State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

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STATE OF WISCONSIN)
) ss
DEPARTMENT OF NATURAL RESOURCES)

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETINGS:

I, George E. Meyer, Secretary of the Department of Natural Resources and custodian of the official records of said Department, do hereby certify that the annexed copy of Natural Resources Board Order No. DG-3-00 was duly approved and adopted by this Department on June 28. 2000. I further certify that said copy has been compared by me with the original on file in this Department and that the same is a true copy thereof, and of the whole of such original.

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the official seal of the Department at the Natural Resources Building in the City of Madison, this 18 day of September, 2000

George E. Meyer

George E. Meyer, Secretary

(SEAL)

Filed September 21, 2000
1:45p

00-002

12/1/00

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

The Natural Resources Board proposes an order to repeal NR 809.26(1)(i), 809.40 and 809.41; to renumber NR 809.04(7) to (66), NR 809 subchs. III to V, 809.80(4) to (9), 811.10(3), 811.13(3m) to (6), 811.29(1)(h) and (i); to renumber and amend NR 809.26(1)(j); to amend NR 108.02(13)(a) and (b), 108.04(1), (2)(b) and (f), ch. NR 114(title) and (note), 114.01, 114.03(16), 114.05(1) and (2), 114.10(1) to (7), 114.12(2)(d), 114.14(1)(h), 809.01(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)(intro.), (a) and (b), 809.31(1)(d)1. and 2., (5)(c), (6)(a), 809.75(1)(intro.), 809.755(intro.), (2)(b)(intro.), (f) and (3)(a), 809.76(intro.), (1), (2) and (5), 809.77(intro.), NR 809 subch. VI (title), 809.81(5)(Lt), 811.01, 811.05(2)(a)(intro.) and 5., 811.08(5), 811.10(2)(intro.) and (a), 811.16(2)(d)2. and 3. and 811.33(2)(note); to repeal and recreate NR 114.07(5), 809.22 and 809.90; and to create NR 114.03(3m) and (note), (14m), 114.05(9), 114.11(4), 114.12(2)(e), NR 114 subch. III, 809.04(7), (19), (22), (23), (27), (31), (36), (43), (44), (69), (72) to (75), 809.31(5)(d), NR 809 subch. III, 809.75(4), 809.755(2)(c)8., 809.765, 809.775, 809.80(4) and (8), 809.83, 809.833, 809.835, 809.837, NR 809 subch. VII appendices A to C, 811.10(3) and 811.11(8) relating to plans and specifications submittals for reviewable projects, operator certification, safe drinking water and operation and design of community water systems.

DG-3-00

Analysis Prepared by Department of Natural Resources

Statutory authority: ss. 227.11(2)(a), 280.11(1), 281.17(3) and (8) and 281.41(1), Stats.
Statutes interpreted: ss. 280.11(1), 281.17(3) and (8) and 281.41(1), Stats.

Proposed revisions to Chapter NR 108, Requirements for Plans and Specifications Submittal for Reviewable Projects and Operations of Community Water Systems, Sewerage Systems and Industrial Wastewater Facilities, are submitted to the Natural Resources Board for approval of the proposed revisions. The major revision simply alters the definition of community water system to comport with Chapters NR 809 and NR 811. Other changes simply allow greater flexibility in plan submission.

These revisions should have no significant impact on regulated systems other than to allow greater flexibility in submitting plans.

Proposed revisions to Chapter NR 114, Certification Requirements for Waterworks, Wastewater Treatment Plant and Septage Servicing Operators, are submitted to the Natural Resources Board for approval of the proposed revisions. The major revisions conform with EPA guidance promulgated in response to a new operator certification requirement for small public systems established under the 1996 Amendments to the Safe Drinking Water Act (SDWA). Revisions include: requirement for certified operator for other than municipal and nontransient noncommunity water systems; requirements for examination, continuing education, and sub-classification by type of treatment; and, requirement for certified operator to be available during each shift the system is in operation.

These new requirements will increase training and knowledge, and therefore cost, required to operate other than municipal and nontransient noncommunity water systems. However, since these requirements will result in better knowledge of water system operation, regulatory requirements, and monitoring procedures, they should also result in better public health protection and better levels of regulatory compliance.

Proposed revisions to Chapter NR 809, Safe Drinking Water, are submitted to the Natural Resources Board for approval of the proposed revisions. The major revisions conform with 4 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.

Proposed revisions to Chapter NR 811, Requirements for the Operation and Design of Community Water Systems, are submitted to the Natural Resources Board for approval of the proposed revisions. The major revision to this chapter is a change in the definition of community water system to match the definition in Chapter NR 809 and Chapter NR 108. Other revisions allow greater flexibility, provide greater clarity or correct past errors in the code.

These revisions should not significantly impact any systems other than to make the code easier to understand and provide systems more flexibility in meeting the requirements of the code.

SECTION 1. NR 108.02(13)(a) and (b) are amended to read:

NR 108.02(13)(a) Any new community water system ~~intended to serve 15 or more living units or having source capacity greater than 70 gallons per minute.~~ or any water system intended to serve 7 or more homes, 10 or more apartments, 10 or more mobile homes or 10 or more condominium units.

(b) Any improvements, extensions or alterations which may affect the quality or quantity of water delivered by an existing community water system ~~intended to serve 15 or more living units or having source capacity greater than 70 gallons per minute~~ or delivered by a water system serving 7 or more homes, 10 or more apartments, 10 or more mobile homes or 10 or more condominiums units except distribution systems not in streets or easements, or water systems where all of the living units are owned by a single owner and the owner provides information indicating that less than 25 year-round residents will be served.

SECTION 2. NR 108.04(1) is amended to read:

NR 108.04(1) PRELIMINARY PLANS. Prior to preparation of final plans and specifications for a water supply facility, an industrial wastewater facility or industrial pretreatment facility, a conceptual design report of the proposed system may be submitted. Upon request the department will provide written comments on the acceptability of the concept and advice regarding design requirements.

SECTION 3. NR 108.04(2)(b) and (f) are amended to read:

NR 108.04(2)(b) Three sets of final plans and specifications shall be submitted for all reviewable projects except water main and sanitary sewer extensions in which case only ~~2 sets need~~ 1 set needs to be submitted. Additional sets of plans and specifications may be required for sewerage improvements that are eligible for state or federal grants-in-aid. ~~One set of all approved plans and specifications will be affixed with the department's stamp of approval and returned to the owner.~~

(f) Plans shall be made on a high grade paper that will not crack when folded nor tear with reasonable usage. The maximum plan size should be 24" x 36"; and sheets in the same set of plans shall be numbered. The scale in feet to which the plans are drawn, the north point, the date and the name of the

designer and owner shall, in all cases, be indicated. Drawings obtained from the manufacturer or supplier containing proprietary names or symbols will not be accepted for approval. All plans shall be drawn to a suitable scale not smaller than one inch equaling 40 feet for detailed plans and, whenever practicable, not smaller than one inch equaling 100 feet for general plans. Reductions of full-scale plans with an appropriate scale for the reduced plans not smaller than one inch equaling 100 feet may be accepted by the department provided that the plans are clear and legible. Plans for modifications of or extensions to existing waterworks, sewerage systems, industrial wastewater facilities or industrial pretreatment facilities shall clearly indicate the connections or relations thereto, and, if not already on file with the department, shall include plans of the existing system or facility.

SECTION 4. Chapter NR 114 (title) and (Note) are amended to read:

CHAPTER NR 114
CERTIFICATION REQUIREMENTS FOR WATERWORKS, WASTEWATER TREATMENT PLANT, ~~AND~~ SEPTAGE SERVICING AND WATER SYSTEM OPERATORS.

NOTE: Pursuant to s. ~~144.99~~ 281.98, Stats., any person who violates this chapter shall forfeit not less than $10 nor more than $5,000 for each violation. Each day of continued violation is a separate offense. ~~Chapter NR 114 as it existed on September 30, 1995 was repealed and a new chapter NR 114 was created effective October 1, 1995.~~

SECTION 5. NR 114.01 is amended to read:

NR 114.01 Purpose. The purpose of this subchapter is to establish rules for the certification of waterworks and wastewater treatment plant operators pursuant to s. ~~144.025 (2) (L)~~ 281.17 (3), Stats.

SECTION 6. NR 114.03(3m) and Note, 114.03(9m), (11m) and (14m) are created to read:

NR 114.03(3m) "Community water system" has the meaning given in s. NR 809.04(4).

NOTE: Section NR 809.04(4) defines "community water system" to mean "a public water system which serves at least 15 service connections used by year–round residents or regularly serves at least 25 year–round residents. Any public water system serving 7 or more homes, 10 or more mobile homes, 10 or more apartment units, or 10 or more condominium units shall be considered a community water system unless information is available to indicate that 25 year–round residents will not be served."

(9m) "Non-transient non-community water system" means a non-community water system that regularly serves at least 25 of the same persons over 6 months per year and is not a waterworks as defined in sub. (15). Examples of non-transient non-community water systems include but are not limited to those serving schools, day care centers and factories.

(11m) "Other than municipal community water system" means a community water system that is not a municipal water system and is not a waterworks as defined in sub. (15). Examples of other than municipal community water systems include but are not limited to those serving mobile home parks, apartments and condominiums.

(14m) "Water system" means an other than municipal community or a non-transient non-community water system as defined in subs. (11m) and (9m) respectively.

SECTION 7. NR 114.03(16) is amended to read:

NR 114.03(16) "WPDES permit" means a Wisconsin pollution elimination system permit issued under ch. ~~147~~ 283, Stats.

SECTION 8. NR 114.05(1) and (2) are amended to read:

NR 114.05(1) Examinations and on–the–job experience shall be used to determine knowledge, skill and ability of the applicant to perform duties at a waterworks or wastewater treatment plant. A score of 75% or higher shall be a passing score on each written examination. An applicant desiring to be certified to perform duties at a waterworks or wastewater treatment plant shall submit a completed application to the department at least 28 days prior to the established date of a written examination on an application form provided by the department. Fees as outlined in s. NR 114.06 shall accompany the application. Applicants shall be notified of their eligibility for examination.

(2) Written examinations shall be conducted week days at least 2 times annually in ~~all~~ 6 locations specified by the department ~~districts~~, except as provided in sub. (3).

SECTION 9. NR 114.05(9) is created to read:

NR 114.05(9) An applicant who holds a valid water system certification under subch. III in subclasses Z, I, L or V may apply for and be granted certification in the same waterworks subclasses as listed in s. NR 114.10 without repeating the subclass examination.

SECTION 10. NR 114.07(5) is repealed and recreated to read:

NR 114.07(5)(a) A person who desires to renew a certificate shall submit evidence of having met the continuing education requirements of par. (b) on forms approved or provided by the department for approved training courses or other credit that they have successfully completed during the 3–year period. These may include, but are not limited to, courses sponsored by the department, or any university, or technical school, technical sessions at meetings of professional organizations, in–house training and correspondence courses. Failure to successfully complete and document the appropriate number of hours of continuing education training within the 3–year period shall result in rejection of a certificate renewal application.

(b) (intro.) Applicants shall meet the following continuing education requirements:

1. Wastewater certified operators at Grades T, 1 and 2 require 18 hours per 3 year renewal period.

2. Wastewater certified operators at Grades 3 and 4 require 24 hours per 3 year renewal period.

3. Waterworks certified operators at Grades T and 1 require 18 hours per 3 year renewal period, except the operator–in–charge of a surface water treatment plant will be required to submit 24 hours per 3 year renewal period.

(c) For both waterworks and wastewater treatment certified operators, not more than 6 hours of health and safety training may be used per 3 year renewal period.

SECTION 11. NR 114.10(1) to (7) are amended to read:

NR 114.10(1) Subclass G – Groundwater source. All waterworks utilizing a groundwater source.

(2) Subclass Z – Zeolite and resin treatment. All waterworks providing zeolite softening or specific contaminant removal by resins.

(3) Subclass I – Oxidation and filtration treatment. All waterworks providing iron removal by oxidation and filtration.

(4) Subclass L – Lime-soda ash treatment. All waterworks providing treatment by the lime–soda ash process for iron removal or softening, or both.

(5) Subclass S – Surface water source. All waterworks utilizing a surface water source.

(6) Subclass D – Distribution system. All waterworks containing a distribution system.

(7) Subclass V – Specialized treatment. All waterworks providing special treatment such as, but not limited to, air stripping, granular activated carbon or others.

SECTION 12. NR 114.11(4) is created to read:

NR 114.11(4) To qualify for certification in any of the subclasses established in s. NR 114.10, the person shall meet the requirements of either par. (a) or (b).

(a) The person shall possess a high school diploma or a general equivalency diploma.

(b) The person shall have a minimum of 2 years experience operating a waterworks prior to the effective date of this rule … [revisor insert date].

SECTION 13. NR 114.12(2)(d) is amended to read:

NR 114.12(2)(d) At subclass S waterworks, the system shall have a person certified at Grade T or 1 in Subclass S on duty at all times of operation. If the designated operator–in–charge of a subclass S waterworks is not on duty during the operation of the system, the waterworks shall have another operator certified at Grade T or 1 in subclass S on duty during the operation of the system. If an operator position becomes vacant at a subclass S waterworks, the department may allow a system to operate a shift without a certified operator on duty as long as the non–certified operator on duty is working under the general supervision of a certified operator and the waterworks is making a good faith effort to fill the vacant position. On duty for subclass S waterworks means having a certified operator onsite except where the department has approved an automated treatment plant surveillance system and an operation plan for offsite control as a reliable substitute for having a certified operator on–site. In the review of automated systems, the department shall consider applicable factors, such as history of plant operations, response time to alarms, offsite treatment adjustment capability, plant shutdown ability and demonstration of satisfactory operation and reliability of the automation system. ~~This requirement applies commencing one year from October 1, 1995.~~

SECTION 14. NR 114.12(2)(e) is created to read:

NR 114.12(2)(e) The operator–in–charge of the operation of a subclass of waterworks shall be available during each operating shift. The operator-in-charge may designate, on a temporary basis, such as vacation or short term illness, an operator of appropriate subclass, to be available during each operating shift.

SECTION 15. NR 114.14(1)(h) is amended to read:

NR 114.14(1)(h) By intentional or negligent action, caused or significantly contributed to a violation of any provision of ~~ch. 144 or 147~~ ch. 281 or 283, Stats., or any administrative codes, permits or orders adopted or issued under those chapters.

SECTION 16. NR 114 Subchapter III is created to read:

SUBCHAPTER III
CERTIFICATION OF WATER SYSTEM OPERATORS.

NR 114.26 Purpose. The purpose of this subchapter is to establish rules for the certification of water system operators pursuant to s. 281.17 (3), Stats.

NR 114.27 Applicability. The provisions of this subchapter are applicable to all owners and operators of water systems as defined in this subchapter.

NR 114.28 Definitions. In this subchapter:

(1) "Certificate" means a printed document issued by the department, pursuant to this subchapter, stating that the operator named therein has met the competency requirements for certification.

(2) "Certified operator" means a person who has met the requirements of this subchapter and has been issued a certificate by the department to work at a water system.

(3) "Classification" or "class" means a number assigned to a water system based on a rating system.

(4) "Community water system" has the meaning given in s. NR 809.04(4).

NOTE: S. NR 809.04(4) defines "community water system" to mean "a public water system which serves at least 15 service connections used by year–round residents or regularly serves at least 25 year–round residents. Any public water system serving 7 or more homes, 10 or more mobile homes, 10 or more apartment units, or 10 or more condominium units shall be considered a community water system unless information is available to indicate that 25 year–round residents will not be served."

(5) "Department" means the department of natural resources.

(6) "Direct responsible charge" means the responsibility to provide detailed on-site technical direction of the operation of a water system.

(7) "Operate" means to be in direct responsible charge of a subclass of operations at a water system.

(8) "Operator-in-charge" means the person designated by the owner of a water system to be in direct responsible charge of a subclass of operations of the water system. Not included in this definition are managers, engineers, directors or the equivalent, who are not actually involved in day-to-day operations of the system.

(9) "Owner" means the state, county, town, town sanitary district, city, village, metropolitan sewerage district, corporation, firm, company, institution, association, utility district, school district, joint sewerage commission or individual owning or operating any water system.

(10) "Subclass" means a letter assigned a plant or system based upon a particular type of process at the plant and the letter assigned to a person based on passing an examination for a specific operational process.

(11) "Water system" means an other than municipal community or a non-transient non-community public water system as defined in pars. (a) and (b):

(a) "Other than municipal community water system" means a community water system that is not a municipal water system and is not a waterworks as defined in sub. (11). Examples of other than municipal community water systems include, but are not limited to, those serving mobile home parks, apartments and condominiums.

(b) "Non-transient non-community water system" means a non-community water system that regularly serves at least 25 of the same persons over 6 months per year and is not a waterworks as defined in sub. (11). Examples of non-transient non-community water systems include, but are not limited to, those serving schools, day care centers and factories.

(12) "Waterworks" means a community water system owned by, or a private utility serving, a county, city, village, town, town sanitary district, utility district or a county–owned or state–owned public institution for congregate care or correction, which includes but is not limited to correctional institutions, correctional camp systems, county jails or houses of correction, mental health institutes, schools for the handicapped, hospitals, infirmaries and asylums.

NR 114.29 Classification of water systems. (1) The classification of each water system shall be class 1 and assigned one or more of the applicable subclasses listed in sub. (3) based on the operations performed at the system.

(2) Each water system shall be assigned a minimum of subclass O and additional subclasses for each treatment or process utilized and listed in sub. (3).

(3) The following subclasses are established for both water system classifications and operator certification:

(a) *Subclass O - General water system operation.* All water systems utilizing a groundwater source, surface water source, or purchased water from a waterworks. Any operator who holds a valid waterworks certification under subch. I in subclasses G, D or S may also operate this water system subclass.

(b) *Subclass Z - Zeolite and resin treatment.* All water systems providing zeolite softening or specific contaminant removal by resins. Any operator who holds a valid waterworks certification under subch. I in subclass Z may operate this water system subclass.

(c) *Subclass I – Oxidation and filtration treatment.* All water systems providing iron removal by oxidation and filtration. Any operator who holds a valid waterworks certification under subch. I in subclass I may also operate this water system subclass.

(d) *Subclass L - Lime-soda ash treatment.* All water systems providing treatment by the lime-soda ash process for iron removal or softening, or both. Any operator who holds a valid waterworks certification under subch. I in subclass L may operate this water system subclass.

(e) *Subclass V – Specialized treatment.* All water systems providing special treatment such as, but not limited to, air stripping, granular activated carbon or others. Any operator who holds a valid waterworks certification under subch. I in subclass V may also operate this water system subclass.

NR 114.30 General requirements. Every water system shall have a designated operator-in-charge. No person may be an operator-in-charge of a water system subclass unless that person holds a valid certificate for that subclass issued pursuant to this chapter.

NR 114.31 Requirements for water system owners. The owner of a water system shall designate to the department the operator-in-charge of the water system. The designated operator-in-charge

shall meet the requirements stated in s. NR 114.32. A person may be designated as the operator–in–charge for more than one subclass. Owners shall notify the department of changes within 30 days.

NR 114.32 Requirements for water system operators. (1) To qualify for certification in any of the subclasses established in s. NR 114.29, the person shall meet the requirements of either par. (a) or (b).

(a) The person shall possess a high school diploma or a general equivalency diploma.

(b) The person shall have a minimum of 2 years experience operating a water system prior to the effective date of this rule .... [revisor insert date].

(2) To qualify for certification in any of the subclasses established in s. NR 114.29, a person shall submit a completed application and successfully pass the examination for that subclass as stated in s. NR 114.33.

(3) The operator-in-charge of the operation of a water system subclass listed in s. NR 114.29 shall hold a valid certification for that subclass, except as noted in sub. (4).

(4) Upon the addition of a subclass treatment process to a water system, the operator-in-charge of the system shall have 12 months to pass the necessary examinations and meet the requirements specified under this section.

(5) The operator-in-charge of a water system shall be available during each operating shift.

(6) To continue certification under this subchapter, each certified water system operator shall renew his or her certificate every 3 years as specified in s. NR 114.36.

NR 114.33 Applications and examinations. (1) A person desiring to be certified to perform duties at a water system shall submit a completed application form to the department at least 28 days prior to the established date of a written examination. Fees as outlined in s. NR 114.34 shall accompany the application form. Applicants shall be notified of their eligibility for examination.

(2) Examinations shall be used to determine knowledge, skill and ability of the applicant to perform duties at a water system. A score of 75% or higher shall be a passing score on each written examination.

(3) Written examinations shall be conducted at least 2 times annually in 6 locations specified by the department.

(4) Examinations for water system operations may not be issued to applicants who have not properly registered or who fail to identify themselves on request.

(5) Examination papers may not be returned to an applicant. Examination results will be mailed to applicant within 60 days of the examination date.

(6) Applicants who fail to pass a written examination may apply to the department for reexamination at a subsequent scheduled examination.

(7) The department shall provide a list of reference materials and study guides pertaining to each water system subclass.

(8) An applicant who holds a valid waterworks certification under subch. I in subclasses Z, I, L or V may apply for and be granted certification in the same water system subclasses as listed in s. NR 114.29 without repeating the subclass examination.

NR 114.34 Fees. (1) Fees for certification shall be as follows:

(a) Each written examination $25.00
(b) Three year renewal (per certificate) $45.00
(c) Late renewal penalty (per certificate) $25.00
(d) Reciprocal certification (per certificate) $100.00

(2) Fees shall accompany a completed application form.

(3) The renewal fee is due on the expiration date of the certificate. Any renewal application postmarked after the expiration date shall also include a $25.00 late renewal penalty.

(4) Fees may not be refunded to an applicant who fails to pass a written certification examination, who fails to appear to take the examination or who fails to identify himself or herself on request.

(5) The department shall collect these fees pursuant to s. 281.17 (3), Stats., for uses including the administration of this chapter.

NR 114.35 Issuance of certificates. (1) Upon satisfactory fulfillment of the qualifications required by this subchapter, the department shall issue a certificate to a person indicating the water system subclasses for which the person has been certified.

(2) Certificates may be issued for reciprocal certification, without examination, in a comparable subclass to any person who holds a current certificate in any state, territory or possession of the United States, or any country, if in the judgment of the department, the person requesting reciprocal certification has met the equivalent of the provisions of this subchapter in examinations.

(3) All certificates shall expire 3 years from the date of issuance. Certificates may be updated to show additional subclasses after passing an examination, but the original expiration date shall remain on the certificate. Updating a certificate for any reason, except renewal of certification as described in s. NR 114.36 does not extend or change the expiration date. Certificates shall only be renewed subject to the requirements of s. NR 114.36.

NR 114.36 Renewal of certification. (1) A person who desires to renew a certificate shall submit a renewal application, the renewal fee and evidence of fulfilling the continuing education requirements of sub. (2).

(2) Certified water system operators require 6 hours of continuing education per 3-year renewal period. Evidence of these hours shall be submitted on forms approved or provided by the department for department required or approved training courses that they have successfully completed during the 3 year period. These may include, but are not limited to courses sponsored by the department, courses at any university or technical school, technical sessions at meetings of professional organizations, in-house training and correspondence courses.

(3) Failure to successfully complete and document the appropriate number of hours of continuing education training within the 3-year period shall result in rejection of a certificate renewal application.

(4) A person whose certification has expired may, within one year after expiration, be reinstated by submitting a renewal application, the renewal fee, the late penalty fee and evidence of the continuing education requirements of sub. (2). A person not renewing within the one-year period after expiration will have to apply to take the necessary examinations for a new certificate.

NR 114.37 Sanctions. (1) The department may, on its own motion, make investigations and conduct hearings and may, on its own motion or on a signed and verified written complaint, revoke, suspend or refuse to renew as provided in this section any operators certificate, or reprimand the operator if the department finds that the holder of the certificate has done any of the following:

(a) Made a material misstatement in the application for certification or any application for a renewal of certification.

(b) Demonstrated incompetence to operate the system.

(c) Failed to notify the department of a violation of a maximum contaminant level as required in ch. NR 809 or the construction requirements of ch. NR 811 by the operator-in-charge of a water system operation.

(d) Failed to provide public notification of a violation of ch. NR 809.

(e) Falsified any monitoring, operating or other records submitted to the department, or provided by the department.

(f) By intentional or negligent action, caused or significantly contributed to a violation of any provision of ch. 281 or 283, Stats., or any administrative codes, permits or orders adopted or issued under those chapters.

(g) Used deception or any form of dishonesty when writing examinations, or removing examination materials from the examination site.

(2) Notice of revocation of, suspension of or refusal to renew a certificate shall be served on the certified operator and shall state the reasons for revocation, suspension or refusal to renew.

(3) Revocation of, suspension of or refusal to renew a certificate shall take effect on the 10th day after the notice is served, unless the certified operator files a written answer with the department prior to the 10th day. If an answer is filed, the revocation, suspension of or refusal to renew is stayed and the department shall conduct a hearing on the matter within 30 days after receipt of the answer. At least 10 days prior to the date of the hearing, the department shall send a written notice to the operator indicating the date, time and location of the hearing. The final determination of the department, including the basis for the decision, shall be provided in writing to the operator. A suspended operator may not be the operator-in-charge of a facility for the duration of the suspension.

(4) Application may be made for taking the necessary examinations for a new certificate one year after the date of revocation or refusal to renew.

(5) Any order revoking or suspending a certificate is subject to judicial review as provided in ch. 227, Stats.

SECTION 17. NR 809.04(7) to (66) are renumbered NR 809.04(8) to (18), (20), (21), (24) to (26), (28) to (30), (32) to (35), (37) to (42), (45) to (68), (70), (71), (76), (78), (77), (79) and (80), respectively, and sub. (57), as renumbered, is amended to read:

NR 809.04(57)(a) "Public water system" or "system" means a system for the provision to the public of ~~piped~~ water for human consumption through pipes or other constructed conveyances, if ~~such~~ the 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:~~

(b) Systems include the following:

1. Any collection, treatment, storage, and distribution facilities under control of the operator of ~~such~~ the system and used primarily in connection with ~~such~~ the system, and

2. Any collection or pretreatment storage facilities not under ~~such~~ the systems control which are used primarily in connection with ~~such~~ the system.

(c) The 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 18. NR 809.04(7), (19), (22), (23), (27), (31), (36), (43), (44), (69), (72) to (75) are created to read:

NR 809.04(7) "Comprehensive performance evaluation" or "CPE" means a 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 this chapter, 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" means 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" means 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)" or "HAA5" means 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 2 significant figures after addition.

(43) "Maximum residual disinfectant level" or "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.

(44) "Maximum residual disinfectant level goal" or "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.

(72) "Surface water systems" means public water systems using surface water or ground water under the direct influence of surface water as a source and that are subject to the requirements of 40 CFR 141, subpart H which contains the national primary drinking water regulations.

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

(74) "SUVA" means specific ultraviolet absorption at 254 nanometers (nm).

NOTE: SUVA is 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" or "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 2 significant figures.

SECTION 19. NR 809.09(1) is amended to read:

NR 809.09(1) Maximum contaminant level goals (MCLGs) are zero for the following contaminants:

Giardia lamblia
Cryptosporidium
Legionella
Total Coliforms
Fecal Coliforms
Escherichia coli
Lead

SECTION 20. NR 809.12(3)(a), (4)(a) and (b), (5)(a) and (13) are amended to read:

NR 809.12(3)(a) Groundwater sources shall be sampled at each entry point during each compliance period. Suppliers of water having surface water sources or combined surface water and groundwater sources shall take one sample annually at each entry point ~~beginning January 1, 1993~~.

(4)(a) Community water systems and non-transient non-community water systems served by groundwater systems shall be monitored annually ~~beginning January 1, 1993~~; systems served by surface water shall monitor quarterly ~~beginning January 1, 1993~~.

(b) Transient non-community water systems shall be monitored annually ~~beginning January 1, 1993~~.

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

(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 21. NR 809.21(13) is amended to read:

NR 809.21(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 22. 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 community water systems using surface water or ground water under the direct influence of surface water 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. After December 16, 2003, this section is no longer applicable.

NOTE: Compliance with the maximum contaminant level for total trihalomethanes is calculated pursuant to s. NR 809.23.

SECTION 23. NR 809.23(1) is amended to read:

NR 809.23(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 24. NR 809.26(1)(e) is amended to read:

NR 809.26(1)(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:

Chloroform[1]
Bromoform[1]
Chlorodibromomethane[1]
Bromodichloromethane[1]
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
1,1,2,2-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
Fluorotrichloromethane
Dichlorodifluoromethane
Bromochloromethane

SECTION 25. NR 809.26(1)(i) is repealed.

SECTION 26. NR 809.26(1)(j) is renumbered to (i) and amended to read:

NR 809.26(1)(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 27. 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 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 28. NR 809.31(1)(d) 1. and 2. are amended to read:

NR 809.31(1)(d)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 29. NR 809.31(5)(c) is amended to read:

NR 809.31(5)(c) ~~Samples~~ Beginning January 1, 2001, samples collected ~~in compliance with requirements of~~ to determine compliance with s. NR 809.30(1) shall be analyzed ~~as prescribed in s. NR 809.725 (1), Table C~~ by the enzyme substrate test method.

SECTION 30. NR 809.31(5)(d) is created to read:

NR 809.31(5)(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 31. NR 809.31(6)(a) is amended to read:

NR 809.31(6)(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 ~~another~~ a 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 ~~subsequent~~ a sanitary ~~surveys~~ survey 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 32. NR 809.40 and 809.41 are repealed.

SECTION 33. NR 809 subchs. III to V are renumbered NR 809 subchs. IV to VI.

SECTION 34. NR 809 subch. III is created to read:

Subchapter III
Maximum Contaminant Levels, Maximum Residual Disinfectant Levels, Monitoring, Analytical Requirements and Control of Disinfection Byproducts and Disinfection Residuals

NR 809.561 Maximum contaminant levels (MCLs) for disinfection byproducts, maximum residual disinfectant levels (MRDLs) and best available treatment. (1) MAXIMUM CONTAMINANT LEVELS. When the MCLs for total trihalomethanes lapse as provided in s. NR 809.22, the maximum contaminant levels (MCLs) for disinfection byproducts shall be:

DISINFECTION BYPRODUCT	mg/ L
Total trihalomethanes (TTHM)	0.080
Haloacetic acids (five) (HAA5)	0.060

Bromate	0.010
Chlorite	1.0

(2) MAXIMUM RESIDUAL DISINFECTANT LEVELS. The maximum residual disinfectant levels (MRDLs) for disinfection byproducts shall be:

RESIDUAL DISINFECTANT LEVELS (mg/L)	
Chlorine	4.0 (as Cl_2)
Chloramines	4.0 (as Cl_2)
Chlorine dioxide	0.8 (as ClO_2)

(3) BEST AVAILABLE TREATMENT. The department, pursuant to 42 USC 300g-1 and related regulations applicable to public water systems, identifies the following as the best available treatment technology, treatment techniques or other means available for achieving compliance with the maximum contaminant levels for disinfection byproducts identified in sub. (1):

Disinfection byproduct	Best available treatment
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 process to reduce production of bromate.
Chlorite	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 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 shall modify their practices to meet MCLs and MRDLs in s. NR 809.561(1) and (2), respectively, and shall meet the treatment technique requirements for disinfection byproduct precursors in s. NR 809.561(3). Transient noncommunity water systems (TNCWSs) 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) according to the criteria established as follows.

(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. These disinfection byproducts may include chloroform, bromodichloromethane, dibromochloromethane, bromoform, dichloroacetic acid, and trichloroacetic acid.

(3) Unless otherwise noted, all public drinking water systems shall comply with the requirements of this subchapter as follows:

(a) All systems serving 10,000 or more persons that are CWSs or NTNCWSs and that are supplied by a surface water source or by a ground water source under the direct influence of surface water shall comply with this subchapter beginning December 16, 2001.

(b) Systems serving fewer than 10,000 persons that are CWSs or NTNCWSs and that are supplied by a surface water source or by a ground water source under the direct influence of surface water and all systems using only ground water not under the direct influence of surface water shall comply with this subchapter beginning December 16, 2003.

(c) Systems serving 10,000 or more persons that are transient NCWSs and use chlorine dioxide as a disinfectant or oxidant and are supplied by a surface water source or by a ground water source under the direct influence of surface water shall comply with any requirements for chlorine dioxide and chlorite in this subchapter beginning December 16, 2001.

(d) Systems that are transient NCWS and use chlorine dioxide as a disinfectant or oxidant and that serve fewer than 10,000 persons and are supplied by a surface water source or by a groundwater source under the direct influence of surface water or that are systems using only groundwater not under the direct influence of surface water shall comply with any requirements for chlorine dioxide and chlorite in this subchapter beginning December 16, 2003.

(e) CWS and NTNCW systems installing GAC or membrane technology to comply with this subchapter may apply to the department for an extension of up to 24 months past the dates in par. (a) but not beyond December 16, 2003. In granting the extension, the department shall set a schedule 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.

(4) Each CWS and NTNCWS regulated under s. NR 809.561 shall be operated by qualified personnel who meet the requirements specified in ch. NR 114, subch. III and are included in a department register of qualified operators.

(5) Notwithstanding the MRDLs in s. NR 809.561(2), systems may increase in the distribution system residual disinfectant levels 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.

(6) The owner or operator of a public water system shall provide public notification in compliance with s. NR 809.81 when the MCL or MRDL or disinfectant residual is exceeded.

(7) CWS that detect TTHM above 0.080 mg/l, but below the MCL in s. NR 809.561(1), as an annual average, monitored and calculated under the provisions of s. NR 809.565, shall provide copies of health effects language prescribed in ss. NR 809.81 and 809.835 to the users of the CWS.

NR 809.563 Analytical requirements. (1) Systems shall use only the analytical methods 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. The methods specified in this section are effective for use in compliance monitoring as of February 16, 1999.

(2) The analytical methods required for testing under this subchapter are contained in s. NR 809.725(1), Table I.

(3) Systems shall measure disinfection byproducts by the methods, as modified by the footnotes, prescribed in 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[1]			
			TTHM	HAA5	Chlorite[4]	Bromate

P&T/GC/EICD& PID	502.2		X			
P&T/GC/MS	524.25		X			
LLE/GC/ECD	551. 1		X			
LLE/GC/ECD		6251 B		X		
SPE/GC/ECD	552.2			X		
LLE/GC/ECD	552.2			X		
Amperometric Titration[3]		4500-ClO_2E			X	
IC	300.0				X	
IC	300.1				X	X

\1\ X indicates method is approved for measuring specified disinfection byproduct.
\2\ P&T = purge and trap; GC = gas chromatography; ElCD = electrolytic conductivity detector; PID = photoionization detector; MS = mass spectrometer;
LLE = liquid/liquid extraction; ECD = electron capture detector; SPE = solid phase extractor; IC = ion chromatography.
\3\ If TTHMs are the only analytes being measured in the sample, then a PID is not required.
\4\ Amperometric titration may be used for routine daily monitoring of chlorite at the entrance to the distribution system, as prescribed in .s. NR 809.565(4)(a)1. Ion chromatography shall be used for routine monthly monitoring of chlorite and additional monitoring of chlorite in the distribution system, as prescribed in s. NR 809.565(4)(a)2. and 3.

(4) Laboratories that are certified by the department or EPA shall conduct the analysis under this section for disinfection byproducts.

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

(b) When analyzing performance evaluation 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 shall be 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) A person approved by the department or EPA shall measure residual disinfectant concentration.

(6) Systems shall measure residual disinfectant concentrations for free chlorine, combined chlorine (chloramines), and chlorine dioxide by the methods listed in Table 2. Systems may also measure residual disinfectant concentrations for chlorine, chloramines and chlorine dioxide by using *N,N*-diethly-p-phenylenediamine (DPD) colorimetric test kits.

Table 2- Standard Methods for measuring residual disinfectant concentrations.

Methodology	Standard Method	ASTM method	Residual Measured[1]			
			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 e (FACTS)	4500-CL H		X			
Iodometric Electrode	4500-CL I				X	
DPD	4500-ClO_2 D					X
Amperometric Method II	4500-ClO_2 E					X

\1\ X indicates method is approved for measuring specified disinfectant residual.

(7) Systems required to analyze for additional analytical methods parameters not included in subs. (3) and (6) shall have these parameters analyzed by a person approved by the department or EPA using the following methods:

(a) *Alkalinity.* For measuring alkalinity use the methods allowed in s. NR 809.725 Table E.

(b) *Bromide.* For measuring bromide use EPA Method 300.0 or EPA Method 300.1.

(c) *Total Organic Carbon (TOC).* For measuring total organic carbon, use 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 (UV_{254}) 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 UV_{254} 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 UV_{254} SUVA shall be determined on water prior to the addition of disinfectants or oxidants, or both, 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).* For measuring dissolved organic carbon, use 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}).* For measuring ultaviolet absorbtion *at 254 nm,* use 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 µm 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.* For measuring pH, use any method allowed in s. NR 809.725 Table E.

NR 809.565 Monitoring requirements. (1) General requirements under this subchapter for analytical requirements, determining maximum contaminant levels, conducting monitoring and control of disinfection byproducts are as follows:

(a) Systems shall take all samples during normal operating conditions.

(b) 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.

(c) Failure to monitor in accordance with the monitoring plan required under sub. (7) is a monitoring violation.

(d) Failure to monitor shall 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.

(e) 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) Systems shall monitor at the following frequency and locations for TTHMs and HAA5 disinfection byproducts:

(a) Systems serving at least 10,000 persons which are supplied by a surface water source or by a ground water source under the direct influence of surface water shall collect and have analyzed 4 water samples per quarter per treatment plant.

1. At least 25% 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) Systems serving from 500 to 9,999 persons which are supplied by a surface water source or by a ground water source under the direct influence of surface water shall collect and have analyzed one

water sample per quarter per treatment plant. The samples shall be collected at locations representing the maximum residence time in the system.

(c) Systems serving fewer than 500 people which are supplied by a surface water source or by a ground water source under the direct influence of surface water shall collect one sample per treatment plant annually. 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 direct influence of surface water, and serving at least 10,000 people shall collect one sample per treatment plant per quarter. 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 direct influence of surface water, and serving fewer than 10,000 people shall collect one sample per treatment plant annually. The sample shall be collected during the month with the warmest water temperature, at locations representing the maximum residence time, in the system.

(2m) 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 sub. (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 monitoring to the following:

1. A system serving at least 10,000 people may reduce monitoring to one sample per quarter per treatment plant so long as the sample is taken at a location representing maximum residence time in the system.

2. A system serving from 500 to 9,999 people may reduce monitoring to one sample per year per treatment plant so long as the sample is taken at a location representing maximum residence time in the system during the month of warmest water temperature.

3. A system serving less than 500 people may not reduce monitoring to less than one sample during the month of warmest water temperature per treatment plant per year.

(b) Systems using only groundwater not under the direct 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 3 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 sub. (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 department's discretion.

(4) Systems shall monitor at the following frequency and locations for chlorite and bromate disinfection byproducts:

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

1. 'Routine 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 subd. 3. in addition to the sample required at the entrance to the distribution system.

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

(b) *Bromate.* 1. 'Routine monitoring.' 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 or greater 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 subd. 1.

(5) Systems shall monitor at the following frequency and locations for disinfectant residuals:

(a) *Chlorine and chloramines.* Systems shall perform routine monitoring by measuring 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. NR 809.31. 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 shall take 3 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 3 samples as close to the first customer as possible, at intervals of at least 6 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. 'Reduced monitoring.' Chlorine dioxide monitoring may not be reduced.

(6) Systems shall monitor at the following frequency and locations for disinfection byproduct precursors (DBPP):

(a) *Routine monitoring.* 1. Systems which use conventional filtration treatment and are supplied by a surface water source or by a ground water source under the direct influence of surface water 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.

NOTE: 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.* Systems which use conventional filtration treatment and are supplied by a surface water source or by a ground water source under the direct influence of surface water and which have an average treated water TOC of less than 2.0 mg/L for 2 consecutive years, or less than1.0 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.

(7) 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.

(8) Each system required to monitor under this subchapter shall develop and implement a monitoring plan, and 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).

(a) Systems which are supplied by a surface water source or by a ground water source under the direct influence of surface water and which serve 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. The department may also require any other public water system to submit a monitoring plan. After review, the department may require changes in any plan elements.

(b) 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. The 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 an annual average and the system fails to monitor for TTHM, HAA5 or bromate, this failure to monitor shall 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, failure to monitor shall 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 809.565, 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. (a) *TTHMs and HAA5s.* Compliance for TTHMs and HAA5s shall be based one of the following:

1. For systems monitoring quarterly, compliance with MCLs in s. NR 809.561(1) 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) to (3). If the running annual arithmetic average of quarterly averages covering any consecutive 4-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 public water system fails to complete 4 consecutive quarters of

monitoring, compliance with the MCL for the last 4-quarter compliance period shall be based on an average of the available data.

2. For systems monitoring less frequently than quarterly, compliance with MCLs in s. NR 809.561(1) shall be based on an average of samples taken that year under the provisions of s. NR 809.565(2) to (3). If the average of these samples exceeds the MCL, the system shall increase monitoring to once per quarter per treatment plant. Systems on a reduced monitoring schedule whose annual average exceeds the MCL shall revert to routine monitoring immediately. These systems may 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.

(b) *Bromate.* Compliance for bromate 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 4-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 public water system fails to complete 12 consecutive months monitoring, compliance with the MCL for the last 4-quarter compliance period shall be based on an average of the available data.

(c) *Chlorite.* Compliance for chlorite shall be based on an arithmetic average of each 3-sample set taken in the distribution system as prescribed by ss. NR 809.565(4)(a)2. and 3. If the arithmetic average of any 3-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). If the average of quarterly averages covering any consecutive 4-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.* Compliance shall be based on consecutive daily samples collected by the system under s. NR 809.565(5)(b).

1. A system has an acute violation of the MRDL for chlorine dioxide when any daily sample taken at the entrance to the distribution system exceeds the MRDL and on the following day one or more of the 3 samples taken in the distribution system exceeds the MRDL. If both exceedances occur, 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 shall 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. A system has a nonacute violations for chlorine dioxide when any 2 consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL. A system with a nonacute violation shall take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and shall notify the public pursuant to the procedures for nonacute health risks in s. 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 s. NR 809.81(1)(a)1. and 2.

(4) DISINFECTION BYPRODUCT PRECURSORS (DBPP). Compliance with disinfection byproduct precursors shall be determined as specified in s. NR 809.569(1). 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(1)(b) and therefore applies 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(1)(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) REPORTING REQUIREMENTS. 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, not withstanding 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 monitoring for disinfection byproducts shall report the information specified in the following:

(a) 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 4 quarters.

5. Whether the MCL was exceeded.

(b) Systems monitoring TTHMs and HAA5s 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 quarter.

3. The arithmetic average of all samples taken over the last year.

4. Whether the MCL was exceeded.

(c) Systems monitoring TTHMs and HAA5s 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) 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) 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 monitoring for disinfectants shall report the information specified in the following:

(a) 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) Systems monitoring chlorine dioxide under the requirements of s. NR 809.565(5)(b) shall report all of 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 2 consecutive daily samples and whether the resulting violation was acute or nonacute.

(4) DISINFECTION BYPRODUCT PRECURSORS, ENHANCED COAGULATION OR ENHANCED SOFTENING SYSTEMS. Systems containing disinfection byproduct precursors or using enhanced coagulation or enhanced softening, shall report the information specified in the following:

(a) Systems monitoring monthly or quarterly for TOC under the requirements of s. NR 809.565(6) and required to meet the enhanced coagulation or enhanced softening requirements in s. NR 809.569(1)(b) or (c) shall report all of the following:

1. The number of paired samples of source water and treated water, both prior to continuous disinfection, 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 809.569(1) for the last 4 quarters.

(b) Systems monitoring monthly or quarterly for TOC under the requirements of s. NR 809.565(6) and meeting one or more of the alternative compliance criteria in s. NR 809.569(2)(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 s. NR 809.569(2)(b)1. and 3. or of treated water TOC for systems meeting the criterion in s. NR 809.569(2)(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(2)(b)6. or of treated water SUVA for systems meeting the criterion in s. NR 809.569(2)(b)7.

6. The running annual average of source water alkalinity for systems meeting the criterion in NR 809.569(2)(b)3. and 4. and of treated water alkalinity for systems meeting the criterion in s. NR 809.569(2)(c)1.

7. The running annual average for both TTHM and HAA5 for systems meeting the criterion in s. NR 809.569(2)(b)3, 4, and 5.

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(2)(c)2.

9. Whether the system is in compliance with the particular alternative compliance criterion in s. NR 809.569(2)(b) and (c).

NR 809.569 Treatment technique for control of disinfection byproduct (DBP) precursors. For systems using conventional treatment which are supplied by a surface water source or by a ground water source under the direct influence of surface water, the department identifies enhanced coagulation or

enhanced softening as treatment techniques to control the level of disinfection byproduct precursors in drinking water and distribution systems. Treatment technique requirements for DBP precursors shall comply with the following:

(1) ENHANCED COAGULATION AND ENHANCED SOFTENING PERFORMANCE REQUIREMENTS. (a) Systems using enhanced coagulation or enhanced softening shall achieve the percent reduction of TOC specified in par. (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. (c).

(b) Required Step 1 TOC reductions, indicated in the following table, are based upon specified source water parameters measured in accordance with s. NR 809.563(7). 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 sub. (2)(b)1. to 7. are not required to operate with enhanced coagulation.

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

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

(c) Systems using conventional treatment which are supplied by a surface water source or by a ground water source under the direct influence of surface water which cannot achieve the Step 1 TOC removals required by par. (b) due to water quality parameters or operational constraints shall apply to the department, within 3 months of failure to achieve the TOC removals required by par. (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. (b).

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

1. Alternate enhanced coagulation level shall be determined to be coagulation at a coagulant dose and pH as determined by the method described in this subdivision and subds. 2. to 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 shall be determined to be 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. (b). This requirement will be effective until 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 this chapter 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 table:

Enhanced Coagulation Step 2 Target pH	
Alkalinity (mg/L as CaCO)	Target pH
0-60	5.5
>60-120	6.3
>120-240	7.0
>240	7.5

3. For waters with alkalinity 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. (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.

(2) CONVENTIONAL FILTRATION TREATMENT. (a) Systems using conventional filtration treatment which are supplied by a surface water source or by a ground water source under the direct influence of surface water shall operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels specified in sub. (1) unless the system meets at least one of the alternative compliance criteria listed in par. (b) or (c).

(b) Systems using conventional filtration treatment which are supplied by a surface water source or by a ground water source under the direct influence of surface water may use the alternative compliance criteria in subds. 1. to 6. to comply with this section in lieu of complying with sub. (1). 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(7)(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(7)(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(7)(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(7)(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(3), the system has made a clear and irrevocable financial commitment not later than the effective date for compliance in s.

NR 809.562(3) 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.

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(3).

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 this chapter 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(7)(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(7)(d), is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(c) Systems practicing enhanced softening that cannot achieve the TOC removals required by sub. (1)(b) may use the alternative compliance criteria in subds. 1. and 2. in lieu of complying with Sub. (1)(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 CaCO), measured monthly according to s. NR 809.563(7)(a) and calculated quarterly as a running annual average.

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

(3) COMPLIANCE CALCULATIONS. (a)Systems which are supplied by a surface water source or by a ground water source under the direct influence of surface water, other than those identified in sub. (2)(b) or (c) shall comply with requirements contained in sub. (1)(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, by using the following equation: (treated water TOC/source water TOC) x 100 = percent TOC removal.

2. Determine the required monthly TOC percent removal from either the table in sub. (1)(b) or from sub. (1)(c).

3. Divide the value in subd. 1. by the value in subd. 2.

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

5. If the value calculated in subd. 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. 1. to 5. in lieu of the calculations in par. (a)1. to 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(7)(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 par. (a)3. when calculating compliance under the provisions of par. (a).

2. In any month that a system practicing softening removes at least 10 mg/L of magnesium hardness (as $CaCO_3$), the system may assign a monthly value of 1.0 in lieu of the value calculated in par. (a)3. when calculating compliance under the provisions of par. (a).

3. In any month that the system's source water SUVA, prior to any treatment and measured according to s. NR 809.563(7)(d), is ≤2.0 L/mg-m, the system may assign a monthly value of 1.0, in lieu of the value calculated in par. (a)3. when calculating compliance under the provisions of par. (a).

4. In any month that the system's finished water SUVA, measured according to s. NR 809.563(7)(d), is ≤ 2.0 L/mg-m, the system may assign a monthly value of 1.0 in lieu of the value calculated in par. (a)3. when calculating compliance under the provisions of par. (a).

5. In any month that a system practicing enhanced softening lowers alkalinity below 60 mg/L as $CaCO_3$, the system may assign a monthly value of 1.0, in lieu of the value calculated in par. (a)3. when calculating compliance under the provisions of par. (a).

(c) Systems which are supplied by a surface water source or by a ground water source under the direct influence of surface water and which are using conventional treatment may also comply with the requirements by meeting the criteria in sub. (2)(b) or (c).

SECTION 35. NR 809.725(1), Tables E, F and G, not including footnotes, are amended to read:

TABLE E
SDWA Approved Methodology for Physical Parameters, Residual Chlorine, Sodium, Corrosivity, and Secondary Contaminants

Parameter and Method	EPA[2]	Standard Methods[3]	ASTM[4]	USGS[5]	Other
Alkalinity-Titrimetric		2320B	D1067-92(B)	I-1030-85	-
Aluminum - Total[6], Digestion, followed by:					
Atomic absorption (AA); direct aspiration		3111D			-
Atomic absorption (AA); graphite furnace		3113 B		-	-
Inductively-coupled plasma (ICP)	200.7	3120 B	-	-	-
Inductively-coupled plasma; mass spectrometry (ICP/MS)	200.8	-	-	-	-
Atomic absorption (AA); platform furnace	200.9	-	-	-	-
Calcium					
EDTA titrimetric		3500-Ca D	D511-93(A)	-	-
AA; direct aspiration	-	3111 B	D511-93(B)	-	-
ICP	200.7	3120 B	-	-	-
Chloride					

Potentiometric	-	4500-Cl- D	-	-	-
Ion Chromatography	300.0[1]	4110	D4327-91	-	-
Chlorine dioxide residual					
Amperometric	-	4500-ClO_2 C or E	-	-	-
DPD	-	4500-ClO_2 D	-	-	-
Color					
Colorimetric, Pt-Co	-	2120 B	-	-	-
Combined chlorine					
Amperometric titration		4500-Cl D			
DPD Ferrous titrimetric	-	4500-Cl F		-	-
DPD Colorimetric	-	4500-Cl G		-	-
Corrosivity					
Langelier Index	-	2330	-	-	-
Aggressive Index	-	-	-	-	C400-77[7]
Foaming Agents (MBAS)					
Colorimetric		5540 C	-	-	-
Free chlorine residual[11]					
Colorimetric or ferrous titrimetric DPD	-	4500-Cl G or F		-	-
Amperometric		4500-Cl D	D 1253-86	-	-
Syringaldazine		4500-Cl H		-	-
Total Chlorine					
Amperometric titration	-	4500-Cl D	D 1253-86	-	-
Amperometric titration (low level)	-	4500-Cl E		-	-
DPD Ferrous titrimetric	-	4500-Cl F		-	-
DPD Colorimetric	-	4500-Cl G		-	-
Iodometric Electrode	-	4500-Cl I		-	-
Iron - Total[6], Digestion, followed by:					
AA; direct aspiration		3111 B			
AA; graphite furnace	200.9	3111 B	-	-	-
ICP	200.7	3120 B	-	-	-
Manganese - Total[6], Digestion, followed by:					
AA; direct aspiration		3111 B			
AA; graphite furnace	200.9	3113 B	-	-	-
ICP	200.7	3113 B	-	-	-

Inductively-coupled plasma; mass spectrometry	200.8	-	-	-	-
(ICP/MS)	-	-	-	-	-
Odor - Threshold Odor		2150 B	-	-	-
Orthophosphate, Unfiltered, no digestion or hydrolysis					
Colorimetric, automated, ascorbic acid	365.1[1]	4500-P F	-	-	-
Colorimetric, ascorbic acid		4500-P E	D515-88(A)	-	-
Colorimetric, phosphomolybdate; automated segment flow automated discrete	-	-	-	I-1601-85 I-2601-90 I-2598-85	-
Ion chromatography	300.0A[1]	4110	D4327-91	-	-
Ozone					
Indigo Method	-	4500-O_3B	-	-	
pH					
Electrometric	-	4500-H^+-B	D1293-84	-	-
Silica					
Colorimetric, molybdate blue	-	-	-	I-1700-85	-
Automated-segmented flow:	-	-	-	I-2700-85	-
Colorimetric		-	D859-88	-	-
Molybodosilicate	-	4500-Si D	-	-	-
Heteropoly blue	-	4500-Si E	-	-	-
Automated method for molybdate-reactive silica	-	4500-Si F	-	-	-
ICP	200.7	3120 B	-	-	-
Sodium - Total[6], Digestion, followed by:					
AA; direct aspiration	-	3111 B	-	-	-
ICP	200.7	-	-	-	-
Silver - Total[6], Digestion, followed by:					
AA; direct aspiration	-	3111 B	-	I-3720-85	-
AA; graphite furnace	-	3113 B	-	-	-
AA; platform furnace	200.9	-	-	-	-
ICP	200.7	3120 B	-	-	-
ICP/MS	200.8	-	-	-	-
Sulfate					-
Spectrophotometric	375.2[1]	-	4500-SO_4-F		-
Gravimetric	-	-	4500-SO_4-C, D		-

Ion chromatography	300.0[1]	D4327-91	4110		-
Temperature, Thermometric	-	2550 B	-	-	-
Total Filterable Residue (TDS), gravimetric	-	2540 C	-	-	-
Zinc - Total[6], Digestion followed by:					
AA; direct aspiration	-	3111 B	-	-	-
ICP	200.7	3120 B	-	-	-
ICP/MS	200.8	-	-	-	-

TABLE F
Sample Preservation Requirements and Holding Times for Inorganic Parameters

Parameter	Preservation[1]	Container[2]	Holding Time[3]
Asbestos	**Cool, 4C**	**P or G**	
METALS			
Aluminum	HNO_3	P or G	6 months
Antimony	HNO_3	P or G	6 months
Arsenic	HNO_3	P or G	6 months
Barium	HNO_3	P or G	6 months
Beryllium	HNO_3	P or G	6 months
Cadmium	HNO_3	P or G	6 months
Copper	HNO_3	P or G	6 months
Chromium	HNO_3	P or G	6 months
Iron	HNO_3	P or G	6 months
Lead	HNO_3	P or G	6 months
Manganese	HNO_3	P or G	6 months
Mercury	HNO_3	P or G	28 days
Nickel	HNO_3	P or G	6 months
Selenium	HNO_3	P or G	6 months
Silver	HNO_3	P or G	6 months
Thallium	HNO_3	P or G	6 months
Zinc	HNO_3	P or G	6 months
GENERAL CHEMISTRY PARAMETERS			
Bromate	50 mg/L Ethylenediamine (EDA)	P or G	28 days
Chloride	None	P or G	28 days

Chlorite	50 mg/L EDA, Cool to 4C for EPA Method 300.1 Cool to 4°C for EPA Method 300	P or G	14 days(300.1) Immediately (300)
Color	Cool, 4°C	P or G	48 hours
Cyanide	Cool, 4°C+NaOH to pH>12 NaOH to pH>12 0.6 g Ascorbic acid[5]	P or G	14 days
Fluoride	None	P or G	28 days
Foaming Agents	Cool,4°CC	P or G	48 hours
Nitrate (as N)			
Chlorinated	Cool, 4°C	P or G	14 days
Non-Chlorinated	Cool, 4°C	P or G	14 days
Nitrite (as N)	Cool, 4°C OR Conc. H_2SO_4 to pH<2	P or G	48 hours
Nitrate + Nitrite	Cool, 4°C OR Conc. H_2SO_4 to pH<2	P or G	14 days
Odor	Cool, 4°C	G	48 hours
pH	None	P or G	Analyze Immediately
Solids (TDS)	Cool, 4°C	P or G	7 days
Sulfate	Cool, 4°C	P or G	28 days
Turbidity	Cool, 4°C	P or G	48 hours

TABLE G
Sample Preservation Requirements and Holding Times for Organic Parameters

			HOLDING TIME	
Parameter/Method	**Preservation**	**Container**	**Sample**	**Extract**
502.1,502.2,503.1	Sodium Thiosulfate (3 mg) or Ascorbic Acid (25 mg), Cool, 4°C, HCl pHt2	40 mL, G[1]	14 days	-
504	Sodium Thiosulfate (3 mg), Cool, 4°C, HCl pHt2	40 mL, G[1]	28 days	Analyze immediately
505	Sodium Thiosulfate (3 mg), Cool, 4°C	40 mL, G[1]	14 days (Heptachlor=7 days)	Analyze immediately
506	Sodium Thiosulfate (60 mg), Cool, 4°C, dark	1L, Amber G[2]	14 days	4°C, dark, 14 days
507	Sodium Thiosulfate (80 mg),	1L, Amber G[2]	14 days (see	4°C, dark, 14

	Cool, 4°C		method for exceptions)	days
508	Sodium Thiosulfate (80 mg), Cool, 4°C	1L, G[2]	7 days (see method for exceptions)	4°C, dark 14 days
508A	Cool, 4°C	1L, G[2]	14 days	30 days
515.1	Sodium Thiosulfate (80 mg), Cool, 4°C	1L, Amber G[2]	14 days	4°C, dark, 28 days
524.1, 524.2	Ascorbic Acid (25 mg), HCl pHt2,Cool, 4°C,	40 mL, G[1]	14 days	-
525.1	Sodium Sulfite (40-50 mg) or Sodium Arsenite (40-50 mg) Cool, 4°C, HCl pHt2	1L, G[1]	7 days	30 days
531.1	Monochloroacetic acid pHt3, Sodium Thiosulfate (80 mg), Cool, 4°C	60 mL, G[1]	Freeze -10°C, 28 days	-
547	Sodium Thiosulfate (100 mg/L), Cool, 4°C	60 mL, G[1]	14 days (18 mo. frozen)	-
548	Cool, 4°C	60 mL, G[1]	7 days	1 day
549	Sodium Thiosulfate (100 mg/L), H2SO4 pHt2, Cool, 4°C, dark	1L, High Density Amber PVC or Silanized Amber Glass	7 days	21 days
550, 550.1	Sodium Thiosulfate (100 mg/L), Cool, 4°C, HCl pHt2	1L, Amber G[2]	7 days	4°C, dark, 40 days
551.1	Ammonium cholride Sodium sulfite (100 mg/L), Cool, 4°C, HCl pHt4.5-5.0	60 mL[2]	4°C, 14 days	-10°C, 14 days
552.2	Ammonium chloride (10 mg/L), Cool 4°C	100 mL, Amber G[2]	14 days 4°C	7 days 4°,14 days -10°C
1613	Sodium Thiosulfate (80 mg), Cool, 4°C, dark	1L, Amber G[2]	-	40 days

SECTION 36. NR 809.725(1) is amended to add:

TABLE I
SDWA Approved Methodology for Disinfectant Byproducts and Disinfectant Residuals

Parameter	Reference (method number)		
	EPA[1,2]	Standard Methods[3]	ASTM[4]
Disinfectant Byproducts			
TTHM	502.2, 524.2, 551.1		-
HAA5	552.2	6251 B	
Chlorite	300.0, 300.1	4500-ClO_2	
Bromate	300.1		
Disinfectant Residuals			
Free Chlorine		4500-CL D, 4500-CL F,4500-CL G, 4500-CL H	D 1253-86
Combined Chlorine		4500-CL D,4500-CL F, 4500-CL G	
Total Chlorine		4500-CL D, 4500-CL E, 4500-CL F, 4500-CL G, 4500-CL I	D 1253-86
Chlorine Dioxide		4500-CLO_2 D, 4500-CLO_2 E	

[1] 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).

[2] 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 300.1is 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.

[3] Standard Methods 4500-Cl D, 4500-Cl E, 4500-Cl F, 4500-Cl G, 4500-Cl H, 4500-Cl I, 4500-ClO_2D, 4500-ClO_2 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

[4] 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 Conshohoken, PA 19428.

SECTION 37. NR 809.75(1)(intro.) is amended to read:

NR 809.75(1)(intro.) 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 38. NR 809.75(4) is created to read:

NR 809.75(4) (intro.) After December 17, 2001, systems serving at least 10,000 people shall install and operate water treatment processes that will reliably achieve all of the following:

(a) At least 99% (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 39. NR 809.755(intro.) is amended to read:

NR 809.755 Criteria for avoiding filtration. (intro.) 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 40. NR 809.755(2)(b)(intro.) is amended to read:

NR 809.755(2)(b)(intro.) 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:

SECTION 41. NR 809.755(2)(c)8. is created to read:

NR 809.755(2)(c)8. A review of 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 or controlled land use, or both, within the watershed.

SECTION 42. NR 809.755(2)(f) and (3)(a) are amended to read:

NR 809.755(2)(f) The public water system shall comply with the requirements for trihalomethanes in s. NR 809.22 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 809.561.

(3)(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 43. NR 809.76(intro.), (1), (2) and (5) are amended to read:

NR 809.76 Filtration requirements. (intro.) Public water systems that use a surface water source shall provide filtration which complies with the requirements of sub. (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 sub. (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 , the turbidity level of filtered water of a system serving at least 10,000 people and using conventional filtration shall be less than or equal to 0.3 NTU in at least 95% 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 , the turbidity level of filtered water of a system serving at least 10,000 people and using conventional filtration 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, the turbidity level of filtered water of a system serving at least 10,000 people and using direct filtration shall be less than or equal to 0.3 NTU in at least 95% 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, the turbidity level of filtered water of a system serving at least 10,000 people and using direct filtration 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 or inactivation of *Giardia lamblia* cysts and 99.99% removal or inactivation of viruses, and 99% 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% of the time at a level that consistently achieves 99.9% removal or inactivation of *Giardia lamblia* cysts, 99.9% removal or inactivation of viruses, and 99% removal of *Cryptosporidium* oocysts. The department may set other performance requirements to assure the integrity of the technology.

SECTION 44. NR 809.765 is created to read:

NR 809.765 Filtration sampling requirements. (1) Monitoring requirements for systems using filtration treatment. In addition to monitoring required by s. NR 809.76, a public water system serving at least 10,000 people and using conventional or direct filtration shall conduct continuous monitoring of turbidity for each individual filter using a method approved in s. NR 809.725(1) and shall calibrate turbidimeters using the procedure specified by the manufacturer. Systems shall record the results of individual filter monitoring every 15 minutes.

(2) If there is a failure in the continuous monitoring equipment, the system shall conduct grab sampling every 4 hours in lieu of continuous monitoring, until the turbidimeter is repaired and back on-line. A system has a maximum of 5 working days after failure to repair the equipment or is in violation.

SECTION 45. NR 809.77(intro.) is amended to read:

NR 809.77 Disinfection requirements. (intro.) A system that uses ground water under the direct influence of surface water and does not provide filtration treatment shall provide disinfection treatment specified in sub. (1) ~~on or after December 30, 1991, or~~ within 18 months after the department determines that the ground water source is under the influence of surface water~~, whichever is later~~. A system that filters and uses surface water or ground water under the direct influence of surface water as a source shall provide the disinfection treatment specified in sub. (2) ~~on or after June 29, 1993~~ when filtration is installed~~, whichever is later~~. Failure to meet any requirement of this section ~~after June 29, 1993~~ is a treatment technique violation.

SECTION 46. NR 809.775 is created to read:

NR 809.775 Disinfection profiling and benchmarking. (1) DETERMINATION OF SYSTEMS REQUIRED TO PROFILE. A public water system serving at least 10,000 people shall determine its TTHM annual average using the procedure in par. (a) and its HAA5 annual average using the procedure in par. (b). The annual average is the arithmetic average of the quarterly averages of 4 consecutive quarters of monitoring.

(a) The TTHM annual average shall be the annual average during the same period as is used for the HAA5 annual average.

1. Those systems that collected disinfection byproduct data under the provisions of the information collection rule shall use the results of the samples collected during the last 4 quarters of required monitoring under the information collection rule.

2. Those systems that use "grandfathered" HAA5 occurrence data that meet the provisions of par. (b)2. shall use TTHM data collected at the same time under the provisions of ss. NR 809.22 and 809.23.

3. Those systems that use HAA5 occurrence data that meet the provisions of par. (b)3.a. shall use TTHM data collected at the same time under the provisions of ss. NR 809.22 and 809.23.

(b) The HAA5 annual average shall be the annual average during the same period as is used for the TTHM annual average.

1. Those systems that collected data under the provisions of the information collection rule shall use the results of the samples collected during the last 4 quarters of required monitoring under the information collection rule.

2. Those systems that have collected 4 quarters of HAA5 occurrence data that meets the routine monitoring sample number and location requirements for TTHM in ss. NR 809.22 and 809.23 and handling and analytical method requirements of the information collection rule may use those data to determine whether the requirements of this section apply.

3. Those systems that have not collected 4 quarters of HAA5 occurrence data that meets the provisions of either subd. 1. or 2. by March 16, 1999 shall either:

a. Conduct monitoring for HAA5 that meets the routine monitoring sample number and location requirements for TTHM in ss. NR 809.22 and 809.23 and handling and analytical method requirements of the information collection rule to determine the HAA5 annual average and whether the requirements of sub. (2) apply. This monitoring shall be completed so that the applicability determination can be made no later than March 31, 2000, or

b. Comply with all other provisions of this section as if the HAA5 monitoring had been conducted and the results required compliance with sub. (2).

(c) The system may request that the department approve a more representative annual data set than the data set determined under par. (a) or (b) for the purpose of determining applicability of the requirements of this section.

(d) The department may require that a system use a more representative annual data set than the data set determined under par. (a) or (b) for the purpose of determining applicability of the requirements of this section.

(e) The system shall submit data to the department on the schedule in subds. 1. to 5.

1. Those systems that collected TTHM and HAA5 data under the provisions of the information collection rule, as required by pars. (a)1. and (b)1., shall submit the results of the samples collected during the last 12 months of required monitoring under the information collection rule not later than December 31, 1999.

2. Those systems that have collected 4 consecutive quarters of HAA5 occurrence data that meets the routine monitoring sample number and location for TTHM in ss. NR 809.22 and 809.23 and handling and analytical method requirements of the information collection rule, as allowed by pars. (a)2. and (b)2., shall submit those data to the department not later than April 16, 1999. Until the department has approved the data, the system shall conduct monitoring for HAA5 using the monitoring requirements specified under subd. 3.

3. Those systems that conduct monitoring for HAA5 using the monitoring requirements specified by pars. (a)3. and (b)3.a., shall submit TTHM and HAA5 data not later than March 31, 2000.

4. Those systems that elect to comply with all other provisions of this section as if the HAA5 monitoring had been conducted and the results required compliance with this section, as allowed under par. (b)3.b., shall notify the department in writing of their election not later than December 31, 1999.

5. If the system elects to request that the department approve a more representative annual data set than the data set determined under par. (b)1., the system shall submit this request in writing not later than December 31, 1999.

(f) Any system having either a TTHM annual average ≥0.064 mg/L or an HAA5 annual average ≥0.048 mg/L during the period identified in pars. (a) and (b) shall comply with sub. (2).

NOTE: The information collection rule refers to 40 CFR Ch. 1, part 141, Subpart M, ss. 141.140 through 141.144.

(2) DISINFECTION PROFILING. (a) Any system that meets the criteria in sub. (1)(f) shall develop a disinfection profile of its disinfection practice for a period of up to 3 years.

(b) The system shall monitor daily for a period of 12 consecutive calendar months to determine the total logs of inactivation for each day of operation, based on the CT99.9 values in s. NR 809.78(1)(c)6., Tables 1-8 as appropriate, through the entire treatment plant. This system shall begin this monitoring not later than April 1, 2000. As a minimum, the system with a single point of disinfectant application prior to entrance to the distribution system shall conduct the monitoring in subds. 1. to 4. A system with more than one point of disinfectant application shall conduct the monitoring in subds. 1. to 4. for each disinfection segment. The system shall monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in s. NR 809.725, as follows:

1. The temperature of the disinfected water shall be measured once per day at each residual disinfectant concentration sampling point during peak hourly flow.

2. If the system uses chlorine, the pH of the disinfected water shall be measured once per day at each chlorine residual disinfectant concentration sampling point during peak hourly flow.

3. The disinfectant contact times ("T") shall be determined for each day during peak hourly flow.

4. The residual disinfectant concentrations ("C") of the water before or at the first customer and prior to each additional point of disinfection shall be measured each day during peak hourly flow.

(c) In lieu of the monitoring conducted under the provisions of par. (b) to develop the disinfection profile, the system may elect to meet the requirements of subd. 1. In addition to the monitoring conducted under the provisions of par. (b) to develop the disinfection profile, the system may elect to meet the requirements of subd. 2.

1. A public water system that has 3 years of existing operational data may submit those data, a profile generated using those data, and a request that the department approve use of those data in lieu of monitoring under the provisions of par. (b) not later than March 31, 2000. The department shall determine whether these operational data are substantially equivalent to data collected under the provisions of par. (b). These data shall also be representative of *Giardia lamblia* inactivation through the entire treatment plant and not just of certain treatment segments. Until the department approves this request, the system is required to conduct monitoring under the provisions of par. (b).

2. In addition to the disinfection profile generated under par. (b), a public water system that has existing operational data may use those data to develop a disinfection profile for additional years. Systems may use these additional yearly disinfection profiles to develop a benchmark under sub. (3). The department shall determine whether these operational data are substantially equivalent to data collected under par. (b). These data shall also be representative of inactivation through the entire treatment plant and not just of certain treatment segments.

(d) The system shall calculate the total inactivation ratio as follows:

1. If the system uses only one point of disinfectant application, the system may determine the total inactivation ratio for the disinfection segment based on either of the methods in subd. 1.a. or b.

a. Determine one inactivation ratio ($CTcalc/CT_{99.9}$) before or at the first customer during peak hourly flow.

b. Determine successive $CTcalc/CT_{99.9}$ values, representing sequential inactivation ratios, between the point of disinfectant application and a point before or at the first customer during peak hourly flow. Under this alternative, the system shall calculate the total inactivation ratio by determining ($CTcalc/CT_{99.9}$) for each sequence and then adding the ($CTcalc/CT_{99.9}$) values together to determine (Σ ($CTcalc/CT_{99.9}$)).

2. If the system uses more than one point of disinfectant application before the first customer, the system shall determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The ($CTcalc/CT_{99.9}$) value of each segment and ($\Sigma(CTcalc/CT_{99.9})$) shall be calculated using the method in subd. 1.

3. The system shall determine the total logs of inactivation by multiplying the value calculated in subd. 1. or 2. by 3.0.

(e) A system that uses either chloramines or ozone for primary disinfection shall also calculate the logs of inactivation for viruses using a method approved by the department.

(f) The system shall retain disinfection profile data in graphic form, as a spreadsheet, or in some other format acceptable to the department for review as part of sanitary surveys conducted by the department.

(3) DISINFECTION BENCHMARKING. (a) Any system required to develop a disinfection profile under subs. (1) and (2) and that decides to make a significant change to its disinfection practice shall consult with the department prior to making the change. Significant changes to disinfection practice include any of the following:

1. Changes to the point of disinfection.

2. Changes to the disinfectants used in the treatment plant.

3. Changes to the disinfection process.

4. Any other modification identified by the department.

(b) Any system that modifies its disinfection practice shall calculate its disinfection benchmark using the following procedure:

1. For each year of profiling data collected and calculated under sub. (2), the system shall determine the lowest average monthly *Giardia lamblia* inactivation in each year of profiling data. The system shall determine the average *Giardia lamblia* inactivation for each calendar month for each year of profiling data by dividing the sum of daily *Giardia lamblia* of inactivation by the number of values calculated for that month.

2. The disinfection benchmark is the lowest monthly average value, for systems with one year of profiling data, or average of lowest monthly average values, for systems with more than one year of profiling data, of the monthly logs of *Giardia lamblia* inactivation in each year of profiling data.

(c) A system that uses either chloramines or ozone for primary disinfection also shall calculate the disinfection benchmark for viruses using a method approved by the department.

(d) The system shall submit all of the following information to the department as part of its consultation process:

1. A description of the proposed change.

2. The disinfection profile for *Giardia lamblia* and, if necessary, viruses, under par. (b) and benchmark as required by par. (b)2.

3. An analysis of how the proposed change will affect the current levels of disinfection.

SECTION 47. NR 809 subch. VI (title), as renumbered, is amended to read:

Subchapter VII —
Reporting, Public Notification, Consumer Confidence Reports and Record Keeping

SECTION 48. NR 809.80(4) to (9) are renumbered NR 809.80(5) to (7) and (9) to (11), respectively, and subs. (6)(intro.) and (7)(intro.) and 3., as renumbered, are amended to read:

NR 809.80(6)(intro.) A public water system that uses a ground water source under the direct influence of surface water and does not provide filtration treatment shall report monthly to the department

the information specified in this subsection ~~on or after December 31, 1990, or 6 months after the department has determined that filtration is required in writing~~.

(7)(intro.) A public water system that uses a surface water source or a ground water source under the direct influence of surface water and provides filtration treatment shall report monthly to the department the information specified in this subsection ~~on or after June 29, 1993, or when filtration is installed, whichever is later~~.

(a)3. The date and value of any turbidity measurements taken during the month which exceed 1.0 NTU for systems using conventional or direct filtration, or which exceed the maximum level set in s. NR 809.76.

SECTION 49. NR 809.80(4) and (8) are created to read:

NR 809.80(4) When determining compliance with microbiological MCL's, and other microbiological monitoring required under subch. I, the department shall accept analytical results only from laboratories that report results directly to the department and are certified under ch. ATCP 77 for safe drinking water analyses. Results from microbiological samples collected to satisfy subch. I, shall be reported to the department and the water supplier within 24 hours of the time the results are obtained by the laboratory. When results are obtained on a weekend or holiday, the results shall be provided to the water supplier and the department as soon as practicable.

(8) Systems shall maintain the results of individual filter monitoring taken under s. NR 809.765 for at least 3 years. Systems shall report that they have conducted individual filter turbidity monitoring under s. NR 809.765 within 10 days after the end of each month the system serves water to the public. Systems shall report individual filter turbidity measurement results taken under s. NR 809.765 within 10 days after the end of each month the system serves water to the public only if measurements demonstrate one or more of the conditions in pars. (a) to (d). Systems that use lime softening may apply to the department for alternative exceedance levels for the levels specified in pars. (a) to (d) if they can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.

(a) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in 2 consecutive measurements taken 15 minutes apart, the system shall report the filter number, the turbidity measurement, and the dates on which the exceedance occurred. In addition, the system shall either produce a filter profile for the filter within 7 days of the exceedance, if the system is not able to identify an obvious reason for the abnormal filter performance, and report that the profile has been produced or report the obvious reason for the exceedance.

(b) For any individual filter that has a measured turbidity level of greater than 0.5 NTU in 2 consecutive measurements taken 15 minutes apart at the end of the first 4 hours of continuous filter operation after the filter has been backwashed or otherwise taken offline, the system shall report the filter number, the turbidity, and the dates on which the exceedance occurred. In addition, the system shall either produce a filter profile for the filter within 7 days of the exceedance, if the system is not able to identify an obvious reason for the abnormal filter performance, and report that the profile has been produced or report the obvious reason for the exceedance.

(c) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in 2 consecutive measurements taken 15 minutes apart at any time in each of 3 consecutive months, the system shall report the filter number, the turbidity measurement, and the dates on which the exceedance occurred. In addition, the system shall conduct a self-assessment of the filter within 14 days of the exceedance and report that the self-assessment was conducted. The self-assessment shall consist of at least the following

components: assessment of filter performance; development of a filter profile; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self-assessment report.

(d) For any individual filter that has a measured turbidity level of greater than 2.0 NTU in 2 consecutive measurements taken 15 minutes apart at any time in each of 2 consecutive months, the system shall report the filter number, the turbidity measurement, and the dates on which the exceedance occurred. In addition, the system shall arrange for the conduct of a comprehensive performance evaluation by the department or a third party approved by the department no later than 30 days following the exceedance and have the evaluation completed and submitted to the department no later than 90 days following the exceedance.

SECTION 50. NR 809.81(1)(a)3.(intro.) is amended to read:

NR 809.81(1)(a)3.(intro.) For violations of the MCLs and MRDLs of contaminants that may pose an acute risk to human health, by furnishing a copy of the notice to the radio and television stations serving the area served by the community water system or by hand delivery to each customer as soon as possible but in no case later than 72 hours after the violation. The following violations are acute violations:

SECTION 51. NR 809.81(1)(a)3.d. is created to read:

NR 809.81(1)(a)3.d. Violation of the MRDL for chlorine dioxide as defined in s. NR 809.561(2).

SECTION 52. NR 809.81(5)(Lt) is amended to read:

NR 809.81(5)(Lt) MICROBIOLOGICAL CONTAMINANTS. (for use when there is a violation of the treatment technique requirements for filtration and disinfection in subch. ~~IV~~ V). The United States environmental protection agency (EPA) sets drinking water standards and has determined that the presence of microbiological contaminants are a health concern at certain levels of exposure. If water is inadequately treated, microbiological contaminants in that water may cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and any associated headaches and fatigue. These symptoms, however, are not just associated with disease causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. EPA has set enforceable requirements for treating drinking water to reduce the risk of these adverse health effects. Treatment such as filtering and disinfecting the water removes or destroys microbiological contaminants. Drinking water which is treated to meet EPA requirements is associated with little to none of this risk and should be considered safe.

SECTION 53. NR 809.83, 809.833, 809.835 and 809.837 are created to read:

NR 809.83 Consumer confidence reports. (1) PURPOSE AND APPLICABILITY. Suppliers of water to community water systems shall deliver to their customers an annual report containing information on the quality of the water and the characterization of risks, if any, from exposure to contaminants detected in the drinking water delivered by their water system. The report shall be written in an accurate and understandable manner.

(a) Customers under this paragraph are defined as billing units or service connections to which water is delivered by a community water system.

(b) Detected under this paragraph refers to all contaminants identified in subch. I and means any quantity reported by a safe drinking water certified laboratory.

(2) DEADLINES. (a) Each existing community water system shall deliver its report by July 1 annually. Reports shall contain data collected during, or prior to, the previous calendar year.

(b) A new community water system shall deliver its first report by July 1 of the year after its first full calendar year in operation and annually thereafter.

(c) A community water system that sells water to another community water system shall deliver the applicable information required in s. NR 809.833 to the buyer system:

1. No later than April 1 annually; or

2. On a date mutually agreed upon by the seller and the purchaser, and specifically included in a contract between the parties.

NR 809.833 Content of the reports. Each community water system shall provide to its customers an annual report that contains all of the information specified in this section and s. NR 809.835.

(1) INFORMATION ON THE SOURCE OF THE WATER DELIVERED. Each report shall identify the sources of the water delivered by the community water system by providing information on all of the following:

(a) The type of the water, e.g., surface water, ground water.

(b) The commonly used name, if any, and location of the bodies of water.

(c) If a source water assessment has been completed, the report shall notify consumers of the availability of this information and the means to obtain it. In addition, systems are encouraged to highlight in the report significant sources of contamination in the source water area if they have readily available information. Where a system has received a source water assessment from the department, the report shall include a brief summary of the system's susceptibility to potential sources of contamination, using language provided by the department or written by the water system owner or operator.

(2) DEFINITIONS. (a) Each report shall include all of the following definitions:

1. Maximum contaminant level goal or MCLG: The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

2. Maximum contaminant level or MCL: The highest level of a contaminant that is allowed in drinking water. MCLs are set as close to the MCLGs as feasible using the best available treatment technology.

(b) A report for a community water system operating under a variance or an exemption issued under subch. VIII shall include the following definition, "Variances and Exemptions: state or EPA permission not to meet an MCL or a treatment technique under certain conditions."

(c) A report which contains data on a contaminant for which EPA has set a treatment technique or an action level shall include one or both of the following definitions as applicable:

1. "Treatment technique: A required process intended to reduce the level of a contaminant in drinking water."

2. "Action level: The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system shall follow."

(3) INFORMATION ON DETECTED CONTAMINANTS. With the exception of *Cryptosporidium*, reports shall contain the following information in the specified format, for regulated contaminants with MCLs, treatment techniques, or action levels, unregulated contaminants for which monitoring is required under subch. I, and disinfection by-products and microbial contaminants for which monitoring is required under subchs. IV and V:

(a) The data relating to these contaminants shall be displayed in one table or in several adjacent tables. Any additional monitoring results which a community water system chooses to include in its report shall be displayed separately.

(b) The data shall be derived from data collected to comply with EPA and state monitoring and analytical requirements during calendar year 1998 for the first report and subsequent calendar years thereafter except that:

1. Where a system is allowed to monitor for regulated contaminants less often than once a year, the tables shall include the date and results of the most recent sampling and the report shall include a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with the regulations. No data older than 5 years need be included.

2. Results of monitoring in compliance with requirements issued under 40 CFR Sub. D, part 141, ss. 141.142 and 141.143 (information collection rule) need only be included for 5 years from the date of last sample or until any of the detected contaminants becomes regulated and subject to routine monitoring requirements, whichever comes first.

(c) For detected regulated contaminants, listed in Appendix A to this subchapter, the tables shall contain all of the following:

1. The MCL for that contaminant expressed as a number equal to or greater than 1.0, as provided in Appendix A to this subchapter.

2. The MCLG for that contaminant expressed in the same units as the MCL.

3. If there is no MCL for a detected contaminant, the table shall indicate that there is a treatment technique, or specify the action level, applicable to that contaminant, and the report shall include the definitions for treatment technique or action level, or both, as appropriate, specified in this paragraph.

4. For contaminants subject to an MCL, except turbidity and total coliforms, the highest contaminant level used to determine compliance with requirements of this chapter and the range of detected levels as follows:

a. When compliance with the MCL is determined annually or less frequently: the highest detected level at any sampling point and the range of detected levels expressed in the same units as the MCL.

b. When compliance with the MCL is determined by calculating a running annual average of all samples taken at a sampling point: the highest average of any of the sampling points and the range of all sampling points expressed in the same units as the MCL

c. When compliance with the MCL is determined on a system-wide basis by calculating a running annual average of all samples at all sampling points: the average and range of detection expressed in the same units as the MCL.

NOTE: When rounding of results to determine compliance with the MCL is allowed by the regulations, rounding should be done prior to multiplying the results by the factor listed in Appendix A of this subchapter.

5. For turbidity:

a. When it is reported pursuant to s. NR 809.40, the highest average monthly value.

b. When it is reported pursuant to s. NR 809.755, the highest monthly value. The report should include an explanation of the reasons for measuring turbidity.

c. When it is reported pursuant to s. NR 809.755, the highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in s. NR 809.76 for the filtration technology being used. The report should include an explanation of the reasons for measuring turbidity.

6. For lead and copper: the 90th percentile value of the most recent round of sampling and the number of sampling sites exceeding the action level.

7. For total coliform:

a. The highest monthly number of positive samples for systems collecting fewer than 40 samples per month; or

b. The highest monthly percentage of positive samples for systems collecting at least 40 samples per month.

8. For fecal coliform, the total number of positive samples.

9. The likely sources of detected contaminants to the best of the water system owner or operator's knowledge. Specific information regarding contaminants may be available in sanitary surveys and source water assessments, and should be used when available to the water system owner or operator. If the water system owner or operator lacks specific information on the likely source, the report shall include one or more of the typical sources for that contaminant listed in Appendix B to this subchapter that are most applicable to the system.

(d) If a community water system distributes water to its customers from multiple hydraulically independent distribution systems that are fed by different raw water sources, the table should contain a separate column for each service area and the report should identify each separate distribution system. Alternatively, systems could produce separate reports tailored to include data for each service area.

(e) The tables shall clearly identify any data indicating violations of MCLs or treatment techniques and the report shall contain a clear and readily understandable explanation of the violation including: the length of the violation, the potential adverse health effects, and actions taken by the system to address the violation. To describe the potential health effects, the system shall use the relevant language of Appendix C to this subchapter.

(f) For detected unregulated contaminants for which monitoring is required, except *Cryptosporidium*, the tables shall contain the average and range at which the contaminant was detected. The report may include a brief explanation of the reasons for monitoring for unregulated contaminants.

(4) INFORMATION ON CRYPTOSPORIDIUM, RADON AND OTHER CONTAMINANTS. (a) If the system has performed any monitoring for *Cryptosporidium*, including monitoring performed to satisfy the requirements of 40 CFR Sub. D, part 141, s. 141.143 (information collection rule), which indicates that *Cryptosporidium* may be present in the source water or the finished water, the report shall include all of the following:

1. A summary of the results of the monitoring.

2. An explanation of the significance of the results.

(b) If the system has performed any monitoring for radon which indicates that radon may be present in the finished water, the report shall include all of the following:

1. The results of the monitoring.

2. An explanation of the significance of the results.

(c) If the system has performed additional monitoring which indicates the presence of other contaminants in the finished water, the report shall include all of the following:

1. The results of the monitoring.

2. An explanation of the significance of the results noting the existence of a health advisory or a proposed regulation.

(5) COMPLIANCE WITH ALL DRINKING WATER REGULATIONS. In addition to the requirements of sub. (3)(f), the report shall note any violation that occurred during the year covered by the report of a requirement listed in this subsection. The report also shall include a clear and readily understandable explanation of the violation, any potential adverse health effects, and the steps the system has taken to correct the violation. All of the following violations shall be included:

(a) Failure to comply with requirements for monitoring and reporting of compliance data.

(b) For systems which have failed to install adequate filtration or disinfection equipment or processes, or have had a failure of the equipment or processes which constitutes a violation, the report shall include the following language as part of the explanation of potential adverse health effects. Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses and parasites, which can cause symptoms such as nausea, cramps, diarrhea and associated headaches.

(c) For systems that fail to take one or more actions prescribed by ss. NR 809.541(4), 809.542, 809.543, 809.544 or 809.545, the report shall include the applicable language of Appendix C to this subchapter for lead, copper or both.

(d) For systems that violate the requirements of s. NR 809.26(4), the report shall include the relevant language from Appendix C to this subchapter.

(e) Failure to comply with required recordkeeping of compliance data.

(f) Failure to comply with special monitoring requirements prescribed by ss. NR 809.13 and 809.26.

(g) Violation of the terms of a variance, an exemption or an administrative or judicial order.

(6) VARIANCES AND EXEMPTIONS. If a system is operating under the terms of a conditional waiver or variance issued under subch. VIII, the report shall contain all of the following:

(a) An explanation of the reasons for the variance or exemption.

(b) The date on which the variance or exemption was issued.

(c) A brief status report on the steps the system is taking to install treatment, find alternative sources of water or otherwise comply with the terms and schedules of the variance or exemption.

(d) A notice of any opportunity for public input in the review, or renewal, of the variance or exemption.

(7) ADDITIONAL INFORMATION. (a) The report shall contain a brief explanation regarding contaminants, which may reasonably be expected to be found in drinking water including bottled water. This explanation may include the language of subds. 1. through 3. or systems may use their own comparable language. The report also shall include the language of subd. 4.

1. "The sources of drinking water, both tap water and bottled water, include rivers, lakes, streams, ponds, reservoirs, springs and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity."

2. "Contaminants that may be present in source water include:"

a. "Microbial contaminants, such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations and wildlife."

b. "Inorganic contaminants, such as salts and metals, which can be naturally-occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining or farming."

c. "Pesticides and herbicides, which may come from a variety of sources such as agriculture, urban stormwater runoff and residential uses."

d. "Organic chemical contaminants, including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, and can also come from gas stations, urban stormwater runoff and septic systems."

e. "Radioactive contaminants, which can be naturally occurring or be the result of oil and gas production and mining activities."

3. "In order to ensure that tap water is safe to drink, EPA prescribes regulations that limit the amount of certain contaminants in water provided by public water systems. FDA regulations establish limits for contaminants in bottled water, which shall provide the same protection for public health."

4. "Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the environmental protection agency's safe drinking water hotline (800-426-4791)."

(b) The report shall include the telephone number of the owner, operator or designee of the community water system as a source of additional information concerning the report.

(c) In communities where non-English speaking residents comprise a significant portion of the population served, the report should contain information in the appropriate language or languages regarding the importance of the report, or contain a telephone number or address where the residents may contact the system to obtain a translated copy of the report or assistance in the appropriate language. In communities where a specific non-English speaking group comprises at least 5% of the population of the community served, the report shall be translated into that language.

(d) The report shall include information, e.g., time and place of regularly scheduled board meetings, about opportunities for public participation in decisions that may affect the quality of the water.

(e) The systems may include additional information as they deem necessary for public education consistent with, and not detracting from, the purpose of the report.

NR 809.835 Required additional health information. (1) All reports shall prominently display the following language: "Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/CDC guidelines on appropriate means to lessen the risk of infection by *Cryptosporidium* and other microbial contaminants are available from the environmental protection agency's safe drinking water hotline (800-426-4791)."

(2) A system which detects arsenic at levels above 25 mg/l but below the MCL:

(a) Shall include in its report a short informational statement about arsenic, using language such as: EPA is reviewing the drinking water standard for arsenic because of special concerns that it may not be stringent enough. Arsenic is a naturally occurring mineral known to cause cancer in humans at high concentrations.

(b) May write its own educational statement, but only in consultation with the department.

(3) A system which detects nitrate at levels above 5 mg/l but below the MCL:

(a) Shall include a short informational statement about the impacts of nitrate on children using language such as: Nitrate in drinking water at levels above 10 ppm is a health risk for infants of less than 6 months of age. High nitrate levels in drinking water can cause blue baby syndrome. Nitrate levels may rise quickly for short periods of time because of rainfall or agricultural activity. If you are caring for an infant you should ask advice from your health care provider.

(b) May write its own educational statement, but only in consultation with the department.

(4) Systems which detect lead above the action level in more than 5%, but fewer that 10%, of homes sampled:

(a) Shall include a short informational statement about the special impact of lead on children using language such as: "Infants and young children are typically more vulnerable to lead in drinking water than the general population. It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the environmental protection agency's safe drinking water hotline (800-426-4791)."

(b) May write its own educational statement, but only in consultation with the department.

NR 809.837 Report delivery and recordkeeping. (1) Except as provided in sub. (7), each community water system shall mail or otherwise directly deliver one copy of the report to each customer.

(2) The system shall make a good faith effort to reach consumers who do not get water bills, using means recommended by the department. EPA expects that an adequate good faith effort will be tailored to the consumers who are served by the system but are not bill-paying customers, such as renters or workers. A good faith effort to reach consumers would include a mix of methods appropriate to the particular

system such as: Posting the reports on the Internet; mailing to postal patrons in metropolitan areas; advertising the availability of the report in the news media; publication in a local newspaper; posting in public places such as cafeterias or lunch rooms of public buildings; delivery of multiple copies for distribution by single-biller customers such as apartment buildings or large private employers; delivery to community organizations.

(3) No later than the date the system is required to distribute the report to its customers, each community water system shall mail a copy of the report to the department, followed within 3 months by a certification that the report has been distributed to customers, and that the information is correct and consistent with the compliance monitoring data previously submitted to the department.

(4) No later than the date the system is required to distribute the report to its customers, each community water system shall deliver the report to any other agency or clearinghouse identified by the department.

(5) Each community water system shall make its reports available to the public upon request.

(6) Each community water system serving 100,000 or more persons shall post its current year's report to a publicly accessible site on the Internet.

(7) The governor of Wisconsin or the governor's designee may waive the requirement of par. (a) for community water systems serving fewer than 10,000 persons.

(a)(intro.) A system that has received a waiver under this subsection shall do all of the following:

1. Publish the reports in one or more local newspapers serving the area in which the system is located.

2. Inform the customers that the reports will not be mailed, either in the newspapers in which the reports are published or by other means approved by the department.

3. Make the reports available to the public upon request.

(b) A system serving 500 or fewer persons that has received a waiver under this subsection may forego the requirements of par. (a)1. and 2. if they provide notice at least once per year to their customers by mail, door-to-door delivery or by posting in an appropriate location that the report is available upon request.

(8) Any systems subject to this subchapter shall retain copies of its consumer confidence report for no less than 5 years.

NOTE: Appendices A through C of subch. VI are found at the end of this chapter.

SECTION 54. NR 809.90 is repealed and recreated to read:

NR 809.90 Conditional waivers. (1) A public system may apply to the department for a conditional waiver respecting compliance with a maximum contaminant level or treatment technique requirement for a period up to 3 years if all of the following apply:

(a) One of the following situations exists:

1. Because of the characteristics of the raw water sources which are reasonably available, the public water system cannot comply with a maximum contaminant level despite application of best technology, treatment techniques or other means generally available, taking costs into consideration.

2. Compelling factors, which may include economic factors, indicate that the public water system cannot comply with a maximum contaminant level or treatment technique requirement for a limited period of time.

(b) The public water system was in operation on the effective date of the maximum contaminant level or treatment technique requirement.

(c) Granting of a conditional waiver will not result in an unreasonable risk to public health.

(2) Small systems serving less than 3300 persons, may apply for a conditional waiver only for nonmicrobial contaminants and only when all of the following conditions are met:

(a) The contaminant or treatment technique to be waived has a maximum contaminant level or treatment technique requirement established in national primary drinking water regulations promulgated on or after January 1, 1986.

(b) The technology used to comply with the maximum contaminant level or treatment technique is approved by the department.

(c) Compliance with maximum contaminant levels or treatment techniques is not reasonably affordable through restructuring or consolidation changes, including ownership change or physical consolidation or both with another public water system, or obtaining financial assistance through the Wisconsin drinking water state revolving loan fund (DWSRF).

(d) The small system is financially and technically capable of installing, operating and maintaining the applicable small system technology under sub. (b).

(e) Granting of a conditional waiver will not result in an unreasonable risk to public health.

(3) The department may grant a conditional waiver if the supplier of water has established that the criteria of subs. (1) or (2) have been met. Any conditional waiver granted shall require all of the following:

(a) Compliance, including increments of progress, by the supplier of water with each maximum contaminant level or treatment technique requirement within the time frame specified by the department in the compliance schedule.

(b) Implementation by the water supplier of control measures the department deems necessary until compliance with the maximum contaminant level or treatment technique requirement is achieved.

(4) Public water systems that use bottled water as a requirement for receiving a conditional waiver shall meet all the of following requirements:

(a) The department shall require and approve a monitoring program for bottled water. The public water system owner or operator shall develop and put in place a monitoring program that provides reasonable assurances that the bottled water meets all MCLs. The public water system owner or operator shall monitor a representative sample of the bottled water for all contaminants regulated under ss. NR 809.24 (1), (2) and 809.11 during the first 3-month period that it supplies the bottled water to the public, and annually thereafter. Results of the monitoring program shall be provided to the department annually.

(b) The public water system owner or operator shall receive a certification from the bottled water company that the bottled water supplied meets all requirements of s. ATCP 40.07. The public water system owner or operator shall provide the certification to the department the first quarter after it supplies bottled water and annually thereafter.

(c) The public water system shall be fully responsible for the provision of sufficient quantities of bottled water to every person supplied by the public water system via door-to-door bottled water delivery.

(5) If the department approves the use of a point-of-entry device as a requisite for granting a conditional waiver, the water supplier shall provide documentation that the device will not cause increased corrosion of plumbing materials which could increase contaminant levels at the consumer's tap.

(6) Additional requirements for conditional waivers shall include all of the following:

(a) Proof of proper and effective installation, operation and maintenance of any applicable treatment technologies.

(b) Department specified monitoring requirements for the contaminant for which the conditional waiver is sought.

(c) Other terms or conditions specified by the department to ensure adequate public health protection, including but not limited to all of the following:

1. Public education requirements.

2. Source water protection requirements.

3. Quarterly conditional waiver compliance reports to the department.

(7) Before the department may grant a conditional waiver under this section, a class 1 public notice under ch. 985, Stats., and opportunity for a public hearing on the proposed conditional waiver shall be provided by the department. A hearing held pursuant to a request under this subsection is a class 1 hearing and shall be conducted in accordance with ch. 227, Stats.

(8) The department may extend a compliance deadline not to exceed 3 years or 2 years for a small system conditional waiver under sub. (2), beyond the expiration date of the original conditional waiver if the supplier of water establishes all of the following:

(a) The public water system cannot meet the maximum contaminant level or treatment technique requirement without capital improvements which cannot be completed within the period of the conditional waiver.

(b) The supplier of water has entered into an enforceable agreement to become part of a regional public water system or, if the supplier of water needs financial assistance for the necessary capital improvements, the supplier of water has entered into an agreement to obtain the financial assistance.

(c) The supplier of water is taking all practicable steps to meet the standard.

(9) The department may renew an extension granted under sub. (8) if the supplier of water establishes all of the following:

(a) The public water system does not serve more than 500 service connections.

(b) The public water system cannot meet a maximum contaminant level or treatment technique requirement without financial assistance for the necessary capital improvements.

(c) The public water system is taking all practicable steps to achieve compliance with a maximum contaminant level or treatment technique requirement.

SECTION 55. NR 809 Appendices A through C to Subchapter VII are created to read:

Appendix A to Subchapter VII -- Converting MCL Compliance Values for Consumer Confidence Reports

Key:
AL=Action Level
MCL=Maximum Contaminant Level
MCLG=Maximum Contaminant Level Goal
MFL=million fibers per liter
mrem/year=millirems per year (a measure of radiation absorbed by the body)
NTU=Nephelometric Turbidity Units
pCi/l=picocuries per liter (a measure of radioactivity)
ppm=parts per million, or milligrams per liter (mg/l)
ppb=parts per billion, or micrograms per liter (g/l)
ppt=parts per trillion, or nanograms per liter
ppq=parts per quadrillion, or picograms per liter
TT=Treatment Technique

Contaminant	**MCL in compliance units (mg/L)**	Multiply by...	MCL in CCR units	MCLG in CCR units
Microbiological Contaminants				
1. Total Coliform Bacteria	-	-	presence of coliform bacteria in 5% of monthly samples	0
2. Fecal coliform and *E. coli*	-	-	a routine sample and a repeat sample are total coliform positive, and one is also fecal coliform or *E. coli* positive	0
3. Turbidity	-	-	TT (NTU)	n/a
Radioactive Contaminants				
1. Beta/photon emitters	4 mrem/yr	-	4 mrem/yr	0
2. Alpha emitters	15 pCi/l	-	15 pCi/l	0

3. Combined radium	5 pCi/l	-	5 pCi/l	0
Inorganic Contaminants				
1. Antimony	.006	1000	6 ppb	6
2. Arsenic	.05	1000	50 ppb	n/a
3. Asbestos	7 MFL	-	7 MFL	7
4. Barium	2	-	2 ppm	2
5. Beryllium	.004	1000	4 ppb	4
6. Cadmium	.005	1000	5 ppb	5
7. Chromium	.1	1000	100 ppb	100
8. Copper	AL=1.3	-	AL=1.3 ppm	1.3
9. Cyanide	.2	1000	200 ppb	200
10. Fluoride	4	-	4 ppm	4
11. Lead	AL=.015	1000	AL=15 ppb	0
12. Mercury (inorganic)	.002	1000	2 ppb	2
13. Nitrate (as Nitrogen)	10	-	10 ppm	10
14. Nitrite (as Nitrogen)	1	-	1 ppm	1
15. Selenium	.05	1000	50 ppb	50
16. Thallium	.002	1000	2 ppb	0.5
Synthetic Organic Contaminants including Pesticides and Herbicides				
1. 2,4-D	.07	1000	70 ppb	70
2. 2,4,5-TP [Silvex]	.05	1000	50 ppb	50
3. Acrylamide	-	-	TT	0
4. Alachlor	.002	1000	2 ppb	0
5. Atrazine	.003	1000	3 ppb	3
6. Benzo(a)pyrene [PAH]	.0002	1,000,000	200 ppt	0
7. Carbofuran	.04	1000	40 ppb	40
8. Chlordane	.002	1000	2 ppb	0
9. Dalapon	.2	1000	200 ppb	200
10. Di(2-ethylhexyl)adipate	.4	1000	400 ppb	400
11. Di(2-ethylhexyl) phthalate	.006	1000	6 ppb	0
12. Dibromochloropropane	.0002	1,000,000	200 ppt	0
13. Dinoseb	.007	1000	7 ppb	7
14. Diquat	.02	1000	20 ppb	20
15. Dioxin [2,3,7,8-TCDD]	.00000003	1,000,000,000	30 ppq	0
16. Endothall	.1	1000	100 ppb	100
17. Endrin	.002	1000	2 ppb	2
18. Epichlorohydrin	-	-	TT	0
19. Ethylene dibromide	.00005	1,000,000	50 ppt	0
20. Glyphosate	.7	1000	700 ppb	700
21. Heptachlor	.0004	1,000,000	400 ppt	0
22. Heptachlor epoxide	.0002	1,000,000	200 ppt	0
23. Hexachlorobenzene	.001	1000	1 ppb	0
24. Hexachlorocyclopentadiene	.05	1000	50 ppb	50
25. Lindane	.0002	1,000,000	200 ppt	200
26. Methoxychlor	.04	1000	40 ppb	40
27. Oxamyl [Vydate]	.2	1000	200 ppb	200
28. PCBs [Polychlorinated biphenyls]	.0005	1,000,000	500 ppt	0
29. Pentachlorophenol	.001	1000	1 ppb	0
30. Picloram	.5	1000	500 ppb	500

31. Simazine	.004	1000	4 ppb	4
32. Toxaphene	.003	1000	3 ppb	0
Volatile Organic Contaminants				
1. Benzene	.005	1000	5 ppb	0
2. Carbon tetrachloride	.005	1000	5 ppb	0
3. Chlorobenzene	.1	1000	100 ppb	100
4. o-Dichlorobenzene	.6	1000	600 ppb	600
5. p-Dichlorobenzene	.075	1000	75 ppb	75
6. 1,2-Dichloroethane	.005	1000	5 ppb	0
7. 1,1-Dichloroethylene	.007	1000	7 ppb	7
8. cis-1,2-Dichloroethylene	.07	1000	70 ppb	70
9. trans-1,2-Dichloroethylene	.1	1000	100 ppb	100
10. Dichloromethane	.005	1000	5 ppb	0
11. 1,2-Dichloropropane	.005	1000	5 ppb	0
12. Ethylbenzene	.7	1000	700 ppb	700
13. Styrene	.1	1000	100 ppb	100
14. Tetrachloroethylene	.005	1000	5 ppb	0
15. 1,2,4-Trichlorobenzene	.07	1000	70 ppb	70
16. 1,1,1-Trichloroethane	.2	1000	200 ppb	200
17. 1,1,2-Trichloroethane	.005	1000	5 ppb	3
18. Trichloroethylene	.005	1000	5 ppb	0
19. TTHMs [Total trihalomethanes]	.10	1000	100 ppb	0
20. Toluene	1	-	1 ppm	1
21. Vinyl Chloride	.002	1000	2 ppb	0
22. Xylenes	10	-	10 ppm	10

Appendix B to Subchapter VII -- Regulated Contaminants

Key:

AL=Action Level
MCL=Maximum Contaminant Level
MCLG=Maximum Contaminant Level Goal
MFL=million fibers per liter **mrem/year**=millirems per year (a measure of radiation absorbed by the body)
na=not applicable
NTU=Nephelometric Turbidity Units
pCi/l=picocuries per liter (a measure of radioactivity)
ppm=parts per million, or milligrams per liter (mg/l)
ppb=parts per billion, or micrograms per liter (g/l)
ppt=parts per trillion, or nanograms per liter
ppq=parts per quadrillion, or picograms per liter
TT=Treatment Technique

Contaminant (units)	**MCLG**	**MCL**	**Major Sources in Drinking Water**
Microbiological Contaminants			

1. Total Coliform Bacteria (na)	0	presence of coliform bacteria in 5% of monthly samples,	Naturally present in the Environment
2. Fecal coliform and *E. coli* (na)	0	a routine sample and a repeat sample are total coliform positive, and one is also fecal coliform or *E. coli* positive	Human and animal fecal Waste
3. Turbidity (NTU)	na	TT	Soil runoff
Radioactive Contaminants			
1. Beta/photon emitters (mrem/yr)	0	4	Decay of natural and man-made deposits
2. Alpha emitters (pCi/l)	0	15	Erosion of natural deposits
3. Combined radium (pCi/l)	0	5	Erosion of natural deposits
Inorganic Contaminants			
1. Antimony (ppb)	6	6	Discharge from petroleum refineries; fire retardants; ceramics; electronics; solder
2. Arsenic (ppb)	na	50	Erosion of natural deposits, Runoff from orchards; Runoff from glass and electronics production wastes
3. Asbestos (MFL)	7	7	Decay of asbestos cement water mains; Erosion of natural deposits
4. Barium (ppm)	2	2	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
5. Beryllium (ppb)	4	4	Discharge from metal refineries and coal-burning factories; Discharge from electrical, aerospace, and defense industries
6. Cadmium (ppb)	5	5	Corrosion of galvanized pipes; Erosion of natural

			deposits; Discharge from metal refineries; runoff from waste batteries and paints
7. Chromium (ppb)	100	100	Discharge from steel and pulp mills; Erosion of natural deposits
8. Copper (ppm)	1.3	AL=1.3	Corrosion of household plumbing systems; Erosion of natural deposits; Leaching from wood preservatives
9. Cyanide (ppb)	200	200	Discharge from steel/metal factories; Discharge from plastic and fertilizer factories
10. Fluoride (ppm)	4	4	Erosion of natural deposits; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories
11. Lead (ppb)	0	AL=15	Corrosion of household plumbing systems; Erosion of natural deposits
12. Mercury [inorganic] (ppb)	2	2	Erosion of natural deposits; Discharge from refineries and factories; Runoff from landfills; Runoff from cropland
13. Nitrate [as Nitrogen] (ppm)	10	10	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits
14. Nitrite [as Nitrogen] (ppm)	1	1	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural Deposits
15. Selenium (ppb)	50	50	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
16. Thallium (ppb)	0.5	2	Leaching from ore-processing sites; Discharge from electronics, glass, and

			drug factories
Synthetic Organic Contaminants including Pesticides and Herbicides			
1. 2,4-D (ppb)	70	70	Runoff from herbicide used on row crops
2. 2,4,5-TP [Silvex](ppb)	50	50	Residue of banned herbicide
3. Acrylamide	0	TT	Added to water during sewage/wastewater treatment
4. Alachlor (ppb)	0	2	Runoff from herbicide used on row crops
5. Atrazine (ppb)	3	3	Runoff from herbicide used on row crops
6. Benzo(a)pyrene [PAH] (nanograms/l)	0	200	Leaching from linings of water storage tanks and distribution lines
7. Carbofuran (ppb)	40	40	Leaching of soil fumigant used on rice and alfalfa
8. Chlordane (ppb)	0	2	Residue of banned termiticide
9. Dalapon (ppb)	200	200	Runoff from herbicide used on rights of way
10. Di(2-ethylhexyl) adipate (ppb)	400	400	Discharge from chemical factories
11. Di(2-ethylhexyl) phthalate (ppb)	0	6	Discharge from rubber and chemical factories
12. Dibromochloropropane (ppt)	0	200	Runoff/leaching from soil fumigant used on soybeans, cotton, pineapples, and orchards
13. Dinoseb (ppb)	7	7	Runoff from herbicide used on soybeans and vegetables
14. Diquat (ppb)	20	20	Runoff from herbicide use
15. Dioxin [2,3,7,8-TCDD] (ppq)	0	30	Emissions from waste incineration and other combustion; Discharge from chemical factories
16. Endothall (ppb)	100	100	Runoff from herbicide use
17. Endrin (ppb)	2	2	Residue of banned insecticide
18. Epichlorohydrin	0	TT	Discharge from industrial chemical factories; An impurity of some water treatment chemicals
19. Ethylene dibromide (ppt)	0	50	Discharge from petroleum refineries
20. Glyphosate (ppb)	700	700	Runoff from herbicide

			use
21. Heptachlor (ppt)	0	400	Residue of banned termiticide
22. Heptachlor epoxide (ppt)	0	200	Breakdown of heptachlor
23. Hexachlorobenzene (ppb)	0	1	Discharge from metal refineries and agricultural chemical factories
24. Hexachlorocyclopentadiene (ppb)	50	50	Discharge from chemical factories
25. Lindane (ppt)	200	200	Runoff/leaching from insecticide used on cattle, lumber, gardens
26. Methoxychlor (ppb)	40	40	Runoff/leaching from insecticide used on fruits, vegetables, alfalfa, livestock
27. Oxamyl [Vydate](ppb)	200	200	Runoff/leaching from insecticide used on apples, potatoes and tomatoes
28. PCBs [Polychlorinated biphenyls] (ppt)	0	500	Runoff from landfills; Discharge of waste chemicals
29. Pentachlorophenol (ppb)	0	1	Discharge from wood preserving factories
30. Picloram (ppb)	500	500	Herbicide runoff
31. Simazine (ppb)	4	4	Herbicide runoff
32. Toxaphene (ppb)	0	3	Runoff/leaching from insecticide used on cotton and cattle
Volatile Organic Contaminants			
1. Benzene (ppb)	0	5	Discharge from factories; Leaching from gas storage tanks and landfills
2. Carbon tetrachloride (ppb)	0	5	Discharge from chemical plants and other industrial activities
3. Chlorobenzene (ppb)	100	100	Discharge from chemical and agricultural chemical factories
4. o-Dichlorobenzene (ppb)	600	600	Discharge from industrial chemical factories
5. p-Dichlorobenzene (ppb)	75	75	Discharge from industrial chemical factories
6. 1,2-Dichloroethane (ppb)	0	5	Discharge from industrial chemical factories

7. 1,1-Dichloroethylene (ppb)	7	7	Discharge from industrial chemical factories
8. cis-1,2-Dichloroethylene (ppb)	70	70	Discharge from industrial chemical factories
9. trans-1,2-Dichloroethylene (ppb)	100	100	Discharge from industrial chemical factories
10. Dichloromethane (ppb)	0	5	Discharge from pharmaceutical and chemical factories
11. 1,2-Dichloropropane (ppb)	0	5	Discharge from industrial chemical factories
12. Ethylbenzene (ppb)	700	700	Discharge from petroleum refineries
13. Styrene (ppb)	100	100	Discharge from rubber and plastic factories; Leaching from landfills
14. Tetrachloroethylene (ppb)	0	5	Discharge from factories and dry cleaners
15. 1,2,4-Trichlorobenzene (ppb)	70	70	Discharge from textile-finishing factories
16. 1,1,1-Trichloroethane (ppb)	200	200	Discharge from metal degreasing sites and other factories
17. 1,1,2-Trichloroethane (ppb)	3	5	Discharge from industrial chemical factories
18. Trichloroethylene (ppb)	0	5	Discharge from metal degreasing sites and other factories
19. TTHMs [Total trihalomethanes](ppb)	0	100	By-product of drinking water chlorination
20. Toluene (ppm)	1	1	Discharge from petroleum factories
21. Vinyl Chloride (ppb)	0	2	Leaching from PVC piping; Discharge from plastics factories
22. Xylenes (ppm)	10	10	Discharge from petroleum factories; Discharge from chemical factories

Appendix C to Subchapter VII -- Health Effects Language

Microbiological Contaminants

(1) Total coliform. Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.

(2) Fecal coliform/E.coli. Fecal coliforms and E. coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches or other symptoms. They may pose a special health risk for infants, young children and people with severely compromised immune systems.

(3) Turbidity. Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.

Radioactive Contaminants:

(4) Beta/photon emitters. Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.

(5) Alpha emitters. Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.

(6) Combined radium 226/228. Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.

Inorganic Contaminants:

(7) Antimony. Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.

(8) Arsenic. Some people who drink water containing arsenic in excess of the MCL over many years could experience skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.

(9) Asbestos. Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.

(10) Barium. Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.

(11) Beryllium. Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.

(12) Cadmium. Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.

(13) Chromium. Some people who use water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.

(14) Copper. Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor.

(15) Cyanide. Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.

(16) Fluoride. Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Children may get mottled teeth.

(17) Lead. Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

(18) Mercury (inorganic). Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.

(19) Nitrate. Infants below the age of 6 months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.

(20) Nitrite. Infants below the age of 6 months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue-baby syndrome.

(21) Selenium. Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.

(22) Thallium. Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.

Synthetic organic contaminants including pesticides and herbicides:

(23) 2,4-D. Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver or adrenal glands.

(24) 2,4,5-TP (Silvex). Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.

(25) Acrylamide. Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.

(26) Alachlor. Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver, kidneys or spleen, or experience anemia, and may have an increased risk of getting cancer.

(27) Atrazine. Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.

(28) Benzo(a)pyrene [PAH]. Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.

(29) Carbofuran. Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.

(30) Chlordane. Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.

(31) Dalapon. Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.

(32) Di (2-ethylhexyl) adipate. Some people who drink water containing di (2-ethylhexyl) adipate well in excess of the MCL over many years could experience general toxic effects or reproductive difficulties.

(33) Di (2-ethylhexyl) phthalate. Some people who drink water containing di (2-ethylhexyl) phthalate in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.

(34) Dibromochloropropane (DBCP). Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.

(35) Dinoseb. Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.

(36) Dioxin (2,3,7,8-TCDD). Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.

(37) Diquat. Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.

(38) Endothall. Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.

(39) Endrin. Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.

(40) Epichlorohydrin. Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.

(41) Ethylene dibromide. Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.

(42) Glyphosate. Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.

(43) Heptachlor. Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.

(44) Heptachlor epoxide. Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.

(45) Hexachlorobenzene. Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.

(46) Hexachlorocyclopentadiene. Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.

(47) Lindane. Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.

(48) Methoxychlor. Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.

(49) Oxamyl [Vydate]. Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.

(50) PCBs [Polychlorinated biphenyls]. Some people who drink water containing PCBs in excess of the MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.

(51) Pentachlorophenol. Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.

(52) Picloram. Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.

(53) Simazine. Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.

(54) Toxaphene. Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver or thyroid, and may have an increased risk of getting cancer.

Volatile Organic Contaminants:

(55) Benzene. Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.

(56) Carbon tetrachloride. Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.

(57) Chlorobenzene. Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.

(58) o-Dichlorobenzene. Some people who drink water containing o-dichlorobenzene well in excess of the MCL over many years could experience problems with their liver, kidneys or circulatory systems.

(59) p-Dichlorobenzene. Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys or spleen, or changes in their blood.

(60) 1,2-Dichloroethane. Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.

(61) 1,1-Dichloroethylene. Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.

(62) cis-1,2-Dichloroethylene. Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.

(63) trans-1,2-Dicholoroethylene. Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.

(64) Dichloromethane. Some people who drink water containing dichloromethane in excess of the MCL over many years could have liver problems and may have an increased risk of getting cancer.

(65) 1,2-Dichloropropane. Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.

(66) Ethylbenzene. Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.

(67) Styrene. Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys or circulatory system.

(68) Tetrachloroethylene. Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their liver, and may have an increased risk of getting cancer.

(69) 1,2,4-Trichlorobenzene. Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.

(70) 1,1,1,-Trichloroethane. Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system or circulatory system.

(71) 1,1,2-Trichloroethane. Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys or immune systems.

(72) Trichloroethylene. Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.

(73) TTHMs [Total Trihalomethanes]. Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys or central nervous systems, and may have an increased risk of getting cancer.

(74) Toluene. Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys or liver.

(75) Vinyl chloride. Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.

(76) Xylenes. Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.

SECTION 56. NR 811.01 is amended to read:

NR 811.01 Applicability. This chapter governs the general operation, design and construction of community water systems and the construction of any water system serving 7 or more homes, 10 or more duplexes, 10 or more mobile homes, 10 or more condominiums units or 10 or more apartments. The standards for design and construction shall be considered minimum standards for new facilities and the minimum standards to which existing facilities shall be upgraded when improvements are undertaken at those facilities except for existing systems where all of the living units are owned by a single owner and the owner provides information indicating that less than 25 year-round residents will be served. These standards may be imposed on a case-by-case basis to existing facilities when the department determines that a potential health risk exists.

SECTION 57. NR 811.05(2)(a)(intro.) and 5. are amended to read:

NR 811.05(2)(a)(intro.) All suppliers of water for municipal water systems shall submit monthly reports on forms supplied by the department to the appropriate ~~district~~ regional office of the department as required by s. NR 108.06(4). Computer generated forms are acceptable if, at a minimum, all the required data are submitted on the form, and if the form of the report receives the approval of the appropriate department ~~district~~ regional office prior to use. Reports shall include the following data if applicable:

5. Calculated theoretical daily residuals and residual test results;

SECTION 58. NR 811.08(5) is amended to read:

NR 811.08(5) MAINTENANCE. Each supplier of water shall perform routine maintenance to ensure proper operation of the water system. A schedule shall be established for flushing dead-end mains or mains in other areas to remove sediment or water of poor quality. A number of hydrants and valves shall be exercised each year depending on system size so that all are routinely exercised. Record keeping shall be established to insure routine scheduling and performance of valve and hydrant exercising and maintenance. Water storage facilities shall be emptied and inspected at least once every 5 years and maintenance provided as necessary. Interior and exterior paint coatings for steel elevated water storage tanks or treatment structures shall be inspected by a person trained to evaluate the integrity of the paint system at least once every 5 years and repainted as necessary to maintain structural integrity. The supplier of water may perform the inspection if experienced in paint inspection. Upon completion of the water storage facility inspection, a report shall be submitted to the department documenting the condition of the storage facility.

SECTION 59. NR 811.10(2)(intro.) and (a) are amended to read:

NR 811.10(2)(intro.) Provisions for a permit ~~system~~ of no more than 5 years that will allow retention of private water supply systems which are found to be safe and in compliance with ch. NR 812 with the limitation that the owner shall demonstrate a need for continued current use. The permit shall require, but not be limited to, requiring that bacteriological sampling, consisting of obtaining a minimum of

~~2 consecutive safe samples taken a minimum of 2 weeks apart~~ one safe sample, be taken prior to issuing or reissuing the permit to establish that the water is safe for human consumption.

SECTION 60. NR 811.10(3) is renumbered to (4).

SECTION 61. NR 811.10(3) is created to read:

NR 811.10(3) Qualifications of the inspectors determining compliance with ch. NR 812.

SECTION 62. NR 811.11(8) is created to read:

NR 811.11(8) EMERGENCY OPERATIONS. Each community water system shall develop a plan to prepare for, respond to, mitigate and recover from all types of emergency situations, including hazards such as floods, tornadoes and other natural disasters.

(a) Municipal systems shall have an emergency operation plan including, at a minimum:

1. A list of local and state emergency contacts.

2. A system for establishing emergency communications.

3. Any mutual aid agreements the utility has with other communities for sharing personnel, equipment and other resources during an emergency.

4. Standard procedures for emergency water production.

(b) Other-than-municipal systems shall have an emergency operation plan including at a minimum:

1. A list of plumbers, electricians or other contractors that would be available to respond in emergency situations.

2. Procedures for obtaining a back-up water source.

SECTION 63. NR 811.13(3m) to (6) are renumbered NR 811.13(4) to (7) and (4)(title), as renumbered, is amended to read:

NR 811.13(4)(title) ENGINEERING REPORT REQUIREMENTS.

SECTION 64. NR 811.16(4)(d)2. and 3. are amended to read:

NR 811.16(4)(d)2. Two hundred feet between a well and any sanitary sewer main, sanitary sewer manhole, lift station or single family residential fuel oil tank. A lesser separation distance may be allowed for sanitary sewer mains where the sanitary sewer main is constructed of water main materials and joints and pressure tested in place to meet current AWWA C600 specifications. In no case may the separation distance between a well and a sanitary sewer main be less than 50 feet.

3. Four hundred feet between a well and a septic tank or soil adsorption unit receiving less than 8,000 gallons per day, a cemetery or a storm water drainage pond.

SECTION 65. NR 811.16(11) to (21) are renumbered NR 811.16(10) to (20), and sub. (20)(a), as renumbered, is amended to read:

NR 811.16(20)(a) Observation wells, monitoring wells, test wells, treatment wells or other wells constructed as part of the water system shall be constructed in accordance with the requirements for permanent community wells if they are to remain in service after completion of the groundwater supply and if they are located on the well site~~, unless this requirement is waived by the department~~. If not to remain in service, the wells shall be abandoned in accordance with s. NR 811.17. Monitoring wells constructed off the well site shall meet the requirements of ch. NR 141.

SECTION 66. NR 811.29(1)(h) and (i) are repealed.

SECTION 67. NR 811.29(1)(h) and (note) are created to read:

NR 811.29(1)(h) Have a floor drain. The floor drain may be connected to a sanitary sewer where available provided that the pump station floor is at least one foot above the elevation of the nearest sanitary sewer manhole rim. Where a sanitary sewer is available but a manhole is not located nearby, the department may require installation of an additional manhole. The floor drain may discharge to the ground surface provided the discharge location is at least 25 feet from the pumphouse. A greater distance may be required for drains of pump stations serving wells constructed in sand and gravel formations. French drains are prohibited.

NOTE: The Department recommends that the floor drains from chemical feed rooms discharge to sanitary sewer whenever possible.

SECTION 68. NR 811.33(2)(note) is amended to read:

NOTE: The number of homes when using figure no. 1 may be reduced by one-third to use the figure for apartment units, condominium units and mobile homes.

The foregoing rule was approved and adopted by the State of Wisconsin Natural Resources Board on June 28, 2000.

The rule shall take effect on the first day of the month following publication in the Wisconsin administrative register as provided in s. 227.22(2)(intro.), Stats.

Dated at Madison, Wisconsin September 18, 2000

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES

By George E. Meyer
George E. Meyer, Secretary

(SEAL)