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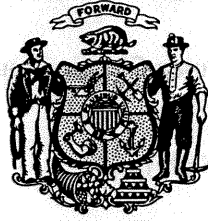
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FORM 2

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CLEARINGHOUSE REPORT TO AGENCY

[THIS REPORT HAS BEEN PREPARED PURSUANT TO S. 227.15, STATS. THIS IS A REPORT ON A RULE AS ORIGINALLY PROPOSED BY THE AGENCY; THE REPORT MAY NOT REFLECT THE FINAL CONTENT OF THE RULE IN FINAL DRAFT FORM AS IT WILL BE SUBMITTED TO THE LEGISLATURE. THIS REPORT CONSTITUTES A REVIEW OF, BUT NOT APPROVAL OR DISAPPROVAL OF, THE SUBSTANTIVE CONTENT AND TECHNICAL ACCURACY OF THE RULE.]

CLEARINGHOUSE RULE 00-002

AN ORDER to repeal NR 809.40 and 809.41; to renumber NR 809.04 (7) to (66), 809.26 (1) (i), subchapters III to VIII of chapter NR 809, 809.80 (4) to (9) and 809.90 (1) (c); to renumber and amend NR 809.04 (48) and 809.26 (1) (j), subchapter VI (title) of chapter NR 809, (5) and (6); to amend NR 809.09 (1), 809.12 (3) (a), (4) (a) and (b), (5) (a) and (13), 809.21 (13), 809.23 (1), 809.26 (1) (e) and (3) (a) and (b), 809.31 (1) (d) 1. and 2. and (5) (c) and (6), 809.70, 809.75 (1), 809.755, 809.755 (2) (b) and (f) and (3), 809.76, 809.76 (1), (2) and (5), 809.77 and 809.81 (1) and (5) (Lt); to repeal and recreate NR 809.22 and 809.90; and to create NR 809.04 (7), (19), (22), (23), (27), (31), (36), (43), (44), (69), (72) to (75) and (77), 809.31 (5) (d), subchapter III of chapter NR 809, 809.75 (4), 809.765, 809.775, 809.80 (4), (8) and (12), 809.83, 809.833, 809.835, 809.837 and Appendix A to subchapter VII of chapter NR 809, relating to safe drinking water.

Submitted by **DEPARTMENT OF NATURAL RESOURCES**

01-10-00 RECEIVED BY LEGISLATIVE COUNCIL.

02-08-00 REPORT SENT TO AGENCY.

RNS:DLL:jal;rv

LEGISLATIVE COUNCIL RULES CLEARINGHOUSE REPORT

This rule has been reviewed by the Rules Clearinghouse. Based on that review, comments are reported as noted below:

1. STATUTORY AUTHORITY [s. 227.15 (2) (a)]

Comment Attached YES NO

2. FORM, STYLE AND PLACEMENT IN ADMINISTRATIVE CODE [s. 227.15 (2) (c)]

Comment Attached YES NO

3. CONFLICT WITH OR DUPLICATION OF EXISTING RULES [s. 227.15 (2) (d)]

Comment Attached YES NO

4. ADEQUACY OF REFERENCES TO RELATED STATUTES, RULES AND FORMS [s. 227.15 (2) (e)]

Comment Attached YES NO

5. CLARITY, GRAMMAR, PUNCTUATION AND USE OF PLAIN LANGUAGE [s. 227.15 (2) (f)]

Comment Attached YES NO

6. POTENTIAL CONFLICTS WITH, AND COMPARABILITY TO, RELATED FEDERAL REGULATIONS [s. 227.15 (2) (g)]

Comment Attached YES NO

7. COMPLIANCE WITH PERMIT ACTION DEADLINE REQUIREMENTS [s. 227.15 (2) (h)]

Comment Attached YES NO

Submitted by: DEPARTMENT OF NATURAL RESOURCES

RECEIVED BY: LEGISLATIVE COUNCIL

REPORT SENT TO: 02-10-08

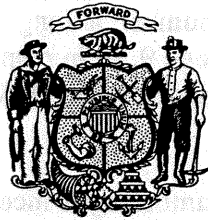
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CLEARINGHOUSE RULE 00-002

Comments

[NOTE: All citations to "Manual" in the comments below are to the Administrative Rules Procedures Manual, prepared by the Revisor of Statutes Bureau and the Legislative Council Staff, dated September 1998.]

General Comment

This rule is in very rough form. It consists of several separate draft orders, not compiled into a single rule-making order. It lacks effective dates. [See s. 1.02 (4), Manual.] It lacks a regulatory flexibility analysis. [See s. 1.02 (6), Manual.] It has not been subjected to adequate editing, as evidenced by numerous errors in drafting format and style, incorrect cross-references, and even several instances of missing text. In short, it is not in the form required, should not have been submitted to the Legislative Council Rules Clearinghouse or be given public hearings without considerable additional work. The comments in this report will identify the kinds of errors that are in the draft. The report will identify many individual errors, but it will by no means identify all errors. The entire rule should be reviewed and thoroughly revised to correct the kinds of errors described in this report.

The rule has been submitted as one document and has one fiscal estimate covering all four chapters affected. However, it has four orders. The Legislative Council Rules Clearinghouse treated it as one Clearinghouse rule. If the department wishes that they be treated as four separate rules, the department should delete three of the chapters from this rule and resubmit them to the Clearinghouse to be assigned new Clearinghouse rule numbers. If all four chapters are retained in this Clearinghouse rule, they should be placed in numerical order, preceded by one introductory clause and analysis.

2. Form, Style and Placement in Administrative Code

a. The rule makes numerous errors with regard to the renumbering of rule provisions. First, it is entirely unnecessary to renumber a long string of provisions to make room for insertions, as is done in SECTION 1 on page 9, or in response to the repeal of existing provisions, as is done in SECTION 11 on page 83. [See s. 1.03 (7), Manual, for a simpler method of handling insertions.]

Second, the format used for renumbering is incorrect. For example, the treatment clause for SECTION 2 on page 9 should read: "NR 809.04 (48) is renumbered NR 809.04 (57) and amended to read:". Also, SECTION 9 on page 83 should read: "NR 811.13 (4) to (6) are renumbered NR 811.13 (5) to (7)."

Third, it is appropriate to amend a portion of the provisions that are renumbered. For example, the treatment clause of SECTION 29 on page 45 should read: "NR 809.80 (4) to (6) and (7) to (9) are renumbered NR 809.80 (5) to (7) and (9) to (11) and NR 809.80 (6) (intro.) and (7) (intro.) and (a) 3., as renumbered, are amended to read:".

Fourth, when amending renumbered text, the numbering of the provisions shown in the text of the rule should be as renumbered. The rule should not renumber a provision in the treatment clause and then, through striking and underscoring in the text, renumber it again. Again, see the example on page 45.

b. The text of each rule SECTION should begin with the complete citation to the rule provision being affected. For example, the first text on page 9 should begin as follows: "NR 809.04 (7) "Comprehensive performance evaluation" or "CPE" means" If subsequent subunits are affected by the same SECTION, they should be preceded by as much of the citation as is not previously presented. This error is made in almost every SECTION of the rule.

c. The text of SECTION 2 belongs in SECTION 3, and vice versa. SECTION 1 also renumbers something to be s. NR 809.04 (77), in conflict with SECTION 3.

d. Definitions should simply state the meaning of the the defined term. Descriptive material should be placed in notes. For example, the second sentence of the definition of "disinfection profile" should be placed in a note, as should all of the material after the comma in the definition of "SUVA." Substantive requirements should be placed in the text of the rule. For example, the first sentence of the definition of "maximum residual disinfectant level" provides sufficient definition for the term; the remainder of that definition is substantive and should be placed in the text of the rule.

e. The definition of "comprehensive performance evaluation" is not so much a definition as a discussion of the term. Clearly, this was taken from federal guidance documents without being recast in the form of a definition. (The inappropriate reference to "Subpart P of this part" is further evidence of this.) This provision should be rewritten as a definition.

f. In the definitions of "comprehensive performance evaluation," "disinfection profile" and "filter profile," the word "is" should be replaced by the word "means."

g. The principal method for amending existing rule text is to strike-through the words and punctuation to be removed and insert any words and punctuation to be added in the appropriate place with underscoring. For some reason, a number of provisions have the wrong words underscored or stricken, or have such words in the wrong order. See, for example, the treatment of the definition of "public water system" on page 11, s. NR 809.31 (5) (c) on page 14, s. NR 809.77 on page 39, the note following ch. NR 114 (title) on page 72, s. NR 114.14 (1) (h) on page 74 and s. NR 811.16 (4) (d) 2. on page 83. Similar errors are made throughout the rule in the striking and underscoring of punctuation (e.g., in the treatment of s. NR 809.77).

Also, it is not permissible to strike a single letter of a word or underscore a single letter added to a word. Instead, the entire word to be changed should be stricken, followed by the entire word in its changed form with underscoring. For example, in s. NR 809.31 (6), "surveys" should be replaced by "~~surveys~~ survey".

Finally, it is not appropriate to add "(s)" at the end of a word. [For example, see s. NR 809.563.]

h. Frequently, the rule creates an entire new unit by underscoring it. Sometimes this is done within the context of amending a larger unit, such as the creation of a new paragraph in the definition of "public water system" on page 11. In these cases, a separate SECTION should be used to create the new unit without underscoring. In other cases, the treatment clause states that the unit is being created, but the text is nonetheless underscored, as in the creation of s. NR 114.05 (9) on page 73; in these cases, the underscoring should be omitted.

i. The rule consistently makes incorrect use of introductory clauses. [See s. 1.03 (8), Manual.] These clauses should be used to introduce lists of provisions, and usually end in a phrase such as "all of the following." Each of the provisions following introductory clauses should end with a period. For example, in the definition of "public water system" on page 11, par. (c) does not follow grammatically or conceptually from the language that introduces pars. (a) to (c). To correct this, this definition should be broken into three paragraphs; par. (a) would consist of the first sentence of the definition; par. (b) (intro.) would read "'Public water system" includes all the following:"; what is drafted as pars. (a) and (b) would be subs. 1. and 2. of par. (b) and would each end in a period; par. (c) would be as drafted. As another example, s. NR 809.90 (1) (d) on page 55 does not follow from the introduction, and so should be placed in a separate subsection.

Also, where introductory material is being affected by a rule, the notation "(intro.)" should be included in the citation in the treatment clause and in the citation at the beginning of the text. For example, SECTION 11 on page 13 should read as follows:

SECTION 11. NR 809.26 (3) (intro.), (a) and (b) are amended to read:

NR 809.26 (3) (intro.) Monitoring for sulfate and the contaminants listed in . . .

j. The treatment clause of SECTION 5 is not acceptable. The only acceptable methods of amending text are striking and underscoring, as described above, or repealing and recreating. SECTION 5 must use one of these methods, presumably the former. The same applies for the treatment clause for SECTION 33 on page 47.

k. The rule uses much jargon and many acronyms, often without definition. Jargon should be avoided and all technical terms and acronyms should be defined unless their meaning is commonly understood. For example, although "HAA5" is defined, the acronym "TTHM" is not. Other terms that are not defined include "subpart H community water system," "dissolved organic carbon," "DOC," "UV254," "the Information Collection Rule," "treatment plant," "treatment segment," "grandfathered HAA5 occurrence data," "disinfection byproduct precursor," "NTU," "PWS," "Safe Drinking Water Certified laboratory," "primacy agency," "TT" and "safe sample." In addition, the rule uses inappropriate methods of informing the reader of the meaning of some of these terms, instead of providing definitions. For example, in s. NR 809.22, we are told the meaning of "total trihalomethanes" in a parenthetical comment; in other provisions, such as s. NR 809.562 (1), acronyms are given in parentheses following the full term, and are then used without further definition. These are not acceptable alternatives to definitions.

l. A troublesome problem of undefined terminology in the rule is the term used to identify the entities subject to regulation under the rule. Throughout most of the rule, the term "system" is used. Since this term is not defined, the reader does not know if it refers to all public water systems, to community water systems, to noncommunity water systems, to nontransient noncommunity water systems, or what. At times, other terms are used: "PWS" is used on page 26; "public water system supplier" is used on page 38; "water supplier" is used on page 44; "public water system" is used on page 45; and "operator" is used on page 48. To give clarity to the rule, it is imperative that consistent terminology be used, especially for such a critical term as this, and that it be defined.

m. The second-to-last sentence of s. NR 809.22 is explanatory rather than substantive, and so should be placed in a note.

n. In general, the only treatments that can be combined in one SECTION are: (1) renumbering and amending; or (2) repealing and recreating. In most other cases, only one treatment may be performed in a single SECTION. SECTION 10 should be split into two SECTIONS, one repealing s. NR 809.26 (1) (i) and the other renumbering and amending s. NR 809.26 (1) (j). The same applies to SECTION 13.

o. In SECTION 11 and numerous other places in the rule, the word "department" should be written in lowercase.

p. To provide the greatest clarity, rules should be written in the active voice, where possible using short declaratory sentences in a form such as: "X shall do Y." For example, in s. NR 809.561 (1) (b) 2., "a schedule shall be set by the Department" should be replaced by "the department shall set a schedule." Section NR 809.75 (4) (intro.) should read: "After December 17, 2001, a system shall install and operate water treatment processes that will reliably achieve

all of the following:”. There are numerous other provisions which could be made more clear by the use of the active voice.

q. Throughout the rule, but especially in subch. III of ch. NR 809, the rule ignores the conventions regarding the use of titles. The rule is not consistent in when it uses titles; some, but not all, paragraphs of a subsection will have titles or some, but not all, subdivisions of a paragraph will have titles. Also, the rule does not follow the formatting conventions for titles--except for section titles, the rule writes almost all titles in the same fonts as the text of the rule. The combined effect of these two errors is to make it difficult to tell where titles are being used and to distinguish them from the text of the rule. It is striking how much easier it is to read s. NR 809.83 than it is to read the rest of the rule.

As an example, the subsection titles in s. NR 809.833 follow a variety of formats. Subsection (1) has no title; subs. (2) and (4) correctly use all capital letters; sub. (3) uses all capital letters, but they are underscored; subs. (5) to (8) use italicized letters with different capitalization from one subsection to the next.

r. In s. NR 809.561 (1) (b) 2., should the reference to “GAC” be replaced by the defined term “GAC10”? If not, the meaning of that term should be clarified.

s. The significance of s. NR 809.561 (1) (b) and (2) (c) is entirely unclear; s. NR 809.562 (2) is equally unclear. These provisions should be rewritten in the active voice, clearly identifying their significance and any requirements they are creating.

t. Section NR 809.562 (2) (a) is the only paragraph in that subsection. It should either be elevated to the level of a subsection or, given its specific content, be made a separate section. For the same reason, s. NR 809.563 (1) (a) should be made a separate subsection.

u. In s. NR 809.562 (2) (a) (intro.), there is a stray occurrence of the word “disinfectant.”

v. Section NR 809.562 (5) appears redundant with s. NR 809.81.

w. The history note following s. NR 809.562 should be omitted.

x. Section NR 809.563 (2) should be broken into paragraphs to make the information more accessible. Given the amount of information contained in it, it might be worth creating a separate section for this. Compare to ch. NR 484 for a more usable format for incorporating documents by reference.

y. Table 1, following s. NR 809.560 (3) (a) is very cryptic and could use some explanation. Are the various methods listed in the table incorporated by reference? If so, the table should include cross-references to the provisions that incorporate each of these methods. The same comment applies to Table 2. Also in regard to Table 1, there is an indication for a footnote 2, but no footnote and no indication at all of a footnote 1. In regard to Table 2, there is a footnote 1, but no indication of what it refers to in the table.

z. Since s. NR 809.563 (1) (a) and (3) (a) are the only paragraphs in the respective subsections, the paragraph notations should be dropped. The former paragraph should either be merged with the introduction or made a separate subsection; the latter paragraph should simply be renumbered as sub. (3). Similar errors occur in numerous other provisions of the rule.

aa. Section NR 809.563 (4) (intro.) does not introduce the paragraphs that follow. Therefore, it should be numbered par. (a) and the following paragraphs should be numbered pars. (b) to (d).

ab. In s. NR 809.563 (4) (b), the abbreviation "PE" should not be used, but should be spelled out.

ac. Are the various methods listed in s. NR 809.563 (6) incorporated by reference? If so, that section should include cross-references to the provisions that incorporate each of these methods. Compare to s. NR 439.06 for a format that does this.

ad. Titles are not a part of the rule. However, the provisions of s. NR 809.563 (6) are not complete and cannot be understood without incorporating the titles into the provisions. For example, par. (b) should read: "(b) Bromide. For measuring bromide, EPA method 300.0 or EPA method 300.1."

ae. There are two subsections numbered (2) in s. NR 809.565. The second of these subsections should be numbered sub. (2m).

af. The rule frequently subdivides provisions more than is necessary or appropriate. For example, it is not necessary to break out the second and third sentences of s. NR 809.565 (2) (a) as separate subdivisions; these provisions should be collapsed into par. (a). The same applies to the following four paragraphs, in particular since each paragraph is only two sentences long, resulting in an introduction and a single subdivision in each paragraph.

ag. The opening phrases of s. NR 809.565 (3) (a) 1. to 3. duplicate the opening phrase of the introduction. See the following paragraph for a model of how to avoid this duplication.

ah. In s. NR 809.565 (3) (c), should the last two occurrences of the word "and" be replaced by "or"? That is to say, do both of the standards have to be violated to trigger the requirement to resume monitoring, or just one?

ai. Text is missing from s. NR 809.565 (4) (a) 4. It appears that spaces have been left to fill in cross-references after the second occurrence of the word "by" and after the first and second occurrences of the word "under."

aj. In most of the rule, the format of internal cross-references is incorrect. For the correct formats, see s. 1.07 (2), Manual. Note that internal cross-references never include notations such as "of this section" or "of this subsection." For example, s. NR 809.565 (1) (a) 3. refers to "par. (7)."

A special case of the problem with internal cross-references appears throughout the middle and later portions of the rule, in which an introductory clause refers to the subunits that follow it as if they were part of a different unit of the rule. For example, s. NR 809.569 (1) (b) (intro.) refers to "the alternative compliance criteria in subs. (1) (b) 1. through 6." Instead, it should simply refer to "the following alternative compliance criteria:".

ak. Mandatory actions are denoted in rules by the word "shall" and permissive actions are noted by the word "may." For example, in s. NR 809.565 (4) (a) 3. and (5) (b) 2., the phrase "is required to" should be replaced by the word "shall"; in the second-to-last sentence of s. NR 809.76 (5), the word "will" should be replaced by the word "shall"; and the three occurrences of the word "should" in s. NR 809.833 (4) (d) 5. c. and (e) on page 50 should be replaced by the word "shall" and the word "could" in s. NR 809.833 (4) (e) on page 50 should be replaced by the word "may."

al. The last sentence of s. NR 809.565 (6) (a) 2. is explanatory rather than substantive, and so should be placed in a note.

am. There appears to be text missing from s. NR 809.566 (1) (a), following the word "bromate."

an. The rule frequently duplicates requirements in more than one section. For example, s. NR 809.566 (2) (d) appears to simply repeat the requirements of a number of other sections.

ao. Since they relate to monitoring, s. NR 809.566 (2) (b) 2. and (c) should be in a section relating to monitoring, rather than a section relating to compliance.

ap. Section NR 809.566 (2) (d) and (e), (3) and (4) should be modified in several places to specify with what standard compliance is being determined. These appear to be further examples of relying upon titles to convey substance. Compare to s. NR 809.566 (2) (a) and (b) for examples of clearer drafting.

aq. Rules should be organized in a logical manner, moving from general to specific provisions. Requirements should be laid out in a clear, stepwise fashion. With these general rules in mind, the department may want to rethink the organization of subch. III of ch. NR 809. As an example, the following is one suggestion for how s. NR 809.569 might be reorganized:

- (1) Begin with the material in sub. (2) (which would be numbered sub. (1)). The introduction to this subsection would state something to the effect of: "Except as provided in subs. (2) and (3), surface water systems using conventional filtration treatment shall use enhanced coagulation or enhanced softening. These systems shall achieve the TOC percentage removal levels specified in Table 1." This would be followed by the table, along with sufficient explanatory material to make the table comprehensible. (As drafted, the table is not very clear.)
- (2) Subsection (2) would consist of two paragraphs. The first paragraph would state: "(a) Subsection (1) does not apply to a surface water system that uses

conventional filtration treatment and that meets any of the following criteria.”. This introduction would be followed by the criteria in s. NR 809.569 (1) (b) 1. to 6. The second paragraph would give comparable treatment to what is currently drafted as s. NR 809.569 (1) (c). The statement that these systems shall still comply with monitoring requirements in s. NR 809.565 (6) should be placed in a note.

(3) Subsection (3) would address alternative minimum TOC removal requirements. This subsection should begin with a statement of who may apply for alternative requirements and then present a stepwise process indicating how the system applies for this and how the department will review and approve the application. It should clearly distinguish between procedural provisions related to the application process and substantive requirements related to the alternative requirements imposed. Note that the references to “step 1” and “step 2” do not add anything to the clarity of the rule and should be dropped.

(4) Subsection (4) would address compliance calculations. The introduction to par. (a) would read: “Except as provided in par. (b), a system that is subject to sub. (1) shall determine compliance as follows:”. No introduction is necessary for par. (b), as long as each subdivision makes clear the specific systems to which it applies.

(5) What is currently drafted as sub. (4) is totally unclear; consequently, we do not have a specific recommendation of where to place that material.

ar. SECTION 22, beginning on page 35, should be modified to treat only those subunits that are actually being affected and to apply the proper treatment to them. This means that it should be broken into three SECTIONS, the first of which would amend sub. (2) (b) (intro.), the second of which would create sub. (2) (c) 8. and the third of which would amend subs. (2) (f) and (3) (a). The same comment applies to SECTION 23, beginning on page 37.

as. Section NR 809.76 (intro.) contains two commas which are not in the current rule but which are not underscored in the draft.

at. The notations “removal and/or inactivation” in s. NR 809.76 (5) should be written out as “removal or inactivation or both.”

au. Section NR 809.775 (3) (b) (intro.) should read: “Any system that is modifying its disinfection practice shall calculate its disinfection benchmark using the following procedure:”. The introduction to the following par. (d) should read: “The system shall submit the following information to the department as part of its consultation process:”.

av. The treatment clause of SECTION 27, on page 43, should read as follows: “NR 809 subch. VI is renumbered subch. VII and subch. VII (title), as renumbered, is amended to read:”.

aw. The material numbered s. NR 809.80 (4), on pages 43 and 44, should be rewritten in the active voice to clarify who is responsible for taking what actions. This is particularly important because these provisions bring in a third party, testing laboratories, in addition to the department and water system operators.

ax. The renumbering done by SECTIONS 29 and 30, beginning on page 45, suffer from all the problems described in earlier comments (including being entirely unnecessary--see s. 1.03 (7), Manual).

ay. Section NR 809.833 (4) is confusing. The department may want to consider redrafting this provision along the lines that were suggested for subch. III of ch. NR 809, making use of the active voice.

az. Section NR 809.837 (7) (a) (intro.) should read: "A system that has received a waiver under this subsection shall do all the following:". The following par. (b) should read: "A system serving 500 or fewer persons that has received a waiver under this subsection may forego"

ba. Section NR 809.90 (1) needs reorganization. First, par. (d) does not follow from the introductory language. Second, it is not clear if a public system is required to meet all of the remaining conditions to be eligible for a conditional waiver. In particular, is not clear whether it is required to meet the conditions of pars. (a) and (b) simultaneously.

bb. Section NR 809.90 (2) (c) to (e) do not follow from the preceding introductory material.

bc. The definitions of "other than municipal community water system" and "non-transient non-community water system" in ss. NR 114.01 and 114.28 should be placed in their proper alphabetical order relative to other defined terms, and not in paragraphs within the definition of "water system."

bd. Section NR 114.07 (5) should be reorganized as follows: what is now introductory material should be numbered par. (a) and the notation "of par. (b)" should be inserted in the first sentence after the phrase "continuing education requirements"; a par. (b) (intro.) should be created to read: "Applicants shall meet the following continuing education requirements:"; pars. (a) to (c) should be numbered par. (b) 1. to 3.; and par. (d) should be numbered par. (c).

be. Section NR 114.28 duplicates many of the definitions contained in the other subchapters of chapter NR 114. To minimize duplication, the department may want to consider creating a single section of definitions that would apply to the entire chapter.

bf. SECTION 2 on page 81 incorrectly identifies the section being amended--it should indicate that it is amending s. NR 811.05 (2) (a). Also, note that only the introduction and subd. 5. of that paragraph are amended, so only those subunits should be included in this SECTION.

bg. The treatment of s. NR 811.29 (1) (h) does not appear to have any substantive impact. However, it does take language that is drafted correctly and make it ungrammatical relative to

the introduction that precedes it. The treatment of par. (i) creates the same grammatical problem.

4. Adequacy of References to Related Statutes, Rules and Forms

a. In s. NR 809.561 (1) (c), the reference to "1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Pub. L. 93-523)" should be replaced by a reference to the U.S. Code. Also, see s. NR 809.04 (43).

b. The cross-reference in s. NR 809.565 (7) (a) appears to be incorrect. The cross-reference in s. NR 809.566 (1) (d) also appears to be incorrect.

c. The first cross-reference in s. NR 809.566 (3) (b) 2. should be to s. NR 809.565 (5) (b) 1.

d. The first cross-reference in s. NR 809.566 (4) should be to s. NR 809.569 (3).

e. The cross-reference in s. NR 809.567 (1) appears to be overly broad. Can the department more specifically identify the provisions of s. NR 809.563 that are being superseded by this section?

f. The first cross-reference in s. NR 809.567 (4) (b) (intro.) should be to s. NR 809.565 (6) (a).

g. The existing references to "these regulations" in s. NR 809.75 (1) should be replaced by a more specific reference, such as "this subchapter" or "s. NR 809.xx."

h. The existing reference to the definition of "effective corrosion inhibitor residual" in s. NR 809.75 (1) seems inappropriate. In what way does this definition state site-specific measurements of water quality characteristics? Is effective corrosion inhibitor residual an example of such a measurement? This should be clarified.

i. The second cross-reference in s. NR 809.755 (2) (f) is obviously incomplete--further evidence that this rule is not a finished product.

j. The cross-reference in s. NR 809.83 (6) (intro.) is incorrect--there is no such section.

k. The cross-reference in s. NR 809.90 (2) (c) 2. is far wide of the mark--it relates to the labeling of fertilizer, not bottled water supplies.

5. Clarity, Grammar, Punctuation and Use of Plain Language

a. In the definition of "enhanced coagulation," on page 9, what constitutes "sufficient" coagulant?

b. Section NR 809.26 (1) (i) includes the phrase "as specified by the department." How or where will the requirements to which that phrase refers be specified? There are several similarly vague provisions in the rule.

c. Section NR 809.565 (1) (a) (intro.) claims that the paragraph will address maximum contaminant levels, monitoring, analytical requirements and control of disinfectant byproducts. In fact, the paragraph addresses only monitoring, and so the introduction should be scaled back accordingly. However, no introduction is actually needed for that material, and so the introduction could be omitted and each of the subdivisions raised to the level of a paragraph.

d. The significance of s. NR 809.565 (1) (a) 2. is unclear, in particular since the terms "system" and "treatment plant" are undefined.

e. Should the title of s. NR 809.565 (6) (c) read "Bromate" rather than "Bromide," since that paragraph relates primarily to monitoring for bromate?

f. The first sentence of s. NR 809.565 (7) (c) should be written as follows: "The department may require a system that is not subject to the monitoring requirements of this subchapter to prepare a plan under this subsection."

g. The word "For" at the beginning of each paragraph of s. NR 809.567 (2) and (3) is grammatically incorrect and should be omitted.

h. Section 809.567 (4) (intro.) does not make sense. It appears to require "disinfection byproduct precursors" to file reports.

i. There are a number of references to CaCO, particularly in s. NR 809.569. Should the references be to CaCO₃?

j. The department does not consistently describe the use of enhanced coagulation or enhanced softening systems. In s. NR 809.569 (1) (a), the rule uses the phrase "operate with enhanced coagulation or enhanced softening"; in par. (c) of that section, the rule uses the phrase "practicing enhanced softening." Why not simply say "using" or "implementing"?

k. In s. NR 809.569 (1) (b) 3., both occurrences of the phrase "the effective date for compliance" should be replaced by the phrase "the applicable compliance date specified in."

l. Section NR 809.569 (1) (b) 4. should begin with the phrase: "The system submits evidence . . ." This subdivision also refers to "installation and operation of appropriate technologies"--technologies to do what? This should be clarified.

m. Section 809.569 (1) (c) contradicts itself. The first sentence of that paragraph states that it applies to systems that cannot achieve the step 1 TOC removals, while the last sentence requires these systems to meet the step 1 TOC removals pending approval of an alternative minimum TOC removal requirements.

n. The punctuation in s. NR 809.569 (3) (b) 1. is incorrect.

- o. Section NR 809.755 (2) (c) 8. is grammatically incorrect. It appears that the word “whether” should be omitted.
- p. The text that is inserted into s. NR 809.76 (1) (a) is ungrammatical. It should read: “Beginning January 1, 2002, the turbidity level of representative samples of filtered water of a system serving at least 10,000 people and using conventional filtration shall be” The same applies to similar language in subsequent provisions.
- q. Section NR 809.775 creates a number of deadlines which either are already passed or will be passed by the time this rule can take effect. Is this intended?
- r. Is there a penalty for violation of s. NR 809.80 (12)?
- s. In the last sentence of s. NR 809.83 (1) (intro.), the word “and” should be replaced by the word “an.”
- t. A more appropriate title for s. NR 809.83 (2) would be “DEADLINES.”
- u. Sections NR 809.833 and 809.835 specify precise language that must be included in consumer confidence reports. This intent might be clearer if the language to be included in the reports were shown within quotation marks.
- v. The extent of the requirement in s. NR 809.83 (8) (c) is unclear. For example, if five different non-English speaking groups each comprised 1% of the population of a community, would the water utility be required to prepare the report in each of those five languages? If this is not the intent, this provision might be reworded to require that the report be translated into the language of any non-English speaking group that comprises at least 5% of the population of the community served.
- w. Presumably, the term “Primacy Agency,” used in s. NR 809.835 and 809.837, derives from Environmental Protection Agency guidance documents and refers to the department. This should have been changed in the editing of the draft rule.
- x. Section NR 809.837 (7) (intro.) should be modified to refer to “his or her designee.”
- y. Section NR 809.90 (4) does not make sense. Subsection (1) establishes that public water systems may obtain waivers of compliance for up to three years. Subsection (4) then specifies that the department may extend a compliance deadline for up to three years after the date a conditional waiver is granted. How is this different from the conditional waiver itself?
- z. The purpose and application of Appendices A to C to ch. NR 809 are not entirely obvious. Some explanatory text with each of these appendices would be helpful.
- aa. The heading of the second column of the table in Appendix A to ch. NR 809 states that the column is the MCLs, in “compliance units,” which it states are in mg/L. However, at least some MCLs are in units that cannot be converted to mg/L, such as those that are in pCi/l or mrem/yr.

ab. The headings of the fourth and fifth columns of Appendix A to ch. NR 809 state that entries in those columns are in "CCR units"; however, the term "CCR unit" is neither defined nor explained in the key.

ac. The department may wish to number the subheadings in Appendices A and B to ch. NR 809. This would allow the department to make future amendments to the appendices by referring to the specific line in each table, without having to reproduce the entire table.

ad. There are no units specified for the second and third columns of the table in Appendix B to ch. NR 809.

ae. The term "other than municipal community water system" in ch. NR 114 is unnecessarily cumbersome. Why not simply say "nonmunicipal community water systems"?

af. The term "direct responsible charge" is a noun, but s. NR 114.28 (5) defines it as a verb. A more appropriate definition might be "the responsibility to provide detailed direction"

ag. The definition of "owner" in s. NR 114.28 (8) should simply say "a person who owns or operates a water system."

ah. It is unclear what effect the amendment to s. NR 811.01 will have if it is not accompanied by amendments of the pertinent definitions and specific provisions of that chapter.

ai. The treatment of s. NR 811.10 (2) is confusing. In the introduction, it is unclear why the word "a" is being stricken and it is unclear to what "of no more than 5 years" refers. In par. (a), what is a "safe sample"?

aj. Section NR 811.33 (2) (Note) would be clearer if written as follows: "When applying figure no. 1 to apartment units, condominium units and mobile homes, the number of homes may be reduced by one-third." Also, should this reduction be permissive or mandatory (may vs. shall)?

Report to
Legislative Council Rules Clearinghouse
NR 108, 114, 809 and 811, Wis. Adm. Code
Natural Resources Board Order No. DG-3-00

Wisconsin Statutory Authority

227.11(2)(a), 280.11(1), 281.17(3) and (8) and 281.41(1), Stats., interpreting ss. 280.11(1), 281.17(3) and (8) and 281.41(1), Stats.

Federal Authority

1996 Amendments to the Safe Drinking Water Act

Court Decisions Directly Relevant

None

Analysis of the Rule - Rule Effect - Reason for the Rule

U.S. EPA is now promulgating new drinking water regulations mandated by the 1996 Amendments to the Safe Drinking Water Act (SDWA) and will continue to do so over the next several years. As the primacy agent for U.S. EPA in Wisconsin, the Department must adopt and implement regulations at least as stringent as those promulgated by U.S. EPA.

Chapters NR 108 and 811 are modified primarily to ensure conformance of definitions between all codes addressing community water systems. Other changes correct old errors, or provide greater clarity and/or flexibility in existing requirements.

Modifications to ch. NR 114 are in response to SWDA requirements that small non-municipal water systems be operated by a certified person. A new subchapter has been added to ch. NR 114 that specifically addresses small other-than-municipal community systems (mobile home parks, condo complexes, apartment complexes and some rural subdivisions that have their own well system) and nontransient noncommunity water systems (schools, commercial and industrial facilities with 25 or more permanent employees and served by a private well). The new subchapter requires these systems to be operated by a person who completes a training course, passes a written examination and obtains 6 hours of continuing education credits every 3 years.

Continued on attached sheet

Agency Procedures for Promulgation

Public hearings, Natural Resources Board final adoption, followed by legislative review.

Description of any Forms (attach copies if available)

None

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Submitted on January 10, 2000

Modifications to ch. NR 809 include:

Consumer confidence regulation: This regulation establishes a requirement for all public community water systems to issue a water quality report annually. The first report was required to be mailed to each water system customer not later than October 19, 1999. Succeeding reports must be issued no later than July 1, 2000 and each year following. The regulation mandates some specific content of the reports and provides specific language for use if the system has experienced an MCL violation. The regulation also contains provisions to allow small systems to notify all water consumers that the annual report is available rather than mailing the report to each customer.

Disinfectant/disinfectant by-products regulation This regulation is the first of two regulations that will eventually reduce the MCL for total trihalomethanes from the current 100 parts per billion to 60 parts per billion. Under this first regulation, the MCL will be reduced to 80 parts per billion and new standards for haloacetic acids, bromate and chlorite are established. Maximum disinfectant residual levels are also established for chlorine, chloramines and chlorine dioxide. In addition to new and revised MCLs, this regulation establishes new monitoring for disinfectant by-products and disinfectant by-product precursors. The most significant increased monitoring will occur in systems that utilize a surface water source. Additionally, all groundwater systems that disinfect will experience some increase in monitoring under this regulation.

Interim enhanced surface water treatment regulation This regulation affects surface water systems and systems using groundwater under the direct influence of surface water. The rule is the second in a series of three increasingly stringent regulations aimed at improving treated surface water quality. This rule will strengthen microbial protection by establishing removal requirements for *Cyptosporidium* through the filtration process, reducing allowable finished water turbidity levels, requiring monitoring of individual filter performance and by establishing disinfection profiling and benchmarking provisions. In Wisconsin, approximately 20 surface water systems will be affected by this rule. Most of the systems have already taken actions to meet the new requirements of this rule.

Variance and exemption regulation This regulation creates a new affordability-based small systems variance, which may be granted by a state to a public water system serving fewer than 3,300 persons, or, with the approval of EPA's administrator, to a system serving 3,301 - 10,000 persons. Theoretically, this regulation would provide additional flexibility to allow variances and exemptions at small, economically disadvantaged systems. Unfortunately the flexibility comes at a price. U.S. EPA mandated affordability criterion are so numerous and complex, it is unlikely any small system would ever be able to take full advantage of the allowances in the regulation.

Restricted microbiological analytical methods and direct lab reporting These two changes, while minor in terms of verbiage, could be somewhat controversial. The first change would require all samples collected to establish compliance with the total coliform MCL be analyzed using a single method. The reason for this change is that two years of voluntary proficiency testing by certified microbiological labs throughout the state indicate that the enzymatic substrate methods consistently outperforms other U.S. EPA approved methods in detecting coliform bacteria. Since the object of our efforts is to ensure safe public drinking water, it would seem product to use the method that is more accurate in determining the presence of the bacteria that could indicate a potential health hazard.

Direct reporting from microbiological laboratories to the Department is not new in the drinking water program. It has been required in the private water subprogram for many years. However, this would be a significant change in the way the public water subprogram operates. Currently, all reporting requirements are placed on the regulated public water system. Under the current system, laboratories performing microbiological analyses provide the results to the regulated water system, which then transcribes the results onto a Department form and mails them to the Department no later than 10 days after the end of the compliance period. Unfortunately, the current system results in many transcription errors, delays in receiving time critical public health information, and delays and confusion in follow up monitoring. Additionally, some unscrupulous water system operators use the

current "roundabout" reporting system to hide positive sample results and potentially endanger the public health of consumers.

Direct reporting would require laboratories to transmit results of compliance samples directly to the Department and the facility concurrently. Additionally for positive results, which indicate a potential public health threat, laboratories would be required to transmit the results to the Department and the facility within 24 hours of obtaining the result. These simple changes would provide for more timely and accurate receipt of monitoring results and would make it more difficult to conceal positive sample results.

**ORDER OF THE STATE OF WISCONSIN NATURAL RESOURCES BOARD
REPEALING, RENUMBERING, AMENDING, REPEALING AND RECREATING, AND
CREATING RULES**

IN THE MATTER repealing ss. 809.40 and 809.41; renumbering ss. 809.04(7) to (66), 809.26(1)(i), Subchapters III to VIII, ss. 809.80(4) to (9), and 809.90(1)(c); renumbering and amending 809.04(48), 809.26(1)(j), Subchapter VI (title), 809.26(5) and (6); amending ss. 809.09(1), 809.12(3)(a), 809.12(4)(a) and (b), 809.12(5)(a), 809.12(13), 809.21(13), 809.23(1), 809.26(1)(e), 809.26(3)(a) and (b), 809.31(1)(d)1. and 2., 809.31(5)(c) and (6), 809.75(1), 809.755, 809.755(2)(b) and (f), 908.755(3), 809.76, 809.76(1),(2), and (5), 809.77, 809.70, 809.81(1) and 809.81(5)(Lt); repeal and recreate s. 809.22 and 809.90; and creating ss. 809.04(7), (19), (22), (23), (27), (31), (36), (43), (44), (69), (72) to (75), and (77), 809.31(5)(d), Subchapter III, 809.75(4), 809.765, 809.775, 809.80(4), (8) and (12), 809.83, 809.833, 809.835, 809.837, and Appendix A to Subchapter VII of the Wisconsin Administrative Code pertaining to safe drinking water

Analysis Prepared by Department of Natural Resources

Statutory authority: ss. 227.11(2)(a) and 281.17(8), Stats.
Statutes interpreted: s. 281.17(8), Stats.

Proposed revisions to Chapter NR 809, Safe Drinking Water, are submitted to the Natural Resources Board for approval of public hearing on the proposed revisions. The major revisions conform with four final regulations promulgated by the U.S. Environmental Protection Agency and one requirement promulgated in the 1996 Amendments to the Safe Drinking Water Act (SDWA). Specific revisions paralleling federal requirements or regulations include: consumer confidence reporting requirements, interim enhanced surface water treatment requirements, disinfectant and disinfectant byproducts requirements, variance and exemption requirements, and requirements for certified operators at small public systems.

Together these new requirements and regulations will: increase monitoring and reporting for surface water systems and public water systems that disinfect, increase consumer awareness of local public drinking water quality, expand opportunities for small public systems to obtain a variance from meeting some maximum contaminant levels, and mandate training and certification of small non-municipal public water system operators.

SECTION 1. NR 809.04(7) to (66) are renumbered NR 809.04(7) to (8), (8) to (9), (9) to (10), (10) to (11), (11) to (12), (12) to (13), (13) to (14), (14) to (15), (15) to (16), (16) to (17), (17) to (18), (18) to (20), (19) to (21), (20) to (24), (21) to (25), (22) to (26), (23) to (28), (24) to (29), (25) to (30), (26) to (32), (27) to (33), (28) to (34), (29) to (35), (30) to (37), (31) to (38), (32) to (39), (33) to (40), (34) to (41), (35) to (42), (36) to (45), (37) to (46), (38) to (47), (39) to (48), (40) to (49), (41) to (50), (42) to (51), (43) to (52), (44) to (53), (45) to (54), (46) to (55), (47) to (56), (49) to (58), (50) to (59), (51) to (60), (52) to (61), (53) to (62), (54) to (63), (55) to (64), (56) to (65), (57) to (66), (58) to (67), (59) to (68), (60) to (70), (61) to (71), (62) to (76), (63) to (78), (64) to (77), (65) to (79), and (66) to (80)

SECTION 2. NR 809.04(48) is renumbered to (57) and amended to:

(7) "Comprehensive performance evaluation (CPE) is thorough review and analysis of a treatment plant's performance-based capabilities and associated administrative, operation and maintenance practices. It is conducted to identify factors that may be adversely impacting a plant's capability to achieve compliance and emphasizes approaches that can be implemented without significant capital improvements. For purposes of compliance with Subpart P of this part, the comprehensive performance evaluation shall consist of least the following components: Assessment of plant performance; evaluation of major unit processes; identification and prioritization of performance limiting factors; assessment of the applicability of comprehensive technical assistance; and preparation of a CPE report.

(19) "Disinfection profile" is a summary of daily *Giardia lamblia* inactivation through the treatment plant. The procedure for developing a disinfection profile is contained in s. NR 809.775.

(22) "Enhanced coagulation" means the addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment.

(23) "Enhanced softening" means the improved removal of disinfection byproduct precursors by precipitative softening.

(27) "Filter profile" is a graphical representation of individual filter performance, based on continuous turbidity measurements or total particle counts versus time for an entire filter run, from startup to backwash inclusively, that includes and assessment of filter performance while another filter is being backwashed.

(31) "GAC10" means granular activated carbon filter beds with an empty-bed contact time of 10 minutes based on average daily flow and a carbon reactivation frequency of every 180 days.

(36) "Haloacetic acids (five) (HAA5)" mean the sum of the concentrations in milligrams per liter of the haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid), rounded to two significant figures after addition.

(43) "Maximum residual disinfectant level (MRDL)" means a level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. For chlorine and chloramines, a PWS is in compliance with the MRDL when the running annual average of monthly averages of samples taken in the distribution system, computed

quarterly, is less than or equal to the MRDL. For chlorine dioxide, a PWS is in compliance with the MRDL when daily samples are taken at the entrance to the distribution system and no two consecutive daily samples exceed the MRDL. MRDLs are enforceable in the same manner as maximum contaminant levels under Section 1412 of the Safe Drinking Water Act. There is convincing evidence that addition of a disinfectant is necessary for control of waterborne microbial contaminants. Notwithstanding the MRDLs listed in Sec. 141.65, operators may increase residual disinfectant levels of chlorine or chloramines (but not chlorine dioxide) in the distribution system to a level and for a time necessary to protect public health to address specific microbiological contamination problems caused by circumstances such as distribution line breaks, storm runoff events, source water contamination, or cross-connections.

(44) "Maximum residual disinfectant level goal (MRDLG)" means the maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of persons would occur, and which allows an adequate margin of safety. MRDLGs are nonenforceable health goals and do not reflect the benefit of the addition of the chemical for control of waterborne microbial contaminants.

(69) "Special irrigation district" means an irrigation district in existence prior to May 18, 1994 that provides primarily agricultural service through a piped water system with only incidental residential or similar use where the system or the residential or similar users of the system are supplied with water that meets all maximum contaminant levels of subch. I of this chapter.

(72) "Surface Water systems" means public water systems using surface water or ground water under the direct influence of surface water as a source that are subject to the requirements of subpart H of Part 141 40 CFR National Primary Drinking Water Regulations.

(73) "Supplier of water" means any person who owns or operates a public water system.

(74) "SUVA" means Specific Ultraviolet Absorption at 254 nanometers (nm), an indicator of the humic content of water. It is a calculated parameter obtained by dividing a sample's ultraviolet absorption at a wavelength of 254 nm (UV_{254}) (measured in m^{-1}) by its concentration of dissolved organic carbon (DOC) (in mg/L).

(75) "Total Organic Carbon (TOC)" means total organic carbon in mg/L measured using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to two significant figures.

SECTION 3. NR 809.04(7), (19), (22), (23), (27), (31), (36), (43), (44), (69), (72) to (75), and (77) are created to read:

(57) "Public water system" means a system for the provision to the public of water for human consumption through pipes or other constructed conveyances ~~pip~~ed water for human consumption, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. A public water system is either a "community water system" or a "non-community water system". Such system includes:

- (a) Any collection, treatment, storage, and distribution facilities under control of the operator of such system and used primarily in connection with such system, and
- (b) Any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system.
- (c) Such term does not include any "special irrigation district."

Note: The definition of public water system as regulated by this chapter is broader and includes more water systems than those governed by the public service commission under its definition of a public utility in ch. 196, Stats.

SECTION 4. NR 809.09(1) is amended to read:

(1) Maximum contaminant level goals (MCLGs) are zero for the following contaminants:

Giardia lamblia

Cryptosporidium

Legionella

Total Coliforms

Fecal Coliforms

Escherichia coli

Lead

SECTION 5. NR 809.12 is amended by removing the words "beginning January 1, 1993" from paras. (3)(a), (4)(a) and (b), para. (5)(a) and sub. (13) are amended to read:

(a) All public water systems owners or operators shall take one sample at each entry point in the compliance period specified by the Department. ~~beginning January 1, 1993 and ending December 31, 1995.~~

(13) Analyses under this section shall only be conducted by laboratories that have received certification under ch. NR 149 or approval by EPA. ~~Laboratories may conduct sample analyses for the parameters in s. NR 809.11 (2) (b) under provisional certification until January 1, 1996.~~

SECTION 6. NR 809.21(13) is amended to read:

(13) Analyses under this section shall only be conducted by laboratories that have received certification under ch. NR 149 or approval by EPA. ~~Laboratories may conduct sample analyses for the parameters in s. NR 809.20 under provisional certification until January 1, 1996.~~

SECTION 7. NR 809.22 is repealed and recreated to read:

NR 809.22 **Total trihalomethane maximum contaminant level.** The maximum contaminant level of 0.10 mg/L for total trihalomethanes (the sum of the concentrations of bromodichloromethane, dibromochloromethane, tribromomethane (bromoform), and trichloromethane (chloroform)) applies to subpart H community water systems which serve a population of 10,000 people or more until December 16, 2001. This level applies to community water systems that use only ground water not under the direct influence of surface water and serve a population of 10,000 people or more until December 16, 2003. Compliance with the maximum contaminant level for total trihalomethanes is calculated pursuant to s. NR 809.23. After December 16, 2003, this section is no longer applicable.

SECTION 8. NR 809.23(1) is amended to read:

(1) The supplier of water for a community water system which serves a population of 10,000 or more individuals and which adds a disinfectant (oxidant) to the water shall analyze for total trihalomethanes (TTHMs) in accordance with this section. ~~For systems serving 75,000 or more individuals, sampling and analyses shall begin not later than March 31, 1981. For systems serving 10,000 to 74,999 individuals, sampling and analyses shall begin not later than March 31, 1983.~~ For the purpose of this section, the minimum number of samples required to be taken by the system shall be based on the number of plants used by the system except that multiple wells drawing raw water from a single aquifer may, with Department approval, be considered one plant for determining the minimum number of samples. All samples required during an established monitoring period shall be collected within a 24-hour period.

SECTION 9. NR 809.26(1)(e) is amended to read:

(e) Suppliers of water having community water systems or non-transient, non-community water systems shall monitor for the following contaminants at the discretion of the Department:

Chloroform¹

Bromoform¹

Chlorodibromomethane¹

Bromodichloromethane¹

Bromobenzene

Bromomethane

Chloromethane

Chloroethane

o-Chlorotoluene

p-Chlorotoluene

Dibromomethane

m-Dichlorobenzene

1,1-Dichloropropene
1,1-Dichloroethane
1,3-Dichloropropane
2,2-Dichloropropane
1,3-Dichloropropene
1,1,1,2-Tetrachloroethane
1,1,1,2-Tetrachloroethane
1,2,3-Trichloropropane
1,2,4-Trimethylbenzene
1,2,3-Trichlorobenzene
n-Propylbenzene
n-Butylbenzene
Napthalene
Hexachlorobutadiene
1,3,5-Trimethylbenzene
p-Isopropyltoluene
Isopropylbenzene
Tert-butylbenzene
Sec-butylbenzene
Fluorotrchloromethane
Dichlorodifluoromethane
Bromochloromethane

SECTION 10. NR 809.26(1)(i) is repealed, and NR 809.26(1)(j) is renumbered to (i) and amended to read:

(i) Suppliers of water having a community water system or a non-transient, non-community water system shall repeat the monitoring required in this subsection ~~no less frequently than every 5 years as~~ specified by the Department.

SECTION 11. NR 809.26(3), (a), and (b) are amended to read:

(3) Monitoring for sulfate and the contaminants listed in par. (j) ~~(e)~~ shall be conducted as follows:

(a) Suppliers of water for community and non-transient, non-community water systems shall take 4 consecutive quarterly samples at each entry point for the organic contaminants listed in par. (j) ~~(e)~~ and report the results to the Department. ~~Monitoring shall be completed by December 31, 1995.~~

(b) Suppliers of water for community or non-transient, non-community water systems shall take one sample at each entry point for sulfate and report the results to the Department. ~~Monitoring shall be completed by December 31, 1995.~~

SECTION 12. NR 809.31(1)(d) 1. and 2. are amended to read:

1. A non-community water system using only ground water and serving 1,000 persons per day or fewer shall monitor each calendar quarter that the system provides water to the public, except that the Department may reduce the monitoring frequency, in writing, if a sanitary survey shows that the system is free of sanitary defects. In no case may the monitoring frequency be reduced to less than once per year. ~~The department may require monitoring to begin prior to June 29, 1994, but in no case may monitoring begin later than June 29, 1994.~~

2. ~~On or after December 31, 1990,~~ a A non-community water system using only ground water and serving on average more than 1,000 persons per day for any month shall monitor at the same frequency as a like-sized community water system, as specified in par. (b) 1., except that the Department may reduce the monitoring frequency, in writing, for any month the average daily population served is less than 1,000 persons per day.

SECTION 13. NR 809.31(5)(c) is amended and (d) is created to read:

(c) Beginning January 1, 2001, ~~S~~ samples collected in compliance to determine compliance with with requirements of s. NR 809.30(1) shall be analyzed by the enzyme substrate test method as prescribed in s. NR 809.725 (1), Table C

(d) The Department may approve, on a case-by-case basis, other methods as prescribed in s. NR 809.725 (1), Table C for use in determining compliance with s. NR 809.30(1).

SECTION 14. NR 809.31(6) is amended to read:

(6) Sanitary surveys. (a) ~~Public water systems which do not collect 5 or more routine samples/month shall undergo an initial sanitary survey by June 29, 1994 for community water systems and June 29, 1999 for non-community water systems. Thereafter, systems shall undergo a another sanitary survey every 5 years, except that non-community water systems using only protected and disinfected ground water, as determined on a case-by-case basis by the Department, shall undergo a subsequent sanitary surveys at least every 10 years after the initial sanitary survey. The Department will review the results of each sanitary survey to determine whether the existing monitoring frequency is adequate and what additional measures, if any, the system needs to undertake to improve drinking water quality.~~

SECTION 15. NR 809.40 and NR 809.41 are repealed.

SECTION 16. NR 809 Subchapter III is created to read:

Subchapter III

Maximum Contaminant Levels, Monitoring, Analytical Requirements and Control of Disinfection

Byproducts

NR 809.561 Maximum contaminant levels for disinfection byproducts.(1) When the MCLs for total trihalomethanes lapse as provided in s. NR 809.22 (1). The maximum contaminant levels (MCLs) for disinfection byproducts and compliance dates shall be as follows:

(a) The MCLs for disinfection byproduct are:

<u>Disinfection byproduct mg/ L</u>	<u>MCL</u>
Total trihalomethanes (TTHM).....	0.080
Haloacetic acids (five) (HAA5).....	0.060
Bromate.....	0.010
Chlorite.....	1.0

(b) Compliance dates for the disinfection byproducts are:

1. CWSs and NTNCWSs. Surface water systems serving 10,000 or more persons shall comply with this section beginning December 16, 2001. Surface water systems serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water shall comply with this section beginning December 16, 2003.

2. A system that is installing GAC or membrane technology to comply with this section may apply to the Department for an extension of up to 24 months past the dates in sub. (3)(b) 1. and 2., but not beyond December 16, 2003. In granting the extension, a schedule shall be set, by the Department, for compliance and may specify any interim measures that the system shall take. Failure to meet the schedule or interim treatment requirements constitutes a violation of a National Primary Drinking Water Regulation.

(c) The Department, pursuant to 1412 of the Public Health Service Act, as amended by the Safe Drinking Water Act (Pub. L. 93-523); and related regulations applicable to public water systems, identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for disinfection byproducts identified in s. NR 809.561(1)(a):

<u>Disinfection byproduct</u>	<u>Best available technology</u>
TTHM.....	Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant
HAA5.....	Enhanced coagulation or enhanced softening or GAC10, with chlorine as the primary and residual disinfectant
Bromate.....	Control of ozone treatment to reduce production of bromate.
Chlorite.....	Control of treatment processes

(2) Maximum residual disinfectant levels. The maximum residual disinfectant levels (MRDLs) for disinfection byproducts and compliance dates shall be as follows:

(a) Maximum levels are as follows:

<u>Disinfectant residual</u>	<u>MRDL (mg/L)</u>
Chlorine.....	4.0 (as Cl ₂).
Chloramines.....	4.0 (as Cl ₂).
Chlorine dioxide.....	0.8 (as ClO ₂).

(b) Compliance dates.

1. CWSs and NTNCWSs. Surface water systems serving 10,000 or more persons shall comply with this section beginning December 16, 2001. Surface water systems serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water shall comply with this subchapter beginning December 16, 2003.

2. Transient NCWSs. Surface water systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant shall comply with the chlorine dioxide MRDL beginning December 16, 2001.

3. Surface water systems serving fewer than 10,000 persons and using chlorine dioxide as a disinfectant or oxidant and systems using only groundwater not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant shall comply with the chlorine dioxide MRDL beginning December 16, 2003.

(c) The Department, pursuant to Section 1412 of the Public Health Service Act, hereby identifies the technology, treatment techniques, or other means available as per sub. (1)(c), for achieving compliance with the maximum residual disinfectant levels identified in sub. (2)(a) and control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels.

NR 809.562 General requirements. (1) The following requirements establish the criteria under which community water systems (CWSs) and nontransient, noncommunity water systems (NTNCWSs) which add a chemical disinfectant to the water in any part of the drinking water treatment process and transient NCWSs that use chlorine dioxide as a disinfectant or oxidant shall modify their practices to meet the MRDL for chlorine dioxide in s. NR 809.561(2)(a) shall modify their practices to meet MCLs and MRDLs in ss. NR 809.561(1)(a) and NR809.561(2)(a) , respectively, and shall meet the treatment technique requirements for disinfection byproduct precursors in s. NR 809.561(1)(c).

(2) MCLs have been established for TTHM and HAA5 and treatment technique requirements for disinfection byproduct precursors to limit the levels of known and unknown disinfection byproducts which may have adverse health effects have been identified. These disinfection byproducts may include chloroform; bromodichloromethane; dibromochloromethane; bromoform; dichloroacetic acid; and trichloroacetic acid.

(a) Compliance dates under this subchapter are as follows: disinfectant

1. CWSs and NTNCWSs. Unless otherwise noted, these systems shall comply with the requirements of this subchapter as follows.

a. Surface water systems serving 10,000 or more persons shall comply with this subchapter beginning December 16, 2001.

b. Surface water systems serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water shall comply with this subchapter beginning December 16, 2003.

2. Transient NCWSs.

a. Surface water systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant shall comply with any requirements for chlorine dioxide and chlorite in this subchapter beginning December 16, 2001.

b. Surface water systems serving fewer than 10,000 persons and using chlorine dioxide as a disinfectant or oxidant and systems using only ground water not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant shall comply with any requirements for chlorine dioxide and chlorite in this subchapter beginning December 16, 2003.

(3) Each CWS and NTNCWS regulated under NR 809.561 shall be operated by qualified personnel who meet the requirements specified in ch. NR 114 Wis. Adm. Code, Subchapter III, Certification of Water System Operators, and shall be included in a Department register of qualified operators.

(4) Control of disinfectant residuals in the distribution system. Notwithstanding, the MRDLs in s. NR 809.22(3), systems may increase residual disinfectant levels in the distribution system of chlorine or chloramines, but not chlorine dioxide, to a level and for a time necessary to protect public health, to address specific microbiological contamination problems caused by circumstances such as, but not limited to, distribution line breaks, storm run-off events, source water contamination events, or cross-connection events.

(5) Public Notification shall be provided by the owner or operator of a public water system when the MCL or MRCL or disinfectant residual is exceeded. This notification shall be in compliance with s. NR 809.81.

(6) Community water systems that detect TTHM above 0.080 mg/l, but below the MCL in s. NR 809.561(1)(a), as an annual average, monitored and calculated under the provisions of s. NR 809.565, shall include health effects language prescribed in ss. NR 809.81 and NR 809.835.

History: Cr. Register, August, 1989, No. 404, eff. 9-1-89; renum. from NR 109.22 and am., Register, July, 1993, No. 451, eff. 8-1-93.

NR 809.563 Analytical requirements. (1) Systems shall use only the analytical method(s) specified in this section, or otherwise approved by the Department or EPA, for monitoring under this subchapter, to demonstrate compliance with the requirements of this subchapter.

(a) The methods specified in this section are effective for use in compliance monitoring as of February 16, 1999.

(2) The following documents are incorporated by reference: EPA Method 552.1 is in Methods for the Determination of Organic Compounds in Drinking Water-Supplement II, USEPA, August 1992, EPA/600/R-92/129 (available through National Information Technical Service (NTIS), PB92-207703). EPA Methods 502.2, 524.2, 551.1, and 552.2 are in Methods for the Determination of Organic Compounds in Drinking Water-Supplement III, USEPA, August 1995, EPA/600/R-95/131. (available through NTIS, PB95-261616). EPA Method 300.0 is in Methods for the Determination of Inorganic Substances in Environmental Samples, USEPA, August 1993, EPA/600/R-93/100. (available through NTIS, PB94-121811). EPA Method 300.1 is titled USEPA Method 300.1, Determination of Inorganic Anions in Drinking Water by Ion Chromatography, Revision 1.0, USEPA, 1997, EPA/600/R-98/118 (available through NTIS, PB98-169196); also available from: Chemical Exposure Research Branch, Microbiological & Chemical Exposure Assessment Research Division, National Exposure Research Laboratory, U.S. Environmental Protection Agency, Cincinnati, OH 45268, Fax Number: 513-569-7757, Phone number: 513-569-7586. Standard Methods 4500-Cl D, 4500-Cl E, 4500-Cl F, 4500-Cl G, 4500-Cl H, 4500-Cl I, 4500-ClO₂D, 4500-ClO₂ E, 6251 B, and 5910 B shall be followed in accordance with Standard Methods for the Examination of Water and Wastewater, 19th Edition, American Public Health Association, 1995; copies may be obtained from the American Public Health Association, 1015 Fifteenth Street, NW, Washington, DC 20005. Standard Methods 5310 B, 5310 C, and 5310 D shall be followed in accordance with the Supplement to the 19th Edition of Standard Methods for the Examination of Water and Wastewater, American Public Health Association, 1996; copies may be obtained from the American Public Health Association, 1015 Fifteenth Street, NW, Washington, DC 20005. ASTM Method D 1253-86 shall be followed in accordance with the Annual Book of ASTM Standards, Volume 11.01, American Society for Testing and Materials, 1996 edition; copies may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

(3) Disinfection byproducts.

(a) Systems shall measure disinfection byproducts by the methods prescribed in s. NR 809.725(1), Table 1. Samples shall be collected using the containers, preservative and holding times specified in s. NR 809.725 (1), Table G.

Table 1-Approved Methods for Disinfectant Byproduct Compliance Monitoring

Methodology ²	EPA Meth.	Standard Method	Byproduct measured			
			TTHM	HAA5	Chlorite	Bromate

P&T/GC/EICD& PID	502.2		X			
P&T/GC/MS	524.25		X			
LLE/GC/ECD	51.1		X			
LLE/GC/ECD		6251 B		X		
SPE/GC/ECD	552.2			X		
LLE/GC/ECD	552.2			X		
Amperometric Titration		4500-CIO ₂			X	
IC	300.0				X	
IC	300.1				X	X

(4) Analysis under this section for disinfection byproducts shall be conducted by laboratories that are certified by the Department or EPA.

(a) To receive certification to conduct analyses for the contaminants in this subchapter, a laboratory shall carry out annual analyses of performance evaluation (PE) samples approved by the Department or EPA.

(b) When analyzing PE samples, the laboratory shall achieve quantitative results within the acceptance limit on a minimum of 80% of the analytes included in each PE sample.

(c) The acceptance limit is defined as the 95% confidence interval calculated around the mean of the PE study data between a maximum and minimum acceptance limit of +/-50% and +/-15% of the study mean.

(5) Disinfectant residuals.

(a) A person approved by the Department or EPA shall measure residual disinfectant concentration.

(b) Systems shall measure residual disinfectant concentrations for free chlorine, combined chlorine (chloramines), and chlorine dioxide by the methods listed in Table 2:

Table 2- Standard Methods for measuring residual disinfectant concentrations.

Methodology	Standard Method	ASTM method	Residual Measured			
			Free chlorine	Combined chlorine	Total chlorine	Chlorine dioxide
Amperometric Titration	4500-CL D	D 1253-86	X	X	X	
Low Level Amperometric Titration	4500-CL E				X	
DPD Ferrous Titrimetric	4500-CL F		X	X	X	
DPD Colorometric	4500-CL G		X	X	X	
Syringaldazin c (FACTS)	4500-CL H		X			
Iodometric Electrode	4500-CL I				X	
DPD	4500-CIO ₂ D					X

Amperometric Method II	4500-ClO ₂ E						X
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\\ X indicates method is approved for measuring specified disinfectant residual.

(c) Systems may also measure residual disinfectant concentrations for chlorine, chloramines, and chlorine dioxide by using *N,N*-diethyl-*p*-phenylenediamine (DPD) colorimetric test kits.

(6) Additional analytical methods. Systems required to analyze parameters not included in pars. (3) and (5), shall have these parameters analyzed by a person approved by the Department or EPA, using the following methods:

(a) Alkalinity. Using methods allowed in ss. NR 809.725 Table E for measuring alkalinity.

(b) Bromide. EPA Method 300.0 or EPA Method 300.1.

(c) Total Organic Carbon (TOC). Standard Method 5310 B (High-Temperature Combustion Method) or Standard Method 5310 C (Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method) or Standard Method 5310 D (Wet-Oxidation Method).

1. TOC samples may not be filtered prior to analysis.

2. TOC samples shall either be analyzed or shall be acidified to achieve pH less than 2.0 by minimal addition of phosphoric or sulfuric acid as soon as practical after sampling, not to exceed 24 hours.

3. Acidified TOC samples shall be analyzed within 28 days.

(d) Specific Ultraviolet Absorbance (SUVA). SUVA is equal to the UV absorption at 254nm (UV₂₅₄) measured in m⁻¹ divided by the dissolved organic carbon (DOC) concentration (measured as mg/L).

1. In order to determine SUVA, it is necessary to separately measure UV₂₅₄ and DOC.

2. When determining SUVA, systems shall use the methods stipulated in par. (e) to measure DOC and the method stipulated in par. (f) to measure UV₂₅₄. SUVA shall be determined on water prior to the addition of disinfectants/oxidants by the system.

3. DOC and UV 254 samples used to determine a SUVA value shall be taken at the same time and at the same location.

(e) Dissolved Organic Carbon (DOC). Standard Method 5310 B (High-Temperature Combustion Method) or Standard Method 5310 C (Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method) or Standard Method 5310 D (Wet-Oxidation Method). Prior to analysis, DOC samples shall be filtered through a 0.45 μm pore-diameter filter. Water passed through the filter prior to filtration of the sample shall serve as the filtered blank. This filtered blank shall be analyzed using procedures identical to those used for analysis of the samples and shall meet the following criteria: DOC < 0.5 mg/L. DOC samples shall be filtered through the 0.45 μm pore-diameter filter prior to acidification. DOC samples shall either be analyzed or shall be acidified to achieve pH less than 2.0 by minimal addition of phosphoric or sulfuric acid as soon as practical after sampling, not to exceed 48 hours. Acidified DOC samples shall be analyzed within 28 days.

(f) Ultraviolet Absorption at 254 nm (UV_{254}). Method 5910 B (Ultraviolet Absorption Method). UV absorption shall be measured at 253.7 nm (may be rounded off to 254 nm). Prior to analysis, UV_{254} samples shall be filtered through a 0.45 μ m pore-diameter filter. The pH of UV_{254} samples may not be adjusted. Samples shall be analyzed as soon as practical after sampling, not to exceed 48 hours.

(g) pH. All methods allowed in s. NR 809.725 Table E for measuring pH

NR 809.565 Monitoring requirements. (1) General requirements for monitoring under this subchapter.

(a) Maximum contaminant levels, monitoring, analytical requirements and control of disinfection byproducts are as follows:

1. Systems shall take all samples during normal operating conditions.
2. Systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required, on a case by case basis with Department approval.
3. Failure to monitor in accordance with the monitoring plan required under par. (7) is a monitoring violation.
4. Failure to monitor will be treated as a violation for the entire period covered by the annual average where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MCLs or MRDLs.
5. Systems may use only data collected under the provisions of this subchapter or the Information Collection Rule (ICR) or s. NR 809.775 to qualify for reduced monitoring.

(2) Monitoring requirements for TTHMs and HAA5 disinfection byproducts. Systems shall monitor at the following frequency and locations:

(a) Surface water system serving at least 10,000 persons shall collect and have analyzed, four water samples per quarter per treatment plant.

1. At least 25 percent of all samples collected each quarter at each treatment plant shall be at locations representing the maximum residence time in the system.

2. The remaining samples shall be taken in the distribution system at locations representing average residence time in the system and representative of the entire distribution system, taking into account the number of people served, different sources of water and different treatment methods.

(b) Surface water system serving from 500 to 9,999 persons shall collect and have analyzed one water sample per quarter per treatment plant.

1. The samples shall be collected at locations representing the maximum residence time, in the system.

(c) Surface water system serving fewer than 500 people shall collect one sample per treatment plant annually.

1. The samples shall be collected during the month with the warmest water temperature, at locations representing the maximum residence time, in the system.

(d) Systems using chemical disinfection, using only groundwater not under the influence of surface water, serving at least 10,000 people, shall collect one sample per treatment plant per quarter.

1. The sample or samples shall be collected at the location representing the maximum residence time, in the system.

(e) Systems using chemical disinfection, using only groundwater not under the influence of surface water, serving fewer than 10,000 people, shall collect one sample per treatment plant per plant annually.

1. The samples shall be collected during the month with the warmest water temperature, at locations representing the maximum residence time, in the system.

(2) If a sample or the average of samples, if more than one sample is taken, exceeds the MCL for TTHMs or HAA5 disinfection byproducts, the system shall collect quarterly samples until the system meets the requirements of reduced monitoring in s. (3).

(3) Systems may reduce monitoring for TTHMs and HAA5s as follows, except as otherwise provided:

(a) Surface water systems or ground water systems under the direct influence of surface water with an annual average of TTHM of ≤ 0.040 mg/L and HAA5 ≤ 0.030 mg/L with an annual average TOC concentration of ≤ 4.0 mg/L, before any treatment may reduce sampling to the following:

1. Surface water systems or ground water systems under the direct influence of surface water serving at least 10,000 people may reduce monitoring to one sample, per quarter, per treatment plant, at a location representing maximum residence time in the system.

2. Surface water systems or ground water systems under the direct influence of surface water serving from 500 to 9,999 people may reduce monitoring to one sample, per year, per treatment plant, at a location representing maximum residence time in the system.

3. Surface water systems or ground water systems under the direct influence of surface water serving less than 500 people may not reduce monitoring to less than one sample per treatment plant per year.

(b) Systems using groundwater not under the influence of surface water using chemical disinfection with an annual average of TTHM of ≤ 0.040 mg/L and HAA5 ≤ 0.030 mg/L may reduce sampling to the following:

1. Systems serving at least 10,000 people may reduce monitoring to one sample, per year, per treatment plant, during the month of warmest water temperature, at a location representing maximum residence time in the system.

2. Systems serving fewer than 10,000 people may reduce monitoring to one sample, per treatment plant, per three year monitoring cycle, during the month of warmest water temperature, at a location representing maximum residence time in the system. The reduced monitoring will begin on January 1 following the quarter in which the system first qualifies for reduced monitoring.

(c) Systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year, for systems which shall monitor quarterly or the result of the

sample, for systems which shall monitor no more frequently than annually is no more than 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively. Systems that do not meet these levels shall resume monitoring at the frequency identified in s. (2) in the quarter immediately following the quarter in which the system exceeds 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively.

(d) The Department may return a system to routine monitoring at the Departments discretion.

(4) The monitoring of residual disinfectants shall be as follows:

(a) Chlorite. Community and nontransient noncommunity water systems using chlorine dioxide, for disinfection or oxidation, shall conduct routine monitoring for chlorite.

1. Daily monitoring. Systems shall take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the system shall take additional samples in the distribution system the following day at the locations required by par. subd. 3. in addition to the sample required at the entrance to the distribution system.

2. Monthly monitoring. Systems shall take a three-sample set each month in the distribution system. The system shall take one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling shall be conducted in the same manner, as three-sample sets, at the specified locations. The system may use the results of additional monitoring conducted under subd. 3. to meet the requirement for monitoring in this subdivision.

3. Additional monitoring. On each day following a routine sample monitoring result that exceeds the chlorite MCL at the entrance to the distribution system, the system is required to take three chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible (reflecting maximum residence time in the distribution system).

4. Reduced monitoring. Chlorite monitoring at the entrance to the distribution system required by sub. (4)(a)1. may not be reduced. Chlorite monitoring in the distribution system required by may be reduced to one three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under. has exceeded the chlorite MCL and the system has not been required to conduct monitoring under. . The system may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system under sub. (4)(a)2. exceeds the chlorite MCL or the system is required to conduct monitoring under sub.(4)(a)3., at which time the system shall revert to routine monitoring.

(b) Bromate.

1. Community and nontransient noncommunity systems using ozone, for disinfection or oxidation, shall take one sample per month for each treatment plant in the system using ozone. Systems shall take samples monthly at the entrance to the distribution system while the ozonation system is operating under normal conditions.

2. Reduced monitoring. Systems required to analyze for bromate may reduce monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly bromide measurements for one year. The system may remain on reduced bromate monitoring until the running annual average source water bromide concentration, computed quarterly, is 0.05 mg/L based upon representative monthly measurements. If the running annual average source water bromide concentration is equal to or greater than 0.05 mg/L, the system shall resume routine monitoring required by sub (3)(b)1.

(5) Monitoring requirements for disinfectant residuals.

(a) Chlorine and chloramines.

1. Routine monitoring. Systems shall measure the residual disinfectant level at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in s. NR809.31. Surface water systems may use the results of residual disinfectant concentration sampling conducted under s. NR 809.78(1)(f) for unfiltered systems or s. NR 809.78(2)(c) for systems that filter, in lieu of taking separate samples. Monitoring may not be reduced.

(b) Chlorine dioxide.

1. Routine monitoring. Community, nontransient noncommunity, and transient noncommunity water systems that use chlorine dioxide for disinfection or oxidation shall take daily samples at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the system shall take samples in the distribution system the following day at the locations required by subd. 2., in addition to the sample required at the entrance to the distribution system.

2. Additional monitoring. On each day following a routine sample monitoring result that exceeds the MRDL, the system is required to take three chlorine dioxide distribution system samples. If chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance to the distribution system (i.e., no booster chlorination), the system shall take three samples as close to the first customer as possible, at intervals of at least six hours. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system (i.e., booster chlorination), the system shall take one sample at each of the following locations: as close to the first customer as possible, in a location representative of average residence time, and as close to the end of the distribution system as possible, reflecting maximum residence time in the distribution system.

3. Chlorine dioxide monitoring may not be reduced.

(6) Monitoring requirements for disinfection byproduct precursors (DBPP) shall be as follows:

(a) Routine monitoring.

1. Surface water systems which use conventional filtration treatment shall monitor each treatment plant for TOC no later than the point of combined filter effluent turbidity monitoring and representative of the treated water.

2. All systems required to monitor under subd. 1. shall also monitor for TOC in the source water prior to any treatment at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples.

3. At the same time as the source water sample is taken, all systems shall monitor for alkalinity in the source water prior to any treatment. Systems shall take one paired sample and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.

(b) Reduced monitoring. Surface water systems with an average treated water TOC of less than 2.0 mg/L for two consecutive years, or less than 1.0 mg/L for one year, may reduce monitoring for both TOC and alkalinity to one paired sample and one source water alkalinity sample per plant per quarter. The system shall revert to routine monitoring in the month following the quarter when the annual average treated water TOC \geq 2.0 mg/L.

(c) Bromide. Systems required to analyze for bromate may reduce bromate monitoring from monthly to once per quarter, if the system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly measurements for one year. The system shall continue bromide monitoring to remain on reduced bromate monitoring.

(7) Monitoring plans.

(a) Each system required to monitor under this subchapter shall develop and implement a monitoring plan. The system shall maintain the plan and make it available for inspection by the Department and the general public no later than 30 days following the applicable compliance dates in s. NR 809.562(3).

(b) All Surface water systems serving more than 3300 people shall submit a copy of the monitoring plan to the Department no later than the date of the first report required under s. NR 809.567.

(c) The Department may also require the plan to be submitted by any other system. After review, the Department may require changes in any plan elements.

(d) The plan shall include at least the following elements:

1. Specific locations and schedules for collecting samples for any parameters included in this subchapter.
2. How the system will calculate compliance with MCLs, MRDLs, and treatment techniques.
3. If approved for monitoring as a consecutive system, or if providing water to a consecutive system, under s. NR 809.73, the sampling plan shall reflect the entire distribution system

NR 809.566 Compliance requirements. (1) General requirements for compliance with this subchapter are as follows:

(a) Where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor for TTHM, HAA5, or bromate, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

(b) Where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MRDLs for

chlorine and chloramines, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

(c) All samples taken and analyzed under the provisions of this subchapter shall be included in determining compliance, even if that number is greater than the minimum required.

(d) If, during the first year of monitoring under s. NR 809.564, any individual quarter's average will cause the running annual average of that system to exceed the MCL, the system is out of compliance at the end of that quarter.

(2) Disinfection byproducts. TTHMs and HAA5.

(a) For systems monitoring for quarterly, compliance with MCLs in s. NR 809.561 shall be based on all of the following:

1. Compliance shall be based on a running annual arithmetic average, computed quarterly, of quarterly arithmetic averages of all samples collected by the system as prescribed by s. NR 809.565(2)(a).
2. If the running annual arithmetic average of quarterly averages covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and shall notify the public pursuant to s. NR 809.81, in addition to reporting to the Department pursuant to s. NR 809.567.
3. If a PWS fails to complete four consecutive quarters' monitoring, compliance with the MCL for the last four-quarter compliance period shall be based on an average of the available data.

(b) For systems monitoring less frequently than quarterly, compliance with MCLs in s. NR 809.561 shall be based on all of the following:

1. Compliance shall be based on an average of samples taken that year under the provisions of s. NR 809.565(2)(a).
2. If the average of these samples exceeds the MCL; the system shall increase monitoring to once per quarter per treatment plant.

(c) Systems on a reduced monitoring schedule whose annual average exceeds the MCL will revert to routine monitoring immediately. These systems will not be considered in violation of the MCL until they have completed one year of routine monitoring and that year's annual average exceeds the MCL.

(d) Bromate. Compliance shall be based on a running annual arithmetic average, computed quarterly, of monthly samples (or, for months in which the system takes more than one sample, the average of all samples taken during the month) collected by the system as prescribed by s. NR 809.565(4)(b). If the average of samples covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and shall notify the public pursuant to s. NR 809.81, in addition to reporting to the Department pursuant to s. NR 809.567. If a PWS fails to complete 12 consecutive months' monitoring, compliance with the MCL for the last four-quarter compliance period shall be based on an average of the available data.

(e) Chlorite. Compliance shall be based on an arithmetic average of each three sample set taken in the distribution system as prescribed by ss. NR 809.565(4)(a)2. and NR 809.565(4)(a)3. If the arithmetic

average of any three sample set exceeds the MCL, the system is in violation of the MCL and shall notify the public pursuant to s. NR 809.81, in addition to reporting to the Department pursuant to s. NR 809.567.

3) Disinfectant residuals.

(a) Chlorine and chloramines.

1. Compliance shall be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the system under s. NR 809.565(5)(a)1. If the average of quarterly averages covering any consecutive four-quarter period exceeds the MRDL, the system is in violation of the MRDL and shall notify the public pursuant to s. NR 809.81, in addition to reporting to the Department pursuant to s. NR 809.567.

2. In cases where systems switch between the use of chlorine and chloramines for residual disinfection during the year, compliance shall be determined by including together all monitoring results of both chlorine and chloramines in calculating compliance. Reports submitted pursuant to s. NR 809.567 shall clearly indicate which residual disinfectant was analyzed for each sample.

(b) Chlorine dioxide.

1. Acute violations. Compliance shall be based on consecutive daily samples collected by the system under s. NR 809.565(5)(b)1. If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one (or more) of the three samples taken in the distribution system exceed the MRDL, the system is in violation of the MRDL and shall take immediate corrective action to lower the level of chlorine dioxide below the MRDL and shall notify the public pursuant to the procedures for acute health risks in s. NR 809.81(1)(a)3. Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system will also be considered an MRDL violation and the system shall notify the public of the violation in accordance with the provisions for acute violations under s. NR 809.81(1)(a)3.

2. Nonacute violations. Compliance shall be based on consecutive daily samples collected by the system under s. NR 809.565(5)(b). If any two consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the system is in violation of the MRDL and shall take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and will notify the public pursuant to the procedures for nonacute health risks in ss. NR 809.81(1)(a)1. and 2. Failure to monitor at the entrance to the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system is also an MRDL violation and the system shall notify the public of the violation in accordance with the provisions for nonacute violations under ss. NR 809.81(1)(a)1. and 2.

(4) Disinfection byproduct precursors (DBPP). Compliance shall be determined as specified by s. NR 809.569(2). Systems may begin monitoring to determine whether Step 1 TOC removals can be met 12 months prior to the compliance date for the system. This monitoring is not required and failure to monitor during this period is not a violation. However, any system that does not monitor during this

period, and then determines in the first 12 months after the compliance date that it is not able to meet the Step 1 requirements in s. NR 809.569(2) and shall therefore apply for alternate minimum TOC removal (Step 2) requirements, is not eligible for retroactive approval of alternate minimum TOC removal (Step 2) requirements as allowed pursuant to s. NR 809.569(2)(c) and is in violation. Systems may apply for alternate minimum TOC removal (Step 2) requirements any time after the compliance date.

NR 809.567 Reporting and recordkeeping requirements. (1) Systems required to sample quarterly or more frequently shall report to the Department within 10 days after the end of each quarter in which samples were collected, notwithstanding the provisions of s. NR 809.563. Systems required to sample less frequently than quarterly shall report to the Department within 10 days after the end of each monitoring period in which samples were collected.

(2) Disinfection byproducts. Systems shall report the information specified in the following:

(a) For systems monitoring TTHM and HAA5 under the requirements of s. NR 809.565(2) on a quarterly or more frequent basis shall report all of the following:

1. The number of samples taken during the last quarter.
2. The location, date, and result of each sample taken during the last quarter.
3. The arithmetic average of all samples taken in the last quarter.
4. The annual arithmetic average of the quarterly arithmetic averages for the last four quarters.
5. Whether the MCL was exceeded.

(b) For systems monitoring TTHMs and HAA5 under the requirements of s. NR 809.565(2) less frequently than quarterly but at least annually shall report all of the following:

1. The number of samples taken during the last year.
2. The location, date, and result of each sample taken during the last year.
3. The arithmetic average of all samples taken over the last year.
4. Whether the MCL was exceeded.

(c) For systems monitoring TTHMs and HAA5 under the requirements of s. NR 809.565(2) less frequently than annually shall report all of the following:

1. The location, date, and result of the last sample taken.
2. Whether the MCL was exceeded.

(d) For systems monitoring chlorite under the requirements of s. NR 809.565(4)(a) shall report all of the following:

1. The number of samples taken each month for the last 3 months.
2. The location, date, and result of each sample taken during the last quarter.
3. For each month in the reporting period, the arithmetic average of all samples taken in the month.
4. Whether the MCL was exceeded, and in which month it was exceeded.

(e) For systems monitoring bromate under the requirements of s. NR 809.565(4)(b) shall report all of the following:

1. The number of samples taken during the last quarter.

2. The location, date, and result of each sample taken during the last quarter.
3. The arithmetic average of the monthly arithmetic averages of all samples taken in the last year.
4. Whether the MCL was exceeded.

(3) Disinfectants. Systems shall report the information specified in the following :

(a) For systems monitoring chlorine or chloramines under the requirements of s. NR 809.565(5)(a)

shall report all of the following:

1. The number of samples taken during each month of the last quarter.
2. The monthly arithmetic average of all samples taken in each month for the last 12 months.
3. The arithmetic average of all monthly averages for the last 12 months.
4. Whether the MRDL was exceeded.

(b) For systems monitoring chlorine dioxide under the requirements of s. NR 809.565(5)(b) shall report the following information:

1. The dates, results, and locations of samples taken during the last quarter.
2. Whether the MRDL was exceeded.
3. Whether the MRDL was exceeded in any two consecutive daily samples and whether the

resulting violation was acute or nonacute.

(4) Disinfection byproduct precursors and enhanced coagulation or enhanced softening systems shall report the following information:

(a) For systems monitoring monthly or quarterly for TOC under the requirements of s. NR

809.565(6)(a) and required to meet the enhanced coagulation or enhanced softening requirements in ss. NR 809.569(1)(b) or (c) shall report all of the following:

1. The number of paired, source water and treated water prior to continuous disinfection samples taken during the last quarter.
2. The location, date, and result of each paired sample and associated alkalinity taken during the last quarter.
3. For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal.
4. Calculations for determining compliance with the TOC percent removal requirements, as provided in s. NR 809.569(3).
5. Whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in s. NR 809.567(2) for the last four quarters.

(b) For systems monitoring monthly or quarterly for TOC under the requirements of s. NR 809.565(5)(a) and meeting one or more of the alternative compliance criteria in ss. NR 809.569(1)(b) or (c) shall report all of the following:

1. The alternative compliance criterion that the system is using.
2. The number of paired samples taken during the last quarter.

3. The location, date, and result of each paired sample and associated alkalinity taken during the last quarter.
4. The running annual arithmetic average based on monthly averages (or quarterly samples) of source water TOC for systems meeting a criterion in ss. NR 809.569(1)(b)1. and 3. or of treated water TOC for systems meeting the criterion in s. NR 809.569(1)(b)2.
5. The running annual arithmetic average based on monthly averages (or quarterly samples) of source water SUVA for systems meeting the criterion in s. NR 809.569(1)(b)6. or of treated water SUVA for systems meeting the criterion in s. NR 809.569(1)(b)7.
6. The running annual average of source water alkalinity for systems meeting the criterion in NR 809.569(1)(b)3. and of treated water alkalinity for systems meeting the criterion in s. NR 809.569(1)(b)1.
7. The running annual average for both TTHM and HAA5 for systems meeting the criterion in s. NR 809.569(1)(b)3. and 4.
8. The running annual average of the amount of magnesium hardness removal (as CaCO mg/L) for systems meeting the criterion in s. NR.809.567 (1)(c)2.
9. Whether the system is in compliance with the particular alternative compliance criterion in ss. NR 809.569(1)(b) and (c).

NR 809.569 Treatment technique for control of disinfection byproduct (DBP) precursors.

(1) Applicability.

- (a) Surface water systems using conventional filtration treatment shall operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels specified in sub. (3) unless the system meets at least one of the alternative compliance criteria listed in pars. (1)(b) or (1)(c).
- (b) Alternative compliance criteria for enhanced coagulation and enhanced softening systems. Surface water systems using conventional filtration treatment may use the alternative compliance criteria in subs. (1)(b)1. through 6. to comply with this section in lieu of complying with sub. (2) . Systems shall still comply with monitoring requirements in s. NR 809.565(6).

1. The system's source water TOC level, measured according to s. NR 809.563(6)(c), is less than 2.0 mg/L, calculated quarterly as a running annual average.
2. The system's treated water TOC level, measured according to s. NR 809.563(6)(c), is less than 2.0 mg/L, calculated quarterly as a running annual average.
3. The system's source water TOC level, measured as required by s. NR 809.563(6)(c), is less than 4.0 mg/L, calculated quarterly as a running annual average; the source water alkalinity, measured according to s. NR 809.563(6)(a), is greater than 60 mg/L (as CaCO), calculated quarterly as a running annual average; and either the TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively; or prior to the effective date for compliance in s. NR 809.562(2)(a), the system has made a clear and irrevocable financial commitment not later than the effective date for compliance in s. NR 809.562(2)(a) to use of technologies that will limit the levels of TTHMs and HAA5 to no more than 0.040 mg/L and 0.030 mg/L, respectively.

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4. Systems shall submit evidence of a clear and irrevocable financial commitment, in addition to a schedule containing milestones and periodic progress reports for installation and operation of appropriate technologies, to the Department for approval not later than the effective date for compliance in s. NR 809.562(2)(a).

a. These technologies shall be installed and operating not later than June 16, 2005.

b. Failure to install and operate these technologies by the date in the approved schedule will constitute a violation of Chapter NR 809 Wis. Adm. Code and the National Primary Drinking Water Regulations.

5. The TTHM and HAA5 running annual averages are no greater than 0.040 mg/L and 0.030 mg/L, respectively, and the system uses only chlorine for primary disinfection and maintenance of a residual in the distribution system.

6. The system's source water SUVA, prior to any treatment and measured monthly according to s. NR 809.563(6)(d), is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

7. The system's finished water SUVA, measured monthly according to s. NR 809.563(6)(d), is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(c) Additional alternative compliance criteria for softening systems. Systems practicing enhanced softening that cannot achieve the TOC removals required by par. (2)(b) may use the alternative compliance criteria in subd. (1)(c)1. and 2. in lieu of complying with par. (b). Systems shall still comply with monitoring requirements in s. NR 809.565(6).

1. Softening that results in lowering the treated water alkalinity to less than 60 mg/L (as CaCO₃), measured monthly according to s. NR 809.563(6)(a) and calculated quarterly as a running annual average.

2. Softening that results in removing at least 10 mg/L of magnesium hardness (as CaCO₃), measured monthly and calculated quarterly as an annual running average.

(2) Enhanced coagulation and enhanced softening performance requirements.

(a) Systems shall achieve the percent reduction of TOC specified in par. (2)(b) between the source water and the combined filter effluent, unless the Department approves a system's request for alternate minimum TOC removal (Step 2) requirements under par. (2)(c).

(b). Required Step 1 TOC reductions, indicated in the following, are based upon specified source water parameters measured in accordance with s. NR 809.563(6). Systems practicing softening are required to meet the Step 1 TOC reductions in the far-right column, source water alkalinity >120 mg/L, for the specified source water TOC:

Step 1 Required Removal of TOC by Enhanced Coagulation and Enhanced Softening for Surface water Systems Using Conventional Treatment^{1,2}

Source water TOC, mg/l	Source water alkalinity, mg/L as CaO ₃		
	0 - 60 %	≤ 60 - 120 %	> 120 ³ %

>2.0-4.0	35.0	25.0	15.0
>4.0-8.0	45.0	35.0	25.0
>8.0	50.0	40.0	30.0

\1\ Systems meeting at least one of the conditions in subd. (1)(b)1. through 6 are not required to operate with enhanced coagulation.

\2\ Softening systems meeting one of the alternative compliance criteria in par. (1)(c) are not required to operate with enhanced softening.

\3\ Systems practicing softening shall meet the TOC removal requirements in this column.

(c) Surface water conventional treatment systems that cannot achieve the Step 1 TOC removals required by par. (2)(b) due to water quality parameters or operational constraints shall apply to the Department, within three months of failure to achieve the TOC removals required by par. (2)(b), for approval of alternative minimum TOC (Step 2) removal requirements submitted by the system. If the Department approves the alternative minimum TOC removal (Step 2) requirements, the Department may make those requirements retroactive for the purposes of determining compliance. Until the Department approves the alternate minimum TOC removal (Step 2) requirements, the system shall meet the Step 1 TOC removals contained in par. (2)(b).

(d) Alternate minimum TOC removal (Step 2) requirements. Applications made to the Department by enhanced coagulation systems for approval of alternative minimum TOC removal (Step 2) requirements under par. (2)(c) shall include, as a minimum, results of bench- or pilot-scale testing conducted under subd. (2)(d)1. and used to determine the alternate enhanced coagulation level.

1. Alternate enhanced coagulation level is defined as coagulation at a coagulant dose and pH as determined by the method described in subds. (2)(d)1. through 5. such that an incremental addition of 10 mg/L of alum (as aluminum) (or equivalent amount of ferric salt) results in a TOC removal of ≤ 0.3 mg/L. The percent removal of TOC at this point on the "TOC removal versus coagulant dose" curve is then defined as the minimum TOC removal required for the system. Once approved by the Department, this minimum requirement supersedes the minimum TOC removal required by the table in par. (2)(b). This requirement will be effective until such time as the Department approves a new value based on the results of a new bench- and pilot-scale test. Failure to achieve Department-set alternative minimum TOC removal levels is a violation of ch. 809 Wis. Admin. Code and the federal National Primary Drinking Water Regulations.

2. Bench- or pilot-scale testing of enhanced coagulation shall be conducted by using representative water samples and adding 10 mg/L increments of alum (as aluminum) (or equivalent amounts of ferric salt) until the pH is reduced to a level less than or equal to the enhanced coagulation Step 2 target pH shown in the following:

Enhanced Coagulation Step 2 target pH

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Alkalinity (mg/L as CaCO ₃)	Target pH
0-60.....	5.5
>60-120.....	6.3
>120-240.....	7.0
>240.....	7.5

3. For waters with alkalinity's of less than 60 mg/L for which addition of small amounts of alum or equivalent addition of iron coagulant drives the pH below 5.5 before significant TOC removal occurs, the system shall add necessary chemicals to maintain the pH between 5.3 and 5.7 in samples until the TOC removal of 0.3 mg/L per 10 mg/L alum added (as aluminum) (or equivalent addition of iron coagulant) is reached.

4. The system may operate at any coagulant dose or pH necessary (consistent with other NPDWRs) to achieve the minimum TOC percent removal approved under par. (2)(c).

5. If the TOC removal is consistently less than 0.3 mg/L of TOC per 10 mg/L of incremental alum dose (as aluminum) at all dosages of alum (or equivalent addition of iron coagulant), the water is deemed to contain TOC not amenable to enhanced coagulation. The system may then apply to the Department for a waiver of enhanced coagulation requirements.

(3) Compliance calculations.

(a) Surface water systems other than those identified in par. (1)(b) or (1)(c) shall comply with requirements contained in par. (2)(b). Systems shall calculate compliance quarterly, beginning after the system has collected 12 months of data, by determining an annual average using the following method:

1. Determine actual monthly TOC percent removal, equal to:

$$(\text{treated water TOC}/\text{source water TOC}) \times 100$$

2. Determine the required monthly TOC percent removal from either the table in par. (2)(b) or from par. (2)(c).

3. Divide the value in subd. (3)(a)1. by the value in subd. (3)(a)2.

4. Add together the results of subd. (3)(a)3. for the last 12 months and divide by 12.

5. If the value calculated in subd. (3)(a)4. is less than 1.00, the system is not in compliance with the TOC percent removal requirements.

(b) Systems may use the provisions in subds. (3)(b)1. through 5. in lieu of the calculations in subds. (3)(a)1. through 5. to determine compliance with TOC percent removal requirements.

1. In any month that the system's treated or source water TOC level, measured according to s. NR 809.563(6)(c), is less than 2.0 mg/L, the system may assign a monthly value of 1.0 (in lieu of the value calculated in subd. (3)(a)3. when calculating compliance under the provisions of par. (3)(a)

2. In any month that a system practicing softening removes at least 10 mg/L of magnesium hardness (as CaCO₃), the system may assign a monthly value of 1.0 in lieu of the value calculated in subd. (3)(a)3. when calculating compliance under the provisions of par. (3)(a) .

3. In any month that the system's source water SUVA, prior to any treatment and measured according to s. NR 809.563(6)(d), is ≤ 2.0 L/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in subd. (3)(a)3. when calculating compliance under the provisions of par. (3)(a) .

4. In any month that the system's finished water SUVA, measured according to s. NR 809.563(6)(d), is ≤ 2.0 L/mg-m, the system may assign a monthly value of 1.0 in lieu of the value calculated in subd. (3)(a)3. when calculating compliance under the provisions of par. (3)(a) .

5. In any month that a system practicing enhanced softening lowers alkalinity below 60 mg/L as CaCO₃, the system may assign a monthly value of 1.0 (in lieu of the value calculated in subd. (3)(a)3. when calculating compliance under the provisions of par. (3)(a) .

(c) Surface water systems using conventional treatment may also comply with the requirements by meeting the criteria in pars. (1)(b) or (c) .

(4) Treatment technique requirements for DBP precursors in surface water systems using conventional treatment, the Department identifies enhanced coagulation or enhanced softening as treatment techniques to control the level of disinfection byproduct precursors in drinking water treatment and distribution systems.

SECTION 17. NR 809 Subchapter III is renumbered to IV, Subchapter IV is renumbered to V, and Subchapter V is renumbered to VI.

SECTION 18. NR 809.70 is amended to read:

NR 809.70 General requirements. Public water systems shall meet applicable minimum monitoring requirements stated in this chapter. The department may increase monitoring requirements of any section of this chapter, if the department deems such an increase is necessary to protect public health, safety and welfare. The department may decrease the monitoring requirements of any section of this chapter, if the department determines that such a decrease will not adversely affect protection of public health, safety or welfare. Altering any monitoring procedure, sample collection or processing procedure, or analytical procedure required in this chapter is expressly prohibited, unless authorized by the Department.

SECTION 19. NR 809.75(1) is amended to read:

(1) These regulations establish criteria under which filtration is required as a treatment technique for public water systems supplied by a surface water source or a groundwater source under the direct influence of surface water. Direct influence shall be determined for individual sources by the Department. The Department determination of direct influence may be based on site-specific measurements of water quality characteristics such as those stated in s. NR 809.04(20)(24) or documentation of well construction characteristics and geology with field evaluation. These regulations also establish requirements for

treatment techniques in lieu of maximum contaminant levels for *Giardia lamblia*, viruses, heterotrophic plate count bacteria, *Legionella*, *Cryptosporidium*, and turbidity. Treatment technique requirements apply to every public water system which utilizes surface water or ground water under the direct influence of surface water and the requirements consist of installing and properly operating water treatment processes which reliably achieve:

SECTION 20. NR 809.75(4) is created to read:

(4) Additional requirements for systems serving at least 10,000 people. After December 17, 2001, the treatment technique requirements also consist of installing and properly operating water treatment processes, which reliably achieve:

(a) At least 99 percent (2-log) removal of *Cryptosporidium* between a point where the raw water is not subject to recontamination by surface water runoff and a point downstream before or at the first customer for filtered systems, or *Cryptosporidium* control under the watershed control system for unfiltered systems.

(b) Compliance with the profiling and benchmark requirements under the requirements in s. NR 809.775

SECTION 21. NR 809.755 is amended to read:

NR 809.755 Criteria for avoiding filtration. A public water system that uses ground water under the direct influence of surface water as a water supply source shall meet all of the conditions of subs. (1) and (2), and is subject to sub. (3), ~~on or after December 30, 1991,~~ unless the Department has determined, in writing, that filtration is required. If the Department determines in writing before December 30, 1991 that filtration is required, the system owner shall install filtration and shall meet the criteria for filtered systems specified in ss. NR 809.77 and 809.78. ~~by June 29, 1993~~ Within 18 months of the failure of a public water system using a ground water source under the direct influence of surface water to meet any one of the requirements of subs. (1) and (2), ~~or after June 29, 1993, whichever is later~~ the system owner shall install filtration and shall meet the criteria for filtered systems specified in ss. NR 809.77 and 809.78.

SECTION 22. NR 809.755(2) and (3) are amended to read:

(2) Site-specific conditions. (a) 1. The public water system shall meet the disinfection requirements of s. NR 809.77 (1) (a) at least 11 of the 12 previous months that the system served water to the public, on an ongoing basis, unless the system fails to meet the requirements during 2 of the 12 previous months that the system served water to the public, and the Department determines that at least one of these failures was caused by circumstances that were unusual and unpredictable.

2. The public water system shall meet the requirements of s. NR 809.77 (1) (b) at all times the system serves water to the public.

3. The public water system shall meet the requirements of s. NR 809.77 (1) (c) at all times the system serves water to the public unless the Department determines that any such failure was caused by circumstances that were unusual and unpredictable.

4. The public water system shall meet the requirements of s. NR 809.77 (1) (d) on an ongoing basis unless the Department determines that failure to meet these requirements was not caused by a deficiency in treatment of the source water.

(b) The public water system shall maintain a Department approved well head protection program which minimizes the potential for contamination by *Cryptosporidium*, *Giardia lamblia* cysts and viruses in the source water. The Department shall determine whether the well head protection program is adequate to meet this goal. At a minimum, the program shall:

1. Characterize the watershed hydrology, hydrogeology and land ownership;
2. Identify watershed characteristics and activities which may have an adverse effect on source water quality; and
3. Monitor the occurrence of activities, which may have an adverse effect on source water quality.

(c) The public water system is subject to an annual on-site inspection to assess the well head protection program and disinfection treatment process. Either the Department or a party approved by the Department shall conduct the on-site inspection. The inspection shall be conducted by competent individuals and shall include:

1. A review of the effectiveness of the watershed control program;
2. A review of the physical condition of the source intake and how well it is protected;
3. A review of the system's equipment maintenance program to ensure there is low probability for failure of the disinfection process;
4. An inspection of the disinfection equipment for physical deterioration;
5. A review of operating procedures;
6. A review of data records to ensure that all required tests are being conducted and recorded and disinfection is effectively practiced; and
7. Identification of any improvements which are needed in the equipment, system maintenance and operation, or data collection.
8. A review of whether the adequacy of the watershed control program to limit potential contamination by *Cryptosporidium* including: comprehensiveness of the watershed review; the effectiveness of the system's program to monitor and control detrimental activities occurring in the watershed; and the extent to which the water system has maximized land ownership and/or controlled land use within the watershed.

(d) The public water system may not have been identified as a source of a waterborne disease outbreak, or if it has been so identified, the system shall be modified sufficiently to prevent another such occurrence, as determined by the Department.

(e) The public water system shall comply with the maximum contaminant level (MCL) for total coliforms in s. NR 809.30 at least 11 months of the previous 12 months that the system served water to the public, on an ongoing basis, unless the Department determines that failure to meet this requirement was not caused by a deficiency in treatment of the source water.

(f) The public water system shall comply with the requirements for trihalomethanes in s. NR 809.23 until December 31, 2001. After December 31, 2001, the system shall comply with the requirements for total trihalomethanes, haloacetic acids (five), bromate, chlorite, chlorine, chloramines, and chlorine dioxide in s. NR 809.xx.

(3) Treatment technique violations. (a) A system that fails to meet any one of the criteria in subs. (1) and (2), and which the Department has determined in writing that filtration is required, ~~and fails to install filtration by June 29, 1993,~~ is in violation of a treatment technique requirement.

SECTION 23. NR 809.76(1), (2), and (5) are amended to read:

NR 809.76 Filtration requirements. Public water systems that use a surface water source shall provide filtration, which complies with the requirements of subs. (1), (2), (3), (4) or (5) and meets the disinfection criteria for filtered systems specified in s. NR 809.77 (2) ~~by June 29, 1993.~~ Public water systems that use a ground water source under the direct influence of surface water shall provide filtration, which complies with the specifications of subs. (1), (2), (3), (4) or (5) and meets the disinfection criteria for filtered systems specified in s. NR 809.77 ~~by June 29, 1993 or~~ within 18 months of the date that a source is determined to be under the direct influence of surface water, whichever is later. Failure to meet any requirement of this section ~~after the dates specified in this paragraph~~ is a treatment technique violation.

(1) Conventional filtration treatment. (a) For systems using conventional filtration, the turbidity level of representative samples of a system's filtered water shall be less than or equal to 0.5 NTU in at least 95% of the measurements taken each month, measured as specified in s. NR 809.725 (1), Table E. ~~The department may approve a turbidity limit up to 1 NTU if the water supplier provides the department with documentation which reliably indicates the system achieves at least 99.9% removal or inactivation of *Giardia lamblia* cysts at a turbidity level above 0.5 NTU at least 95% of the time that the system delivers water to the public. Beginning January 1, 2002, systems serving at least 10,000 people and using conventional filtration, the turbidity level of representative samples of a system's filtered water shall be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month, measured as specified in s. NR 809.725(1), Table E.~~

(b) The turbidity level of representative samples of a system's filtered water may not exceed 5 NTU, measured as specified in s. NR 809.725 (1) Table E. Beginning January 1, 2002, systems serving at least 10,000 people and using conventional filtration, the turbidity level of representative samples of a system's filtered water shall at no time exceed 1 NTU, measured as specified in s. NR 809.725(1) Table E.

(c) To determine compliance with par. (a), turbidity measurements shall be performed on representative samples of filtered water at least every 4 hours that the system serves water to the public.

(d) In lieu of the requirements of par. (c), turbidity measurements from a continuous reading and recording turbidity monitoring device shall be recorded at predetermined 4 hour intervals to determine compliance with par. (a). The highest turbidity measurement recorded at any time during the day shall be reported under s. NR 809.80 (6) (a) 1.

(e) A system that uses lime softening may acidify representative samples prior to analysis if using an approved protocol.

(2) Direct filtration. (a) For systems using direct filtration, the turbidity level of representative samples of a system's filtered water shall be less than or equal to 0.5 NTU in at least 95% of the measurements taken each month, measured as specified in s. NR 809.725 (1), Table E. The Department may approve a turbidity limit up to 1 NTU if the water supplier provides the Department with documentation which reliably indicates the system achieves at least 99.9% removal or inactivation of *Giardia lamblia* cysts at a turbidity level above 0.5 NTU at least 95% of the time that the system delivers water to the public.

Beginning January 1, 2002, systems serving at least 10,000 people and using direct filtration, the turbidity level of representative samples of a system's filtered water shall be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month, measured as specified in s. NR 809.725(1), Table E.

(b) The turbidity level of representative samples of a system's filtered water may not exceed 5 NTU, measured as specified in s. NR 809.725 (1), Table E. Beginning January 1, 2002, systems serving at least 10,000 people and using direct filtration, the turbidity level of representative samples of a system's filtered water shall at no time exceed 1 NTU, measured as specified in s. NR 809.725(1) Table E.

(5) Other filtration technologies. A public water system supplier may use a filtration technology not listed in subs. (1) to (4) if the supplier demonstrates to the Department, using pilot studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of s. NR 809.78, consistently achieves 99.9% removal and/or inactivation of *Giardia lamblia* cysts and 99.99% removal and/or inactivation of viruses, and 99 percent removal of *Cryptosporidium* oocysts, and the Department approves the use of the filtration technology. For a system that makes this demonstration, the requirements of sub. (3) apply. For each approval, the Department will set turbidity performance requirements that the system shall meet at least 95 percent of the time at a level that consistently achieves 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts, 99.9 percent removal and/or inactivation of viruses, and 99 percent removal of *Cryptosporidium* oocysts. The Department may set other performance requirements to assure the integrity of the technology.

SECTION 24. NR 809.765 is created to read: