



**STATE OF NORTH CAROLINA
OFFICE OF ADMINISTRATIVE HEARINGS**

December 16, 2021

Jennifer Everett
Environmental Management Commission
Sent via email only to: Jennifer.Everett@ncdenr.gov

Re: Extension of the Period of Review for 15A NCAC 02L .0202

Dear Ms. Everett:

At its meeting this morning, the Rules Review Commission extended the period of review for the above-captioned rule in accordance with G.S. 150B-21.10. They did so in response to a request from the agency to extend the period in order to allow additional time to address the requested technical changes.

Pursuant to G.S. 150B-21.13, when the Commission extends the period of review, it is required to approve or object to rules or call a public hearing on the same within 70 days.

If you have any questions regarding the Commission's actions, please let me know.

Sincerely,

Amber May
Commission Counsel

Donald R. van der Vaart, Director
Chief Administrative Law Judge

Fred G. Morrison, Jr.
Senior Administrative Law Judge

Linda T. Worth
Deputy Director

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REQUEST FOR TECHNICAL CHANGE

AGENCY: Environmental Management Commission

RULE CITATION: 15A NCAC 02L .0202

DEADLINE FOR RECEIPT: Friday, December 10, 2021

PLEASE NOTE: *This request may extend to several pages. Please be sure you have reached the end of the document.*

The Rules Review Commission staff has completed its review of this Rule prior to the Commission's next meeting. The Commission has not yet reviewed this Rule and therefore there has not been a determination as to whether the Rule will be approved. You may call our office to inquire concerning the staff recommendation.

In reviewing this Rule, the staff recommends the following technical changes be made:

In (a), please capitalize "state" on lines 4 and 6.

In (b)(1), I am reading this rule to say that if the standard set forth in this Rule allows for more than the practical quantitation limit, then the standard essentially becomes the practical quantitation limit? If that's correct, how is your regulated public to know? I see reference to this elsewhere in your Rules. Is it set forth elsewhere?

In (b)(2), line 13, how will the Director make this determination? I assume if he or she determines that there is a public health risk?

In (b)(3), what is meant by "as determined by the Director"? Do you need this language? If so, how is this to be determined?

In (c), please change "which" to "that" in "which have been determined..." on line 23 and in "which are not naturally" on line 24.

In (c), how is this determination made whether the concentration of the tracer is protective of human health?

In (c), is there a cross-reference available to the permitting of these tracers?

In (c), line 26, where can these "practical quantitation limits" be found? Is there a cross-reference available?

What is the intent and what is your authority for (c) in line 26 of page 1 through line 11 of page 2? I don't understand what is going on with the IMACs. This appears to provide for rulemaking outside of the rulemaking process set forth in the APA. I note that G.S. 143-214.1(e), within the cited authority, specifically says "Chapter 150B of the General Statutes governs the adoption and publication of rules under this Article."

What is your authority to require publication in the NC Register on line 7? Further, given the requirement in G.S. 143-214.1 that these standards go through the rulemaking

process set forth in the APA, what is your authority to set a different process? Are you essentially creating a petition for rulemaking rule pursuant to 150B-20?

In (d)(2), change “which” to “that” in “which corresponds”

In (d)(3) through (5), what are these limits? How does this work? Is the Integrated Risk Information System to be used, unless there isn’t a standard for one of the standards? Then the Health Advisories are to be used?

In (e), what is meant by “in order or preference”? What is actually being required here?

Please end (e) with a colon

Please end (e)(1) through (3) with a semi-colon and add “or” at the end of (e)(3).

In (f), what is this “public notice and opportunity for hearing”? Is this through the rulemaking process set forth in the APA?

In (f)(1), change “which” to “that”

In (f)(3), how is it to be determined whether it would “produce serious hardship”? What factors are to be used?

What is the purpose of (g)? Specifically, what is meant by lines 9-10? This appears to provide for rulemaking outside of rulemaking. I don’t see where there is authority. Also, what is meant by lines 10-13? This also appears to provide for rulemaking outside of the rulemaking process set forth in the APA.

In (g), line 12, please double check the cross-reference to Paragraphs (d) and (e). Should it be Paragraph (c)?

In (h), please add a comma after “colloidal”

In (h), line 15, change “which” to “that” in “which is mobile” on line 15 and “which is preserved” on line 16.

On line 15, what is meant by “this”? This Paragraph?

Please retype the rule accordingly and resubmit it to our office at 1711 New Hope Church Road, Raleigh, North Carolina 27609.

1 15A NCAC 02L .0202 is amended as published in 35:14 NCR 1560 with changes as follows:

2
3 **15A NCAC 02L .0202 GROUNDWATER QUALITY STANDARDS**

4 (a) The groundwater quality standards for the protection of the groundwaters of the state are those specified in this
5 Rule. They are the maximum allowable concentrations resulting from any discharge of contaminants to the land or
6 waters of the state, which may be tolerated without creating a threat to human health or which would otherwise render
7 the groundwater unsuitable for its intended best usage.

8 (b) The groundwater quality standards for contaminants specified in Paragraphs (h) and (i) of this Rule are as listed,
9 except that:

10 (1) Where the standard for a substance is less than the practical quantitation limit, the detection of that
11 substance at or above the practical quantitation limit constitutes a violation of the standard.

12 (2) Where two or more substances exist in combination, the Director shall consider the effects of
13 chemical interactions as determined by the Division of Public Health and may establish maximum
14 concentrations at values less than those established in accordance with Paragraphs (c), (h), or (i) of
15 this Rule. In the absence of information to the contrary, in accordance with Paragraph (d) of this
16 Rule, the carcinogenic risks associated with carcinogens present shall be considered additive and
17 the toxic effects associated with non-carcinogens present shall also be considered additive.

18 (3) Where naturally occurring substances exceed the established standard, the standard shall be the
19 naturally occurring concentration as determined by the Director.

20 (4) Where the groundwater standard for a substance is greater than the Maximum Contaminant Level
21 (MCL), the Director shall apply the MCL as the groundwater standard at any private drinking water
22 well or public water system well that may be impacted.

23 (c) Except for tracers used in concentrations which have been determined by the Division of Public Health to be
24 protective of human health, and the use of which has been permitted by the Division, substances which are not
25 naturally occurring and for which no standard is specified shall not be permitted in concentrations at or above the
26 practical quantitation limit in Class GA or Class GSA groundwaters. Any person may petitionrequest the Director of
27 the Division of Water Resources to establishestablish, update, or remove an interim maximum allowable
28 concentrationInterim Maximum Allowable Concentration (IMAC) for a substance for which a standard has not been
29 established under this Rule. In response to this request, the Director may establish, update, or remove an IMAC. The
30 petitionerrequestor shall submit relevant toxicological and epidemiological data, study results, and calculations
31 necessary to establish a standard in accordance with ParagraphParagraphs (d) and (e) of this Rule. Within three months
32 after the establishment of an interim maximum allowable concentration for a substance by the Director, the Director
33 shall initiate action to consider adoption of a standard for that substance. If the information submitted is not in
34 accordance with Paragraphs (d) and (e) of this Rule, the Director of the Division of Water Resources shall request
35 additional information from the [petitioner.]requester. If the [petitioner]requester does not provide the additional
36 information necessary to be in accordance with Paragraphs (d) and (e) of this Rule, the Director of the Division of
37 Water Resources shall [deny]return the [petition.]request. The Director shall provide an annual update to the

Commission on the status of IMAC requests. At least 30 days prior to ~~establishing~~ establishing, updating, or removing an IMAC for any substance, the Division of Water Resources shall provide public notice that an IMAC has been ~~requested.~~ requested to be established, updated, or removed. The public notice shall include the ~~petition requesting the establishment~~ request for the establishment, update, or removal of the IMAC for a substance, the level of the proposed IMAC, if applicable the level of the existing IMAC, and the basis upon which the Division of Water Resources has relied in development of the proposed ~~IMAC.~~ IMAC establishment, update, or removal. This notice shall be published in the North Carolina Register and posted on the Division of Water Resources's website: <https://deq.nc.gov/about/divisions/water-resources/water-planning/classification-standards/groundwater-imacs>. If the Director of the Division of Water Resources establishes or updates an IMAC, the IMAC shall be posted on the Division of Water Resource's website and the Commission shall be notified in writing within 30 calendar days that a new IMAC has been ~~established.~~ established or an existing IMAC has been updated or removed.

(d) Except as provided in Paragraph (f) of this Rule, groundwater quality standards for substances in Class GA and Class GSA groundwaters are established as the least of:

- (1) Systemic threshold concentration calculated as follows: $[\text{Reference Dose (mg/kg/day)} \times 70 \text{ kg (adult body weight)} \times \text{Relative Source Contribution } (\frac{1}{10} \text{ for inorganics; } \frac{1}{200} \text{ for organics})] / [2 \text{ liters/day (avg. water consumption)}]$;
- (2) Concentration which corresponds to an incremental lifetime cancer risk of 1×10^{-6} ;
- (3) Taste threshold limit value;
- (4) Odor threshold limit value;
- (5) Maximum contaminant level; or
- (6) National secondary drinking water standard.

(e) The following references, in order of preference, shall be used in establishing concentrations of substances which correspond to levels described in Paragraph (d) of this Rule.

- (1) Integrated Risk Information System (U.S. EPA).
- (2) Health Advisories (U.S. EPA Office of Drinking Water).
- (3) Other health risk assessment data published by the U.S. EPA.
- (4) Other relevant, published health risk assessment data, and scientifically valid peer-reviewed published toxicological data.

(f) The Commission may establish groundwater standards less stringent than existing maximum contaminant levels or national secondary drinking water standards if it finds, after public notice and opportunity for hearing, that:

- (1) more recent data published in the EPA health references listed in Paragraph (e) of this Rule results in a standard which is protective of public health, taste threshold, or odor threshold;
- (2) the standard will not endanger the public health and safety, including health and environmental effects from exposure to groundwater contaminants; and
- (3) compliance with a standard based on the maximum contaminant level or national secondary drinking water standard would produce serious hardship without equal or greater public benefit.

(g) Groundwater quality standards specified in Paragraphs (h) and (i) of this Rule and ~~interim maximum allowable concentrations~~ IMACs established pursuant to Paragraph (c) of this Rule shall be reviewed by the ~~Director~~ Division of Water Resources on a triennial ~~basis~~ basis and reported to the Commission. The Director of the Division of Water Resources shall ~~consider~~ take any of the following actions during the review of an established IMAC:

- (1) recommend codifying the IMAC as a groundwater quality standard under this Rule;
- (2) update the IMAC value based on data published or rescinded subsequent to the previous review;
- (3) remove the IMAC based on data published or rescinded subsequent to the previous review; or
- (4) retain the IMAC at the current value;

Any IMAC recommended under Subparagraph (g)(1) of this Rule that the Commission does not codify shall remain an established IMAC and be reviewed during the next triennial review. ~~Appropriate modifications~~ Modifications to established standards shall be ~~made~~ made, through rulemaking, in accordance with the ~~procedure~~ procedures prescribed in Paragraphs (d) and (e) of this Rule where modifications are considered appropriate based on data published subsequent to the previous review.

(h) Class GA Standards. Unless otherwise indicated, the standard refers to the total concentration in micrograms per liter ($\mu\text{g/L}$) of any constituent in a dissolved, colloidal or particulate form which is mobile in groundwater. This does not apply to sediment or other particulate matter which is preserved in a groundwater sample as a result of well construction or sampling procedures. The Class GA standards are:

- (1) — ~~Acenaphthene: 80;~~
- (2) — ~~Acenaphthylene: 200;~~
- (3) — ~~Acetone: 6 mg/L;~~
- (4) — ~~Acrylamide: 0.008;~~
- (5) — ~~Anthracene: 2 mg/L;~~
- (6) — ~~Arsenic: 10;~~
- (7) — ~~Atrazine and chlorotriazine metabolites: 3;~~
- (8) — ~~Barium: 700;~~
- (9) — ~~Benzene: 1;~~
- (10) — ~~Benzo(a)anthracene (benz(a)anthracene): 0.05;~~
- (11) — ~~Benzo(b)fluoranthene: 0.05;~~
- (12) — ~~Benzo(k)fluoranthene: 0.5;~~
- (13) — ~~Benzoic acid: 30 mg/L;~~
- (14) — ~~Benzo(g,h,i)perylene: 200;~~
- (15) — ~~Benzo(a)pyrene: 0.005;~~
- (16) — ~~Bis(chloroethyl)ether: 0.03;~~
- (17) — ~~Bis(2-ethylhexyl) phthalate (di(2-ethylhexyl) phthalate): 3;~~
- (18) — ~~Boron: 700;~~
- (19) — ~~Bromodichloromethane: 0.6;~~
- (20) — ~~Bromoform (tribromomethane): 4;~~

1 (21) — ~~n-Butylbenzene: 70;~~
2 (22) — ~~see Butylbenzene: 70;~~
3 (23) — ~~tert Butylbenzene: 70;~~
4 (24) — ~~Butylbenzyl phthalate: 1 mg/L;~~
5 (25) — ~~Cadmium: 2;~~
6 (26) — ~~Caprolactam: 4 mg/L;~~
7 (27) — ~~Carbofuran: 40;~~
8 (28) — ~~Carbon disulfide: 700;~~
9 (29) — ~~Carbon tetrachloride: 0.3;~~
10 (30) — ~~Chlordane: 0.1;~~
11 (31) — ~~Chloride: 250 mg/L;~~
12 (32) — ~~Chlorobenzene: 50;~~
13 (33) — ~~Chloroethane: 3,000;~~
14 (34) — ~~Chloroform (trichloromethane): 70;~~
15 (35) — ~~Chloromethane (methyl chloride): 3;~~
16 (36) — ~~2-Chlorophenol: 0.4;~~
17 (37) — ~~2-Chlorotoluene (o-chlorotoluene): 100;~~
18 (38) — ~~Chromium: 10;~~
19 (39) — ~~Chrysene: 5;~~
20 (40) — ~~Coliform organisms (total): 1 per 100 mL;~~
21 (41) — ~~Color: 15 color units;~~
22 (42) — ~~Copper: 1 mg/L;~~
23 (43) — ~~Cyanide (free cyanide): 70;~~
24 (44) — ~~2,4-D (2,4-dichlorophenoxy acetic acid): 70;~~
25 (45) — ~~DDD: 0.1;~~
26 (46) — ~~DDT: 0.1;~~
27 (47) — ~~Dibenz(a,h)anthracene: 0.005;~~
28 (48) — ~~Dibromochloromethane: 0.4;~~
29 (49) — ~~1,2-Dibromo-3-chloropropane: 0.04;~~
30 (50) — ~~Dibutyl (or di-n-butyl) phthalate: 700;~~
31 (51) — ~~1,2-Dichlorobenzene (orthodichlorobenzene): 20;~~
32 (52) — ~~1,3-Dichlorobenzene (metadichlorobenzene): 200;~~
33 (53) — ~~1,4-Dichlorobenzene (paradichlorobenzene): 6;~~
34 (54) — ~~Dichlorodifluoromethane (Freon-12; Halon): 1 mg/L;~~
35 (55) — ~~1,1-Dichloroethane: 6;~~
36 (56) — ~~1,2-Dichloroethane (ethylene dichloride): 0.4;~~
37 (57) — ~~1,2-Dichloroethene (cis): 70;~~

1 ~~(58) — 1,2 Dichloroethene (trans): 100;~~
 2 ~~(59) — 1,1 Dichloroethylene (vinylidene chloride): 350;~~
 3 ~~(60) — 1,2 Dichloropropane: 0.6;~~
 4 ~~(61) — 1,3 Dichloropropene (cis and trans isomers): 0.4;~~
 5 ~~(62) — Dieldrin: 0.002;~~
 6 ~~(63) — Diethylphthalate: 6 mg/L;~~
 7 ~~(64) — 2,4 Dimethylphenol (m xyleneol): 100;~~
 8 ~~(65) — Di n octyl phthalate: 100;~~
 9 ~~(66) — 1,4 Dioxane (p dioxane): 3;~~
 10 ~~(67) — Dioxin (2,3,7,8 TCDD): 0.0002 ng/L;~~
 11 ~~(68) — 1,1 Diphenyl (1,1, biphenyl): 400;~~
 12 ~~(69) — Dissolved solids (total): 500 mg/L;~~
 13 ~~(70) — Disulfoton: 0.3;~~
 14 ~~(71) — Diundecyl phthalate (Santicizer 711): 100;~~
 15 ~~(72) — Endosulfan: 40;~~
 16 ~~(73) — Endrin, total (includes endrin, endrin aldehyde and endrin ketone): 2;~~
 17 ~~(74) — Epichlorohydrin: 4;~~
 18 ~~(75) — Ethyl acetate: 3 mg/L;~~
 19 ~~(76) — Ethylbenzene: 600;~~
 20 ~~(77) — Ethylene dibromide (1,2 dibromoethane): 0.02;~~
 21 ~~(78) — Ethylene glycol: 10 mg/L;~~
 22 ~~(79) — Fluoranthene: 300;~~
 23 ~~(80) — Fluorene: 300;~~
 24 ~~(81) — Fluoride: 2 mg/L;~~
 25 ~~(82) — Foaming agents: 500;~~
 26 ~~(83) — Formaldehyde: 600;~~
 27 ~~(84) — Gross alpha (adjusted) particle activity (excluding radium 226 and uranium): 15 pCi/L;~~
 28 ~~(85) — Heptachlor: 0.008;~~
 29 ~~(86) — Heptachlor epoxide: 0.004;~~
 30 ~~(87) — Heptane: 400;~~
 31 ~~(88) — Hexachlorobenzene (perchlorobenzene): 0.02;~~
 32 ~~(89) — Hexachlorobutadiene: 0.4;~~
 33 ~~(90) — Hexachlorocyclohexane isomers (technical grade): 0.02;~~
 34 ~~(91) — n Hexane: 400;~~
 35 ~~(92) — Indeno(1,2,3 cd)pyrene: 0.05;~~
 36 ~~(93) — Iron: 300;~~
 37 ~~(94) — Isophorone: 40;~~

1 (95)——Isopropylbenzene: 70;
2 (96)——Isopropyl ether: 70;
3 (97)——Lead: 15;
4 (98)——Lindane (gamma hexachlorocyclohexane): 0.03;
5 (99)——Manganese: 50;
6 (100)——Mercury: 1;
7 (101)——Methanol: 4 mg/L;
8 (102)——Methoxychlor: 40;
9 (103)——Methylene chloride (dichloromethane): 5;
10 (104)——Methyl ethyl ketone (2 butanone): 4 mg/L;
11 (105)——2 Methylnaphthalene: 30;
12 (106)——3 Methylphenol (m-cresol): 400;
13 (107)——4 Methylphenol (p-cresol): 40;
14 (108)——Methyl tert butyl ether (MTBE): 20;
15 (109)——Naphthalene: 6;
16 (110)——Nickel: 100;
17 (111)——Nitrate (as N): 10 mg/L;
18 (112)——Nitrite (as N): 1 mg/L;
19 (113)——N nitrosodimethylamine: 0.0007;
20 (114)——Oxamyl: 200;
21 (115)——Pentachlorophenol: 0.3;
22 (116)——Petroleum aliphatic carbon fraction class (C5—C8): 400;
23 (117)——Petroleum aliphatic carbon fraction class (C9—C18): 700;
24 (118)——Petroleum aliphatic carbon fraction class (C19—C36): 10 mg/L;
25 (119)——Petroleum aromatics carbon fraction class (C9—C22): 200;
26 (120)——pH: 6.5—8.5;
27 (121)——Phenanthrene: 200;
28 (122)——Phenol: 30;
29 (123)——Phorate: 1;
30 (124)——n Propylbenzene: 70;
31 (125)——Pyrene: 200;
32 (126)——Selenium: 20;
33 (127)——Silver: 20;
34 (128)——Simazine: 4;
35 (129)——Styrene: 70;
36 (130)——Sulfate: 250 mg/L;
37 (131)——1,1,2,2 Tetrachloroethane: 0.2;

(132) ~~Tetrachloroethylene (perchloroethylene; PCE): 0.7;~~
 (133) ~~2,3,4,6 Tetrachlorophenol: 200;~~
 (134) ~~Toluene: 600;~~
 (135) ~~Toxaphene: 0.03;~~
 (136) ~~2,4,5 TP (Silvex): 50;~~
 (137) ~~1,2,4 Trichlorobenzene: 70;~~
 (138) ~~1,1,1 Trichloroethane: 200;~~
 (139) ~~Trichloroethylene (TCE): 3;~~
 (140) ~~Trichlorofluoromethane: 2 mg/L;~~
 (141) ~~1,2,3 Trichloropropane: 0.005;~~
 (142) ~~1,2,4 Trimethylbenzene: 400;~~
 (143) ~~1,3,5 Trimethylbenzene: 400;~~
 (144) ~~1,1,2 Trichloro 1,2,2 trifluoroethane (CFC 113): 200 mg/L;~~
 (145) ~~Vinyl chloride: 0.03;~~
 (146) ~~Xylenes (o , m , and p): 500; and~~
 (147) ~~Zinc: 1 mg/L.~~

<u>Substance</u>	<u>Chemical Abstracts Service (CAS) Registry Number</u>	<u>Standard (µg/L)</u>
<u>Acenaphthene</u>	<u>83-32-9</u>	<u>80</u>
<u>Acenaphthylene</u>	<u>208-96-8</u>	<u>200</u>
<u>Acetic acid</u>	<u>64-19-7</u>	<u>5,000</u>
<u>Acetochlor</u>	<u>34256-82-1</u>	<u>100</u>
<u>Acetochlor ESA</u>	<u>187022-11-3</u>	<u>500</u>
<u>Acetochlor OXA</u>	<u>184992-44-4</u>	<u>500</u>
<u>Acetone</u>	<u>67-64-1</u>	<u>6,000</u>
<u>Acetophenone</u>	<u>98-86-2</u>	<u>700</u>
<u>Acrolein</u>	<u>107-02-8</u>	<u>4</u>
<u>Acrylamide</u>	<u>79-06-1</u>	<u>0.008</u>
<u>Alachlor</u>	<u>15972-60-8</u>	<u>2</u>
<u>Aldrin</u>	<u>309-00-2</u>	<u>0.002</u>
<u>Anthracene</u>	<u>120-12-7</u>	<u>2,000</u>
<u>Antimony</u>	<u>7440-36-0</u>	<u>1</u>
<u>Arsenic</u>	<u>7440-38-2</u>	<u>10</u>
<u>Atrazine and chlorotriazine metabolites</u>	<u>1912-24-9</u>	<u>3</u>
<u>Barium</u>	<u>7440-39-3</u>	<u>700</u>

<u>Benzene</u>	<u>71-43-2</u>	<u>1</u>
<u>Benzo(a)anthracene</u>	<u>56-55-3</u>	<u>0.05</u>
<u>Benzo(a)pyrene</u>	<u>50-32-8</u>	<u>0.005</u>
<u>Benzo(b)fluoranthene</u>	<u>205-99-2</u>	<u>0.05</u>
<u>Benzo(g,h,i)perylene</u>	<u>191-24-2</u>	<u>200</u>
<u>Benzo(k)fluoranthene</u>	<u>207-08-9</u>	<u>0.5</u>
<u>Benzoic acid</u>	<u>65-85-0</u>	<u>30,000</u>
<u>Benzyl alcohol</u>	<u>100-51-6</u>	<u>700</u>
<u>Beryllium</u>	<u>7440-41-7</u>	<u>4</u>
<u>Bis(chloroethyl)ether</u>	<u>111-44-4</u>	<u>0.03</u>
<u>Bis(2-ethylhexyl) phthalate</u>	<u>117-81-7</u>	<u>3</u>
<u>Boron</u>	<u>7440-42-8</u>	<u>700</u>
<u>Bromodichloromethane</u>	<u>75-27-4</u>	<u>0.6</u>
<u>Bromoform</u>	<u>75-25-2</u>	<u>4</u>
<u>Bromomethane</u>	<u>74-839-9</u>	<u>10</u>
<u>n-Butanol</u>	<u>71-36-3</u>	<u>590</u>
<u>sec-Butanol</u>	<u>78-92-2</u>	<u>10,000</u>
<u>n-Butylbenzene</u>	<u>104-51-8</u>	<u>70</u>
<u>sec-Butylbenzene</u>	<u>135-98-8</u>	<u>70</u>
<u>tert-Butylbenzene</u>	<u>98-06-6</u>	<u>70</u>
<u>Butylbenzyl phthalate</u>	<u>85-68-7</u>	<u>1,000</u>
<u>Cadmium</u>	<u>7440-43-9</u>	<u>2</u>
<u>Caprolactam</u>	<u>105-60-2</u>	<u>4,000</u>
<u>Carbofuran</u>	<u>1563-66-2</u>	<u>40</u>
<u>Carbon disulfide</u>	<u>75-15-0</u>	<u>700</u>
<u>Carbon tetrachloride</u>	<u>56-23-5</u>	<u>0.3</u>
<u>Chlordane</u>	<u>12789-03-6</u>	<u>0.1</u>
<u>Chloride</u>	<u>16887-00-6</u>	<u>250,000</u>
<u>Chlorobenzene</u>	<u>108-90-7</u>	<u>50</u>
<u>Chloroethane</u>	<u>75-00-3</u>	<u>3,000</u>
<u>Chloroform</u>	<u>67-66-3</u>	<u>70</u>
<u>Chloromethane</u>	<u>74-87-3</u>	<u>3</u>
<u>2-Chlorophenol</u>	<u>95-57-8</u>	<u>0.4</u>
<u>2-Chlorotoluene</u>	<u>95-49-8</u>	<u>100</u>
<u>4-Chlorotoluene</u>	<u>106-43-4</u>	<u>24</u>

<u>Chromium</u>	<u>7440-47-3</u>	<u>10</u>
<u>Chrysene</u>	<u>218-01-9</u>	<u>5</u>
<u>Cobalt</u>	<u>7440-48-4</u>	<u>1</u>
<u>Coliform organisms (total)</u>	<u>No CAS Registry Number</u>	<u>1 per 100 mL</u>
<u>Color</u>	<u>No CAS Registry Number</u>	<u>15 color units</u>
<u>Copper</u>	<u>7440-50-8</u>	<u>1,000</u>
<u>Cyanide (free cyanide)</u>	<u>57-12-5</u>	<u>70</u>
<u>2,4-D (2,4-dichlorophenoxy acetic acid)</u>	<u>94-75-7</u>	<u>70</u>
<u>Dalapon</u>	<u>75-99-0</u>	<u>200</u>
<u>DDD</u>	<u>72-54-8</u>	<u>0.1</u>
<u>DDE</u>	<u>72-55-9</u>	<u>0.1</u>
<u>DDT</u>	<u>50-29-3</u>	<u>0.1</u>
<u>Dibenz(a,h)anthracene</u>	<u>53-70-3</u>	<u>0.005</u>
<u>1,4-Dibromobenzene</u>	<u>106-37-06</u>	<u>70</u>
<u>Dibromochloromethane</u>	<u>124-48-1</u>	<u>0.4</u>
<u>1,2-Dibromo-3-chloropropane</u>	<u>96-12-8</u>	<u>0.04</u>
<u>Dibutyl phthalate</u>	<u>84-74-2</u>	<u>700</u>
<u>Dichloroacetic acid</u>	<u>79-43-6</u>	<u>0.7</u>
<u>1,2-Dichlorobenzene</u>	<u>95-50-1</u>	<u>20</u>
<u>1,3-Dichlorobenzene</u>	<u>541-73-1</u>	<u>200</u>
<u>1,4-Dichlorobenzene</u>	<u>106-46-7</u>	<u>6</u>
<u>Dichlorodifluoromethane</u>	<u>75-71-8</u>	<u>1,000</u>
<u>1,1-Dichloroethane</u>	<u>75-34-3</u>	<u>6</u>
<u>1,2-Dichloroethane</u>	<u>107-06-2</u>	<u>0.4</u>
<u>1,2-Dichloroethene (cis)</u>	<u>156-59-2</u>	<u>70</u>
<u>1,2-Dichloroethene (trans)</u>	<u>156-60-5</u>	<u>100</u>
<u>1,1-Dichloroethylene</u>	<u>75-35-4</u>	<u>350</u>
<u>2,4-Dichlorophenol</u>	<u>120-83-2</u>	<u>0.98</u>
<u>1,2-Dichloropropane</u>	<u>78-87-5</u>	<u>0.6</u>
<u>1,3-Dichloropropene (cis and trans isomers)</u>	<u>542-75-6</u>	<u>0.4</u>
<u>Dieldrin</u>	<u>60-57-1</u>	<u>0.002</u>
<u>Diethylphthalate</u>	<u>84-66-2</u>	<u>6,000</u>
<u>2,4-Dimethylphenol</u>	<u>105-67-9</u>	<u>100</u>
<u>2,4-Dinitrotoluene</u>	<u>121-14-2</u>	<u>0.05</u>
<u>2,6-Dinitrotoluene</u>	<u>606-20-2</u>	<u>0.05</u>

<u>Di-n-octyl phthalate</u>	<u>117-84-0</u>	<u>100</u>
<u>Dinoseb</u>	<u>88-85-7</u>	<u>7</u>
<u>1,4-Dioxane</u>	<u>123-91-1</u>	<u>3</u>
<u>Dioxin (2,3,7,8-TCDD)</u>	<u>1746-01-6</u>	<u>0.0002 ng/L</u>
<u>1,1-Diphenyl</u>	<u>92-52-4</u>	<u>400</u>
<u>Diphenyl ether</u>	<u>101-84-8</u>	<u>180</u>
<u>Diquat</u>	<u>85-00-7</u>	<u>20</u>
<u>Dissolved solids (total)</u>	<u>No CAS Registry Number</u>	<u>500,000</u>
<u>Disulfoton</u>	<u>298-04-4</u>	<u>0.3</u>
<u>Diundecyl phthalate (Santicizer 711)</u>	<u>3648-20-2</u>	<u>100</u>
<u>Endosulfan</u>	<u>115-29-7</u>	<u>40</u>
<u>Endosulfan sulfate</u>	<u>115-29-7</u>	<u>40</u>
<u>Endothall</u>	<u>145-73-3</u>	<u>100</u>
<u>Endrin, total (includes endrin, endrin aldehyde, and endrin ketone)</u>	<u>72-20-8</u>	<u>2</u>
<u>Epichlorohydrin</u>	<u>106-89-8</u>	<u>4</u>
<u>Ethyl acetate</u>	<u>141-78-6</u>	<u>3,000</u>
<u>Ethylbenzene</u>	<u>100-41-4</u>	<u>600</u>
<u>Ethylene dibromide</u>	<u>106-93-4</u>	<u>0.02</u>
<u>Ethylene glycol</u>	<u>107-21-1</u>	<u>10,000</u>
<u>Fluoranthene</u>	<u>206-44-0</u>	<u>300</u>
<u>Fluorene</u>	<u>86-73-7</u>	<u>300</u>
<u>Fluoride</u>	<u>16984-48-8</u>	<u>2,000</u>
<u>Foaming agents</u>	<u>No CAS Registry Number</u>	<u>500</u>
<u>Formaldehyde</u>	<u>50-00-0</u>	<u>600</u>
<u>Gross alpha (adjusted) particle activity (excludes radium-226 and uranium)</u>	<u>12587-46-1</u>	<u>15 pCi/L</u>
<u>Heptachlor</u>	<u>76-44-8</u>	<u>0.008</u>
<u>Heptachlor epoxide</u>	<u>1024-57-3</u>	<u>0.004</u>
<u>Heptane</u>	<u>142-82-5</u>	<u>400</u>
<u>Hexachlorobenzene</u>	<u>118-74-1</u>	<u>0.02</u>
<u>Hexachlorobutadiene</u>	<u>87-68-3</u>	<u>0.4</u>
<u>Hexachlorocyclohexane isomers (technical grade)</u>	<u>608-73-1</u>	<u>0.02</u>
<u>alpha-Hexachlorocyclohexane</u>	<u>319-84-6</u>	<u>0.006</u>
<u>beta-Hexachlorocyclohexane</u>	<u>319-85-7</u>	<u>0.02</u>
<u>gamma-Hexachlorocyclohexane (Lindane)</u>	<u>58-89-9</u>	<u>0.03</u>
<u>n-Hexane</u>	<u>110-54-3</u>	<u>400</u>

<u>Indeno(1,2,3-cd)pyrene</u>	<u>193-39-5</u>	<u>0.05</u>
<u>Iron</u>	<u>7439-89-6</u>	<u>300</u>
<u>Isophorone</u>	<u>78-59-1</u>	<u>40</u>
<u>Isopropyl ether</u>	<u>108-20-3</u>	<u>70</u>
<u>Isopropylbenzene</u>	<u>98-82-8</u>	<u>70</u>
<u>4-Isopropyltoluene</u>	<u>99-87-6</u>	<u>25</u>
<u>Lead</u>	<u>7439-92-1</u>	<u>15</u>
<u>Manganese</u>	<u>7439-96-5</u>	<u>50</u>
<u>Mercury</u>	<u>7439-97-6</u>	<u>1</u>
<u>Methanol</u>	<u>67-56-1</u>	<u>4,000</u>
<u>Methoxychlor</u>	<u>72-43-5</u>	<u>40</u>
<u>Methylene chloride</u>	<u>75-09-2</u>	<u>5</u>
<u>Methyl butyl ketone</u>	<u>591-78-6</u>	<u>40</u>
<u>Methyl ethyl ketone</u>	<u>78-93-3</u>	<u>4,000</u>
<u>Methyl isobutyl ketone</u>	<u>108-10-1</u>	<u>100</u>
<u>Methyl methacrylate</u>	<u>80-62-6</u>	<u>25</u>
<u>1-Methylnaphthalene</u>	<u>90-12-0</u>	<u>1</u>
<u>2-Methylnaphthalene</u>	<u>91-57-6</u>	<u>30</u>
<u>2-Methylphenol</u>	<u>95-48-7</u>	<u>400</u>
<u>3-Methylphenol</u>	<u>108-39-4</u>	<u>400</u>
<u>4-Methylphenol</u>	<u>106-44-5</u>	<u>40</u>
<u>Methyl tert-butyl ether (MTBE)</u>	<u>1634-04-4</u>	<u>20</u>
<u>Naphthalene</u>	<u>91-20-3</u>	<u>6</u>
<u>Nickel</u>	<u>7440-02-0</u>	<u>100</u>
<u>Nitrate (as N)</u>	<u>14797-55-8</u>	<u>10,000</u>
<u>Nitrite (as N)</u>	<u>14797-65-0</u>	<u>1,000</u>
<u>N-nitrosodimethylamine</u>	<u>62-75-9</u>	<u>0.0007</u>
<u>Oxamyl</u>	<u>23135-22-0</u>	<u>200</u>
<u>Pentachlorophenol</u>	<u>608-93-5</u>	<u>0.3</u>
<u>Perfluorooctane sulfonic acid (PFOS) and Perfluorooctanoic acid (PFOA), total</u>	<u>[1763-23-1 (PFOS); 335-67-1 (PFOA)]</u>	<u>[0.07]</u>
<u>Petroleum aliphatic carbon fraction class (C5 – C8)</u>	<u>No CAS Registry Number</u>	<u>400</u>
<u>Petroleum aliphatic carbon fraction class (C9 – C18)</u>	<u>No CAS Registry Number</u>	<u>700</u>
<u>Petroleum aliphatic carbon fraction class (C19 – C36)</u>	<u>No CAS Registry Number</u>	<u>10,000</u>
<u>Petroleum aromatics carbon fraction class (C9 – C22)</u>	<u>No CAS Registry Number</u>	<u>200</u>
<u>pH</u>	<u>No CAS Registry Number</u>	<u>6.5 - 8.5 (no unit)</u>

<u>Phenanthrene</u>	<u>85-01-8</u>	<u>200</u>
<u>Phenol</u>	<u>108-95-2</u>	<u>30</u>
<u>Phorate</u>	<u>298-02-2</u>	<u>1</u>
<u>n-Propylbenzene</u>	<u>103-65-1</u>	<u>70</u>
<u>Propylene glycol</u>	<u>57-55-6</u>	<u>100,000</u>
<u>Pyrene</u>	<u>129-00-0</u>	<u>200</u>
<u>Selenium</u>	<u>7782-49-2</u>	<u>20</u>
<u>Silver</u>	<u>7440-22-4</u>	<u>20</u>
<u>Simazine</u>	<u>122-34-9</u>	<u>4</u>
<u>Strontium</u>	<u>7440-24-6</u>	<u>2,000</u>
<u>Styrene</u>	<u>100-42-5</u>	<u>70</u>
<u>Sulfate</u>	<u>14808-79-8</u>	<u>250,000</u>
<u>1,2,4,5-Tetrachlorobenzene</u>	<u>95-94-3</u>	<u>2</u>
<u>1,1,2,2-Tetrachloroethane</u>	<u>79-34-5</u>	<u>0.2</u>
<u>1,1,1,2-Tetrachloroethane</u>	<u>630-20-6</u>	<u>1</u>
<u>Tetrachloroethylene (PCE)</u>	<u>127-18-4</u>	<u>0.7</u>
<u>2,3,4,6-Tetrachlorophenol</u>	<u>58-90-2</u>	<u>200</u>
<u>Thallium</u>	<u>7440-28-0</u>	<u>2</u>
<u>Tin (inorganic forms)</u>	<u>7440-31-5</u>	<u>2,000</u>
<u>Toluene</u>	<u>108-88-3</u>	<u>600</u>
<u>Toxaphene</u>	<u>8001-35-2</u>	<u>0.03</u>
<u>2,4,5-TP (Silvex)</u>	<u>93-72-1</u>	<u>50</u>
<u>1,2,4-Trichlorobenzene</u>	<u>120-82-1</u>	<u>70</u>
<u>1,1,1-Trichloroethane</u>	<u>71-55-6</u>	<u>200</u>
<u>1,1,2-Trichloroethane</u>	<u>79-00-5</u>	<u>0.6</u>
<u>Trichloroethylene (TCE)</u>	<u>79-01-6</u>	<u>3</u>
<u>Trichlorofluoromethane</u>	<u>75-69-4</u>	<u>2,000</u>
<u>2,4,5-Trichlorophenol</u>	<u>95-95-4</u>	<u>63</u>
<u>2,4,6-Trichlorophenol</u>	<u>88-06-2</u>	<u>4</u>
<u>1,2,3-Trichloropropane</u>	<u>96-18-4</u>	<u>0.005</u>
<u>1,2,4-Trimethylbenzene</u>	<u>95-63-6</u>	<u>400</u>
<u>1,3,5-Trimethylbenzene</u>	<u>108-67-8</u>	<u>400</u>
<u>Vanadium</u>	<u>7440-62-2</u>	<u>7</u>
<u>1,1,2-Trichloro-1,2,2-trifluoroethane</u>	<u>76-13-1</u>	<u>200,000</u>
<u>Vinyl chloride</u>	<u>75-01-4</u>	<u>0.03</u>

<u>Xylenes</u>	<u>1330-20-7</u>	<u>500</u>
<u>Zinc</u>	<u>7440-66-6</u>	<u>1,000</u>

(i) Class GSA Standards. The standards for this class are the same as those for Class GA except as follows:

- (1) chloride: allowable increase not to exceed 100 percent of the natural quality concentration; and
- (2) dissolved solids (total): ~~1000 mg/L~~ 1,000,000 µg/L.

(j) Class GC Standards.

- (1) The concentrations of substances that, at the time of classification, exceed the standards applicable to Class GA or GSA groundwaters shall not be caused to increase, nor shall the concentrations of other substances be caused to exceed the GA or GSA standards as a result of further disposal of contaminants to or beneath the surface of the land within the boundary of the area classified GC.
- (2) The concentrations of substances that, at the time of classification, exceed the standards applicable to GA or GSA groundwaters shall not be caused to migrate as a result of activities within the boundary of the GC classification, so as to violate the groundwater or surface water quality standards in adjoining waters of a different class.
- (3) Concentrations of specific substances, that exceed the established standard at the time of classification, are listed in Section .0300 of this Subchapter.

History Note: Authority G.S. 143-214.1; 143B-282(a)(2);

Eff. June 10, 1979;

Amended Eff. November 1, 1994; October 1, 1993; September 1, 1992; August 1, 1989;

Temporary Amendment Eff. June 30, 2002;

Amended Eff. August 1, 2002;

Temporary Amendment Expired February 9, 2003;

Amended Eff. April 1, 2013; January 1, 2010; April 1, 2005;

Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. March 6, 2018;

Amended Eff. January 1, 2022.