant to S.C. Code Ann. Section 1-23-115(C)(1)-(3) and (9)-(11) (2005):

DESCRIPTION OF REGULATIONS: Amendment of Regulation 61-68, *Water Classifications and Standards*.

Purpose: Proposed amendment of R.61-68 will clarify, strengthen, and improve the overall quality of the existing regulation and make appropriate revisions of the State's water quality standards in accordance with 33 U.S.C. Section 303(c)(2)(B) of the Federal Clean Water Act ("CWA").

Legal Authority: 1976 Code Sections 48-1-10 et seq.

Plan for Implementation: The proposed amendments would be incorporated within R.61-68 upon approval of the General Assembly and publication in the State Register. The proposed amendments will be implemented in the same manner in which the present regulation is implemented.

DETERMINATION OF NEED AND REASONABLENESS OF THE PROPOSED REGULATIONS BASED ON ALL FACTORS HEREIN AND EXPECTED BENEFIT:

The Department proposes these amendments in accordance with 33 U.S.C. Section 303(c)(2)(B) of the CWA. The proposed amendments to R.61-68 include the following:

- Modification and adoption of federal ambient water quality criteria for the protection of human health for ninety-four chemical pollutants to reflect the most current final published criteria in accordance with Sections 304(a) and 307(a) of the CWA. This modification amends R.61-68 APPENDIX, Water Quality Numeric Criteria for the Protection of Aquatic Life and Human Health Priority Toxic Pollutants and Non Priority Pollutants.

- Modification and adoption of federal aquatic life water quality criteria for cadmium to reflect the most current final published criteria in accordance with Sections 304(a) and 307(a) of the CWA. This modification amends R.61-68 APPENDIX, Water Quality Numeric Criteria for the Protection of Aquatic Life and Human Health Priority Toxic Pollutants.

The proposed changes to R.61-68 relating to human health criteria and cadmium criteria are reasonable because the stated criteria in the amendments are based on sound scientific principles and comply with the goals of 33 U.S.C. Sections 101(a)(2) and 303(c) of the CWA for protection and maintenance of the uses of the waters of the State. These changes reflect the EPA's most recent criteria.

DETERMINATION OF COSTS AND BENEFITS:

Existing staff and resources will be utilized to implement these amendments to the regulation. No anticipated additional cost will be incurred by the State if the revisions are implemented, and no additional State funding is being requested.

In reviewing the potential for significant economic impact of the proposed amendment to R.61-68, the Department specifically evaluated situations in which costs would most likely be incurred by the regulated community. These estimates addressed the specific revisions by issue after determining those of greatest potential impact. The Department found that the overall impact to the State's political subdivisions or the regulated community as a whole was not likely to be significant in that the existing standards would have incurred similar cost or the fact that the standards required under the amendment will be substantially consistent with the current guidelines and review guidelines utilized by the Department.

UNCERTAINTIES OF ESTIMATES:

Minimal.

EFFECT ON ENVIRONMENT AND PUBLIC HEALTH:

Implementation of these amendments will not compromise the protection of the environment or the health and safety of the citizenry of the State. The amendments to R.61-68 seek to promote and protect aquatic life and human health by the regulation of pollutants into waters of the State.

DETRIMENTAL EFFECT ON THE ENVIRONMENT AND PUBLIC HEALTH IF THE REGULATIONS ARE NOT IMPLEMENTED:

Failure by the Department to incorporate appropriately protective water quality standards in R.61-68 that are the basis for issuance of National Pollutant Discharge Elimination System ("NPDES") permits, stormwater permits, wasteload and load allocations, groundwater remediation plans, and multiple other program areas will lead to contamination of the waters of the State with detrimental effects on the health of flora and fauna in the State as well as the citizens of South Carolina.

Statement of Rationale:

The Department proposes to amend R.61-68 to strengthen and improve the existing regulation and make appropriate revisions of the State's water quality standards in accordance with 33 U.S.C. Section 303(c)(2)(B) of the Federal Clean Water Act ("CWA"). In accordance with Section 303(c)(2)(B) of the CWA, the Department reviews, and amends at its discretion, this regulation once every three years in order to incorporate desirable most recently published Federal criterion recommendations and guidance. Hence, this review process is often referred to as the "triennial review." The Department proposes to adopt a revised standard for ambient water quality criteria for the protection of human health for ninety-four chemical pollutants, and a revised standard for aquatic life water quality criteria for cadmium to reflect the most current final published criteria in accordance with Sections 304(a) and 307(a) of the CWA.

~~Indicates Matter Stricken~~
Indicates New Matter

Text:

R.61-68 APPENDIX, Water Quality Numeric Criteria for the Protection of Aquatic Life and Human Health

Amend the "Priority Toxic Pollutants" table and footnotes to in entirety to read:

APPENDIX: WATER QUALITY NUMERIC CRITERIA FOR THE PROTECTION OF AQUATIC LIFE AND HUMAN HEALTH

This appendix contains three charts (priority pollutants, nonpriority pollutants, and organoleptic effects) of numeric criteria for the protection of human health and aquatic life. The appendix also contains three attachments which address hardness conversions and application of ammonia criteria. Footnotes specific to each chart follow the chart. General footnotes pertaining to all are at the end of the charts prior to the attachments. The numeric criteria developed and published by EPA are hereby incorporated into this regulation. Please refer to the text of the regulation for other general information and specifications in applying these numeric criteria.

PRIORITY TOXIC POLLUTANTS

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	Organism Only (µg/L)	MCL (µg/L)	
1	Antimony	7440360					5.6 B, ee	640 B, ee	6 ee	65FR66443 SDWA
2	Arsenic	7440382	340 A, D, K	150 A, D, K	69 A, D, Y	36 A, D, Y	10 C	10 C	10 C	65FR31682 57FR60848 SDWA
3	Beryllium	7440417					J, ee	J, ee	4 ee	65FR31682 SDWA
4	Cadmium	7440439	~~0.53~~ 0.49 D, E, ~~K~~ Y	~~0.10~~ 0.25 D, E, ~~K~~ Y	~~43~~ 33 D, Y	~~9.3~~ 7.9 D, Y	J, ee	J, ee	5 ee	~~65FR31682~~ 81FR19176 SDWA
5a	Chromium III	16065831	580 D, E, K	28 D, E, K			J, ee	J, ee	100 Total ee	EPA820/B-96-001 65FR31682 SDWA
5b	Chromium VI	18540299	16 D, K	11 D, K	1,100 D, Y	50 D, Y	J, ee	J, ee	100 Total ee	65FR31682 SDWA
6	Copper	7440508	3.8 D, E, K, Z, ll	2.9 D, E, K, Z, ll	5.8 D, Z, Y, cc	3.7 D, Z, Y, cc	1,300 T, ee			65FR31682
7	Lead	7439921	14 D, E, Y	0.54 D, E, Y	220 D, Y	8.5 D, Y				65FR31682

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	Organism Only (µg/L)	MCL (µg/L)	
8	Mercury	7439976	1.6 D, K, dd	0.91 D, K, dd	2.1 D, bb, dd	1.1 D, bb, dd	0.050 B, ee	0.051 B, ee	2 ee	65FR31682 SDWA
9	Nickel	7440020	150 D, E, K	16 D, E, K	75 D, Y	8.3 D, Y	610 B, ee	4, 600 B, ee		65FR31682
10	Selenium	7782492	L, Q, S	5.0 S	290 D, aa	71 D, aa	170 Z, ee	4,200 ee	50 ee	65FR31682 65FR66443 SDWA
11	Silver	7440224	0.37 D, E, G		2.3 D, G					65FR31682
12	Thallium	7440280					0.24	0.47	2 ee	68FR75510 SDWA
13	Zinc	7440666	37 D, E, K	37 D, E, K	95 D, Y	86 D, Y	7,400 T, ee	26,000 T, ee		65FR31682 65FR66443
14	Cyanide	57125	22 K, P	5.2 K, P	1 P, Y	1 P, Y	~~140~~ 4 ee, jj	~~140~~ 400 ee, jj	200 ee	EPA820/B-96-001 57FR60848 ~~68FR75510~~ 80FR36986 SDWA
15	Asbestos	1332214							7 million fibers/L I, ee	57FR60848
16	2, 3, 7, 8-TCDD (Dioxin)	1746016						0.046 ppq O, C	30ppq O, C	State Standard SDWA
17	Acrolein	107028	3	3			~~6~~ 3 ee, nn	~~9~~ 400 ee, nn		~~74FR27535~~ 80FR36986 74FR46587
18	Acrylonitrile	107131					~~0.051~~ 0.061 B, C	~~0.25~~ 7.0 B, C		~~65FR66443~~ 80FR36986
19	Benzene	71432					~~2.2~~ 0.58 B, C, hh	~~51~~ 16 B, C, hh	5 C	IRIS 01/19/00 ~~65FR66443~~ 80FR36986 SDWA

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	Organism Only (µg/L)	MCL (µg/L)	
20	Bromate	15541454							10 C	SDWA
21	Bromoform	75252					~~4.3~~ 7.0 B, C	~~140~~ 120 B, C	80 Total THMs C	~~65FR66443~~ 80FR36986 SDWA
22	Bromoacetic acid	79083							60 Total HAA5 C,mm	SDWA
23	Carbon Tetrachloride	56235					~~0.23~~ 0.4 B, C	~~1.6~~ 5 B, C	5 C	65FR66443 SDWA
24	Chlorite	67481							100	SDWA
25	Chlorobenzene	108907					~~130~~ 100 T, ee	~~1,600~~ 800 T, ee	100 T, ee	~~68FR75510~~ 80FR36986 SDWA
26	Chlorodibromomethane	124481					~~0.40~~ 0.80 B, C	~~13~~ 21 B, C	80 Total THMs C	~~65FR66443~~ 80FR36986 SDWA
27	Chloroform	67663					~~5.7~~ 60 B, C~~, hh~~	~~470~~ 2,000 B, C~~, hh~~	80 Total THMs C	~~62FR42160~~ 80FR36986 SDWA
28	Dibromoacetic acid	631641							60 Total HAA5 C, mm	SDWA
29	Dichloroacetic acid	79436							60 Total HAA5 C,mm	SDWA
30	Dichlorobromomethane	75274					~~0.55~~ 0.95 B, C	~~17~~ 27 B, C	80 Total THMs C	~~65FR66443~~ 80FR36986 SDWA
31	1, 2-Dichloroethane	107062					~~0.38~~ 9.9 B, C	~~37~~ 650 B, C	5 C	~~65FR66443~~ 80FR36986 SDWA
32	1, 1-Dichloroethylene	75354					~~330~~ 300 ee	~~7,100~~ 20,000 ee	7 C	~~68FR75510~~ 80FR36986 SDWA

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	Organism Only (µg/L)	MCL (µg/L)	
33	1, 2-Dichloropropane	78875					~~0.50~~ 0.90 B, C	~~15~~ 31 B, C	5 C	~~65FR66443~~ 80FR36986 SDWA
34	1, 3-Dichloropropene	542756					~~0.34~~ 0.27 ee	~~21~~ 12 ee		~~68FR75510~~ 80FR36986
35	Ethylbenzene	100414					~~530~~ 68 ee	~~2,100~~ 130 ee	700 ee	~~68FR75510~~ 80FR36986 SDWA
36	Methyl Bromide	74839					~~47~~ 100 B, ee	~~1,500~~ 10,000 B, ee		~~65FR66443~~ 80FR36986
37	Methylene Chloride	75092					~~4.6~~ 20 B, C	~~590~~ 1,000 B, C	5 C	~~65FR66443~~ 80FR36986 SDWA
38	Monochloroacetic acid	79118							60 Total HAA5 C,mm	SDWA
39	1, 1, 2, 2-Tetrachloroethane	79345					~~0.17~~ 0.20 B, C	~~4.0~~ 3.0 B, C		~~65FR66443~~ 80FR36986
40	Tetrachloroethylene	127184					~~0.69~~ 10 C	~~3.3~~ 29 C	5 C	~~65FR66443~~ 80FR36986 SDWA
41	Toluene	108883					~~1,300~~ 57 ee	~~15,000~~ 520 ee	1,000 ee	~~68FR75510~~ 80FR36986 SDWA
42	1,2-Trans-Dichloroethylene	156605					~~140~~ 100 ee	~~10,000~~ 4,000 ee	100 ee	~~68FR75510~~ 80FR36986 SDWA
43	Trichloroacetic acid	79039							60 Total HAA5 C,mm	SDWA
44	1, 1, 1-Trichloroethane	71556					10,000 ~~J~~, ee	200,000 ~~J~~, ee	200 ee	~~65FR31682~~ 80FR36986 SDWA

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	Organism Only (µg/L)	MCL (µg/L)	
45	1, 1, 2-Trichloroethane	79005					~~0.59~~ 0.55 B, C	~~16~~ 8.9 B, C	5 C	~~65FR66443~~ 80FR36986 SDWA
46	Trichloroethylene	79016					~~2.5~~ 0.6 C	~~30~~ 7 C	5 C	~~65FR66443~~ 80FR36986 SDWA
47	Vinyl Chloride	75014					~~0.025~~ 0.022 kk	~~2.4~~ 1.6 kk	2 C	~~68FR75510~~ 80FR36986 SDWA
48	2-Chlorophenol	95578					~~81~~ 30 B, T, ee	~~150~~ 800 B, T, ee		~~65FR66443~~ 80FR36986
49	2, 4-Dichlorophenol	120832					~~77~~ 10 B, T, ee	~~290~~ 60 B, T, ee		~~65FR66443~~ 80FR36986
50	2, 4-Dimethylphenol	105679					~~380~~ 100 B, T, ee	~~850~~ 3,000 B, T, ee		~~65FR66443~~ 80FR36986
51	2-Methyl- 4, 6-Dinitrophenol	534521					~~13~~ 2 ee	~~280~~ 30 ee		~~65FR66443~~ 80FR36986
52	2, 4-Dinitrophenol	51285					~~69~~ 10 B, ee	~~5,300~~ 300 B, ee		~~65FR66443~~ 80FR36986
53	Pentachlorophenol	87865	19 F, K	15 F, K	13 Y	7.9 Y	~~0.27~~ 0.03 B, C	~~3.0~~ 0.04 B, C, H	1 C	65FR31682 ~~65FR66443~~ 80FR36986 SDWA
54	Phenol	108952					~~10,000~~ 4,000 T, ee, nn	~~860,000~~ 300,000 T, ee, nn		~~74FR27535~~ ~~74FR46587~~ 80FR36986
55	2, 4, 6-Trichlorophenol	88062					~~1.4~~ 1.5 B, C, ~~T~~	~~2.4~~ 2.8 B, C, T		~~65FR66443~~ 80FR36986
56	Acenaphthene	83329					~~670~~ 70 B, T, ee	~~990~~ 90 B, T, ee		~~65FR66443~~ 80FR36986

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	Organism Only (µg/L)	MCL (µg/L)	
57	Anthracene	120127					~~8,300~~ 300 B, ee	~~40,000~~ 400 B, ee		~~65FR66443~~ 80FR36986
58	Benzidine	92875					~~0.000086~~ 0.00014 B, C	~~0.00020~~ 0.011 B, C		~~65FR66443~~ 80FR36986
59	Benzo (a) Anthracene	56553					~~0.0038~~ 0.0012 B, C	~~0.018~~ 0.0013 B, C		~~65FR66443~~ 80FR36986
60	Benzo (a) Pyrene	50328					~~0.0038~~ 0.00012 B, C	~~0.018~~ 0.00013 B, C	0.2 C	~~65FR66443~~ 80FR36986 SDWA
61	Benzo (b) Fluoranthene	205992					~~0.0038~~ 0.0012 B, C	~~0.018~~ 0.0013 B, C		~~65FR66443~~ 80FR36986
62	Benzo (k) Fluoranthene	207089					~~0.0038~~ 0.012 B, C	~~0.018~~ 0.013 B, C		~~65FR66443~~ 80FR36986
63	Bis-2-Chloroethyl Ether	111444					0.030 B, C	~~0.53~~ 2.2 B, C		~~65FR66443~~ 80FR36986
64	~~Bis-2-Chloroisopropyl Ether~~ Bis(2-Chloro-1-Methylethyl) Ether	108601					~~1,400~~ 200 B, ee	~~65,000~~ 4,000 B, ee		~~65FR66443~~ 80FR36986
65	~~Bi-s2-Ethylhexyl Phthalate (DEHP)~~ Bis-2-Ethylhexyl Phthalate (DEHP)	117817	V	V	V	V	~~1.2~~ 0.32 B, C	~~2.2~~ 0.37 B, C	6 C	~~65FR66443~~ 80FR36986 SDWA
66	Butylbenzene Phthalate	85687	ii	ii	ii	ii	~~1,500~~ 0.10 B, ee	~~1,900~~ 0.10 B, ee		~~65FR66443~~ 80FR36986
67	2-Chloronaphthalene	91587					~~1,000~~ 800 B, ee	~~1,600~~ 1,000 B, ee		~~65FR66443~~ 80FR36986

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	Organism Only (µg/L)	MCL (µg/L)	
68	Chrysene	218019					~~0.0038~~ 0.12 B, C	~~0.018~~ 0.13 B, C		~~65FR66443~~ 80FR36986
69	Dibenzo(a,h)Anthracene	53703					~~0.0038~~ 0.00012 B, C	~~0.018~~ 0.00013 B, C		~~65FR66443~~ 80FR36986
70	1, 2-Dichlorobenzene	95501					~~420~~ 1,000 ee	~~1,300~~ 3,000 ee	600 ee	~~68FR75510~~ 80FR36986 SDWA
71	1, 3-Dichlorobenzene	541731					~~320~~ 7 ee	~~960~~ 10 ee		~~65FR66443~~ 80FR36986
72	1, 4-Dichlorobenzene	106467					~~63~~ 300 ee	~~190~~ 900 ee	75 ee	~~68FR75510~~ 80FR36986 SDWA
73	3, 3'-Dichlorobenzidine	91941					~~0.021~~ 0.049 B, C	~~0.028~~ 0.15 B, C		~~65FR66443~~ 80FR36986
74	Diethyl Phthalate	84662	ii	ii	ii	ii	~~17,000~~ 600 B, ee	~~44,000~~ 600 B, ee		~~65FR66443~~ 80FR36986
75	Dimethyl Phthalate	~~13113~~ 131113	ii	ii	ii	ii	~~270,000~~ 2,000 B, ee	~~1,100,000~~ 2,000 B, ee		~~65FR66443~~ 80FR36986
76	Di-n-butyl Phthalate	84742	ii	ii	ii	ii	~~2,000~~ 20 B, ee	~~4,500~~ 30 B, ee		~~65FR66443~~ 80FR36986
77	2, 4-Dinitrotoluene	121142					~~0.11~~ 0.049 C	~~3.4~~ 1.7 C		~~65FR66443~~ 80FR36986
78	1, 2-Diphenylhydrazine	122667					~~0.036~~ 0.03 B, C	0.20 B, C		65FR66443 80FR36986
79	Fluoranthene	206440					~~130~~ 20 B, ee	~~140~~ 20 B, ee		~~65FR66443~~ 80FR36986

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	Organism Only (µg/L)	MCL (µg/L)	
80	Fluorene	86737					~~1,100~~ 50 B, ee	~~5,300~~ 70 B, ee		~~65FR66443~~ 80FR36986
81	Hexachlorobenzene	118741					~~0.00028~~ 0.000079 B, C	~~0.00029~~ 0.000079 B, C	1 C	~~65FR66443~~ 80FR36986 SDWA
82	Hexachlorobutadiene	87683					~~0.44~~ 0.01 B, C	~~18~~ 0.01 B, C		~~65FR66443~~ 80FR36986
83	Hexachlorocyclo-pentadiene	77474					~~40~~ 4 T, ee	~~1100~~ 4 T, ee	50 ee	~~68FR75510~~ 80FR36986 SDWA
84	Hexachloroethane	67721					~~1.4~~ 0.1 B, C	~~3.3~~ 0.1 B, C		~~65FR66443~~ 80FR36986
85	Indeno 1,2,3(cd) Pyrene	193395					~~0.0038~~ 0.0012 B, C	~~0.018~~ 0.0013 B, C		~~65FR66443~~ 80FR36986
86	Isophorone	78591					~~35~~ 34 B, C	~~960~~ 1,800 B, C		~~65FR66443~~ 80FR36986
87	Nitrobenzene	98953					~~17~~ 10 B, ee	~~690~~ 600 B, H, T, ee		~~65FR66443~~ 80FR36986
88	N-Nitrosodimethylamine	62759					0.00069 B, C	3.0 B, C		65FR66443
89	N-Nitrosodi-n-Propylamine	621647					0.0050 B, C	0.51 B, C		65FR66443
90	N-Nitrosodiphenylamine	86306					3.3 B, C	6.0 B, C		65FR66443
91	Pyrene	129000					~~830~~ 20 B, ee	~~4,000~~ 30 B, ee		~~65FR66443~~ 80FR36986

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	Organism Only (µg/L)	MCL (µg/L)	
92	1, 2, 4-Trichlorobenzene	120821					~~35~~ 0.071 ee	~~70~~ 0.076 ee	70 ee	~~68FR75510~~ 80FR36986 SDWA
93	Aldrin	309002	3.0 G, X		1.3 G, X		~~0.000049~~ 0.00000077 B, C	~~0.000050~~ 0.00000077 B, C		65FR31682 ~~65FR66443~~ 80FR36986
94	alpha-BHC	319846					~~0.0026~~ 0.00036 B, C	~~0.0049~~ 0.00039 B, C		~~65FR66443~~ 80FR36986
95	beta-BHC	319857					~~0.0091~~ 0.0080 B, C	~~0.017~~ 0.014 B, C		~~65FR66443~~ 80FR36986
96	gamma-BHC (Lindane)	58899	0.95 K		0.16 G		~~0.98~~ 4.2 ee	~~1.8~~ 4.4 ee	0.2 C	65FR31682 ~~68FR75510~~ 80FR36986 SDWA
97	Chlordane	57749	2.4 G	0.0043 G, X	0.09 G	0.004 G, X	~~0.00080~~ 0.00031 B, C	~~0.00081~~ 0.00032 B, C	2 C	65FR31682 ~~65FR66443~~ 80FR36986 SDWA
98	4, 4'-DDT	50293	1.1 G, gg	0.001 G, X, gg	0.13 G, gg	0.001 G, X, gg	~~0.00022~~ 0.000030 B, C	~~0.00022~~ 0.000030 B, C		65FR31682 ~~65FR66443~~ 80FR36986
99	4, 4'-DDE	72559					~~0.00022~~ 0.000018 B, C	~~0.00022~~ 0.000018 B, C		~~65FR66443~~ 80FR36986
100	4, 4'-DDD	72548					~~0.00031~~ 0.00012 B, C	~~0.00031~~ 0.00012 B, C		~~65FR66443~~ 80FR36986
101	Dieldrin	60571	0.24 K	0.056 K, N	0.71 G	0.0019 G, X	~~0.000052~~ 0.0000012 B, C	~~0.000054~~ 0.0000012 B, C		65FR31682 ~~65FR66443~~ 80FR36986
102	alpha-Endosulfan	959988	0.22 G, W	0.056 G, W	0.034 G, W	0.0087 G, W	~~62~~ 20 B, ee	~~89~~ 30 B, ee		65FR31682 ~~65FR66443~~ 80FR36986

Priority Pollutant		CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/ Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	Organism Only (µg/L)	MCL (µg/L)	
103	beta-Endosulfan	33213659	0.22 G, W	0.056 G, W	0.034 G, W	0.0087 G, W	~~62~~ 20 B, ee	~~89~~ 40 B, ee		65FR31682 ~~65FR66443~~ 80FR36986
104	Endosulfan Sulfate	1031078					~~62~~ 20 B, ee	~~89~~ 40 B, ee		~~65FR31682~~ ~~65FR66443~~ 80FR36986
105	Endrin	72208	0.086 K	0.036 K, N	0.037 G	0.0023 G, X	~~0.059~~ 0.03 ee	~~0.060~~ 0.03 ee	2 ee	68FR75510 80FR36986 SDWA
106	Endrin Aldehyde	7421934					~~0.29~~ 1 B, ee	~~0.30~~ 1 B, H, ee		~~65FR66443~~ 80FR36986
107	Heptachlor	76448	0.52 G	0.0038 G, X	0.053 G	0.0036 G, X	~~0.000079~~ 0.0000059 B, C	~~0.000079~~ 0.0000059 B, C	0.4 C	65FR31682 ~~65FR66443~~ 80FR36986 SDWA
108	Heptachlor Epoxide	1024573	0.52 G, U	0.0038 G, U, X	0.053 G, U	0.0036 G, U, X	~~0.000039~~ 0.000032 B, C	~~0.000039~~ 0.000032 B, C	0.2 C	65FR31682 ~~65FR66443~~ 80FR36986 SDWA
109	Polychlorinated Biphenyls PCBs	--		0.014 M, X		0.03 M, X	0.000064 B, C, M	0.000064 B, C, M	0.5 C	65FR31682 65FR66443 SDWA
110	Toxaphene	8001352	0.73	0.0002 X	0.21	0.0002 X	~~0.00028~~ 0.00070 B, C	~~0.00028~~ 0.00071 B, C	3 C	65FR31682 ~~65FR66443~~ 80FR36986 SDWA
111	3-Methyl-4-Chlorophenol	59507					500 T, ee	2,000 T, ee		80FR36986

Footnotes:

A This water quality criterion was derived from data for arsenic (III), but is applied here to total arsenic, which might imply that arsenic (III) and arsenic (V) are equally toxic to aquatic life and that their toxicities are additive. In the arsenic criteria document (EPA 440/5-84-033, January 1985), Species Mean Acute Values are given for both arsenic (III) and arsenic (V) for five species and the ratios of the SMAVs for each species range from 0.6 to 1.7. Chronic values are available for both arsenic (III) and arsenic (V) for

one species; for the fathead minnow, the chronic value for arsenic (V) is 0.29 times the chronic value for arsenic (III). No data are known to be available concerning whether the toxicities of the forms of arsenic to aquatic organisms are additive.

B This criterion has been revised to reflect The Environmental Protection Agency's q1* or RfD, as contained in the Integrated Risk Information System (IRIS) as of May 17, 2002. The fish tissue bioconcentration factor (BCF) from the 1980 Ambient Water Quality Criteria document was retained in each case.

C This criterion is based on carcinogenicity of 10^{-6} risk. As prescribed in Section E of this regulation, application of this criterion for permit effluent limitations requires the use annual average flow or comparable tidal condition as determined by the Department.

D Freshwater and saltwater criteria for metals are expressed in terms of total recoverable metals. As allowed in Section E of this regulation, these criteria may be expressed as dissolved metal for the purposes of deriving permit effluent limitations. The dissolved metal water quality criteria value may be calculated by using these 304(a) aquatic life criteria expressed in terms of total recoverable metal, and multiplying it by a conversion factor (CF). The term "Conversion Factor" (CF) represents the conversion factor for converting a metal criterion expressed as the total recoverable fraction in the water column to a criterion expressed as the dissolved fraction in the water column. (Conversion Factors for saltwater CCCs are not currently available. Conversion factors derived for saltwater CMCs have been used for both saltwater CMCs and CCCs). See "Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria", October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available from the Water Resource center, USEPA, 401 M St., SW, mail code RC4100, Washington, DC 20460; and 40CFR§131.36(b)(1). Conversion Factors can be found in Attachment 1 – Conversion Factors for Dissolved Metals.

E The freshwater criterion for this metal is expressed as a function of hardness (mg/L) in the water column. The value given here corresponds to a hardness of 25 mg/L as expressed as $CaCO_3$. Criteria values for other hardness may be calculated from the following: CMC (dissolved) = $\exp\{m_A [\ln(\text{hardness})] + b_A\}$ (CF), or CCC (dissolved) = $\exp\{m_C [\ln(\text{hardness})] + b_C\}$ (CF) and the parameters specified in Attachment 2 – Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent. As noted in footnote D above, the values in this appendix are expressed as total recoverable, the criterion may be calculated from the following: CMC (total) = $\exp\{m_A [\ln(\text{hardness})] + b_A\}$, or CCC (total) = $\exp\{m_C [\ln(\text{hardness})] + b_C\}$.

F Freshwater aquatic life values for pentachlorophenol are expressed as a function of pH, and are calculated as follows: CMC = exp(1.005(pH)-4.869); CCC = exp(1.005(pH)-5.134). Values displayed in table correspond to a pH of 7.8.

G This criterion is based on 304(a) aquatic life criterion issued in 1980, and was issued in one of the following documents: Aldrin/Dieldrin (EPA 440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endosulfan (EPA 440/5-80-046), Endrin (EPA 440/5-80-047), Heptachlor (440/5-80-052), Hexachlorocyclohexane (EPA 440/5-80-054), Silver (EPA 440/5-80-071). The Minimum Data Requirements and derivation procedures were different in the 1980 Guidelines than in the 1985 Guidelines. For example, a "CMC" derived using the 1980 Guidelines was derived to be used as an instantaneous maximum. If assessment is to be done using an averaging period, the values given should be divided by 2 to obtain a value that is more comparable to a CMC derived using the 1985 Guidelines.

H No criterion for protection of human health from consumption of aquatic organisms excluding water was presented in the 1980 criteria document or in the *1986 Quality Criteria for Water*. Nevertheless, sufficient information was presented in the 1980 document to allow the calculation of a criterion, even though the results of such a calculation were not shown in the document.

I This criterion for asbestos is the Maximum Contaminant Level (MCL) developed under the Safe Drinking Water Act (SDWA) and the National Primary Drinking Water Regulation (NPDWR).

J EPA has not calculated a 304(a) human health criterion for this contaminant. The criterion is the Maximum Contaminant Level developed under the Safe Drinking Water Act (SDWA) and the National Primary Drinking Water Regulation (NPDWR).

K This criterion is based on a 304(a) aquatic life criterion that was issued in the *1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water*, (EPA-820-B-96-001, September 1996). This value was derived using the GLI Guidelines (60FR15393-15399, March 23, 1995; 40CFR132 Appendix A); the difference between the 1985 Guidelines and the GLI Guidelines are explained on page iv of the 1995 Updates. None of the decisions concerning the derivation of this criterion were affected by any considerations that are specific to the Great Lakes.

L The CMC = 1/[(f1/CMC1) + (f2/CMC2)] where f1 and f2 are the fractions of total selenium that are treated as selenite and selenate, respectively, and CMC1 and CMC2 are 185.9 µg/~~l~~L and 12.82 µg/~~l~~L, respectively.

M This criterion applies to total PCBs, (e.g., the sum of all congener or all isomer or homolog or Aroclor analyses.)

N The derivation of the CCC for this pollutant did not consider exposure through the diet, which is probably important for aquatic life occupying upper trophic levels.

O This state criterion is also based on a total fish consumption rate of 0.0175 kg/day.

P This water quality criterion is expressed ~~as~~µg as µg free cyanide (as CN)/L.

Q This value was announced (61FR58444-58449, November 14, 1996) as a proposed GLI 303 I aquatic life criterion.

S This water quality criterion for selenium is expressed in terms of total recoverable metal in the water column. It is scientifically acceptable to use the conversion factor (0.996 – CMC or 0.922 – CCC) that was used in the GLI to convert this to a value that is expressed in terms of dissolved metal.

T The organoleptic effect criterion is more stringent than the value for priority toxic pollutants.

U This value was derived from data for heptachlor and the criteria document provides insufficient data to estimate the relative toxicities of heptachlor and heptachlor epoxide.

V There is a full set of aquatic life toxicity data that show that DEHP is not toxic to aquatic organisms at or below its solubility limit.

W This value was derived from data for endosulfan and is most appropriately applied to the sum of alpha-endosulfan and beta-endosulfan.

X This criterion is based on a 304(a) aquatic life criterion issued in 1980 or 1986, and was issued in one of the following documents: Aldrin/Dieldrin (EPA440/5-80-019), Chlordane (EPA 440/5-80-027), DDT (EPA 440/5-80-038), Endrin (EPA 440/5-80-047), Heptachlor (EPA 440/5-80-052), Polychlorinated Biphenyls (EPA 440/5- 80-068), Toxaphene (EPA 440/5-86-006). This CCC is based on the Final Residue value procedure in the 1985 Guidelines. Since the publication of the Great Lakes Aquatic Life Criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the EPA no longer uses the Final Residue value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria.

Y This water quality criterion is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (*Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227049, January 1985) and was issued in one of the following criteria documents: Arsenic (EPA 440/5-84-033), Cadmium (~~EPA 440/5-84-032~~ EPA-820-R-16-002), Chromium (EPA 440/5-84-029), Copper (EPA 440/5-84-031), Cyanide (EPA 440/5-84-028), Lead (EPA 440/5-84-027), Nickel (EPA 440/5-86-004), Pentachlorophenol (EPA 440/5-86-009), Toxaphene, (EPA 440/5-86-006), Zinc (EPA 440/5-87- 003).

Z When the concentration of dissolved organic carbon is elevated, copper is substantially less toxic and use of Water-Effect Ratios might be appropriate.

aa The selenium criteria document (EPA 440/5-87-006, September 1987) provides that if selenium is as toxic to saltwater fishes in the field as it is to freshwater fishes in the field, the status of the fish community should be monitored whenever the concentration of selenium exceeds 5.0 µg/L in salt water because the saltwater CCC does not take into account uptake via the food chain.

bb This water quality criterion was derived on page 43 of the mercury criteria document (EPA 440/5-84-026, January 1985). The saltwater CCC of 0.025 ~~u~~µg/L given on page 23 of the criteria document is based on the Final Residue value procedure in the 1985 Guidelines. Since the publication of the Great Lakes Aquatic Life criteria Guidelines in 1995 (60FR15393-15399, March 23, 1995), the EPA no longer uses the Final Residue value procedure for deriving CCCs for new or revised 304(a) aquatic life criteria.

cc This water quality criterion was derived in *Ambient Water Quality Criteria Saltwater Copper Addendum* (Draft, April 14, 1995) and was promulgated in the Interim Final National Toxics Rule (60FR22228-222237, May 4, 1995).

dd This water quality criterion was derived from data for inorganic mercury (II), but is applied here to total mercury. If a substantial portion of the mercury in the water column is methylmercury, this criterion will probably be under protective. In addition, even though inorganic mercury is converted to methylmercury and methylmercury bioaccumulates to a great extent, this criterion does not account for uptake via the food chain because sufficient data were not available when the criterion was derived.

ee This criterion is a noncarcinogen. As prescribed in Section E of this regulation, application of this criterion for determining permit effluent limitations requires the use of 7Q10 or comparable tidal condition as determined by the Department.

gg This criterion applies to DDT and its metabolites (i.e., the total concentration of DDT and its metabolites should not exceed this value).

hh ~~Although a new RfD is available in IRIS, the surface water criteria will not be revised until the National Primary Drinking Water Regulations: Stage 2 Disinfectants and Disinfection Byproducts Rule (Stage 2 DBPR) is completed, since public comment on the relative source contribution (RSC) for chloroform is anticipated.~~ This recommended water quality criteria for benzene was derived using a toxicity value equal to the reference dose (RfD) multiplied by the relative source contribution (RSC) for noncarcinogenic effects, or a toxicity value equal to 10^{-6} divided by the cancer slope factors (CSF) for carcinogenic effects. The EPA selected a CSF range of 1.5 x 10^{-2} per mg/kg-d to 5.5 x 10^{-2} per mg/kg-d for benzene based on a 2000 EPA IRIS assessment. In addition to the toxicity value, the EPA considered body weight, drinking water intake, aquatic trophic levels, fish consumption rate, and bioaccumulation factors in the water quality criteria derivation as identified in EPA 820-R-15-009 (June 2015). Based on these factors the EPA identifies a range of recommended benzene criteria in the Ambient Water Quality Criteria Summary (Section 7.3 of EPA 820-R-15-009). The EPA recommends the lower ambient water quality criteria based on the carcinogenic effects of benzene.

ii Although EPA has not published a completed criteria document for phthalate, it is EPA's understanding that sufficient data exist to allow calculation of aquatic life criteria.

jj This recommended water quality criterion is expressed as total cyanide, even though the IRIS RfD the EPA used to derive the criterion is based on free cyanide. The multiple forms of cyanide that are present in ambient water have significant differences in toxicity due to their abilities to liberate the CN-moiety. Some complex cyanides require even more extreme conditions than refluxing with sulfuric acid to liberate the CN-moiety. Thus, these complex cyanides are expected to have little or no ~~'bioavailalbility'~~ 'bioavailability' to humans. If a substantial fraction of the cyanide present in a water body is present in a complexed form (e.g.,$FE_4[FE(CN)_6]_3$), this criterion may be overly conservative.

kk This recommended water quality criterion was derived using the cancer slope factor of 1.4 (Linear multi-stage model (LMS) exposure from birth).

ll Freshwater copper criteria may be calculated utilizing the procedures identified in EPA-822-R-07-001.

mm HAA5 means five haloacetic acids (monochloracitic acid, dichloroacetic acid, trichloroacetic acid, bromoacetic acid and dibromoaccetic acid).

nn This criterion has been revised to reflect the EPA's cancer slope factor (CSF) or reference dose (RfD), as contained in the Integrated Risk Information System (IRIS) as of (Final FR Notice June 10, 2009). The fish tissue bioconcentration factor (BCF) from the 1980 Ambient Water Quality Criteria document was retained in each case.

R.61-68 APPENDIX, Water Quality Numeric Criteria for the Protection of Aquatic Life and Human Health

Amend "Non Priority Pollutants" table and footnotes in entirety to read:

NON PRIORITY POLLUTANTS

	Non Priority Pollutant	CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	For Consumption of: Organism Only (µg/L)	MCL (µg/L)	
1	Alachlor								2 M	SDWA
2	Ammonia	7664417	CRITERIA ARE pH AND TEMPERATURE DEPENDENT - SEE DOCUMENT FOR DETAILS C							EPA822-R99-014 EPA440/5-88-004
3	Aesthetic Qualities		NARRATIVE STATEMENT AND NUMERIC CRITERIA – SEE TEXT							Gold Book
4	Atrazine								3 M	SDWA
5	Bacteria		FOR PRIMARY CONTACT RECREATION AND SHELLFISH USES – SEE TEXT							Gold Book
6	Barium	7440393					1,000 A, L		2,000 L	Gold Book
7	Carbofuran	1563662							40 L	SDWA
8	Chlorine	7782505	19	11	13	7.5			G	Gold Book SDWA
9	Chlorophenoxy Herbicide 2, 4, 5, -TP	93721					~~10~~ 100 ~~A,~~ L	400 ~~L~~	50 L	~~Gold Book~~ 80FR36986 SDWA
10	Chlorophenoxy Herbicide 2, 4-D	94757					~~100~~ 1,300 ~~A,~~ L	12,000 ~~L~~	70 L	~~Gold Book~~ 80FR36986 SDWA
11	Chlorophyll *a*		NARRATIVE STATEMENT AND NUMERIC CRITERIA – SEE TEXT							State Standard
12	Chloropyrifos	2921882	0.083 F	0.041 F	0.011 F	0.0056 F				Gold Book

	Non Priority Pollutant	CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	For Consumption of: Organism Only (µg/L)	MCL (µg/L)	
13	Color		NARRATIVE STATEMENT – SEE TEXT							State Standard
14	Dalapon	75990							200 L	SDWA
15	Demeton	8065483		0.1 E		0.1 E				Gold Book
16	1,2-Dibromo-3-chloropropane (DBCP)	96128							0.2 M	SDWA
17	Di(2-ethylhexyl) adipate	103231							400 L	SDWA
18	Dinoseb	88857							7 L	SDWA
19	Dinitrophenols	25550587					~~69~~ 10 L	~~5,300~~ 1,000 L		~~65FR66443~~ 80FR36986
20	Nonylphenol	1044051	28	6.6	7.0	1.7				71FR9337
21	Diquat	85007							20 L	SDWA
22	Endothall	145733							100 L	SDWA
23	~~Ether, Bis Chloromethyl~~ Bis(Chloromethyl) Ether	542881					~~0.00010~~ 0.00015 D, M	~~0.00029~~ 0.017 D, M		~~65FR66443~~ 80FR36986
24	Cis-1, 2-dichloroethylene	156592							70 L	SDWA

	Non Priority Pollutant	CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	Organism Only (µg/L)	MCL (µg/L)	
25	Ethylene dibromide								0.05 M	SDWA
26	Fluoride	7681494							4000 L	SDWA
27	Glyphosate	1071836							700 L	SDWA
28	Guthion	86500		0.01 E		0.01 E				Gold Book
29	Hexachlorocyclo-hexane-Technical	~~319868~~ 608731					~~0.0123~~ 0.0066 L	~~0.0414~~ 0.010 L		~~Gold Book~~ 80FR36986
30	Malathion	121755		0.1 E		0.1 E				Gold Book
31	Methoxychlor	72435		0.03 E		0.03 E	~~100~~ 0.02 A, L	0.02 L	40 L	Gold Book 80FR36986 SDWA
32	Mirex	2385855		0.001 E		0.001 E				Gold Book
33	Nitrates	14797558					10, 000 L		10, 000 L	SDWA Gold Book
34	Nitrites	14797650							1,000 L	SDWA
35	Nitrogen, Total		NARRATIVE STATEMENT AND NUMERIC CRITERIA - SEE TEXT							State Standard
36	Nitrosamines						0.0008 L	1.24 L		Gold Book

	Non Priority Pollutant	CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	For Consumption of: Organism Only (µg/L)	MCL (µg/L)	
37	Nitrosodibutylamine, N	924163					0.0063 A, M	0.22 A, M		65FR66443
38	Nitrosodiethylamine, N	55185					0.0008 A, M	1.24 A, M		Gold Book
39	Nitrosopyrrolidine, N	930552					0.016 M	34 M		65FR66443
40	Oil and Grease		NARRATIVE STATEMENT – SEE TEXT							Gold Book
41	Oxamyl	23135220							200 L	SDWA
42	Oxygen, Dissolved	7782447	WARMWATER, COLDWATER, AND EXCEPTIONS FOR NATURAL CONDITIONS - SEE TEXT K							Gold Book State Standard
43	Diazinon	333415	0.17	0.17	0.82	0.82				71FR9336
44	Parathion	56382	0.065 H	0.013 H						Gold Book
45	Pentachlorobenzene	608935					~~1.4~~ 0.1 E	~~1.5~~ 0.1 E		~~65FR66443~~ 80FR36986
46	pH		SEE TEXT I							Gold Book State Standard
47	Phosphorus, Total		NARRATIVE STATEMENT AND NUMERIC CRITERIA - SEE TEXT							State Standard
48	Picloram	1918021							500 L	SDWA
49	Salinity		NARRATIVE STATEMENT - SEE TEXT							Gold Book

	Non Priority Pollutant	CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	For Consumption of: Organism Only (µg/L)	MCL (µg/L)	
50	Simazine	122349							4 L	SDWA
51	Solids,Suspended,and Turbidity		NARRATIVE STATEMENT AND NUMERIC CRITERIA - SEE TEXT							Gold Book State Standard
52	Styrene	100425							100 L	SDWA
53	Sulfide-Hydrogen Sulfide	7783064		2.0 E		2.0 E				Gold Book
54	Tainting Substances		NARRATIVE STATEMENT - SEE TEXT							Gold Book
55	Temperature		SPECIES DEPENDENT CRITERIA - SEE TEXT J							Red Book
56	1, 2, 4, 5-Tetrachlorobenzene	95943					~~0.97~~ 0.03 D	~~1.1~~ 0.03 D		~~65FR66443~~ 80FR36986
57	Tributyltin (TBT)	688733	0.46	0.063	0.37	0.010				EPA 822-F-00-008
58	2, 4, 5-Trichlorophenol	95954					~~1,800~~ 300 B, D	~~3,600~~ 600 B, D		~~65FR66443~~ 80FR36986
59	Xylenes, Total								10, 000 L	SDWA
60	Uranium								30	SDWA
61	Beta particles and photon emitters								4 Millirems/yr	SDWA

	Non Priority Pollutant	CAS Number	Freshwater Aquatic Life		Saltwater Aquatic Life		Human Health			FR Cite/Source
			CMC (µg/L)	CCC (µg/L)	CMC (µg/L)	CCC (µg/L)	For Consumption of: Water & Organism (µg/L)	For Consumption of: Organism Only (µg/L)	MCL (µg/L)	
62	Gross alpha particle activity								15 picocuries per liter (pCi/l)	SDWA
63	Radium 226 and Radium 228 (combined)								5 pCi/l	SDWA

Footnotes:

A This human health criterion is the same as originally published in the Red Book which predates the 1980 methodology and did not utilize the fish ingestion BCF approach. This same criterion value is now published in the Gold Book.

B The organoleptic effect criterion is more stringent than the value presented in the non priority pollutants table.

C According to the procedures described in the *Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, except possibly where a very sensitive species is important at a site, freshwater aquatic life should be protected if both conditions specified in Attachment 3 - Calculation of Freshwater Ammonia Criterion are satisfied.

D This criterion has been revised to reflect ~~The~~ the Environmental Protection Agency's q1* or RfD, as contained in the Integrated Risk Information System (IRIS) as of April 8, 1998. The fish tissue bioconcentration factor (BCF) used to derive the original criterion was retained in each case.

E The derivation of this value is presented in the Red Book (EPA 440/9-76-023, July, 1976).

F This value is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (*Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses*, PB85-227049, January 1985) and was issued in the following criteria document: Chloropyrifos (EPA 440/5-86-005).

G A more stringent Maximum Residual Disinfection Level (MRDL) has been issued by EPA under the Safe Drinking Water Act. Refer to S.C. Regulation 61-58, *State Primary Drinking Water Regulations*.

H This value is based on a 304(a) aquatic life criterion that was issued in the *1995 Updates: Water Quality Criteria Documents for the Protection of Aquatic Life in Ambient Water* (EPA-820-B-96-001). This value was derived using the GLI Guidelines (60FR15393-15399, March 23, 1995; 40CFR132 Appendix A); the differences between the 1985 Guidelines and the GLI Guidelines are explained on page iv of the 1995 Updates. No decision concerning this criterion was affected by any considerations that are specific to the Great Lakes.

I South Carolina has established some site-specific standards for pH. These site-specific standards are listed in S.C. Regulation 61-69, *Classified Waters*.

J U.S. EPA, 1976, Quality Criteria for Water 1976.

K South Carolina has established numeric criteria in Section G for waters of the State based on the protection of warmwater and coldwater species. For the exception to be used for waters of the State that do not meet the numeric criteria established for the waterbody due to natural conditions, South Carolina has specified the allowable deficit in Section D.4. and used the following document as a source. U.S. EPA, 1986, Ambient Water Quality Criteria for Dissolved Oxygen, EPA 440/5-86-003, National Technical Information Service, Springfield, VA. South Carolina has established some site-specific standards for DO. These site-specific standards are listed in S.C. Regulation 61-69*, Classified Waters*.

L This criterion is a noncarcinogen. As prescribed in Section E of this regulation, application of this criterion for determining permit effluent limitations requires the use of 7Q10 or comparable tidal condition as determined by the Department.

M This criterion is based on an added carcinogenicity risk. As prescribed in Section E of this regulation, application of this criterion for permit effluent limitations requires the use of annual average flow or comparable tidal condition as determined by the Department.

R.61-68 APPENDIX, Water Quality Numeric Criteria for the Protection of Aquatic Life and Human Health

Amend "Attachment 2 - Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent" and footnotes in entirety to read:

Attachment 2 - Parameters for Calculating Freshwater Dissolved Metals Criteria That Are Hardness-Dependent

Chemical	m_A	b_A	m_C	b_C	Freshwater Conversion Factors (CF)	
					Acute	Chronic
Cadmium	~~1.0166~~ 0.9789 A	- ~~3.924~~ 3.866 A	~~0.7409~~ 0.7977 A	- ~~4719~~ 3909 A	1.136672-[ln (hardness)(0.041838)]	1.101672-[ln (hardness)(0.041838)]
Chromium III	0.8190	3.7256	0.8190	0.6848	0.316	0.860
Copper	0.9422	-1.700	0.8545	-1.702	0.960	0.960
Lead	1.273	-1.460	1.273	-4.705	1.46203-[ln (hardness)(0.145712)]	1.46203-[ln (hardness)(0.145712)]
Nickel	0.8460	2.255	0.8460	0.0584	0.998	0.997
Silver	1.72	-6.52	--	--	0.85	--
Zinc	0.8473	0.884	0.8473	0.884	0.978	0.986

Hardness-dependent metals criteria may be calculated from the following:
CMC (total) = $\exp\{m_A [\ln(\text{hardness})] + b_A\}$, or CCC (total) = $\exp\{m_C [\ln(\text{hardness})] + b_C\}$
CMC (dissolved) = $\exp\{m_A [\ln(\text{hardness})] + b_A\}$ (CF), or CCC (dissolved) = $\exp\{m_C [\ln(\text{hardness})] + b_C\}$ (CF).

Footnotes:

A This parameter was issued by the EPA in Aquatic Life Ambient Water Quality Criteria Cadmium - 2016 (EPA-820-R-16-002).