

Regulatory Analysis Form

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REVIEW COMMISSION



(1) Agency

Department of Environmental Protection

(2) I.D. Number (Governor's Office Use)

7-359

IRRC Number: 2140

(3) Short Title

Disinfectants and Disinfection Byproducts Rule

(4) PA Code Cite

25 Pa. Code, Chapter 109

(5) Agency Contacts & Telephone Numbers

Primary Contact: Sharon Freeman, 783-1303

Secondary Contact: Barbara Sexton, 783-1303

(6) Type of Rulemaking (Check One)

- Proposed Rulemaking
 Final Order Adopting Regulation
 Final Order, Proposed Rulemaking Omitted

(7) Is a 120-Day Emergency Certification Attached?

- No
 Yes: By the Attorney General
 Yes: By the Governor

(8) Briefly explain the regulation in clear and nontechnical language.

The proposed amendments will regulate disinfection practices at public water systems in order to eliminate or minimize disinfection byproducts that may cause harmful health effects. The proposed amendments will incorporate the provisions of the *Federal Disinfectants and Disinfection Byproducts Rule (D/DBPR)* that was promulgated by the United States Environmental Protection Agency (EPA) on December 16, 1998.

The D/DBPR was promulgated concurrently with a companion rule, the *Federal Interim Enhanced Surface Water Treatment Rule (IESWTR)*. The IESWTR is intended to improve the control of microbial pathogens, specifically *Cryptosporidium parvum*. The coexistence of the IESWTR and the D/DBPR inherently forces tradeoffs between microbial risks and disinfection risks. It is felt, however, that the final balance of these tradeoffs is at an optimal point whereby the risk levels of each are at an acceptable level of tolerance.

(9) State the statutory authority for the regulation and any relevant state or federal court decisions.

The Pennsylvania Safe Drinking Water Act, 35 P.S. § 721.4(a), and sections 1917-A and 1920-A of the Administrative Code of 1929, 71 P.S. §§ 510-7 and 510-20(b).

Regulatory Analysis Form

(10) Is the regulation mandated by any federal or state law or court order, or federal regulation? If yes, cite the specific law, case or regulation, and any deadlines for action.

Yes. Section 1413 of the Federal Safe Drinking Water Act, 42 U.S.C. § 300g-2a, requires that, in order for the state to retain primary enforcement authority (primacy), the state must adopt drinking water regulations that are "no less stringent than" the national primary drinking water regulations not later than 2 years after the date on which the regulations are promulgated by the United States Environmental Protection Agency (EPA), or must ask EPA for an extension of up to 2 years. The federal drinking water primacy regulations at 40 CFR § 142.12(a) also require the state to adopt all new and revised national primary drinking water regulations contained in 40 CFR Part 141 in order to retain primary enforcement responsibility. Furthermore, Section 4(a) of the Pennsylvania Safe Drinking Water Act, 35 P.S. § 721.4(a), requires the Environmental Quality Board to adopt maximum contaminant levels and treatment technique requirements no less stringent than those promulgated under the federal act for all contaminants regulated under the national primary and secondary drinking water regulations. Also Section 5(a) of the state act, 35 P.S. § 721.5(a), requires the Department to adopt and implement a public water supply program which includes those program elements necessary to assume state primary enforcement responsibility under the federal act.

EPA promulgated the *Federal Interim Enhanced Surface Water Treatment Rule (IESWTR)* and *Disinfectants and Disinfection Byproduct Rule (D/DBPR)* on December 16, 1998. Therefore, Pennsylvania must adopt regulations implementing the federal rules by December 16, 2000. Failure to do so, and without an EPA-granted extension, may result in Pennsylvania losing primacy. It is expected that an extension will be requested because the state is adopting two or more EPA regulations at the same time (one of the criteria for EPA to grant an extension).

(11) Explain the compelling public interest that justifies the regulation. What is the problem it addresses?

The public health benefits of disinfection practices are significant and well-recognized. Disinfection, however, poses its own health risks. The proposed amendments will implement standards that will either minimize or eliminate harmful disinfection byproducts in public water systems.

(12) State the public health, safety, environmental or general welfare risks associated with non-regulation.

Although disinfectants such as chlorine, hypochlorites, and chlorine dioxide are effective in controlling many harmful microorganisms, they react with organic and inorganic matter in the water to form disinfection byproducts (DBPs). These DBPs, as well as the original disinfectants, pose health risks at certain levels.

Since the discovery of DBPs in drinking water in 1974, numerous toxicological studies have been conducted that show DBPs to be carcinogenic and/or cause reproductive or developmental effects in laboratory animals. Additionally, exposure to high levels of disinfectants over long periods of time may cause health problems, including blood and kidney damage. While many of these studies have been conducted at high doses, the weight of the evidence indicates that disinfectants and DBPs present a potential public health problem that must be addressed.

(13) Describe who will benefit from the regulation. (Quantify the benefits as completely as possible and approximate the number of people who will benefit.)

The proposed amendments will affect 2,565 public water systems which serve a total population of over 10.4 million Pennsylvanians. These 10.4 million people will benefit from a significant reduction in health risks associated with disinfection practices, such as bladder cancer and kidney damage.

(14) Describe who will be adversely affected by the regulation. (Quantify the adverse effect as completely as possible and approximate the number of people who will be adversely affected.)

The proposed amendments are not expected to produce any adverse impacts.

(15) List the persons, groups or entities that will be required to comply with the regulation. (Approximate the number of people who will be required to comply.)

The proposed amendments will affect 2,565 public water systems in Pennsylvania. Each of these water systems will need to comply with various requirements of the amendments.

(16) Describe the communications with and input from the public in the development and drafting of the regulation. List the persons and/or groups who were involved, if applicable.

The federal D/DBPR was developed through the regulatory negotiation process with many participants. These participants included public water systems, environmental groups, and public health groups. Both the Water Resources Advisory Committee (WRAC) and the Small Water Systems Technical Assistance Center Advisory Board (TAC) reviewed drafts of the proposal and provided comments and suggestions. A thirty-day public comment period will also be scheduled.

(17) Provide a specific estimate of the costs and/or savings to the regulated community associated with compliance, including any legal, accounting or consulting procedures which may be required.

The EPA has estimated that a total annual cost of almost \$684 million will be borne by the regulated community, nationwide, as a result of this rule. It is estimated that Pennsylvania water systems will bear over \$23 million of this total annual cost.

(18) Provide a specific estimate of the costs and/or savings to local governments associated with compliance, including any legal, accounting or consulting procedures which may be required.

The D/DBPR will affect 2,565 public water systems in Pennsylvania. Of these 2,565 systems, 760 are owned by local governments in the form of water and municipal authorities. The local governments that own these systems will incur an estimated annual cost of \$6,919,217.

It should be noted that, for the purposes of the table in question (20) on the following page, the local government costs are for compliance with the D/DBPR provisions. That is, local government is considered in this analysis to be a part of the regulated community, not the regulating community. Therefore, the \$6.9 million estimate provided above is a part of the \$23 million estimate provided in the previous question (17).

(19) Provide a specific estimate of the costs and/or savings to state government associated with the implementation of the regulation, including any legal, accounting or consulting procedures which may be required.

The EPA has estimated that a total annual cost of \$17.3 million will be borne by the regulating state agencies, nationwide, as a result of this rule. It is estimated that DEP will bear almost \$585,000 of this total annual cost.

(20) In the table below, provide an estimate of the fiscal savings and cost associated with implementation and compliance for the regulated community, local government, and state government for the current year and five subsequent years.

	Current FY Year	FY +1 Year	FY +2 Year	FY +3 Year	FY +4 Year	FY +5 Year
SAVINGS:	\$	\$	\$	\$	\$	\$
Regulated Community	0	0	0	0	0	0
Local Government	0	0	0	0	0	0
State Government	0	0	0	0	0	0
Total Savings	0	0	0	0	0	0
COSTS:						
Regulated Community	16,144,838	16,144,838	16,144,838	16,144,838	16,144,838	16,144,838
Local Government	6,919,217	6,919,217	6,919,217	6,919,217	6,919,217	6,919,217
State Government	584,900	584,900	584,900	584,900	584,900	584,900
Total Costs	23,648,955	23,648,955	23,648,955	23,648,955	23,648,955	23,648,955
REVENUE LOSSES:						
Regulated Community	0	0	0	0	0	0
Local Government	0	0	0	0	0	0
State Government	0	0	0	0	0	0
Total Revenue Losses	0	0	0	0	0	0

(20a) Explain how the cost estimates listed above were derived.

The costs listed above were derived from the nationwide costs compiled and published by the EPA in the Preamble of the *Federal Disinfectants and Disinfection Byproducts Rule* (Federal Register, Vol. 63, No. 241). The Pennsylvania costs are the national costs multiplied by the ratio of the number of Pennsylvania systems (2,565) to the number of nationwide systems (76,051)¹. That is,

The ratio of PA systems to nationwide systems is $2,565 / 76,051 = 0.03373$

Estimated nationwide regulated community cost² = \$683,838,000

Estimated annual cost to Pennsylvania water systems = $\$683,838,000 \times 0.03373 = \$23,064,055$

Percentage of Pennsylvania systems that are "Local Government" water and municipal authorities = 30% (from the Safe Drinking Water Program's PADWIS data system)

Note: "Local Government" in this analysis is the regulated community, not regulating agencies.

Estimated annual cost to Pennsylvania systems that are local government authorities = $\$23,064,055 \times 0.30 = \$6,919,217$

Estimated annual cost to Pennsylvania systems that are not local government = $\$23,064,055 - \$6,919,217 = \$16,144,838$

Estimated nationwide state agencies cost³ = \$17,342,000

Estimated DEP annual cost to administer the D/DBPR = $\$17,342,000 \times 0.03373 = \$584,900$

1 - Federal Register, Vol. 63, No. 241, pg. 69459

2,3 - Federal Register, Vol. 63, No. 241, pg. 69437, Table IV-6 (at 7 % cost of capital)

(20b) Provide the past three year expenditure history for programs affected by the regulation.

Program	FY-3	FY-2	FY-1	Current FY
Safe Drinking Water	\$7,558,411	\$8,648,320	\$8,306,684	\$8,855,911

(21) Using the cost-benefit information provided above, explain how the benefits of the regulation outweigh the adverse effects and costs.

The proposed amendments are not expected to produce any adverse effects. The EPA has estimated that the nation may realize a total annual benefit of up to \$4 billion as a result of avoiding up to 2,232 cases of bladder cancer per year⁴. In Pennsylvania, this translates into a total annual benefit of up to \$175 million in avoiding up to 98 cases of bladder cancer per year. This benefit was derived from multiplying the national benefit by the ratio of DBP-exposed Pennsylvanians to DBP-exposed U.S. citizens.

That is, # Pennsylvanians potentially exposed to DBPs = 10,455,296
 # U.S. citizens exposed to DBPs⁵ = 239,137,010
 ratio = 10,455,296 / 239,137,010 = 0.04372

 nationwide annual benefit⁶ = \$4,000,000,000
 Pennsylvania annual benefit = \$4,000,000,000 x 0.04372 = \$174,880,000

 # nationwide annual bladder cancer cases⁷ = 2,232
 # Pennsylvania annual bladder cancer cases = 2,232 x 0.04372 = 97.6

4,6,7 – Federal Register, Vol. 63, No. 241, pg. 69441
 5 – Federal Register, Vol. 63, No. 241, pg. 69438, Table IV-7

(22) Describe the nonregulatory alternatives considered and the costs associated with those alternatives. Provide the reasons for their dismissal.

No nonregulatory alternatives were considered. This is a federal rule that must be either complied with, or adopted, by the individual states.

(23) Describe alternative regulatory schemes considered and the costs associated with those schemes. Provide the reasons for their dismissal.

No alternative regulatory schemes were considered. This is a federal rule that must be either complied with, or adopted, by the individual states.

(24) Are there any provisions that are more stringent than federal standards? If yes, identify the specific provisions and the compelling Pennsylvania interest that demands stronger regulation.

The proposed amendments contain no provisions that are more stringent than the federal D/DBP rule.

(25) How does the regulation compare with those of other states? Will the regulation put Pennsylvania at a competitive disadvantage with other states?

The federal D/DBP rule will need to be either complied with, or adopted, by all of the other 49 states. Because of this, the proposed amendments will not put Pennsylvania at a competitive disadvantage with any other state.

(26) Will the regulation affect existing or proposed regulations of the promulgating agency or other state agencies? If yes, explain and provide specific citations.

The proposed amendments will be incorporated into the existing language of 25 Pa Code Chapter 109. Other than this incorporation, the proposed amendments should not affect any existing or proposed regulations of DEP, or any other state agency.

(27) Will any public hearings or informational meetings be scheduled? Please provide the dates, times, and locations, if available.

No public hearings or informational meetings are scheduled for these proposed amendments.

(28) Will the regulation change existing reporting, record keeping, or other paperwork requirements? Describe the changes and attach copies of forms or reports which will be required as a result of implementation, if available.

The proposed amendments will require that water systems comply with two to four new contaminant standards, as well as with one to three new disinfectant residual standards. In order to comply with these standards, the water system will need to monitor and report these contaminants and disinfectant residuals. Water systems which treat with conventional filtration will also need to monitor and report total organic carbon, both in the source water and in the treated water.

It is anticipated that this additional monitoring and reporting will be easily facilitated by our current data reporting forms and that no additional data forms or paperwork will be necessary.

(29) Please list any special provisions which have been developed to meet the particular needs of affected groups or persons including, but not limited to, minorities, elderly, small businesses, and farmers.

The proposed amendments should have no effects on one particular group relative to another since it will apply to most of Pennsylvania's population. However, the Safe Drinking Water Program is prepared to develop special provisions, or provide special services, to accommodate any such group as the need arises.

(30) What is the anticipated effective date of the regulation; the date by which compliance with the regulation will be required; and the date by which any required permits, licenses or other approvals must be obtained?

The proposed amendments are targeted for promulgation in December 2000. The amendments' components must be complied with by as early as January 2002. Various permits and approvals resulting from the amendments will be obtained in accordance with the procedures and schedules of both the amendments and currently existing regulations.

(31) Provide the schedule for continual review of the regulation.

The amendments will be reviewed in accordance with the Sunset Review Schedule published by the Department.

FACE SHEET
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LEGISLATIVE HISTORY
REVIEW COMMISSION

2140

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Copy below is hereby approved as to form and legality. Attorney General

Justin S. Caputo
DEPUTY ATTORNEY GENERAL

JUL 27 2000

DATE OF APPROVAL

Check if applicable by not approved. Objections checked.

Copy below is hereby certified to be a true and correct copy of a document issued, prescribed or promulgated by:

DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD

(AGENCY)

DOCUMENT/FISCAL NOTE NO. 7-350

DATE OF ADOPTION:

BY: *James M. Seif*

TITLE: JAMES M. SEIF, CHAIRMAN
(EXECUTIVE OFFICER, CHAIRMAN OR SECRETARY)

Copy below is hereby approved as to form and legality. Executive or Independent Agencies.

R. E. Grimaldi

7/19/00
DATE OF APPROVAL

(Deputy General Counsel)
~~(Chief Counsel, Independent Agency)~~
(Strike inapplicable title)

Check if applicable. No Attorney General approval or objection within 30 days after submission.

NOTICE OF
PROPOSED RULEMAKING
DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD

Disinfectants and Disinfection Byproducts Rule

25 Pa. Code, Chapter 109

Notice of Proposed Rulemaking
Department of Environmental Protection
Environmental Quality Board
(25 Pa. Code, Chapter 109)
(Safe Drinking Water)
(Disinfectants and Disinfection Byproducts Rule)

Preamble

The Environmental Quality Board (Board) proposes to amend 25 Pa. Code, Chapter 109 (relating to Safe Drinking Water). The proposed amendments will establish Maximum Residual Disinfectant Levels (MRDLs) and monitoring requirements for free chlorine, combined chlorine, and chlorine dioxide. Maximum Contaminant Levels (MCLs) and monitoring requirements will be established for five haloacetic acids, chlorite, and bromate. The MCL for total trihalomethanes will be lowered. The proposed amendments will also establish pre-filtration treatment techniques for public water systems that use conventional filtration in order to reduce source water Total Organic Carbon (TOC), which serves as a precursor to disinfection byproducts.

The proposal was adopted by the Board at its meeting of July 18, 2000.

A. Effective Date

These amendments will go into effect upon publication in the *Pennsylvania Bulletin* as final rulemaking.

B. Contact Persons

For further information, contact Jeffrey A. Gordon, Acting Chief, Division of Drinking Water Management, P.O. Box 8467, Rachel Carson State Office Building, Harrisburg, PA 17105-8467, (717) 772-4018 or Pamela Bishop, Assistant Counsel, Bureau of Regulatory Counsel, P.O. Box 8464, Rachel Carson State Office Building, Harrisburg, PA 17105-8464, (717) 787-7060. Persons with a disability may use the AT&T Relay Service by calling 1-800-654-5984 (TDD users) or 1-800-654-5988 (voice users). This proposal is available electronically through the DEP Web site (<http://www.dep.state.pa.us>).

C. Statutory Authority

The proposed rulemaking is being made under the authority of Section 4 of the Pennsylvania Safe Drinking Water Act (35 P.S. § 721.4), which grants the Board the authority to adopt rules and regulations governing the provision of drinking water to the public, and Sections 1917-A and 1920-A of the Administrative Code of 1929 (71 P.S. §§ 510-7 and 510-20).

D. Background and Purpose

The public health benefits of disinfection are significant and well-recognized. However, these very disinfection practices pose health risks of their own. Although disinfectants such as chlorine, hypochlorites, and chlorine dioxide are effective in controlling many harmful microorganisms, they react with organic and inorganic matter in the water to form disinfection byproducts (DBPs), which pose health risks at certain levels.

The first DBPs discovered in public drinking water were halogenated methanes in 1974. As a result, the United States Environmental Protection Agency (EPA) promulgated a MCL for the composite sum of four individual DBP species: chloroform, bromodichloromethane, dibromochloromethane, and bromoform. This composite sum was termed "Total Trihalomethanes" (TTHMs) and had an MCL of 0.1 mg/L which was applied only to community water systems serving at least 10,000 people. This MCL is currently in effect today.

Since the discovery of TTHMs in drinking water in 1974, other DBPs have been identified and studied for their health effects. Many of these studies have shown DBPs to be carcinogenic and/or to cause reproductive or developmental effects in laboratory animals. Studies have also shown that high levels of the disinfectants themselves may cause health problems over long periods of time, including damage to both the blood and the kidneys. While many of these studies have been conducted at high doses, the weight of the evidence indicates that DBPs present a potential public health problem that must be addressed.

In 1992, the EPA initiated a rulemaking process to address public health concerns associated with disinfectants, DBPs, and microbial pathogens. As part of this rulemaking process, EPA established a Regulatory Negotiation (Reg/Neg) Committee which included representatives of state and local health and regulatory agencies, public water systems, elected officials, consumer groups and environmental groups.

EPA's most significant concern in developing regulations for disinfectants and DBPs was the need to ensure that adequate treatment be maintained for controlling risks from microbial pathogens. One of the major goals addressed in the rulemaking process was to develop an approach that would reduce the level of exposure from disinfectants and DBPs without undermining the control of microbial pathogens. The intention was to ensure that drinking water is microbiologically safe at the limits set for disinfectants and DBPs and that these chemicals do not pose an unacceptable health risk at these limits. Thus, the Reg/Neg Committee also considered a range of microbial issues and agreed that EPA should also propose a companion microbial rule, the *Interim Enhanced Surface Water Treatment Rule (IESWTR)*.

Following months of intensive discussions and technical analysis, the Reg/Neg Committee recommended the development of three sets of rules: a two-stage rule to address disinfectants and DBPs (D/DBPs), the IESWTR, and an *Information Collection Rule (ICR)*. The approach used in developing these proposals considered the constraints of simultaneously treating water to control microbial contaminants, disinfectants, and DBPs. The Reg/Neg Committee agreed that the schedule for the IESWTR should be linked to the schedule of the first stage of the D/DBP rule to assure simultaneous compliance and a balanced risk-risk based

implementation. The Reg/Neg Committee also agreed that additional information on health risk, occurrence, treatment technologies, and analytical methods needed to be developed in order to better understand the risk-risk tradeoff, and how to accomplish an overall reduction in health risks to both pathogens and D/DBPs. Finally the Reg/Neg Committee agreed that to develop a reasonable set of rules and to understand more fully the limitations of the current Surface Water Treatment Rule, additional field data were critical. Thus, a key component of the regulation negotiation agreement was the promulgation of the ICR.

The *Federal Disinfectants and Disinfection Byproducts Rule (D/DBPR)* (40 CFR Parts 9, 141, and 142), which was promulgated on December 16, 1998, was developed based on the outcome of this rulemaking process, as well as a wide range of technical comments from stakeholders and members of the public. The D/DBPR is intended to regulate treatment practices at public water systems in order to eliminate or minimize disinfectant levels and disinfection byproducts that may cause harmful health effects. The D/DBPR is applicable to all community and nontransient noncommunity water systems that use a chemical disinfectant or oxidant, as well as to all transient noncommunity water systems that use chlorine dioxide. The D/DBPR will establish MRDLs for free chlorine, combined chlorine, and chlorine dioxide. MCLs will also be established for five haloacetic acids, chlorite, and bromate. The current MCL for TTHMs will be lowered from 0.1 mg/L to 0.08 mg/L and will be applied to all community and nontransient noncommunity water systems, regardless of the population that is served. The D/DBPR will also regulate pre-filtration treatment techniques for public water systems that use conventional filtration in order to reduce source water Total Organic Carbon (TOC), which serves as a precursor to disinfection byproducts.

On April 14, 2000, EPA proposed corrective amendments to both the D/DBPR and IESWTR. These corrective amendments are minor in nature (e.g., change in compliance date from 12/17/01 to 1/1/02) and are, as of the date of this writing, still in the proposed stage of rulemaking. For the purposes of this proposed rulemaking, the Department assumes that all of the proposed federal corrective amendments will ultimately be adopted as final amendments. When the final federal corrective amendments are promulgated, those final changes will be taken into consideration in connection with final adoption of this proposed rulemaking.

Other federal rules will be promulgated in the future as a follow-up to both the D/DBPR and the IESWTR. These rules will be the *Stage 2 D/DBPR*, the *Long Term 1 Enhanced Surface Water Treatment Rule (LT1)*, the *Long Term 2 Enhanced Surface Water Treatment Rule (LT2)*, and the *Filter Backwash Rule (FBR)*. The LT1 and FBR rules are expected in 2001. The LT2 and Stage 2 D/DBPR rules are expected in 2002.

The Board proposes to incorporate the provisions of both the federal D/DBPR and the proposed federal corrective amendments into the Pennsylvania Safe Drinking Water Regulations (25 Pa. Code Chapter 109). The rulemaking is necessary for Pennsylvania to retain primacy under Federal Safe Drinking Water Act. (See 35 P.S. §§721.2(a)(3), 721.5(a) and 42 U.S.C. §300g-2a)

The draft proposed amendments were submitted for review to the Water Resources Advisory Committee (WRAC) on February 9, 2000. Comments were received from the WRAC on March 21, 2000.

The WRAC adopted a comment from the Philadelphia Water Department (PWD) concerning the treatment techniques for disinfection byproduct (DBP) precursors found in 40 CFR § 141.135. PWD was concerned that, during months when the “alternate” criteria of 40 CFR § 141.135(c)(2) were met, the monthly “compliance” factors as per the same section would not be used in the compliance calculation defined in 40 CFR § 141.135(c)(1).

The reason for this concern was that PWD was not aware that 40 CFR § 141.135(c) was referenced in § 109.202(g)(1). By not noting this reference, PWD assumed that the quarterly compliance calculation of the running annual average in § 109.202(g)(2)(ii) was the same procedure applicable to systems doing enhanced coagulation or softening under 40 CFR § 141.135(c). This procedure, however, makes no use of the monthly “compliance” factors that are specified in 40 CFR § 141.135(c)(2). Hence, PWD became concerned that the perceived omission of monthly “compliance” factors could cause more violations (under 40 CFR § 141.135(c)(2) for systems doing enhanced coagulation or softening) than would be incurred with the use of the monthly “compliance” factors. This issue was later discussed with PWD and clarified to PWD’s satisfaction. Accordingly, there is no change to the proposed amendments.

The draft proposed amendments were submitted to the Small Water Systems Technical Assistance Center Advisory Board (TAC) for review and discussion on March 23, 2000. Comments were received from the TAC on April 19, 2000. The TAC had no specific comments that would change the proposed amendments.

E. Summary of Regulatory Requirements

The proposed amendments reflect, and are no more stringent than, both the new federal D/DBPR requirements and the proposed federal corrective amendments. In addition to the amendments described below, numerous sections have been amended to add MRDL references.

1. § 109.1 *Definitions.*

This section was amended in order to add the following EPA definitions: Enhanced coagulation, Enhanced softening, GAC 10, Groundwater under the direct influence of surface water (GUDI), Haloacetic Acids (HAA5), Maximum Residual Disinfectant Level (MRDL), Specific Ultraviolet Absorption (SUVA), and Total Organic Carbon (TOC). The definitions of Surface water and National Primary Drinking Water Regulations were also amended. These amendments reflect the new definitions of the federal D/DBPR found in 40 CFR § 141.2.

2. § 109.202(a)(3) *Primary MCLs.*

This new paragraph was added to incorporate EPA’s new requirements for obtaining an extension for compliance with the disinfection byproducts MCLs. This amendment reflects the federal requirement found in 40 CFR § 141.64(b)(2).

3. § 109.202(f) *MRDLs.*

This new subsection was added to incorporate EPA's new Maximum Residual Disinfectant Levels by reference. This amendment reflects the federal requirement found in 40 CFR § 141.65.

4. § 109.202(g) *Treatment technique requirements for disinfection byproduct precursors.*

This new subsection was added to incorporate EPA's new total organic carbon removal requirements. This amendment reflects the federal requirement found in 40 CFR § 141.135.

5. § 109.301(8)(vi) *Monitoring requirements for public water systems that obtain finished water from another public water system.*

This new subparagraph was added to incorporate EPA's requirement that the federal D/DBPR be applied to all consecutive community and nontransient noncommunity water systems that serve water that contains a chemical disinfectant or oxidant. This amendment reflects the federal requirement found in 40 CFR § 141.130(a)(1).

6. § 109.301(12) *Monitoring requirements for disinfection byproducts and disinfection byproduct precursors.*

This new paragraph was added to incorporate EPA's new monitoring requirements for disinfection byproducts and total organic carbon. This amendment reflects the federal requirements found in 40 CFR § 141.132(a), (b), & (d).

7. § 109.301(13) *Monitoring requirements for disinfectant residuals.*

This new paragraph was added to incorporate EPA's new monitoring requirements for disinfectant residuals. This amendment reflects the federal requirement found in 40 CFR § 141.132(c).

8. § 109.401 *General public notification requirements.*

This section was amended in order to add EPA's acute violations for chlorine dioxide. This amendment reflects the federal requirement found in 40 CFR § 141.133(c)(2)(i).

9. § 109.403(d) *Description and content of notice.*

This new subsection was added to incorporate EPA's new public notification requirements for total trihalomethanes. This amendment reflects the federal requirement found in 40 CFR § 141.154(e).

10. § 109.701(a)(8) *Reporting requirements for disinfectant residuals.*

This new paragraph was added to incorporate EPA's new disinfectant reporting requirements. This amendment reflects the federal requirement found in 40 CFR § 141.134(c).

11. § 109.701(a)(9) *Reporting requirements for disinfection byproducts.*

This new paragraph was added to incorporate EPA's new disinfection byproduct reporting requirements. This amendment reflects the federal requirement found in 40 CFR § 141.134(b).

12. § 109.701(a)(10) *Reporting requirements for disinfection byproduct precursors.*

This new paragraph was added to incorporate EPA's new reporting requirements for total organic carbon. This amendment reflects the federal requirement found in 40 CFR § 141.134(d).

13. § 109.701(e) *Monitoring plans for disinfectants, disinfection byproducts, and disinfection byproduct precursors.*

This new subsection was added to incorporate EPA's new requirements for monitoring plans pertaining to disinfectants, disinfection byproducts, and total organic carbon. This amendment reflects the federal requirement found in 40 CFR § 141.132(f).

14. § 109.704(c) *Operator certification.*

This new subsection was added to incorporate EPA's new requirements for nontransient noncommunity operator qualifications. Specifically, this subsection requires that nontransient noncommunity water systems that provide water that contains a chemical disinfectant must be operated by qualified operators. This subsection closely parallels current language in § 109.1107(c)(2) in that it will provide for a 3-year phase-in period for having a qualified operator, establishes certification under the Sewage Treatment Plant and Waterworks Operators' Certification Act (63 P. S. §§ 1001 - 1015) as the criteria for being qualified, and establishes a minimum certification level of disinfection only, according to 25 Pa. Code §303.2 (relating to waterworks operators certificates). This amendment reflects the federal requirement found in 40 CFR § 141.130(c).

15. § 109.710(c) *Disinfectant residual in the distribution system.*

This new subsection was added to incorporate EPA's new conditions for obtaining a temporary exemption from compliance with both the chlorine and chloramines MRDLs. This amendment reflects the federal requirement found in 40 CFR § 141.130(d).

16. § 109.805 *Certification procedure.*

This section was amended in order to update the § 109.805(b) EPA references and to incorporate EPA's new annual proficiency testing requirement for certified drinking water laboratories. This amendment reflects the federal requirement found in 40 CFR § 141.131(b)(2).

17. § 109.1003(a)(1)(viii) *Monitoring requirements.*

This new subparagraph was added to incorporate EPA's new bromate monitoring requirements for bottled water systems. This amendment reflects the federal requirement found in 40 CFR § 141.132(b)(3).

F. Benefits, Costs and Compliance

Executive Order 1996-1 requires a cost/benefit analysis of the proposed regulation.

Benefits

The public health benefits of disinfection practices are significant and well-recognized. Disinfection, however, poses its own health risks. The proposed amendments will implement standards that will either minimize or eliminate harmful disinfectant levels and disinfection byproducts in public water systems.

The proposed amendments will affect 2,565 public water systems that serve a total population of over 10.4 million Pennsylvanians. These 10.4 million people will benefit from a reduction in health risks associated with disinfection practices, such as bladder cancer and kidney damage.

The EPA has estimated that the nation may realize a total annual benefit of up to \$4 billion as a result of avoiding up to 2,232 cases of bladder cancer per year. In Pennsylvania, this translates into a total annual benefit of up to \$175 million in avoiding up to 98 cases of bladder cancer per year.

Compliance Costs

The United States Environmental Protection Agency (EPA) has estimated that a total annual cost of almost \$684 million will be borne by the regulated community, nationwide, as a result of this rule. It is estimated that Pennsylvania water systems will bear over \$23 million of this total annual cost.

The \$23 million estimate will include up-front capital costs associated with process modifications. These process modifications may involve the dose or type of disinfectant chemical, the process location(s) of disinfectant addition, technologies or treatment techniques that reduce source water TOC, technologies or treatment techniques that remove DBPs, and new source development activities.

The \$23 million estimate also includes ongoing costs associated with operations and maintenance. These costs will include maintenance activities of any new technologies or sources that are installed because of this rule. These costs will also include the routine compliance expenses of monitoring, reporting, and recordkeeping.

Compliance Assistance Plan

The Safe Drinking Water Program utilizes the Commonwealth's PENNVEST Program in order to offer financial assistance to eligible public water systems. This assistance is in the form of a low-interest loan, with some augmenting grant funds for hardship cases. Eligibility is based upon factors such as public health impact, compliance necessity, and project/operational affordability.

The Safe Drinking Water Program has established a network of regional and central office training staff that is responsive to identifiable training needs. The target audience in need of training may be either program staff or the regulated community.

In addition to this network of training staff, the Bureau of Water Supply Management has a division dedicated to providing both training and outreach support services to public water system operators. The DEP Internet site also contains the *Drinking Water & Wastewater Treatment System Operator Information Center* Internet site, which provides a bulletin board of timely, useful information for treatment plant operators.

Paperwork Requirements

The proposed amendments will require that water systems comply with two to four new contaminant standards, as well as with one to three new disinfectant residual standards. In order to comply with these standards, the water system will need to monitor and report these contaminants and disinfectant residuals. Water systems which treat with conventional filtration will also need to monitor and report total organic carbon, both in the source water and in the treated water.

It is anticipated that this additional monitoring and reporting will be easily facilitated by the addition of one or two new data reporting forms and that little additional paperwork will be necessary.

G. Sunset Review

These regulations will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulations effectively fulfill the goals for which they were intended.

H. Regulatory Review

Under Section 5(a) of the Regulatory Review Act (71 P.S. §745.5(a)), the Department submitted a copy of the proposed amendments to the Independent Regulatory Review Commission (IRRC) and the Chairpersons of the Senate and House Environmental Resources and Energy Committees. In addition to submitting the proposed amendments, the Department has provided IRRC and the Committees with a copy of a detailed regulatory analysis form prepared by the Department in compliance with Executive Order 1996-1, "Regulatory Review and Promulgation." A copy of this material is available to the public upon request.

Under section 5(g) of the Regulatory Review Act, if IRRC has objections to any portion of the proposed amendments, it will notify the Department within 10 days of the close of the Committees' review period. The notification shall specify the regulatory review criteria which have not been met by that portion of the proposed amendments to which an objection is made. The Regulatory Review Act specifies detailed procedures for review by the Department, the Governor, and the General Assembly of objections raised prior to final publication of the amendments.

I. Public Comments

Written Comments - Interested persons are invited to submit comments, suggestions, or objection regarding the proposed regulation to the Environmental Quality Board, P.O. Box 8477, Harrisburg, PA 17105-8477 (express mail: Rachel Carson State Office Building, 15th Floor, 400 Market Street, Harrisburg, PA 17105-2301). Comments submitted by facsimile will not be accepted. Comments, suggestions, or objections must be received by the Board by October 2, 2000 (within 30 days of publication in the *Pennsylvania Bulletin*). Interested persons may also submit a summary of their comments to the Board. The summary may not exceed one page in length and must also be received by October 2, 2000 (within 30 days of publication in the *Pennsylvania Bulletin*). The one-page summary will be provided to each member of the Board in the agenda packet distributed prior to the meeting at which the final regulations will be considered.

Electronic Comments - Comments may be submitted electronically to the Board at RegComments@dep.state.pa.us and must also be received by the Board by October 2, 2000. A subject heading of the proposal and a return name and address must be included in each transmission. If an acknowledgement of electronic comments is not received by the sender within two working days, the comments should be retransmitted to ensure receipt.

BY:

JAMES M. SEIF
Chairman
Environmental Quality Board

ANNEX A

TITLE 25. ENVIRONMENTAL PROTECTION

DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHAPTER 109. SAFE DRINKING WATER

Subchapter A. GENERAL PROVISIONS

§ 109.1. Definitions.

The following words and terms, when used in this chapter, have the following meanings, unless the context clearly indicates otherwise:

ENHANCED COAGULATION – THE ADDITION OF SUFFICIENT COAGULANT FOR IMPROVED REMOVAL OF DISINFECTION BYPRODUCT PRECURSORS BY CONVENTIONAL FILTRATION TREATMENT.

ENHANCED SOFTENING – THE IMPROVED REMOVAL OF DISINFECTION BYPRODUCT PRECURSORS BY PRECIPITATIVE SOFTENING.

GAC 10 – 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.

GUDI – GROUNDWATER UNDER THE DIRECT INFLUENCE OF SURFACE WATER – ANY WATER BENEATH THE SURFACE OF THE GROUND WITH THE PRESENCE OF INSECTS OR OTHER MACROORGANISMS, ALGAE, ORGANIC DEBRIS, OR LARGE DIAMETER PATHOGENS SUCH AS GIARDIA LAMBLIA AND CRYPTOSPORIDIUM, OR SIGNIFICANT AND RELATIVELY RAPID SHIFTS IN WATER CHARACTERISTICS SUCH AS TURBIDITY, TEMPERATURE, CONDUCTIVITY, OR PH WHICH CLOSELY CORRELATE TO CLIMATOLOGICAL OR SURFACE WATER CONDITIONS. THE TERM DOES NOT INCLUDE FINISHED WATER.

HALOACETIC ACIDS (FIVE) (HAA5) – THE SUM OF THE CONCENTRATIONS IN MILLIGRAMS PER LITER OF THE HALOACETIC COMPOUNDS (MONOCHLOROACETIC ACID, DICHLOROACETIC ACID, TRICHLOROACETIC ACID, MONOBROMOACETIC ACID, AND DIBROMOACETIC ACID), ROUNDED TO TWO SIGNIFICANT FIGURES AFTER ADDITION.

MRDL – MAXIMUM RESIDUAL DISINFECTANT LEVEL – THE MAXIMUM PERMISSIBLE 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.**

National Primary Drinking Water Regulations – Primary drinking water regulations and implementation regulations promulgated by the Administrator under the Federal act at 40 CFR [141.1—141.42 and 142.1—142.55] **PARTS 141 AND 142**. The term includes interim, revised and final regulations.

Surface water – Water open to the atmosphere or subject to surface runoff [, or water directly influenced by surface water, which may include springs, infiltration galleries, cribs or wells]. The term does not include finished water. [Water is directly influenced by surface water when the aquifer is configured to allow the passage of pathogenic protozoans, subjecting the source to contamination by the protozoans. Direct influence may be determined on a case-by-case basis and may be determined by one or both of the following:

(i) Significant and relatively rapid shifts in water characteristics, such as turbidity, temperature, conductivity or pH (which may also change in groundwater but at a much slower rate) which closely correlate to climatologic or surface water conditions.

(ii) The presence of insects or other macroorganisms, algae, organic debris or large-diameter protozoans such as Giardia lamblia.]

SUVA – SPECIFIC ULTRAVIOLET ABSORPTION AT 254 NANOMETERS (NM), AN INDICATOR OF THE HUMIC CONTENT OF WATER. IT IS A CALCULATED PARAMETER OBTAINED BY DIVIDING A SAMPLE'S ULTRAVIOLET ABSORPTION AT A WAVELENGTH OF 254 NM (UV₂₅₄) (IN M⁻¹) BY ITS CONCENTRATION OF DISSOLVED ORGANIC CARBON (DOC) (IN MG/L).

TOC – TOTAL ORGANIC CARBON – THE TOTAL ORGANIC CARBON IN MG/L MEASURED USING HEAT, OXYGEN, ULTRAVIOLET IRRADIATION, CHEMICAL OXIDANTS, OR COMBINATIONS OF THESE OXIDANTS THAT CONVERT ORGANIC CARBON TO CARBON DIOXIDE, ROUNDED TO TWO SIGNIFICANT FIGURES.

Subchapter B. MCLS, MRDLS, OR TREATMENT TECHNIQUE REQUIREMENTS

§ 109.202. State MCLS, MRDLS, and treatment technique requirements.

(a) *Primary MCLS*

(1) A public water system shall supply drinking water that complies with the primary MCLs adopted by the EQB under the act.

(2) This subchapter incorporates by reference the primary MCLs in the National Primary Drinking Water Regulations, at 40 CFR Part 141, Subparts B and G (relating to maximum contaminant levels) as State MCLs, under the authority of section 4 of the act (35 P.S. §721.4), unless other MCLs are established by regulations of the Department. The primary MCLs which are incorporated by reference are effective on the date established by the Federal regulations.

(3) A PUBLIC WATER SYSTEM THAT IS INSTALLING GAC OR MEMBRANE TECHNOLOGY TO COMPLY WITH THE MCL FOR TTHMS, HAA5, CHLORITE (WHERE APPLICABLE), OR BROMATE (WHERE APPLICABLE) MAY APPLY TO THE DEPARTMENT FOR AN EXTENSION OF UP TO 24 MONTHS PAST THE APPLICABLE COMPLIANCE DATE SPECIFIED IN THE FEDERAL REGULATIONS, BUT NOT BEYOND DECEMBER 31, 2003. IN GRANTING THE EXTENSION, THE DEPARTMENT WILL SET A SCHEDULE FOR COMPLIANCE AND MAY SPECIFY ANY INTERIM MEASURES THAT THE DEPARTMENT DEEMS NECESSARY. FAILURE TO MEET THE SCHEDULE OR INTERIM TREATMENT REQUIREMENTS CONSTITUTES A VIOLATION OF A NATIONAL PRIMARY DRINKING WATER REGULATION.

(f) MRDLS

(1) A PUBLIC WATER SYSTEM SHALL SUPPLY DRINKING WATER THAT COMPLIES WITH THE MRDLS ADOPTED BY THE EQB UNDER THE ACT.

(2) THIS SUBCHAPTER INCORPORATES BY REFERENCE THE PRIMARY MRDLS IN THE NATIONAL PRIMARY DRINKING WATER REGULATIONS, AT 40 CFR PART 141, SUBPART G (RELATING TO MAXIMUM CONTAMINANT LEVELS AND MAXIMUM RESIDUAL DISINFECTANT LEVELS) AS STATE MRDLS, UNDER THE AUTHORITY OF SECTION 4 OF THE ACT (35 P.S. §721.4), UNLESS OTHER MRDLS ARE ESTABLISHED BY REGULATIONS OF THE DEPARTMENT. THE PRIMARY MRDLS WHICH ARE INCORPORATED BY REFERENCE ARE EFFECTIVE ON THE DATE ESTABLISHED BY THE FEDERAL REGULATIONS.

(g) TREATMENT TECHNIQUE REQUIREMENTS FOR DISINFECTION BYPRODUCT PRECURSORS

(1) A PUBLIC WATER SYSTEM THAT USES EITHER SURFACE WATER OR GUDI SOURCES AND THAT USES CONVENTIONAL FILTRATION TREATMENT SHALL PROVIDE ADEQUATE TREATMENT TO RELIABLY CONTROL DISINFECTION BYPRODUCT PRECURSORS IN THE SOURCE WATER. ENHANCED COAGULATION AND ENHANCED SOFTENING ARE DEEMED BY THE DEPARTMENT TO BE

TREATMENT TECHNIQUES FOR THE CONTROL OF DISINFECTION BYPRODUCT PRECURSORS IN DRINKING WATER TREATMENT AND DISTRIBUTION SYSTEMS. THIS SUBCHAPTER INCORPORATES BY REFERENCE THE TREATMENT TECHNIQUE IN 40 CFR § 141.135 (RELATING TO TREATMENT TECHNIQUE FOR CONTROL OF DISINFECTION BYPRODUCT (DBP) PRECURSORS). COAGULANTS APPROVED BY THE DEPARTMENT ARE DEEMED TO BE ACCEPTABLE FOR THE PURPOSE OF THIS TREATMENT TECHNIQUE. THIS TREATMENT TECHNIQUE IS EFFECTIVE ON THE DATE ESTABLISHED BY THE FEDERAL REGULATIONS.

(2) APPLICABILITY

(i) SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES AND THAT USE CONVENTIONAL FILTRATION TREATMENT MUST OPERATE WITH ENHANCED COAGULATION OR ENHANCED SOFTENING TO ACHIEVE THE TOC PERCENT REMOVAL LEVELS SPECIFIED IN 40 CFR § 141.135 UNLESS THE SYSTEM MEETS AT LEAST ONE OF THE ALTERNATIVE COMPLIANCE CRITERIA LISTED IN SUBPARAGRAPHS (ii) OR (iii).

(ii) SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES THAT USE CONVENTIONAL FILTRATION TREATMENT MAY USE THE ALTERNATIVE COMPLIANCE CRITERIA IN CLAUSES (A) THROUGH (F) TO COMPLY WITH THIS SUBSECTION IN LIEU OF COMPLYING WITH SUBPARAGRAPH (i).

(A) THE SYSTEM'S SOURCE WATER TOC LEVEL, MEASURED IN ACCORDANCE WITH SUBCHAPTER C (RELATING TO MONITORING REQUIREMENTS), IS LESS THAN 2.0 MG/L, CALCULATED QUARTERLY AS A RUNNING ANNUAL AVERAGE.

(B) THE SYSTEM'S TREATED WATER TOC LEVEL, MEASURED IN ACCORDANCE WITH SUBCHAPTER C, IS LESS THAN 2.0 MG/L, CALCULATED QUARTERLY AS A RUNNING ANNUAL AVERAGE.

(C) THE SYSTEM'S SOURCE WATER TOC LEVEL, MEASURED IN ACCORDANCE WITH SUBCHAPTER C, IS LESS THAN 4.0 MG/L, CALCULATED QUARTERLY AS A RUNNING ANNUAL AVERAGE; THE SOURCE WATER ALKALINITY, MEASURED IN ACCORDANCE WITH SUBCHAPTER C, IS GREATER THAN 60 MG/L (AS CaCO_3), 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 § 109.202(a)(3), THE SYSTEM HAS MADE A CLEAR AND IRREVOCABLE FINANCIAL COMMITMENT NOT LATER THAN THE EFFECTIVE DATE FOR COMPLIANCE TO USE TECHNOLOGIES THAT WILL LIMIT THE LEVELS OF TTHMS AND HAA5 TO NO MORE THAN 0.040 MG/L AND 0.030 MG/L, RESPECTIVELY. SYSTEMS MUST 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. THESE TECHNOLOGIES MUST BE INSTALLED AND OPERATING NO LATER THAN JUNE 30, 2005. FAILURE TO INSTALL AND OPERATE THESE TECHNOLOGIES BY THE DATE IN THE APPROVED SCHEDULE WILL CONSTITUTE A VIOLATION OF NATIONAL PRIMARY DRINKING WATER REGULATIONS.

(D) 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.

(E) THE SYSTEM'S SOURCE WATER SUVA, PRIOR TO ANY TREATMENT AND MEASURED MONTHLY IN ACCORDANCE WITH SUBCHAPTER C, IS NO GREATER THAN 2.0 L/MG-M, CALCULATED QUARTERLY AS A RUNNING ANNUAL AVERAGE.

(F) THE SYSTEM'S FINISHED WATER SUVA, MEASURED MONTHLY IN ACCORDANCE WITH SUBCHAPTER C, IS LESS THAN OR EQUAL TO 2.0 L/MG-M, CALCULATED QUARTERLY AS A RUNNING ANNUAL AVERAGE.

(iii) SYSTEMS PRACTICING ENHANCED SOFTENING THAT CANNOT ACHIEVE THE TOC REMOVALS REQUIRED BY SUBPARAGRAPH (i) MAY

USE THE ALTERNATIVE COMPLIANCE CRITERIA IN CLAUSES (A) AND (B) IN LIEU OF COMPLYING WITH SUBPARAGRAPH (i) OF THIS SUBSECTION.

(A) SOFTENING THAT RESULTS IN LOWERING THE TREATED WATER ALKALINITY TO LESS THAN 60 MG/L (AS CaCO_3), MEASURED MONTHLY IN ACCORDANCE WITH SUBCHAPTER C AND CALCULATED QUARTERLY AS A RUNNING ANNUAL AVERAGE.

(B) SOFTENING THAT RESULTS IN REMOVING AT LEAST 10 MG/L OF MAGNESIUM HARDNESS (AS CaCO_3), MEASURED MONTHLY AND CALCULATED QUARTERLY AS AN ANNUAL RUNNING AVERAGE.

§ 109.203. Unregulated contaminants.

The Department may by order establish a MCL or treatment technique requirement on a case-by-case basis for a public water system in which an unregulated contaminant creates a health risk to the users of the public water system. An unregulated contaminant is one for which no MCL or treatment technique requirement has been established under § 109.202 (relating to State MCLs, MRDLS, and treatment technique requirements).

Subchapter C. MONITORING REQUIREMENTS

§ 109.301. General monitoring requirements.

The monitoring [and analytical requirements, including approved sampling procedures and analytical techniques] REQUIREMENTS established by the EPA under the National Primary Drinking Water Regulations, 40 CFR Part 141 (relating to national primary drinking water regulations), as of December 8, 1984, are incorporated by reference. Public water suppliers shall monitor for compliance with MCLs AND MRDLs in accordance with the requirements established in the National Primary Drinking Water Regulations, except as otherwise established by this chapter unless increased monitoring is required by the Department under § 109.302 (relating to special monitoring requirements). Alternative monitoring requirements may be established by the Department and may be implemented in lieu of monitoring requirements for a particular National Primary Drinking Water Regulation if the alternative monitoring requirements are in conformance with the Federal act and regulations. The monitoring requirements shall be applied as follows:

(2) *Performance monitoring for unfiltered surface water.* A public water supplier using unfiltered surface water sources shall conduct the following source water and performance monitoring requirements on an interim basis until filtration is provided, unless increased monitoring is required by the Department under § 109.302:

(i) Except as provided under subparagraphs (ii) and (iii), a public water supplier:

(D) Shall continuously monitor the residual disinfectant concentration required under § 109.202(c)(1)(iii) (relating to State MCLs, MRDLS, and treatment technique requirements) of the water being supplied to the distribution system and record the lowest value for each day. If a public water system's continuous monitoring equipment fails, the public water supplier may, upon notification of the Department under § 109.402, substitute grab sampling every 4 hours in lieu of continuous monitoring. Grab sampling may not be substituted for continuous monitoring for a period longer than 5 days after the equipment fails.

(3) *Monitoring requirements for coliforms.* Public water systems shall determine the presence or absence of total coliforms for each routine or check sample; and, the presence or absence of fecal coliforms or E. coli for a total coliform positive sample in accordance with analytical techniques approved by the Department under § 109.304 (relating to analytical requirements). A system may forego fecal coliform or E. coli testing on a total coliform-positive sample if the system assumes that any total coliform-positive sample is also fecal coliform-positive. A system which chooses to forego fecal coliform or E. coli testing shall, under § 109.402(1), notify the Department within 1 hour of when the system is first notified of the total coliform-positive sample result.

(i) *Frequency.* Public water systems shall collect samples at regular time intervals throughout the monitoring period as specified in the system distribution sample siting plan under § 109.303(a)(2) (relating to sampling requirements). Systems which use groundwater and serve 4,900 persons or fewer, may collect all required samples on a single day if they are from different sampling sites in the distribution system.

(C) A public water system that uses a surface water source and does not practice filtration in compliance with Subchapter B (relating to MCLs, MRDLS, or treatment technique requirements) shall collect at least one total coliform sample at the entry point, or an equivalent location as determined by the Department, to the distribution system within 24 hours of each day that the turbidity level in the source water, measured as specified in paragraph (2)(i)(B), exceeds 1.0 NTU. The Department may extend this 24-hour collection limit to a maximum of 72 hours if the system adequately demonstrates a logistical problem outside the system's control in having the sample analyzed within 30 hours of collection. A logistical problem outside the system's control may include a source water turbidity result exceeding 1.0 NTU over a holiday or weekend in which the services of a DER certified laboratory are not available within the prescribed sample holding time. These sample results shall be included in determining compliance with the MCL for total coliforms established under § 109.202(a)(2).

(8) Monitoring requirements for public water systems that obtain finished water from another public water system.

(i) Consecutive water suppliers shall monitor for compliance with the MCL for microbiological contaminants at the frequency established by the EPA and incorporated by reference into this chapter.

(ii) Community consecutive water suppliers shall:

(A) Monitor for compliance with the MCL for total trihalomethanes (TTHMs) ESTABLISHED UNDER 40 CFR § 141.12 (RELATING TO MAXIMUM CONTAMINANT LEVELS FOR TOTAL TRIHALOMETHANES) IN ACCORDANCE WITH THE REQUIREMENTS OF 40 CFR § 141.30 (RELATING TO TOTAL TRIHALOMETHANES SAMPLING, ANALYTICAL AND OTHER REQUIREMENTS) [at the frequency established by the EPA and incorporated by reference into this chapter] if the system does one of the following:

(I) Serves more than 10,000 persons.

(II) Obtains finished water from another public water system serving more than 10,000 persons.

(vi) COMMUNITY WATER SYSTEMS AND NONTRANSIENT
NONCOMMUNITY WATER SYSTEMS THAT PROVIDE FINISHED WATER THAT
CONTAINS A CHEMICAL DISINFECTANT OR OXIDANT SHALL COMPLY WITH THE
MONITORING REQUIREMENTS FOR DISINFECTION BYPRODUCTS AND
DISINFECTANT RESIDUALS SET FORTH IN § 109.301(12), SUBPARAGRAPHS (I) - (III)
(RELATING TO MONITORING REQUIREMENTS FOR DISINFECTION BYPRODUCTS
AND DISINFECTION BYPRODUCT PRECURSORS), AND § 109.301(13) (RELATING TO
MONITORING REQUIREMENTS FOR DISINFECTANT RESIDUALS).

(10) *Additional monitoring.* The Department may by written notice require a public water supplier to conduct monitoring for compliance with MCLs OR MRDLS during a specific portion of a monitoring period, if necessary to ensure compliance with the monitoring or reporting requirements in this chapter.

(12) MONITORING REQUIREMENTS FOR DISINFECTION BYPRODUCTS
AND DISINFECTION BYPRODUCT PRECURSORS. COMMUNITY WATER SYSTEMS
AND NONTRANSIENT NONCOMMUNITY WATER SYSTEMS THAT USE A CHEMICAL

DISINFECTANT OR OXIDANT, OR PROVIDE FINISHED WATER THAT CONTAINS A CHEMICAL DISINFECTANT OR OXIDANT, SHALL MONITOR FOR DISINFECTION BYPRODUCTS. SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES AND THAT SERVE AT LEAST 10,000 PERSONS SHALL BEGIN MONITORING BY JANUARY 1, 2002. SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES AND THAT SERVE FEWER THAN 10,000 PERSONS, OR SYSTEMS THAT USE GROUND WATER SOURCES, SHALL BEGIN MONITORING BY JANUARY 1, 2004. SYSTEMS MONITORING FOR DISINFECTION BYPRODUCTS AND DISINFECTION BYPRODUCT PRECURSORS SHALL TAKE ALL SAMPLES DURING NORMAL OPERATING CONDITIONS. SYSTEMS MONITORING FOR DISINFECTION BYPRODUCTS AND DISINFECTION BYPRODUCT PRECURSORS MAY USE ONLY DATA COLLECTED UNDER THE PROVISIONS OF THIS CHAPTER TO QUALIFY FOR REDUCED MONITORING. COMPLIANCE WITH THE MCLS AND MONITORING REQUIREMENTS FOR TTHMS, HAA5, CHLORITE (WHERE APPLICABLE), AND BROMATE (WHERE APPLICABLE) SHALL BE DETERMINED IN ACCORDANCE WITH THE REQUIREMENTS OF 40 CFR § 141.132 (RELATING TO MONITORING REQUIREMENTS) AND 40 CFR § 141.133 (RELATING TO COMPLIANCE REQUIREMENTS) WHICH ARE INCORPORATED HEREIN BY REFERENCE.

(i) TTHMS AND HAA5

(A) ROUTINE MONITORING

(I) SYSTEMS THAT USE EITHER SURFACE WATER
OR GUDI SOURCES SHALL MONITOR AS FOLLOWS:

(-a-) SYSTEMS SERVING AT LEAST 10,000
PERSONS SHALL TAKE AT LEAST FOUR SAMPLES PER MONTH PER TREATMENT
PLANT. AT LEAST 25 PERCENT OF ALL SAMPLES COLLECTED EACH QUARTER
MUST BE COLLECTED AT LOCATIONS REPRESENTING MAXIMUM RESIDENCE
TIME, WITH THE REMAINDER OF THE SAMPLES REPRESENTING LOCATIONS OF
AT LEAST AVERAGE RESIDENCE TIME.

(-b-) SYSTEMS SERVING FROM 500 TO 9,999
PERSONS SHALL TAKE AT LEAST ONE SAMPLE PER QUARTER PER TREATMENT
PLANT. THE SAMPLE MUST BE TAKEN AT A LOCATION THAT REPRESENTS A
MAXIMUM RESIDENCE TIME.

(-c-) SYSTEMS SERVING FEWER THAN 500
PERSONS SHALL TAKE AT LEAST ONE SAMPLE PER YEAR PER TREATMENT
PLANT DURING THE MONTH OF WARMEST WATER TEMPERATURE. THE SAMPLE
MUST BE TAKEN AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE
TIME. IF THE SAMPLE, OR AVERAGE OF ALL SAMPLES, EXCEEDS EITHER A TTHM
OR HAA5 MCL, THEN THE SYSTEM MUST TAKE AT LEAST ONE SAMPLE PER
QUARTER PER TREATMENT PLANT. THE SAMPLE MUST BE TAKEN AT A
LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME. THE SYSTEM MAY

REDUCE THE SAMPLING FREQUENCY BACK TO ONE SAMPLE PER YEAR PER TREATMENT PLANT IN ACCORDANCE WITH THE REDUCED MONITORING CRITERIA OF CLAUSE (B).

(-d-) IF A SYSTEM SAMPLES MORE FREQUENTLY THAN THE MINIMUM REQUIRED ABOVE, THEN AT LEAST 25 PERCENT OF ALL SAMPLES COLLECTED EACH QUARTER MUST BE COLLECTED AT LOCATIONS REPRESENTING MAXIMUM RESIDENCE TIME, WITH THE REMAINDER OF THE SAMPLES REPRESENTING LOCATIONS OF AT LEAST AVERAGE RESIDENCE TIME.

(II) SYSTEMS THAT USE GROUND WATER SOURCES SHALL MONITOR AS FOLLOWS:

(-a-) SYSTEMS SERVING AT LEAST 10,000 PERSONS SHALL TAKE AT LEAST ONE SAMPLE PER QUARTER PER TREATMENT PLANT. MULTIPLE WELLS DRAWING WATER FROM A SINGLE AQUIFER MAY BE CONSIDERED AS A SINGLE TREATMENT PLANT. THE SAMPLE MUST BE TAKEN AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME.

(-b-) SYSTEMS SERVING FEWER THAN 10,000 PERSONS SHALL TAKE AT LEAST ONE SAMPLE PER YEAR PER TREATMENT PLANT DURING THE MONTH OF WARMEST WATER TEMPERATURE. MULTIPLE

WELLS DRAWING WATER FROM A SINGLE AQUIFER MAY BE CONSIDERED AS A SINGLE TREATMENT PLANT. THE SAMPLE MUST BE TAKEN AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME. IF THE SAMPLE, OR AVERAGE OF ALL SAMPLES, EXCEEDS EITHER A TTHM OR HAA5 MCL, THEN THE SYSTEM MUST TAKE AT LEAST ONE SAMPLE PER QUARTER PER TREATMENT PLANT. THE SAMPLE MUST BE TAKEN AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME. THE SYSTEM MAY REDUCE THE SAMPLING FREQUENCY BACK TO ONE SAMPLE PER YEAR PER TREATMENT PLANT IN ACCORDANCE WITH THE REDUCED MONITORING CRITERIA OF CLAUSE (B).

(-c-) IF A SYSTEM SAMPLES MORE FREQUENTLY THAN THE MINIMUM REQUIRED, THEN AT LEAST 25 PERCENT OF ALL SAMPLES COLLECTED EACH QUARTER MUST BE COLLECTED AT LOCATIONS REPRESENTING MAXIMUM RESIDENCE TIME, WITH THE REMAINDER OF THE SAMPLES REPRESENTING LOCATIONS OF AT LEAST AVERAGE RESIDENCE TIME.

(B) REDUCED MONITORING. SYSTEMS THAT HAVE MONITORED FOR TTHMS AND HAA5 FOR AT LEAST ONE YEAR MAY REDUCE MONITORING ACCORDING TO THE PROVISIONS OF THIS CLAUSE. SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES MUST MONITOR SOURCE WATER TOC MONTHLY FOR AT LEAST ONE YEAR PRIOR TO QUALIFYING FOR REDUCED MONITORING. THE DEPARTMENT RETAINS THE RIGHT TO REQUIRE A

SYSTEM THAT MEETS THE REQUIREMENTS OF THIS CLAUSE TO RESUME
ROUTINE MONITORING.

(I) SYSTEMS THAT USE EITHER SURFACE WATER
OR GUDI SOURCES AND THAT HAVE A SOURCE WATER ANNUAL TOC AVERAGE
THAT IS NO GREATER THAN 4.0 MG/L AND AN ANNUAL TTHM AVERAGE THAT IS
NO GREATER THAN 0.040 MG/L AND AN ANNUAL HAA5 AVERAGE THAT IS NO
GREATER THAN 0.030 MG/L MAY REDUCE MONITORING ACCORDING TO THE
PROVISIONS OF (-a-) THROUGH (-c-). SYSTEMS THAT QUALIFY FOR REDUCED
MONITORING MAY REMAIN ON REDUCED MONITORING PROVIDED THAT THE
ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.060 MG/L AND THE ANNUAL
HAA5 AVERAGE IS NO GREATER THAN 0.045 MG/L. SYSTEMS THAT EXCEED
THESE LEVELS MUST RESUME ROUTINE MONITORING AS PRESCRIBED IN
CLAUSE (A) IN THE QUARTER IMMEDIATELY FOLLOWING THE QUARTER IN
WHICH THE SYSTEM EXCEEDS 0.060 MG/L FOR TTHMS OR 0.045 MG/L FOR HAA5.

(-a-) SYSTEMS SERVING AT LEAST 10,000
PERSONS MAY REDUCE MONITORING TO ONE SAMPLE PER QUARTER PER
TREATMENT PLANT. THE SAMPLE MUST BE TAKEN AT A LOCATION THAT
REPRESENTS A MAXIMUM RESIDENCE TIME. SYSTEMS ON REDUCED
MONITORING ARE NOT REQUIRED TO MONITOR SOURCE WATER TOC.

(-b-) SYSTEMS SERVING FROM 500 TO 9,999

PERSONS MAY REDUCE MONITORING TO ONE SAMPLE PER YEAR PER TREATMENT PLANT. THE SAMPLE MUST BE TAKEN DURING THE MONTH OF WARMEST WATER TEMPERATURE AND AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME. SYSTEMS ON REDUCED MONITORING ARE NOT REQUIRED TO MONITOR SOURCE WATER TOC.

(-c-) SYSTEMS SERVING FEWER THAN 500

PERSONS AND THAT ARE ON INCREASED MONITORING AS PRESCRIBED BY CLAUSE (A) MAY REDUCE MONITORING TO ONE SAMPLE PER YEAR PER TREATMENT PLANT. THE SAMPLE MUST BE TAKEN DURING THE MONTH OF WARMEST WATER TEMPERATURE AND AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME. SYSTEMS ON REDUCED MONITORING ARE NOT REQUIRED TO MONITOR SOURCE WATER TOC.

(II) SYSTEMS THAT USE GROUND WATER

SOURCES MAY REDUCE MONITORING ACCORDING TO THE FOLLOWING:

(-a-) SYSTEMS SERVING AT LEAST 10,000

PERSONS MAY REDUCE MONITORING TO ONE SAMPLE PER YEAR PER TREATMENT PLANT IF THE ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.040 MG/L AND THE ANNUAL HAA5 AVERAGE IS NO GREATER THAN 0.030 MG/L. THE SAMPLE MUST BE TAKEN DURING THE MONTH OF WARMEST WATER

TEMPERATURE AND AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME. SYSTEMS THAT QUALIFY FOR REDUCED MONITORING MAY REMAIN ON REDUCED MONITORING PROVIDED THAT THE ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.060 MG/L AND THE ANNUAL HAA5 AVERAGE IS NO GREATER THAN 0.045 MG/L. SYSTEMS THAT EXCEED THESE LEVELS MUST RESUME ROUTINE MONITORING AS PRESCRIBED IN CLAUSE (A) IN THE QUARTER IMMEDIATELY FOLLOWING THE QUARTER IN WHICH THE SYSTEM EXCEEDS 0.060 MG/L FOR TTHMS OR 0.045 MG/L FOR HAA5.

(-b-) SYSTEMS SERVING FEWER THAN 10,000 PERSONS MAY REDUCE MONITORING TO ONE SAMPLE PER THREE-YEAR CYCLE PER TREATMENT PLANT IF THE ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.040 MG/L AND THE ANNUAL HAA5 AVERAGE IS NO GREATER THAN 0.030 MG/L FOR TWO CONSECUTIVE YEARS OR THE ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.020 MG/L AND THE ANNUAL HAA5 AVERAGE IS NO GREATER THAN 0.015 MG/L FOR ONE YEAR. THE SAMPLE MUST BE TAKEN DURING THE MONTH OF WARMEST WATER TEMPERATURE WITHIN THE THREE-YEAR CYCLE BEGINNING ON JANUARY 1 FOLLOWING THE QUARTER IN WHICH THE SYSTEM QUALIFIES FOR REDUCED MONITORING. THE SAMPLE MUST BE TAKEN AT A LOCATION THAT REPRESENTS A MAXIMUM RESIDENCE TIME. SYSTEMS THAT QUALIFY FOR REDUCED MONITORING MAY REMAIN ON REDUCED MONITORING PROVIDED THAT THE ANNUAL TTHM AVERAGE IS NO GREATER THAN 0.080 MG/L AND THE ANNUAL HAA5 AVERAGE IS NO GREATER THAN 0.060 MG/L. SYSTEMS

THAT EXCEED THESE LEVELS MUST RESUME ROUTINE MONITORING AS PRESCRIBED IN CLAUSE (A) IN THE QUARTER IMMEDIATELY FOLLOWING THE QUARTER IN WHICH THE SYSTEM EXCEEDS 0.080 MG/L FOR TTHMS OR 0.060 MG/L FOR HAA5.

(ii) CHLORITE. COMMUNITY WATER SYSTEMS AND NONTRANSIENT NONCOMMUNITY WATER SYSTEMS THAT USE CHLORINE DIOXIDE FOR DISINFECTION OR OXIDATION, OR PROVIDE FINISHED WATER THAT CONTAINS CHLORINE DIOXIDE, SHALL MONITOR FOR CHLORITE.

(A) ROUTINE MONITORING

(i) DAILY MONITORING. SYSTEMS MUST TAKE DAILY SAMPLES AT THE ENTRANCE TO THE DISTRIBUTION SYSTEM. SYSTEMS THAT MUST CONDUCT ADDITIONAL MONITORING IN ACCORDANCE WITH CLAUSE (B) MUST CONTINUE TO TAKE ROUTINE DAILY SAMPLES AT THE ENTRANCE TO THE DISTRIBUTION SYSTEM.

(ii) MONTHLY MONITORING. SYSTEMS MUST TAKE A THREE-SAMPLE SET EACH MONTH IN THE DISTRIBUTION SYSTEM. THE SYSTEM MUST TAKE ONE SAMPLE AT EACH OF THE FOLLOWING LOCATIONS: AS CLOSE TO THE FIRST CUSTOMER AS POSSIBLE, AT A LOCATION REPRESENTING AN AVERAGE RESIDENCE TIME, AND AT A LOCATION REPRESENTING A

MAXIMUM RESIDENCE TIME. SYSTEMS THAT MUST CONDUCT ADDITIONAL MONITORING IN ACCORDANCE WITH SUBCLAUSE (III) MAY USE THE RESULTS OF THE ADDITIONAL MONITORING TO MEET THE MONTHLY MONITORING REQUIREMENTS OF THIS SUBCLAUSE.

(III) ADDITIONAL MONITORING. IF A DAILY SAMPLE AT THE ENTRANCE TO THE DISTRIBUTION SYSTEM EXCEEDS THE CHLORITE MCL, THEN THE SYSTEM MUST TAKE THREE SAMPLES IN THE DISTRIBUTION SYSTEM ON THE FOLLOWING DAY. THE SYSTEM MUST TAKE ONE SAMPLE AT EACH OF THE FOLLOWING LOCATIONS: AS CLOSE TO THE FIRST CUSTOMER AS POSSIBLE, AT A LOCATION REPRESENTING AN AVERAGE RESIDENCE TIME, AND AT A LOCATION REPRESENTING A MAXIMUM RESIDENCE TIME.

(B) REDUCED MONITORING. CHLORITE MONITORING IN THE DISTRIBUTION SYSTEM REQUIRED BY SUBCLAUSE (A)(II) MAY BE REDUCED TO ONE THREE-SAMPLE SET PER QUARTER AFTER ONE YEAR OF MONITORING WHERE NO INDIVIDUAL CHLORITE SAMPLE TAKEN IN THE DISTRIBUTION SYSTEM UNDER SUBCLAUSE (A)(II) HAS EXCEEDED THE CHLORITE MCL AND THE SYSTEM HAS NOT BEEN REQUIRED TO CONDUCT ADDITIONAL MONITORING UNDER SUBCLAUSE (A)(III). THE SYSTEM MAY REMAIN ON THE REDUCED MONITORING SCHEDULE UNTIL EITHER ANY OF THE THREE INDIVIDUAL CHLORITE SAMPLES TAKEN QUARTERLY IN THE DISTRIBUTION SYSTEM

EXCEEDS THE CHLORITE MCL OR THE SYSTEM IS REQUIRED TO CONDUCT ADDITIONAL MONITORING UNDER SUBCLAUSE (A)(III), AT WHICH TIME THE SYSTEM MUST REVERT TO ROUTINE MONITORING AS PRESCRIBED BY CLAUSE (A).

(iii) BROMATE. COMMUNITY WATER SYSTEMS AND NONTRANSIENT NONCOMMUNITY WATER SYSTEMS THAT USE OZONE FOR DISINFECTION OR OXIDATION, OR PROVIDE FINISHED WATER THAT CONTAINS OZONE, SHALL MONITOR FOR BROMATE.

(A) ROUTINE MONITORING. SYSTEMS MUST TAKE ONE SAMPLE PER MONTH FOR EACH TREATMENT PLANT THAT USES OZONE. SYSTEMS MUST TAKE THE MONTHLY SAMPLE AT THE ENTRANCE TO THE DISTRIBUTION SYSTEM WHILE THE OZONATION SYSTEM IS OPERATING UNDER NORMAL CONDITIONS.

(B) REDUCED MONITORING. SYSTEMS REQUIRED TO ANALYZE FOR BROMATE MAY REDUCE MONITORING FROM MONTHLY TO QUARTERLY PROVIDED THAT 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. SYSTEMS ON REDUCED MONITORING MUST CONTINUE TO TAKE MONTHLY SAMPLES FOR SOURCE WATER BROMIDE. SYSTEMS MAY REMAIN ON

REDUCED BROMATE MONITORING UNTIL THE RUNNING ANNUAL AVERAGE SOURCE WATER BROMIDE CONCENTRATION, COMPUTED QUARTERLY, IS EQUAL TO OR GREATER THAN 0.05 MG/L BASED UPON REPRESENTATIVE MONTHLY MEASUREMENTS, AT WHICH TIME THE SYSTEM MUST REVERT TO ROUTINE MONITORING AS PRESCRIBED BY CLAUSE (A).

(iv) *DISINFECTION BYPRODUCT PRECURSORS.* SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES AND THAT USE CONVENTIONAL FILTRATION SHALL MONITOR FOR DISINFECTION BYPRODUCT PRECURSORS.

(A) *ROUTINE MONITORING.* SYSTEMS SHALL TAKE MONTHLY SAMPLES OF THE SOURCE WATER ALKALINITY, THE SOURCE WATER TOC, AND THE COMBINED FILTER EFFLUENT TOC FOR EACH TREATMENT PLANT THAT USES CONVENTIONAL FILTRATION. THE THREE SAMPLES MUST BE TAKEN CONCURRENTLY AND AT A TIME THAT IS REPRESENTATIVE OF BOTH NORMAL OPERATING CONDITIONS AND INFLUENT WATER QUALITY.

(B) *REDUCED MONITORING.* SYSTEMS WITH AN AVERAGE TREATED WATER TOC OF LESS THAN 2.0 MG/L FOR TWO CONSECUTIVE YEARS, OR LESS THAN 1.0 MG/L FOR ONE YEAR, MAY REDUCE MONITORING FOR SOURCE WATER ALKALINITY, SOURCE WATER TOC, AND COMBINED FILTER EFFLUENT TOC FROM MONTHLY TO QUARTERLY FOR EACH APPLICABLE TREATMENT PLANT. THE SYSTEM MUST REVERT TO ROUTINE MONITORING AS

PRESCRIBED BY CLAUSE (A) IN THE MONTH FOLLOWING THE QUARTER WHEN THE ANNUAL AVERAGE TREATED WATER TOC IS NOT LESS THAN 2.0 MG/L.

(C) *EARLY MONITORING.* SYSTEMS MAY BEGIN MONITORING TO DETERMINE WHETHER THE TOC REMOVAL REQUIREMENTS OF 40 CFR § 141.135(b)(1) (RELATING TO ENHANCED COAGULATION AND ENHANCED SOFTENING PERFORMANCE REQUIREMENTS) 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 REQUIREMENTS OF 40 CFR § 141.135(b)(1) AND MUST THEREFORE APPLY FOR ALTERNATE MINIMUM TOC REMOVAL REQUIREMENTS UNDER 40 CFR § 141.135(b)(4) (RELATING TO ALTERNATE MINIMUM TOC REMOVAL REQUIREMENTS), IS NOT ELIGIBLE FOR RETROACTIVE APPROVAL OF THE ALTERNATE MINIMUM TOC REMOVAL REQUIREMENTS AND IS IN VIOLATION. SYSTEMS MAY APPLY FOR ALTERNATE MINIMUM TOC REMOVAL REQUIREMENTS ANY TIME AFTER THE COMPLIANCE DATE.

(13) *MONITORING REQUIREMENTS FOR DISINFECTANT RESIDUALS.* COMMUNITY WATER SYSTEMS AND NONTRANSIENT NONCOMMUNITY WATER SYSTEMS THAT USE A CHEMICAL DISINFECTANT OR OXIDANT, OR PROVIDE FINISHED WATER THAT CONTAINS A CHEMICAL DISINFECTANT OR OXIDANT,

SHALL MONITOR FOR DISINFECTANT RESIDUALS. TRANSIENT NONCOMMUNITY WATER SYSTEMS THAT USE CHLORINE DIOXIDE AS EITHER A DISINFECTANT OR OXIDANT SHALL MONITOR FOR CHLORINE DIOXIDE DISINFECTANT RESIDUAL SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES AND THAT SERVE AT LEAST 10,000 PERSONS SHALL BEGIN MONITORING BY JANUARY 1, 2002. SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES AND THAT SERVE FEWER THAN 10,000 PERSONS, OR SYSTEMS THAT USE GROUND WATER SOURCES, SHALL BEGIN MONITORING BY JANUARY 1, 2004. SYSTEMS MONITORING FOR DISINFECTANT RESIDUALS SHALL TAKE ALL SAMPLES DURING NORMAL OPERATING CONDITIONS. COMPLIANCE WITH THE MRDLS AND MONITORING REQUIREMENTS FOR CHLORINE, CHLORAMINES, AND CHLORINE DIOXIDE (WHERE APPLICABLE) SHALL BE DETERMINED IN ACCORDANCE WITH THE REQUIREMENTS OF 40 CFR § 141.132 (RELATING TO MONITORING REQUIREMENTS) AND 40 CFR § 141.133 (RELATING TO COMPLIANCE REQUIREMENTS) WHICH ARE INCORPORATED HEREIN BY REFERENCE.

(i) CHLORINE AND CHLORAMINES. SYSTEMS SHALL MEASURE THE RESIDUAL DISINFECTANT LEVEL AT THE SAME POINTS IN THE DISTRIBUTION SYSTEM AND AT THE SAME TIME THAT TOTAL COLIFORMS ARE SAMPLED, AS SPECIFIED IN PARAGRAPH (3) OF THIS SUBCHAPTER. SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES MAY USE THE RESULTS OF RESIDUAL DISINFECTANT CONCENTRATION SAMPLING CONDUCTED UNDER

PARAGRAPHS (1) OR (2) OF THIS SUBCHAPTER IN LIEU OF TAKING SEPARATE SAMPLES.

(ii) CHLORINE DIOXIDE

(A) ROUTINE MONITORING. SYSTEMS SHALL TAKE ONE SAMPLE PER DAY AT THE ENTRANCE TO THE DISTRIBUTION SYSTEM. FOR ANY DAILY SAMPLE THAT EXCEEDS THE MRDL, THE SYSTEM SHALL CONDUCT ADDITIONAL MONITORING AS SPECIFIED IN CLAUSE (B) IN ADDITION TO THE SAMPLE REQUIRED AT THE ENTRANCE TO THE DISTRIBUTION SYSTEM. COMPLIANCE MUST BE BASED ON CONSECUTIVE DAILY SAMPLES COLLECTED BY THE SYSTEM UNDER THIS CLAUSE.

(B) ADDITIONAL MONITORING. IF A DAILY SAMPLE AT THE ENTRANCE TO THE DISTRIBUTION SYSTEM EXCEEDS THE CHLORINE DIOXIDE MRDL, THEN THE SYSTEM MUST TAKE THREE SAMPLES IN THE DISTRIBUTION SYSTEM ON THE FOLLOWING DAY. 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 DISINFECTANT ADDITION POINTS AFTER THE ENTRANCE TO THE DISTRIBUTION SYSTEM, THEN THE SYSTEM MUST TAKE THREE SAMPLES AS CLOSE TO THE FIRST CUSTOMER AS POSSIBLE, AT INTERVALS OF AT LEAST SIX HOURS. IF CHLORINE IS USED TO

MAINTAIN A DISINFECTANT RESIDUAL IN THE DISTRIBUTION SYSTEM AND THERE ARE ONE OR MORE DISINFECTION ADDITION POINTS AFTER THE ENTRANCE TO THE DISTRIBUTION SYSTEM, THEN THE SYSTEM MUST TAKE ONE SAMPLE AT EACH OF THE FOLLOWING LOCATIONS: AS CLOSE TO THE FIRST CUSTOMER AS POSSIBLE, AT A LOCATION REPRESENTING AN AVERAGE RESIDENCE TIME, AND AT A LOCATION REPRESENTING A MAXIMUM RESIDENCE TIME.

§ 109.302. Special monitoring requirements.

(a) The Department may require a public water supplier to conduct monitoring in addition to that required by § 109.301 (relating to general monitoring requirements) if the Department has reason to believe the public water system is not in compliance with the MCL, MRDL, or treatment technique requirement for the contaminant.

§ 109.303. Sampling requirements.

(a) The samples taken to determine a public water system's compliance with MCLs OR MRDLS or to determine compliance with monitoring requirements shall be taken at the locations identified in §§ 109.301 and 109.302 (relating to general monitoring requirements; and special monitoring requirements), or as follows:

§ 109.304. Analytical requirements.

(a) Sampling [, monitoring]and analysis shall be performed in accordance with analytical techniques adopted by the EPA under the Federal act or methods approved by the Department.

(b) An alternate analytical technique may be employed with the written approval of the Department and the concurrence of the Administrator. An alternate technique will be accepted only if it is substantially equivalent to the prescribed test in both precision and accuracy as it relates to the determination of compliance with MCLs OR MRDLS or treatment technique requirements. The use of the alternate analytical technique may not decrease the frequency of monitoring required by this subchapter.

Subchapter D. PUBLIC NOTIFICATION

§ 109.401. General public notification requirements.

For the purposes of this section, the term “acute violation” means a violation of the MCL for a contaminant or another condition that may pose an acute risk to human health. Acute violations include, but are not limited to: the MCL for nitrate or nitrite is exceeded, the turbidity performance level which is required to be measured to determine compliance with § 109.202(c)

(relating to State MCLs, MRDLS, and treatment technique requirements) or the turbidity level at an unfiltered surface water source exceeds 5 NTU, the MCL for total coliforms is exceeded due to the presence of fecal coliforms or E. coli in the water distribution system, THE MRDL FOR CHLORINE DIOXIDE IS EXCEEDED IN THE DISTRIBUTION SYSTEM ONE DAY AFTER AN MRDL EXCEEDANCE AT THE ENTRY POINT, FAILURE TO MONITOR IN THE DISTRIBUTION SYSTEM ONE DAY AFTER A CHLORINE DIOXIDE MRDL EXCEEDANCE AT THE ENTRY POINT, and the occurrence of a waterborne disease outbreak.

(1) The public water supplier shall give public notification in accordance with this section when one of the following occurs:

(i) The public water system is not in compliance with the applicable primary MCLs, MRDLS, or treatment technique requirements in Subchapter B (relating to MCLs, MRDLS, or treatment technique requirements).

(2) A community water supplier, except for violations involving POE devices, required to provide public notification shall, at a minimum, provide public notification in a form approved by the Department as follows:

(iii) In addition to the publication of the notice in accordance with the provisions of paragraph (2)(i) the water supplier, except one required to post or hand deliver the notice under paragraph (2)(i)(A) or (B) shall furnish a copy of the notice to the radio and television stations serving the area after the supplier learns of an acute violation or another primary MCL OR MRDL violation under paragraph (1)(i) in accordance with the following schedule:

(A) Within 72 hours of an acute violation.

(B) Within 7 days of a violation of another primary MCL OR MRDL.

§ 109.402. Emergency public notification.

In addition to the requirements of § 109.401 (relating to general public notification requirements), the Department may require public notice by providing a water supply warning to be given if conditions in a public water system present an imminent hazard to the public health.

(1) A public water supplier who knows that a primary MCL OR MRDL has been exceeded or a treatment technique performance standard has been violated or has reason to believe that circumstances exist which may adversely affect the quality of drinking water,

including, but not limited to, source contamination, spills, accidents, natural disasters or breakdowns in treatment, shall report the circumstance to the Department within 1 hour of discovery of the problem.

§ 109.403. Description and content of notice.

(a) Notice given under this subchapter shall be written in a manner reasonably designed to fully inform the users of the system.

(1) The notice shall be conspicuous and may not use technical language, small print or other methods which would frustrate the purpose of the notice.

(2) The notice shall disclose material facts regarding the subject including the nature of the problem and, when appropriate, a clear statement that an MCL, AN MRDL, or a treatment technique requirement has been violated and the preventive measures that should be taken by the public.

(d) COMMUNITY WATER SYSTEMS SERVING AT LEAST 10,000 PERSONS THAT DETECT TTHM ABOVE 0.080 MG/L, BUT BELOW THE MCL IN 40 CFR § 141.12

(RELATING TO MAXIMUM CONTAMINANT LEVELS FOR TOTAL TRIHALOMETHANES), AS AN ANNUAL AVERAGE, MONITORED AND CALCULATED UNDER THE PROVISIONS OF 40 CFR § 141.30 (RELATING TO TOTAL TRIHALOMETHANES SAMPLING, ANALYTICAL AND OTHER REQUIREMENTS), MUST INCLUDE HEALTH EFFECTS LANGUAGE PRESCRIBED BY PARAGRAPH (73) OF APPENDIX C TO 40 CFR SUBPART O (RELATING TO CONSUMER CONFIDENCE REPORTS).

Subchapter E. PERMIT REQUIREMENTS

§ 109.503. Public water system construction permits.

(c) *Permit fees.*

(3) Applications for permits or major permit amendments submitted to satisfy the requirements of Subchapter B (relating to MCLs, MRDLS, or treatment technique requirements) for removal of VOCs and SOCs through the construction of treatment facilities designed to achieve greater removal of contaminants than would be achieved by conventional filtration shall be accompanied by a fee of \$2,500.

§ 109.505. Requirements for noncommunity water systems.

(2) A noncommunity water system not covered under paragraph (1) is not required to obtain a construction and an operation permit if it satisfies the following specifications and conditions:

(i) The sources of supply for the system are groundwater sources requiring treatment no greater than disinfection to provide water of a quality that meets the primary MCLs established under Subchapter B (relating to MCLs, MRDLS, or treatment technique requirements).

§ 109.506. Emergency permits.

(b) State and Federal agencies conducting emergency response bulk water hauling operations are not required to obtain a permit under this subchapter, if a Department approved source is utilized and adequate monitoring is conducted to assure compliance with the microbiological MCL specified in § 109.202 (relating to State MCLs, MRDLS, and treatment technique requirements).

§ 109.507. Permits for innovative technology.

The Department may consider proposals for innovative water treatment processes, methods or equipment and may issue an innovative technology construction or operation permit if the applicant demonstrates to the Department's satisfaction that the proposal will provide drinking water that complies with Subchapter B (relating to MCLs, MRDLS, or treatment technique requirements). Applications for innovative technology construction permits shall satisfy the requirements of § 109.503 (relating to public water system construction permits). The Department may condition innovative technology operation permits on duration, additional monitoring, reporting or other requirements as it deems necessary to protect the public health. The Department may revoke an innovative technology construction or operation permit if it finds the public water system is not complying with drinking water standards or the terms or conditions of the permit or if there is a significant change in the source water quality which could affect the reliability and operability of the treatment facility. Authorization for construction,

operation or modifications obtained under an innovative technology permit will not extend beyond the expiration date of the permit.

Subchapter F. DESIGN AND CONSTRUCTION STANDARDS

§ 109.602. Acceptable design.

(a) A public water system shall be designed to provide an adequate and reliable quantity and quality of water to the public. The design shall ensure that the system will, upon completion, be capable of providing water that complies with the primary and secondary MCLs, MRDLS, and treatment techniques established in Subchapter B (relating to MCLs, MRDLS, or treatment technique requirements) except as further provided in this section.

§ 109.605. Minimum treatment design standards.

The level of treatment required for raw water depends upon the characteristics of the raw water, the nature of the public water system and the likelihood of contamination. The following minimum treatment design standards apply to new facilities and major changes to existing facilities:

(1) For surface water sources, the minimum treatment design standard for filtration technologies is a 99% removal of Giardia cysts and a 99% removal of viruses. The determination of the appropriate filtration technology to be used shall be based on the following:

(ii) Direct filtration, slow sand filtration and diatomaceous earth filtration may be permitted if studies, including pilot studies where appropriate, approved by the Department are conducted and demonstrate, through achievement of the turbidity performance standards specified in § 109.202(c)(1)(i) (relating to State MCLs, MRDLS, and treatment technique requirements), that the minimum treatment design standard can be achieved consistently, reliably and practically under appropriate design and operating conditions.

§ 109.611. Disinfection.

Disinfection facilities shall be designed to provide the dosage rate and contact time prior to the first customer sufficient to provide a quality of water that complies with the microbiological MCL AND THE APPROPRIATE MRDL, specified in § 109.202 (relating to State MCLs, MRDLS, and treatment technique requirements).

§ 109.612. POE devices.

(c) A public water supplier using POE devices as a means of treatment shall install a POE device on the service line to customers, except for customers who are provided with water that meets the requirements of Subchapter B (relating to MCLs, MRDLS, or treatment technique requirements) without the use of a POE device.

Subchapter G. SYSTEM MANAGEMENT RESPONSIBILITIES

§ 109.701. Reporting and recordkeeping.

(a) *Reporting requirements for public water systems.* Public water systems shall comply with the following requirements:

(2) *Monthly reporting requirements for performance monitoring.*

(ii) The test results of performance monitoring required under § 109.301(2) for public water suppliers using unfiltered surface water sources shall include the following, at a minimum:

(B) For performance monitoring of the residual disinfectant concentration of the water being supplied to the distribution system:

(I) The date, time and lowest value each day the concentration is less than the residual disinfectant concentration required under § 109.202(c)(1)(iii) (relating to State MCLs, MRDLS, and treatment technique requirements).

(8) REPORTING REQUIREMENTS FOR DISINFECTANT RESIDUALS.

PUBLIC WATER SYSTEMS SHALL REPORT MRDL MONITORING DATA AS FOLLOWS:

(i) FOR SYSTEMS MONITORING FOR CHLORINE DIOXIDE PURSUANT TO § 109.301(13) (RELATING TO GENERAL MONITORING REQUIREMENTS), THE DATES, RESULTS, AND LOCATIONS OF THE SAMPLES THAT WERE TAKEN DURING THE PREVIOUS MONTH.

(ii) FOR SYSTEMS MONITORING FOR EITHER CHLORINE OR CHLORAMINES PURSUANT TO § 109.301(13):

(A) THE MONTHLY ARITHMETIC AVERAGE OF ALL SAMPLES TAKEN IN EACH MONTH FOR THE LAST 12 MONTHS.

(B) THE ARITHMETIC AVERAGE OF ALL MONTHLY AVERAGES FOR THE LAST 12 MONTHS.

(9) REPORTING REQUIREMENTS FOR DISINFECTION BYPRODUCTS.

(i) SYSTEMS MONITORING FOR TTHMS AND HAAS PURSUANT TO § 109.301(12) MUST REPORT THE FOLLOWING:

(A) SYSTEMS MONITORING ON A QUARTERLY OR MORE FREQUENT BASIS MUST REPORT THE FOLLOWING:

(I) THE NUMBER OF SAMPLES TAKEN DURING THE LAST QUARTER.

(II) THE DATE, LOCATION, AND RESULT OF EACH SAMPLE TAKEN DURING THE LAST QUARTER.

(III) THE ARITHMETIC AVERAGE OF ALL
SAMPLES TAKEN IN THE LAST QUARTER.

(IV) THE ANNUAL ARITHMETIC AVERAGE OF THE
QUARTERLY ARITHMETIC AVERAGES FOR THE LAST FOUR QUARTERS.

(V) WHETHER THE ANNUAL ARITHMETIC
AVERAGE EXCEEDS THE MCL FOR EITHER TTHMS OR HAA5.

(B) SYSTEMS MONITORING LESS THAN QUARTERLY
BUT NO LESS THAN ANNUALLY MUST REPORT THE FOLLOWING:

(I) THE NUMBER OF SAMPLES TAKEN DURING
THE LAST YEAR.

(II) THE DATE, LOCATION, AND RESULT OF EACH
SAMPLE TAKEN DURING THE LAST MONITORING PERIOD.

(III) THE ARITHMETIC AVERAGE OF ALL
SAMPLES TAKEN IN THE LAST YEAR.

(IV) WHETHER THE ANNUAL ARITHMETIC
AVERAGE EXCEEDS THE MCL FOR EITHER TTHMS OR HAA5.

(C) SYSTEMS MONITORING LESS THAN ANNUALLY
MUST REPORT THE FOLLOWING:

(I) THE DATE, LOCATION, AND RESULT OF THE
LAST SAMPLE TAKEN.

(II) WHETHER THE SAMPLE EXCEEDS THE MCL
FOR EITHER TTHMS OR HAA5.

(ii) SYSTEMS MONITORING FOR CHLORITE PURSUANT TO §
109.301(12) MUST REPORT THE FOLLOWING:

(A) THE NUMBER OF ENTRY POINT SAMPLES TAKEN
EACH MONTH FOR THE LAST THREE MONTHS.

(B) THE DATE, LOCATION, AND RESULT OF EACH
ENTRY POINT AND DISTRIBUTION SAMPLE TAKEN DURING THE LAST QUARTER.

(C) THE ARITHMETIC AVERAGE OF EACH THREE-SAMPLE SET OF DISTRIBUTION SAMPLES TAKEN IN EACH MONTH IN THE REPORTING PERIOD.

(D) WHETHER THE MONTHLY ARITHMETIC AVERAGE EXCEEDS THE MCL.

(iii) SYSTEMS MONITORING FOR BROMATE PURSUANT TO § 109.301(12) MUST REPORT THE FOLLOWING:

(A) THE NUMBER OF SAMPLES TAKEN DURING THE LAST QUARTER.

(B) THE DATE, LOCATION, AND RESULT OF EACH SAMPLE TAKEN DURING THE LAST QUARTER.

(C) THE ARITHMETIC AVERAGE OF THE MONTHLY ARITHMETIC AVERAGES OF ALL SAMPLES TAKEN IN THE LAST YEAR.

(D) WHETHER THE ANNUAL ARITHMETIC AVERAGE EXCEEDS THE MCL.

(10) REPORTING REQUIREMENTS FOR DISINFECTION BYPRODUCT

PRECURSORS. SYSTEMS MONITORING FOR TOC PURSUANT TO § 109.301(12) MUST REPORT IN ACCORDANCE WITH THE REQUIREMENTS UNDER 40 CFR § 141.134(d) (RELATING TO REPORTING AND RECORDKEEPING REQUIREMENTS FOR DISINFECTION BYPRODUCT PRECURSORS AND ENHANCED COAGULATION OR ENHANCED SOFTENING) OF THE FEDERAL REGULATIONS.

(d) *Record maintenance.* The public water supplier shall retain on the premises of the public water system or at a convenient location near the premises the following:

(3) Records of action taken by the public water supplier to correct violations of MCLs, MRDLS, or treatment technique requirements, which shall be kept for a period at least 3 years after the last action taken with respect to the particular violation involved.

(e) MONITORING PLANS FOR DISINFECTANTS, DISINFECTION BYPRODUCTS, AND DISINFECTION BYPRODUCT PRECURSORS. SYSTEMS REQUIRED TO MONITOR FOR DISINFECTION BYPRODUCTS OR DISINFECTION BYPRODUCT PRECURSORS

UNDER § 109.301(12) OR DISINFECTANT RESIDUALS UNDER § 109.301(13) MUST DEVELOP AND IMPLEMENT A MONITORING PLAN. THE SYSTEM MUST 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. ALL SYSTEMS THAT USE EITHER SURFACE WATER OR GUDI SOURCES MUST SUBMIT A COPY OF THE MONITORING PLAN TO THE DEPARTMENT NO LATER THAN THE DATE OF THE FIRST REPORT REQUIRED UNDER THIS SUBCHAPTER. THE DEPARTMENT MAY ALSO REQUIRE THE PLAN TO BE SUBMITTED BY ANY OTHER SYSTEM, REGARDLESS OF SIZE OR SOURCE WATER TYPE. AFTER REVIEW, THE DEPARTMENT MAY REQUIRE CHANGES IN ANY OF THE PLAN COMPONENTS.

(1) THE PLAN MUST INCLUDE THE FOLLOWING COMPONENTS:

(i) SPECIFIC LOCATIONS AND SCHEDULES FOR COLLECTING SAMPLES FOR ANY PARAMETERS INCLUDED IN EITHER § 109.301(12) OR § 109.301(13).

(ii) HOW THE SYSTEM WILL CALCULATE COMPLIANCE WITH THE MCLS, MRDLS, AND TREATMENT TECHNIQUES.

(iii) IF APPROVED FOR MONITORING AS A CONSECUTIVE SYSTEM, OR IF PROVIDING WATER TO A CONSECUTIVE SYSTEM, THE SAMPLING PLAN MUST REFLECT THE ENTIRE DISTRIBUTION SYSTEM.

(iv) 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 UNDER § 109.301(12)(i).

(2) THE SYSTEM SHALL NOTIFY THE DEPARTMENT OF SUBSEQUENT REVISIONS TO AN APPROVED MONITORING PLAN FOR APPROVAL AS THEY OCCUR. REVISIONS TO AN APPROVED MONITORING PLAN SHALL BE SUBMITTED IN WRITTEN FORM TO THE DEPARTMENT WITHIN 30 DAYS OF NOTIFYING THE DEPARTMENT OF THE REVISIONS.

§ 109.704. Operator certification.

(a) Community water systems shall have personnel certified under the Sewage Treatment Plant and Waterworks Operators' Certification Act (63 P. S. §§ 1001--1015) and qualified by experience and education to operate and maintain a public water system.

(b) Noncommunity water systems shall have competent personnel qualified to operate and maintain the system's facilities.

(c) BEGINNING _____ (EDITOR'S NOTE: THE BLANK REFERS TO THE DATE THAT IS THREE (3) YEARS FROM THE EFFECTIVE DATE OF THE ADOPTION OF THIS PROPOSAL), NONTRANSIENT NONCOMMUNITY WATER SYSTEMS THAT PROVIDE WATER THAT CONTAINS A CHEMICAL DISINFECTANT SHALL BE OPERATED BY QUALIFIED PERSONNEL CERTIFIED UNDER THE SEWAGE TREATMENT PLANT AND WATERWORKS OPERATORS' CERTIFICATION ACT (63 P.S. §§ 1001 – 1015). THE MINIMUM CERTIFICATION TO OPERATE THESE FACILITIES SHALL BE A CERTIFICATE TO OPERATE PLANTS WITH DISINFECTION ONLY, ACCORDING TO § 303.2 (RELATING TO WATERWORKS OPERATORS CERTIFICATES).

§ 109.710. Disinfectant residual in the distribution system.

(a) A disinfectant residual acceptable to the Department shall be maintained throughout the distribution system of the community water system sufficient to assure compliance with the microbiological MCLs and the treatment technique requirements specified in § 109.202 (relating to State MCLs, MRDLS, and treatment technique requirements). The Department will determine the acceptable residual of the disinfectant considering factors such as type and form of disinfectant, temperature and pH of the water, and other characteristics of the water system.

(c) PUBLIC WATER SYSTEMS MAY INCREASE RESIDUAL CHLORINE OR CHLORAMINE, BUT NOT CHLORINE DIOXIDE, DISINFECTANT LEVELS IN THE DISTRIBUTION SYSTEM TO A LEVEL THAT EXCEEDS THE MRDL FOR THAT DISINFECTANT AND FOR A TIME NECESSARY TO PROTECT PUBLIC HEALTH OR TO ADDRESS SPECIFIC MICROBIOLOGICAL CONTAMINATION PROBLEMS CAUSED BY CIRCUMSTANCES SUCH AS, BUT NOT LIMITED TO, DISTRIBUTION LINE BREAKS, STORM RUNOFF EVENTS, SOURCE WATER CONTAMINATION EVENTS, OR CROSS-CONNECTION EVENTS.

Subchapter H. LABORATORY CERTIFICATION

§ 109.801. Certification requirement.

A laboratory shall be certified under this subchapter to perform analyses acceptable to the Department for the purposes of ascertaining drinking water quality and demonstrating compliance with monitoring requirements established in Subchapter C (relating to monitoring requirements).

(3) A parameter of drinking water quality for which no MCL, MRDL, or monitoring requirement of general applicability has been established may be part of a certification subcategory.

§ 109.805. Certification procedure.

(a) After the Department receives a completed application accompanied by the applicable fee under § 109.803 (relating to fees), the Department may schedule an on-site inspection of the laboratory.

(b) [For certification areas other than microbiology, the laboratory shall successfully complete at least one set of performance evaluation samples required by the Department for the parameters in the category for which certification is sought. Acceptable tolerances of analyses of performance evaluation samples shall be as stated by the EPA in 40 CFR 141.23(k)(5), 141.24(f)(17) and (h)(19) (relating to inorganic chemical sampling and analytical requirements; and organic chemicals other than total trihalomethanes, sampling and analytical requirements). For microbiology certification, the laboratory shall successfully complete a set of performance evaluation samples as required by the Department to show proficiency.] **THE LABORATORY SHALL SUCCESSFULLY COMPLETE AT LEAST ONE SET OF PROFICIENCY TEST SAMPLES REQUIRED BY THE DEPARTMENT FOR THE PARAMETERS IN THE CATEGORY FOR WHICH CERTIFICATION IS SOUGHT. ACCEPTABLE TOLERANCES OF ANALYSES OF PROFICIENCY TEST EVALUATION SAMPLES SHALL BE AS STATED BY THE EPA IN 40 CFR PART 141 OR THE "NATIONAL STANDARDS FOR WATER PROFICIENCY TESTING, CRITERIA DOCUMENT". FOR PARAMETERS NOT INCLUDED IN EITHER DOCUMENT THE ACCEPTANCE LIMITS SHALL BE THOSE ESTABLISHED BY THE DEPARTMENT.**

(e) In addition to terms and conditions in the certification issued to a laboratory, the certified laboratory shall fulfill the following requirements to maintain certification:

(3) THE LABORATORY SHALL SUCCESSFULLY COMPLETE AT LEAST ONE SET OF PROFICIENCY TEST SAMPLES REQUIRED BY THE DEPARTMENT AT LEAST ONCE EVERY 12 MONTHS.

§ 109.810. Reporting and notification requirements.

(a) A laboratory certified under this subchapter shall submit to the Department, on forms provided by the Department, the results of test measurements or analyses performed by the laboratory under this chapter. These results shall be reported within either the first 10 days following the month in which the result is determined or the first 10 days following the end of the required monitoring period as stipulated by the Department, whichever is shorter.

(b) A laboratory certified under this subchapter shall whenever an MCL, MRDL, or a treatment technique performance requirement under § 109.202 (relating to State MCLs, MRDLS,

and treatment technique requirements) is violated, or a sample result requires the collection of check samples under § 109.301 (relating to general monitoring requirements):

Subchapter I. VARIANCES AND EXEMPTIONS ISSUED BY THE DEPARTMENT

§ 109.901. Requirements for a variance.

(b) The Department may grant one or more variances to a public water system from a treatment technique requirement upon a finding that the public water supplier applying for the variance has demonstrated that, because of the nature of the raw water source of the system the treatment technique is not necessary to protect the health of the persons served by the system. The treatment technique requirements established under § 109.202(c) (relating to State MCLs, MRDLS, and treatment techniques requirements) and treatment technique requirements established under § 109.1102(b) (relating to action levels and treatment technique requirements) are not eligible for a variance.

§ 109.903. Requirements for an exemption.

(b) The treatment technique requirements established under § 109.202(c) (relating to State MCLs, MRDLS, and treatment technique requirements) and treatment technique requirements established under § 109.1102(b) (relating to action levels and treatment technique requirements) are not eligible for an exemption.

Subchapter J. BOTTLED WATER AND VENDED WATER SYSTEMS, RETAIL WATER FACILITIES AND BULK WATER HAULING SYSTEMS

§ 109.1001. Scope.

This subchapter applies to bottled water systems, vended water systems, retail water facilities and bulk water hauling systems.

§ 109.1002. MCLs, MRDLS, or treatment techniques.

(a) Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall supply drinking water that complies with the MCLs, MRDLS, and treatment technique requirements under §§ 109.202 and 109.203 (relating to State MCLs, MRDLS, and treatment technique requirements; and unregulated contaminants). Bottled water systems, vended water systems, retail water facilities and bulk water hauling systems shall provide continuous disinfection for groundwater sources. Water for bottling labeled as mineral water, under § 109.1007 (relating to labeling requirements for bottled water systems, vended water systems and

retail water facilities) shall comply with the MCLs except that mineral water may exceed the MCL for total dissolved solids.

(b) Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall supply drinking water that contains no more than 0.005 mg/L of lead and no more than 1.0 mg/L copper.

§ 109.1003. Monitoring requirements.

(a) *General monitoring requirements.* Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall monitor for compliance with the MCLs AND MRDLS in accordance with the requirements under § 109.301 (relating to general monitoring requirements) and shall comply with § 109.302 (relating to special monitoring requirements). The monitoring requirements shall be applied as follows, except that systems which have installed treatment to comply with a primary MCL shall conduct quarterly operational monitoring for the contaminant which the facility is designed to remove:

(1) Bottled water systems, retail water facilities and bulk water hauling systems, for each entry point shall:

(viii) MONITOR MONTHLY FOR BROMATE, IF THE SYSTEM USES OZONE FOR DISINFECTION OR OXIDATION.

(A) SYSTEMS MUST TAKE ONE SAMPLE PER MONTH FOR EACH ENTRY POINT THAT USES OZONE WHILE THE OZONATION SYSTEM IS OPERATING UNDER NORMAL CONDITIONS.

(B) SYSTEMS MAY REDUCE MONITORING FOR BROMATE FROM MONTHLY TO QUARTERLY PROVIDED 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. SYSTEMS ON REDUCED MONITORING MUST CONTINUE MONTHLY SOURCE WATER BROMIDE MONITORING. IF THE RUNNING ANNUAL AVERAGE SOURCE WATER BROMIDE CONCENTRATION, COMPUTED QUARTERLY, IS EQUAL TO OR EXCEEDS 0.05 MG/L, THE SYSTEM MUST REVERT TO ROUTINE MONITORING AS PRESCRIBED BY CLAUSE (A).

(c) *Sampling requirements.*

(1) For bottled water and vended water systems, retail water facilities and bulk water hauling systems, samples taken to determine compliance with MCLs, MRDLS, monitoring requirements, including special monitoring requirements for unregulated contaminants, and treatment techniques shall be taken from each entry point.

(d) *Repeat monitoring for microbiological contaminants.*

(3) If a check sample is total coliform-positive, the system shall be deemed to have violated the MCL for total coliforms established under § 109.1002 (relating to MCLs, MRDLS, or treatment techniques).

§ 109.1004. Public notification.

(a) *General public notification requirements.* A bottled water, vended water, retail water or bulk water supplier shall give public notification in accordance with this section. In addition, a bulk water supplier shall give public notification in accordance with §§ 109.401(a) and 109.406(b) (relating to general public notification requirements; and public notice requirements for unregulated contaminants).

(1) A bottled water, vended water, retail water or bulk water supplier who knows that a primary MCL OR A MRDL has been exceeded or treatment technique performance standard has been violated or has reason to believe that circumstances exist which may adversely affect the quality of drinking water, including, but not limited, to, source contamination, spills, accidents, natural disasters or breakdowns in treatment, shall report the circumstances to the Department within 1 hour of discovery of the problem.

(b) *Description and content of notice.* Notice given under this section shall be written in a manner reasonably designed to fully inform the users of the system. When appropriate or as designated by the Department, additional notice in a foreign language shall be given.

(1) The notice shall be conspicuous and may not use technical language, small print or other methods which would frustrate the purpose of the notice.

(2) The notice shall disclose material facts regarding the subject, including the nature of the problem and, when appropriate, a clear statement that an MCL OR MRDL has been violated and preventive measures that should be taken by the public.

§ 109.1005. Permit requirements.

(e) *Permit applications.* An application for a public water system permit for a bottled water or vended water system, retail water facility or bulk water hauling system shall be submitted in writing on forms provided by the Department and shall be accompanied by plans, specifications, engineer's report, water quality analyses and other data, information or documentation reasonably necessary to enable the Department to determine compliance with the act and this chapter. The Department will make available to the applicant the *Public Water Supply Manual*, available from the Bureau of Water Supply and Community Health, Post Office Box 8467, Harrisburg, PA 17105-8467 which contains acceptable design standards and technical guidance. Water quality analyses shall be conducted by a laboratory certified under this chapter. An application for a public water system permit for a bottled water or vended water system, retail water facility or bulk water hauling system shall include:

(7) In addition to the information required under paragraphs (1)--(6) an application for a bottled water system permit shall include:

(i) An analysis of the quality of the manufactured water for each bottled water product. The analysis shall include data for each primary and secondary contaminant under § 109.1002 (relating to MCLs, MRDLS, or treatment techniques).

§ 109.1006. Design and construction standards.

(b) *Acceptable design.* Bottled water and vended water systems, retail water facilities and bulk water hauling systems shall be designed to provide an adequate quality of water to the public. The design shall ensure that the system will, upon completion, be capable of providing water that complies with the primary and secondary MCLs, MRDLS, and treatment techniques established in § 109.1002 (relating to MCLs, MRDLS, or treatment techniques). The Department may approve control techniques, such as nonremoval processes, which abate the problems associated with a secondary contaminant, and achieve the objective of the secondary MCL.

§ 109.1009. System operational requirements.

(c) *Disinfectant residual requirements.* A disinfectant residual acceptable to the Department shall be maintained at the entry point of the bottled water or vended water system,

retail water facility or bulk water hauling system sufficient to assure compliance with the microbiological MCL specified in § 109.1002 (relating to MCLs, MRDLS, or treatment techniques). The Department will determine the acceptable residual of the disinfectant considering such factors as type and form of disinfectant, temperature and pH of the water, and other characteristics of the water system.

Subchapter K. LEAD AND COPPER

§ 109.1105. Permit requirements.

(b) *Construction permits and permit amendments.* The water supplier shall submit an application for a public water system construction permit for a newly-created system or an amended construction permit for a currently-permitted system for corrosion control treatment facilities by the applicable deadline established in § 109.1102(b)(2) (relating to action levels and treatment technique requirements), unless the system complies with paragraph (1) or (2) or otherwise qualifies for a minor permit amendment under § 109.503(b) (relating to public water system construction permits). The permit application shall comply with § 109.503 and contain the applicable information specified therein. The application shall include recommended water quality parameter performance requirements for optimal corrosion control treatment as specified

in § 109.1102(b)(5) and other data, information or documentation necessary to enable the Department to consider the application for a permit for construction of the facilities.

(1) *Community water system minor permit amendments.* The community water supplier may submit a written request for an amended construction permit to the Department if the system satisfies the conditions under subparagraphs (i)--(iv). A request for an amended construction permit under this paragraph shall describe the proposed change in sufficient detail to allow the Department to adequately evaluate the proposal.

(iii) Except for corrosion control treatment, the sources require treatment no greater than disinfection to provide water of a quality that meets the MCLs and treatment technique requirements established under Subchapter B (relating to MCLs, MRDLS, or treatment technique requirements).

(2) *Nontransient noncommunity water system permits.* The nontransient noncommunity water supplier is not required to obtain a construction permit or permit amendment under subsection (b) if the system satisfies the following specifications and conditions:

(iii) Except for corrosion control treatment, the sources require treatment no greater than disinfection to provide water of a quality that meets the MCLs and treatment technique requirements established under Subchapter B (RELATING TO MCLS, MRDLS, OR TREATMENT TECHNIQUE REQUIREMENTS).

Wednesday
December 16, 1998

Federal Register

Part IV

Environmental Protection Agency

40 CFR Parts 9, 141, and 142
National Primary Drinking Water
Regulations: Disinfectants and
Disinfection Byproducts; Final Rule

- 114. White, M. C., Thompson, D., Harrington, G. W., and P.S. Singer. 1997. Evaluating Criteria for Enhanced Coagulation Compliance. *AWWA*, 89:5:64.
- 115. Xie, Yuefeng. 1995. Effects of Sodium Chloride on DBP Analytical Results, Extended Abstract, Division of Environmental Chemistry, American Chemical Society Annual Conference, Chicago, IL, Aug. 21-26, 1995.

List of Subjects

40 CFR Part 9

Environmental protection, Reporting and recordkeeping requirements.

40 CFR Parts 141 and 142

Analytical methods, Drinking water, Environmental protection, Incorporation by reference, Intergovernmental relations, Public utilities, Reporting and recordkeeping requirements, Utilities, Water supply.

Dated: November 30, 1998.

Carol M. Browner,
Administrator.

For the reasons set out in the preamble, title 40, chapter I of the Code of Federal Regulations is amended as follows:

PART 9—[AMENDED]

1. The authority citation for part 9 continues to read as follows:

Authority: 7 U.S.C. 135 *et seq.*, 136-136y; 15 U.S.C. 2001, 2003, 2005, 2006, 2601-2671; 21 U.S.C. 331j, 346a, 348; 31 U.S.C. 9701; 33 U.S.C. 1251 *et seq.*, 1311, 1313d, 1314, 1318, 1321, 1326, 1330, 1342, 1344, 1345 (d) and (e), 1361; E.O. 11735, 38 FR 21243, 3 CFR, 1971-1975 Comp. p. 973; 42 U.S.C. 241, 242b, 243, 246, 300f, 300g, 300g-1, 300g-2, 300g-3, 300g-4, 300g-5, 300g-6, 300j-1, 300j-2, 300j-3, 300j-4, 300j-9, 1857 *et seq.*, 6901-6992k, 7401-7671q, 7542, 9601-9657, 11023, 11048.

2. In § 9.1 the table is amended by adding under the indicated heading: the new entries in numerical order to read as follows:

§ 9.1 OMB approvals under the Paperwork Reduction Act.

40 CFR citation	OMB control No.
* * * * *	* * * * *
National Primary Drinking Water Regulations	
* * * * *	* * * * *
141.130-141.132	2040-0204
141.134-141.135	2040-0204
* * * * *	* * * * *

PART 141—NATIONAL PRIMARY DRINKING WATER REGULATIONS

3. The authority citation for part 141 continues to read as follows:

Authority: 42 U.S.C. 300f, 300g-1, 300g-2, 300g-3, 300g-4, 300g-5, 300g-6, 300j-4, 300j-9, and 300j-11.

4. Section 141.2 is amended by adding the following definitions in alphabetical order to read as follows:

§ 141.2 Definitions.

* * * * *

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

* * * * *

Enhanced softening means the improved removal of disinfection byproduct precursors by precipitative softening.

* * * * *

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.

* * * * *

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

* * * * *

Maximum residual disinfectant level (MRDL) means a level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable possibility of adverse health effects. For chlorine and chloramines, a PWS is in compliance with the MRDL when the running annual average of monthly averages of samples taken in the distribution system, computed quarterly, is less than or equal to the MRDL. For chlorine dioxide, a PWS is in compliance with the MRDL when daily samples are taken at the entrance to the distribution system and no two consecutive daily samples exceed the MRDL. MRDLs are enforceable in the same manner as maximum contaminant levels under Section 1412 of the Safe Drinking Water Act. There is convincing evidence that addition of a disinfectant is necessary for control of waterborne microbial contaminants. Notwithstanding the MRDLs listed in § 141.65, operators may increase residual disinfectant levels of chlorine or chloramines (but not

chlorine dioxide) in the distribution system to a level and for a time necessary to protect public health to address specific microbiological contamination problems caused by circumstances such as distribution line breaks, storm runoff events, source water contamination, or cross-connections.

* * * * *

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

* * * * *

Subpart H systems means public water systems using surface water or ground water under the direct influence of surface water as a source that are subject to the requirements of subpart H of this part.

* * * * *

SUVA means Specific Ultraviolet Absorption at 254 nanometers (nm), an indicator of the humic content of water. It is a calculated parameter obtained by dividing a sample's ultraviolet absorption at a wavelength of 254 nm (UV₂₅₄) (in m⁻¹) by its concentration of dissolved organic carbon (DOC) (in mg/L).

* * * * *

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

* * * * *

5. Section 141.12 is revised to read as follows:

§ 141.12 Maximum contaminant levels for total trihalomethanes.

The maximum contaminant level of 0.10 mg/L for total trihalomethanes (the sum of the concentrations of bromodichloromethane, dibromochloromethane, tribromomethane (bromoform), and trichloromethane (chloroform)) applies to subpart H community water systems which serve a population of 10,000 people or more until December 16, 2001. This level applies to community water systems that use only ground water not under the direct influence of surface water and serve a population of 10,000 people or more until December

16, 2003. Compliance with the maximum contaminant level for total trihalomethanes is calculated pursuant to § 141.30. After December 16, 2003, this section is no longer applicable.

6. Section 141.30 is amended by revising the the first sentences in paragraphs (d) and (f) and adding paragraph (h) to read as follows:

§ 141.30 Total trihalomethanes sampling, analytical and other requirements.

* * * * *

(d) Compliance with § 141.12 shall be determined based on a running annual average of quarterly samples collected by the system as prescribed in paragraph (b)(1) or (2) of this section. * * *

* * * * *

(f) Before a community water system makes any significant modifications to its existing treatment process for the purposes of achieving compliance with § 141.12, such system must submit and obtain State approval of a detailed plan setting forth its proposed modification and those safeguards that it will implement to ensure that the bacteriological quality of the drinking water served by such system will not be adversely affected by such modification. * * *

* * * * *

(h) The requirements in paragraphs (a) through (g) of this section apply to subpart H community water systems which serve a population of 10,000 or more until December 16, 2001. The requirements in paragraphs (a) through (g) of this section apply to community water systems which use only ground water not under the direct influence of surface water that add a disinfectant (oxidant) in any part of the treatment process and serve a population of 10,000 or more until December 16, 2003. After December 16, 2003, this section is no longer applicable.

7. Section 141.32 is amended by revising the heading in paragraph (a) introductory text, the first sentence of paragraph (a)(1)(iii) introductory text, and the first sentence of paragraph (c), and adding paragraphs (a)(1)(iii)(E) and (e) (76) through (81), to read as follows:

§ 141.32 Public notification.

* * * * *

(a) *Maximum contaminant levels (MCLs), maximum residual disinfectant levels (MRDLs).* * * *

(1) * * *

(iii) For violations of the MCLs of contaminants or MRDLs of disinfectants 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

public water system as soon as possible but in no case later than 72 hours after the violation. ***

* * * * *

(E) Violation of the MRDL for chlorine dioxide as defined in § 141.65 and determined according to § 141.133(c)(2).

* * * * *

(c) * * * The owner or operator of a community water system must give a copy of the most recent public notice for any outstanding violation of any maximum contaminant level, or any maximum residual disinfectant level, or any treatment technique requirement, or any variance or exemption schedule to all new billing units or new hookups prior to or at the time service begins.

* * * * *

(e) * * *

(76) *Chlorine.* The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that chlorine is a health concern at certain levels of exposure. Chlorine is added to drinking water as a disinfectant to kill bacteria and other disease-causing microorganisms and is also added to provide continuous disinfection throughout the distribution system. Disinfection is required for surface water systems. However, at high doses for extended periods of time, chlorine has been shown to affect blood and the liver in laboratory animals. EPA has set a drinking water standard for chlorine to protect against the risk of these adverse effects. Drinking water which meets this EPA standard is associated with little to none of this risk and should be considered safe with respect to chlorine.

(77) *Chloramines.* The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that chloramines are a health concern at certain levels of exposure. Chloramines are added to drinking water as a disinfectant to kill bacteria and other disease-causing microorganisms and are also added to provide continuous disinfection throughout the distribution system. Disinfection is required for surface water systems. However, at high doses for extended periods of time, chloramines have been shown to affect blood and the liver in laboratory animals. EPA has set a drinking water standard for chloramines to protect against the risk of these adverse effects. Drinking water which meets this EPA standard is associated with little to none of this risk and should be considered safe with respect to chloramines.

(78) *Chlorine dioxide.* The United States Environmental Protection Agency (EPA) sets drinking water standards and

has determined that chlorine dioxide is a health concern at certain levels of exposure. Chlorine dioxide is used in water treatment to kill bacteria and other disease-causing microorganisms and can be used to control tastes and odors. Disinfection is required for surface water systems. However, at high doses, chlorine dioxide-treated drinking water has been shown to affect blood in laboratory animals. Also, high levels of chlorine dioxide given to laboratory animals in drinking water have been shown to cause neurological effects on the developing nervous system. These neurodevelopmental effects may occur as a result of a short-term excessive chlorine dioxide exposure. To protect against such potentially harmful exposures, EPA requires chlorine dioxide monitoring at the treatment plant, where disinfection occurs, and at representative points in the distribution system serving water users. EPA has set a drinking water standard for chlorine dioxide to protect against the risk of these adverse effects.

Note: In addition to the language in this introductory text of paragraph (e)(78), systems must include either the language in paragraph (e)(78)(i) or (e)(78)(ii) of this section. Systems with a violation at the treatment plant, but not in the distribution system, are required to use the language in paragraph (e)(78)(i) of this section and treat the violation as a nonacute violation. Systems with a violation in the distribution system are required to use the language in paragraph (e)(78)(ii) of this section and treat the violation as an acute violation.

(i) The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only, and do not include violations within the distribution system serving users of this water supply. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to present consumers.

(ii) The chlorine dioxide violations reported today include exceedances of the EPA standard within the distribution system serving water users. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short-term exposures. Certain groups, including pregnant women, infants, and young children, may be especially susceptible to adverse effects of excessive exposure to chlorine dioxide-treated water. The purpose of this notice is to advise that such persons should consider reducing their risk of adverse effects from these chlorine dioxide violations by seeking alternate sources of water for human consumption until such exceedances are rectified. Local

and State health authorities are the best sources for information concerning alternate drinking water.

(79) *Disinfection byproducts and treatment technique for DBPs.* The United States Environmental Protection Agency (EPA) sets drinking water standards and requires the disinfection of drinking water. However, when used in the treatment of drinking water, disinfectants react with naturally-occurring organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBPs). EPA has determined that a number of DBPs are a health concern at certain levels of exposure. Certain DBPs, including some trihalomethanes (THMs) and some haloacetic acids (HAAs), have been shown to cause cancer in laboratory animals. Other DBPs have been shown to affect the liver and the nervous system, and cause reproductive or developmental effects in laboratory animals. Exposure to certain DBPs may produce similar effects in people. EPA has set standards to limit exposure to THMs, HAAs, and other DBPs.

(80) *Bromate.* The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that bromate is a health concern at certain levels of exposure. Bromate is formed as a byproduct of ozone disinfection of drinking water. Ozone reacts with naturally occurring bromide in the water to form bromate. Bromate has been shown to produce cancer in rats. EPA has set a drinking water standard to limit exposure to bromate.

(81) *Chlorite.* The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that chlorite is a health concern at certain levels of exposure. Chlorite is formed from the breakdown of chlorine dioxide, a drinking water disinfectant. Chlorite in drinking water has been shown to affect blood and the developing nervous system. EPA has set a drinking water standard for chlorite to protect against these effects. Drinking water which meets this standard is associated with little to none of these risks and should be considered safe with respect to chlorite.

* * * * *

8. Subpart F is amended by revising the subpart heading and adding §§ 141.53 and 141.54 to read as follows:

Subpart F—Maximum Contaminant Level Goals and Maximum Residual Disinfectant Level Goals

* * * * *

§ 141.53—Maximum contaminant level goals for disinfection byproducts.

MCLGs for the following disinfection byproducts are as indicated:

Disinfection byproduct	MCLG (mg/L)
Chloroform	Zero
Bromodichloromethane	Zero
Bromoform	Zero
Bromate	Zero
Dichloroacetic acid	Zero
Trichloroacetic acid	0.3
Chlorite	0.8
Dibromochloromethane	0.06

§ 141.54 Maximum residual disinfectant level goals for disinfectants.

MRDLGs for disinfectants are as follows:

Disinfectant residual	MRDLG(mg/L)
Chlorine	4 (as Cl ₂).
Chloramines	4 (as Cl ₂).
Chlorine dioxide	0.8 (as ClO ₂)

9. Subpart G is amended by revising the subpart heading and adding §§ 141.64 and 141.65 to read as follows:

Subpart G—National Revised Primary Drinking Water Regulations: Maximum Contaminant Levels and Maximum Residual Disinfectant Levels

* * * * *

§ 141.64 Maximum contaminant levels for disinfection byproducts.

(a) The maximum contaminant levels (MCLs) for disinfection byproducts are as follows:

Disinfection byproduct	MCL (mg/L)
Total trihalomethanes (TTHM)	0.080
Haloacetic acids (five) (HAAs)	0.060
Bromate	0.010
Chlorite	1.0

(b) *Compliance dates.* (1) *CWSs and NTNCWSs.* Subpart H systems serving 10,000 or more persons must comply with this section beginning December 16, 2001. Subpart H systems serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water must comply with this section beginning December 16, 2003.

(2) A system that is installing GAC or membrane technology to comply with this section may apply to the State for an extension of up to 24 months past the dates in paragraphs (b)(1) of this section, but not beyond December 16, 2003. In granting the extension, States must set a schedule for compliance and may specify any interim measures that the

system must take. Failure to meet the schedule or interim treatment requirements constitutes a violation of a National Primary Drinking Water Regulation.

(c) The Administrator, pursuant to Section 1412 of the Act, hereby identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for disinfection byproducts identified in paragraph (a) of this section:

Disinfection by-product	Best available technology
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.

§ 141.65 Maximum residual disinfectant levels.

(a) Maximum residual disinfectant levels (MRDLs) are as follows:

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

(b) *Compliance dates.*

(1) *CWSs and NTNCWSs.* Subpart H systems serving 10,000 or more persons must comply with this section beginning December 16, 2001. Subpart H systems serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water must comply with this subpart beginning December 16, 2003.

(2) *Transient NCWSs.* Subpart H systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning December 16, 2001. Subpart H systems serving fewer than 10,000 persons and using chlorine dioxide as a disinfectant or oxidant and systems using only ground water not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with the

chlorine dioxide MRDL beginning December 16, 2003.

(c) The Administrator, pursuant to Section 1412 of the Act, hereby identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum residual disinfectant levels identified in paragraph (a) of this section: control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels.

10. A new subpart L is added to read as follows:

Subpart L—Disinfectant Residuals, Disinfection Byproducts, and Disinfection Byproduct Precursors

Sec.

141.130 General requirements.

141.131 Analytical requirements.

141.132 Monitoring requirements.

141.133 Compliance requirements.

141.134 Reporting and recordkeeping requirements.

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

§ 141.130 General requirements.

(a) The requirements of this subpart L constitute national primary drinking water regulations.

(1) The regulations in this subpart 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 must modify their practices to meet MCLs and MRDLs in §§ 141.64 and 141.65, respectively, and must meet the treatment technique requirements for disinfection byproduct precursors in § 141.135.

(2) The regulations in this subpart establish criteria under which transient NCWSs that use chlorine dioxide as a disinfectant or oxidant must modify their practices to meet the MRDL for chlorine dioxide in § 141.65.

(3) EPA has established MCLs 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.

(b) *Compliance dates.* (1) CWSs and NTNCWSs. Unless otherwise noted, systems must comply with the

requirements of this subpart as follows. Subpart H systems serving 10,000 or more persons must comply with this subpart beginning December 16, 2001. Subpart H systems serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water must comply with this subpart beginning December 16, 2003.

(2) *Transient NCWSs.* Subpart H systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide and chlorite in this subpart beginning December 16, 2001. Subpart H systems serving fewer than 10,000 persons and using chlorine dioxide as a disinfectant or oxidant and systems using only ground water not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with any requirements for chlorine dioxide and chlorite in this subpart beginning December 16, 2003.

(c) Each CWS and NTNCWS regulated under paragraph (a) of this section must be operated by qualified personnel who meet the requirements specified by the State and are included in a State register of qualified operators.

(d) *Control of disinfectant residuals.* Notwithstanding the MRDLs in § 141.65, systems may increase residual disinfectant levels in the distribution system of chlorine or chloramines (but not chlorine dioxide) to a level and for a time necessary to protect public health, to address specific microbiological contamination problems caused by circumstances such as, but not limited to, distribution line breaks, storm run-off events, source water contamination events, or cross-connection events.

§ 141.131 Analytical requirements.

(a) *General.* (1) Systems must use only the analytical method(s) specified in this section, or otherwise approved by EPA for monitoring under this subpart, to demonstrate compliance with the requirements of this subpart. These methods are effective for compliance monitoring February 16, 1999.

(2) The following documents are incorporated by reference. The Director of the Federal Register approves this incorporation by reference in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies may be inspected at EPA's Drinking Water Docket, 401 M Street, SW, Washington, DC 20460, or at the Office of the Federal Register, 800 North Capitol Street, NW, Suite 700, Washington DC. EPA Method 552.1 is in

Methods for the Determination of Organic Compounds in Drinking Water—Supplement II, USEPA, August 1992, EPA/600/R-92/129 (available through National Information Technical Service (NTIS), PB92-207703). EPA Methods 502.2, 524.2, 551.1, and 552.2 are in *Methods for the Determination of Organic Compounds in Drinking Water—Supplement III*, USEPA, August 1995, EPA/600/R-95/131. (available through NTIS, PB95-261616). EPA Method 300.0 is in *Methods for the Determination of Inorganic Substances in Environmental Samples*, USEPA, August 1993, EPA/600/R-93/100. (available through NTIS, PB94-121811). EPA Method 300.1 is titled *USEPA Method 300.1, Determination of Inorganic Anions in Drinking Water by Ion Chromatography, Revision 1.0*, USEPA, 1997, EPA/600/R-98/118 (available through NTIS, PB98-169196); also available from: Chemical Exposure Research Branch, Microbiological & Chemical Exposure Assessment Research Division, National Exposure Research Laboratory, U.S. Environmental Protection Agency, Cincinnati, OH 45268, Fax Number: 513-569-7757, Phone number: 513-569-7586. Standard Methods 4500-C1 D, 4500-C1 E, 4500-C1 F, 4500-C1 G, 4500-C1 H, 4500-C1 I, 4500-C1 O₂ D, 4500-C1 O₂ E, 6251 B, and 5910 B shall be followed in accordance with *Standard Methods for the Examination of Water and Wastewater, 19th Edition*, American Public Health Association, 1995; copies may be obtained from the American Public Health Association, 1015 Fifteenth Street, NW, Washington, DC 20005. Standard Methods 5310 B, 5310 C, and 5310 D shall be followed in accordance with the *Supplement to the 19th Edition of Standard Methods for the Examination of Water and Wastewater*, American Public Health Association, 1996; copies may be obtained from the American Public Health Association, 1015 Fifteenth Street, NW, Washington, DC 20005. ASTM Method D 1253-86 shall be followed in accordance with the *Annual Book of ASTM Standards*, Volume 11.01, American Society for Testing and Materials, 1996 edition; copies may be obtained from the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

(b) *Disinfection byproducts.* (1) Systems must measure disinfection byproducts by the methods (as modified by the footnotes) listed in the following table:

APPROVED METHODS FOR DISINFECTION BYPRODUCT COMPLIANCE MONITORING

Methodology ²	EPA method	Standard method	Byproduct measured ¹			
			TTHM	HAA5	Chlorite ⁴	Bromate
P&T/GC/EICD & PID	3502.2	6251 B	X			
P&T/GC/MS	524.2		X			
LLE/GC/ECD	551.1		X			
LLE/GC/ECD				X		
SPE/GC/ECD	552.1			X		
LLE/GC/ECD	552.2			X		
Amperometric Titration		4500-ClO ₂ E			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; EICD = 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 § 141.132(b)(2)(i)(A). Ion chromatography must be used for routine monthly monitoring of chlorite and additional monitoring of chlorite in the distribution system, as prescribed in § 141.132(b)(2)(i)(B) and (b)(2)(ii).

(2) Analysis under this section for disinfection byproducts must be conducted by laboratories that have received certification by EPA or the State. To receive certification to conduct analyses for the contaminants in § 141.64(a), the laboratory must carry out annual analyses of performance evaluation (PE) samples approved by

EPA or the State. In these analyses of PE samples, the laboratory must achieve quantitative results within the acceptance limit on a minimum of 80% of the analytes included in each PE sample. The acceptance limit is defined as the 95% confidence interval calculated around the mean of the PE study data between a maximum and

minimum acceptance limit of +/- 50% and +/- 15% of the study mean.

(c) *Disinfectant residuals.* (1) Systems must measure residual disinfectant concentrations for free chlorine, combined chlorine (chloramines), and chlorine dioxide by the methods listed in the following table:

APPROVED METHODS FOR DISINFECTANT RESIDUAL COMPLIANCE MONITORING

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 Colorimetric	4500-Cl G		X	X	X	
Syringaldazine (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.

(2) If approved by the State, systems may also measure residual disinfectant concentrations for chlorine, chloramines, and chlorine dioxide by using DPD colorimetric test kits.

(3) A party approved by EPA or the State must measure residual disinfectant concentration.

(d) *Additional analytical methods.* Systems required to analyze parameters not included in paragraphs (b) and (c) of this section must use the following methods. A party approved by EPA or the State must measure these parameters.

(1) *Alkalinity.* All methods allowed in § 141.89(a) for measuring alkalinity.

(2) *Bromide.* EPA Method 300.0 or EPA Method 300.1.

(3) *Total Organic Carbon (TOC).* Standard Method 5310 B (High-Temperature Combustion Method) or Standard Method 5310 C (Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method) or Standard Method 5310 D (Wet-Oxidation Method). TOC samples may not be filtered prior to analysis. TOC samples must either be analyzed or must 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. Acidified TOC samples must be analyzed within 28 days.

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

as mg/L). In order to determine SUVA, it is necessary to separately measure UV₂₅₄ and DOC. When determining SUVA, systems must use the methods stipulated in paragraph (d)(4)(i) of this section to measure DOC and the method stipulated in paragraph (d)(4)(ii) of this section to measure UV₂₅₄. SUVA must be determined on water prior to the addition of disinfectants/oxidants by the system. DOC and UV₂₅₄ samples used to determine a SUVA value must be taken at the same time and at the same location.

(i) Dissolved Organic Carbon (DOC). Standard Method 5310 B (High-Temperature Combustion Method) or Standard Method 5310 C (Persulfate-Ultraviolet or Heated-Persulfate Oxidation Method) or Standard Method

5310 D (Wet-Oxidation Method). Prior to analysis, DOC samples must be filtered through a 0.45 µm pore-diameter filter. Water passed through the filter prior to filtration of the sample must serve as the filtered blank. This filtered blank must be analyzed using procedures identical to those used for analysis of the samples and must meet the following criteria: DOC < 0.5 mg/L. DOC samples must be filtered through the 0.45 µm pore-diameter filter prior to acidification. DOC samples must either be analyzed or must 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 must be analyzed within 28 days.

(ii) Ultraviolet Absorption at 254 nm (UV₂₅₄). Method 5910 B (Ultraviolet Absorption Method). UV absorption

must be measured at 253.7 nm (may be rounded off to 254 nm). Prior to analysis, UV₂₅₄ samples must be filtered through a 0.45 µm pore-diameter filter. The pH of UV₂₅₄ samples may not be adjusted. Samples must be analyzed as soon as practical after sampling, not to exceed 48 hours.

(5) pH. All methods allowed in § 141.23(k)(1) for measuring pH.

§ 141.132 Monitoring requirements.

(a) *General requirements.* (1) Systems must take all samples during normal operating conditions.

(2) Systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required, with State approval in accordance with criteria developed under § 142.16(f)(5) of this chapter.

(3) Failure to monitor in accordance with the monitoring plan required under paragraph (f) of this section is a monitoring violation.

(4) Failure to monitor will be treated as a violation for the entire period covered by the annual average where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MCLs or MRDLs.

(5) Systems may use only data collected under the provisions of this subpart or subpart M of this part to qualify for reduced monitoring.

(b) *Monitoring requirements for disinfection byproducts.* (1) *TTHMs and HAA5.* (i) *Routine monitoring.* Systems must monitor at the frequency indicated in the following table:

ROUTINE MONITORING FREQUENCY FOR TTHM AND HAA5

Type of system	Minimum monitoring frequency	Sample location in the distribution system
Subpart H system serving at least 10,000 persons.	Four water samples per quarter per treatment plant.	At least 25 percent of all samples collected each quarter at locations representing maximum residence time. Remaining samples taken at locations representative of at least average residence time in the distribution system and representing the entire distribution system, taking into account number of persons served, different sources of water, and different treatment methods. ¹
Subpart H system serving from 500 to 9,999 persons.	One water sample per quarter per treatment plant.	Locations representing maximum residence time. ¹
Subpart H system serving fewer than 500 persons.	One sample per year per treatment plant during month of warmest water temperature.	Locations representing maximum residence time. ¹ If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets reduced monitoring criteria in paragraph (c) of this section.
System using only ground water not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons.	One water sample per quarter per treatment plant ² .	Locations representing maximum residence time. ¹
System using only ground water not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons.	One sample per year per treatment plant ² during month of warmest water temperature.	Locations representing maximum residence time. ¹ If the sample (or average of annual samples, if more than one sample is taken) exceeds MCL, system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until system meets criteria in paragraph (c) of this section for reduced monitoring.

¹ If a system elects to sample more frequently than the minimum required, at least 25 percent of all samples collected each quarter (including those taken in excess of the required frequency) must be taken at locations that represent the maximum residence time of the water in the distribution system. The remaining samples must be taken at locations representative of at least average residence time in the distribution system.

² Multiple wells drawing water from a single aquifer may be considered one treatment plant for determining the minimum number of samples required, with State approval in accordance with criteria developed under § 142.16(f)(5) of this chapter.

(ii) Systems may reduce monitoring, except as otherwise provided, in accordance with the following table:

Reduced Monitoring Frequency for TTHM and HAA5

If you are a . . .	You may reduce monitoring if you have monitored at least one year and your . . .	To this level
Subpart H system serving at least 10,000 persons which has a source water annual average TOC level, before any treatment, ≤ 4.0 mg/L.	TTHM annual average ≤ 0.040 mg/L and HAA5 annual average ≤ 0.030 mg/L.	One sample per treatment plant per quarter at distribution system location reflecting maximum residence time.
Subpart H system serving from 500 to 9,999 persons which has a source water annual average TOC level, before any treatment, ≤ 4.0 mg/L.	TTHM annual average ≤ 0.040 mg/L and HAA5 annual average ≤ 0.030 mg/L.	One sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature. NOTE: Any Subpart H system serving fewer than 500 persons may not reduce its monitoring to less than one sample per treatment plant per year.
System using only ground water not under direct influence of surface water using chemical disinfectant and serving at least 10,000 persons.	TTHM annual average ≤ 0.040 mg/L and HAA5 annual average ≤ 0.030 mg/L.	One sample per treatment plant per year at distribution system location reflecting maximum residence time during month of warmest water temperature
System using only ground water not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons.	TTHM annual average ≤ 0.040 mg/L and HAA5 annual average ≤ 0.030 mg/L for two consecutive years OR TTHM annual average ≤ 0.020 mg/L and HAA5 annual average ≤ 0.015 mg/L for one year.	One sample per treatment plant per three year monitoring cycle at distribution system location reflecting maximum residence time during month of warmest water temperature, with the three-year cycle beginning on January 1 following quarter in which system qualifies for reduced monitoring.

(iii) 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 must monitor quarterly) or the result of the sample (for systems which must 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 must resume monitoring at the frequency identified in paragraph (b)(1)(i) of this section 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.

(iv) The State may return a system to routine monitoring at the State's discretion.

(2) *Chlorite*. Community and nontransient noncommunity water systems using chlorine dioxide, for disinfection or oxidation, must conduct monitoring for chlorite.

(i) *Routine monitoring*. (A) *Daily monitoring*. Systems must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the system must take additional samples in the distribution system the following day at the locations required by paragraph (b)(2)(i) of this section, in addition to the sample required at the entrance to the distribution system.

(B) *Monthly monitoring*. Systems must take a three-sample set each month in the distribution system. The system must 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 must be conducted in the same manner (as three-sample sets, at the specified locations). The system may use the results of additional monitoring conducted under paragraph (b)(2)(ii) of this section to meet the requirement for monitoring in this paragraph.

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

(iii) *Reduced monitoring*. (A) Chlorite monitoring at the entrance to the distribution system required by paragraph (b)(2)(i)(A) of this section may not be reduced.

(B) Chlorite monitoring in the distribution system required by paragraph (b)(2)(i)(B) of this section may be reduced to one three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under paragraph (b)(2)(i)(B) of this section has exceeded the chlorite MCL and the system has not been required to conduct

monitoring under paragraph (b)(2)(ii) of this section. The system may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system under paragraph (b)(2)(i)(B) of this section exceeds the chlorite MCL or the system is required to conduct monitoring under paragraph (b)(2)(ii) of this section, at which time the system must revert to routine monitoring.

(3) *Bromate*. (i) *Routine monitoring*. Community and nontransient noncommunity systems using ozone, for disinfection or oxidation, must take one sample per month for each treatment plant in the system using ozone. Systems must take samples monthly at the entrance to the distribution system while the ozonation system is operating under normal conditions.

(ii) *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 equal to or greater than 0.05 mg/L based upon representative monthly measurements. If the running annual average source water bromide concentration is ≥ 0.05 mg/L, the system must resume routine monitoring

required by paragraph (b)(3)(i) of this section.

(c) *Monitoring requirements for disinfectant residuals.* (1) *Chlorine and chloramines.* (i) *Routine monitoring.* Systems must measure the residual disinfectant level at the same points in the distribution system and at the same time as total coliforms are sampled, as specified in § 141.21. Subpart H systems may use the results of residual disinfectant concentration sampling conducted under § 141.74(b)(6)(i) for unfiltered systems or § 141.74(c)(3)(i) for systems which filter, in lieu of taking separate samples.

(ii) *Reduced monitoring.* Monitoring may not be reduced.

(2) *Chlorine dioxide.* (i) *Routine monitoring.* Community, nontransient noncommunity, and transient noncommunity water systems that use chlorine dioxide for disinfection or oxidation must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the system must take samples in the distribution system the following day at the locations required by paragraph (c)(2)(ii) of this section, in addition to the sample required at the entrance to the distribution system.

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

(iii) *Reduced monitoring.* Chlorine dioxide monitoring may not be reduced.

(d) *Monitoring requirements for disinfection byproduct precursors (DBPP).* (1) *Routine monitoring.* Subpart H systems which use conventional filtration treatment (as defined in

§ 141.2) must monitor each treatment plant for TOC no later than the point of combined filter effluent turbidity monitoring and representative of the treated water. All systems required to monitor under this paragraph (d)(1) must also monitor for TOC in the source water prior to any treatment at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples. At the same time as the source water sample is taken, all systems must monitor for alkalinity in the source water prior to any treatment. Systems must 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.

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

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

(f) *Monitoring plans.* Each system required to monitor under this subpart must develop and implement a monitoring plan. The system must maintain the plan and make it available for inspection by the State and the general public no later than 30 days following the applicable compliance dates in § 141.130(b). All Subpart H systems serving more than 3300 people must submit a copy of the monitoring plan to the State no later than the date of the first report required under § 141.134. The State may also require the plan to be submitted by any other system. After review, the State may require changes in any plan elements. The plan must include at least the following elements.

(1) Specific locations and schedules for collecting samples for any parameters included in this subpart.

(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 the provisions of § 141.29, the sampling plan must reflect the entire distribution system.

§ 141.133 Compliance requirements.

(a) *General requirements.* (1) Where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor for TTHM, HAA5, or bromate, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average. Where compliance is based on a running annual average of monthly or quarterly samples or averages and the system's failure to monitor makes it impossible to determine compliance with MRDLs for chlorine and chloramines, this failure to monitor will be treated as a monitoring violation for the entire period covered by the annual average.

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

(3) If, during the first year of monitoring under § 141.132, 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.

(b) *Disinfection byproducts.* (1) *TTHMs and HAA5.* (i) For systems monitoring quarterly, compliance with MCLs in § 141.64 must be based on a running annual arithmetic average, computed quarterly, of quarterly arithmetic averages of all samples collected by the system as prescribed by § 141.132(b)(1). If the running annual arithmetic average of quarterly averages covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to § 141.32, in addition to reporting to the State pursuant to § 141.134. If a PWS fails to complete four consecutive quarters' monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

(ii) For systems monitoring less frequently than quarterly, compliance must be based on an average of samples taken that year under the provisions of § 141.132(b)(1). If the average of these samples exceeds the MCL, the system must increase monitoring to once per quarter per treatment plant.

(iii) Systems on a reduced monitoring schedule whose annual average exceeds the MCL will revert to routine monitoring immediately. These systems

will not be considered in violation of the MCL until they have completed one year of routine monitoring.

(2) *Bromate*. Compliance must 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 § 141.132(b)(3). If the average of samples covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to § 141.32, in addition to reporting to the State pursuant to § 141.134. If a PWS fails to complete 12 consecutive months' monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

(3) *Chlorite*. Compliance must be based on an arithmetic average of each three sample set taken in the distribution system as prescribed by § 141.132(b)(2)(i)(B) and § 141.132(b)(2)(ii). If the arithmetic average of any three sample set exceeds the MCL, the system is in violation of the MCL and must notify the public pursuant to § 141.32, in addition to reporting to the State pursuant to § 141.134.

(c) *Disinfectant residuals*. (1) *Chlorine and chloramines*. (i) Compliance must be based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the system under § 141.132(c)(1). If the average of quarterly averages covering any consecutive four-quarter period exceeds the MRDL, the system is in violation of the MRDL and must notify the public pursuant to § 141.32, in addition to reporting to the State pursuant to § 141.134.

(ii) In cases where systems switch between the use of chlorine and

chloramines for residual disinfection during the year, compliance must be determined by including together all monitoring results of both chlorine and chloramines in calculating compliance. Reports submitted pursuant to § 141.134 must clearly indicate which residual disinfectant was analyzed for each sample.

(2) *Chlorine dioxide*. (i) *Acute violations*. Compliance must be based on consecutive daily samples collected by the system under § 141.132(c)(2). If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one (or more) of the three samples taken in the distribution system exceed the MRDL, the system is in violation of the MRDL and must take immediate corrective action to lower the level of chlorine dioxide below the MRDL and must notify the public pursuant to the procedures for acute health risks in § 141.32(a)(1)(iii)(E). Failure to take samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system will also be considered an MRDL violation and the system must notify the public of the violation in accordance with the provisions for acute violations under § 141.32(a)(1)(iii)(E).

(ii) *Nonacute violations*. Compliance must be based on consecutive daily samples collected by the system under § 141.132(c)(2). If any two consecutive daily samples taken at the entrance to the distribution system exceed the MRDL and all distribution system samples taken are below the MRDL, the system is in violation of the MRDL and must take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling and will notify the public pursuant to the procedures for nonacute health risks in § 141.32(e)(78). 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 must notify the public of the violation in accordance with the provisions for nonacute violations under § 141.32(e)(78).

(d) *Disinfection byproduct precursors (DBPP)*. Compliance must be determined as specified by § 141.135(b). 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 § 141.135(b)(2) and must therefore apply for alternate minimum TOC removal (Step 2) requirements, is not eligible for retroactive approval of alternate minimum TOC removal (Step 2) requirements as allowed pursuant to § 141.135(b)(3) and is in violation. Systems may apply for alternate minimum TOC removal (Step 2) requirements any time after the compliance date.

§ 141.134 Reporting and recordkeeping requirements.

(a) Systems required to sample quarterly or more frequently must report to the State within 10 days after the end of each quarter in which samples were collected, notwithstanding the provisions of § 141.31. Systems required to sample less frequently than quarterly must report to the State within 10 days after the end of each monitoring period in which samples were collected.

(b) *Disinfection byproducts*. Systems must report the information specified in the following table:

If you are a...	You must report... ¹
System monitoring for TTHM and HAA5 under the requirements of §§ 141.132(b) on a quarterly or more frequent basis.	(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 of this section for the last four quarters. (5) Whether the MCL was exceeded.
System monitoring for TTHMs and HAA5 under the requirements of §§ 141.132(b) less frequently than quarterly (but at least annually).	(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.
System monitoring for TTHMs and HAA5 under the requirements of § 141.132(b) less frequently than annually.	(1) The location, date, and result of the last sample taken. (2) Whether the MCL was exceeded.

If you are a...	You must report... ¹
System monitoring for chlorite under the requirements of § 141.132(b) ..	(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.
System monitoring for bromate under the requirements of § 141.132(b)	(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.

(c) *Disinfectants*. Systems must report the information specified in the following table:

If you are a...	You must report... ¹
System monitoring for chlorine or chloramines under the requirements of § 141.132(c).	(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.
System monitoring for chlorine dioxide under the requirements of § 141.132(c).	(1) The dates, results, and locations of samples taken during the last quarter. (2) Whether the MRDL was exceeded. (3) Whether the MRDL was exceeded in any two consecutive daily samples and whether the resulting violation was acute or nonacute.

¹ The State may choose to perform calculations and determine whether the MRDL was exceeded, in lieu of having the system report that information.

(d) *Disinfection byproduct precursors and enhanced coagulation or enhanced softening*. Systems must report the information specified in the following table:

If you are a . . .	You must report . . . ¹
System monitoring monthly or quarterly for TOC under the requirements of § 141.132(d) and required to meet the enhanced coagulation or enhanced softening requirements in § 141.135(b)(2) or (3).	(1) The number of paired (source water and treated water, prior to continuous disinfection) samples taken during the last quarter. (2) The location, date, and result of each paired sample and associated alkalinity taken during the last quarter. (3) For each month in the reporting period that paired samples were taken, the arithmetic average of the percent reduction of TOC for each paired sample and the required TOC percent removal. (4) Calculations for determining compliance with the TOC percent removal requirements, as provided in § 141.135(c)(1). (5) Whether the system is in compliance with the enhanced coagulation or enhanced softening percent removal requirements in § 141.135(b) for the last four quarters.
System monitoring monthly or quarterly for TOC under the requirements of § 141.132(d) and meeting one or more of the alternative compliance criteria in § 141.135(a)(2) or (3).	(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 §§ 141.135(a)(2)(i) or (iii) or of treated water TOC for systems meeting the criterion in § 141.135(a)(2)(ii).

If you are a . . .	You must report . . . ¹
	(5) The running annual arithmetic average based on monthly averages (or quarterly samples) of source water SUVA for systems meeting the criterion in § 141.135(a)(2)(v) or of treated water SUVA for systems meeting the criterion in § 141.135(a)(2)(vi). (6) The running annual average of source water alkalinity for systems meeting the criterion in § 141.135(a)(2)(iii) and of treated water alkalinity for systems meeting the criterion in § 141.135(a)(3)(i). (7) The running annual average for both TTHM and HAA5 for systems meeting the criterion in § 141.135(a)(2)(iii) or (iv). (8) The running annual average of the amount of magnesium hardness removal (as CaCO ₃ , in mg/L) for systems meeting the criterion in § 141.135(a)(3)(ii). (9) Whether the system is in compliance with the particular alternative compliance criterion in § 141.135(a)(2) or (3).

¹ The State may choose to perform calculations and determine whether the treatment technique was met, in lieu of having the system report that information.

§ 141.135 Treatment technique for control of disinfection byproduct (DBP) precursors.

(a) *Applicability.* (1) Subpart H systems using conventional filtration treatment (as defined in § 141.2) must operate with enhanced coagulation or enhanced softening to achieve the TOC percent removal levels specified in paragraph (b) of this section unless the system meets at least one of the alternative compliance criteria listed in paragraph (a)(2) or (a)(3) of this section.

(2) *Alternative compliance criteria for enhanced coagulation and enhanced softening systems.* Subpart H systems using conventional filtration treatment may use the alternative compliance criteria in paragraphs (a)(2)(i) through (vi) of this section to comply with this section in lieu of complying with paragraph (b) of this section. Systems must still comply with monitoring requirements in § 141.132(d).

(i) The system's source water TOC level, measured according to § 141.131(d)(3), is less than 2.0 mg/L, calculated quarterly as a running annual average.

(ii) The system's treated water TOC level, measured according to § 141.131(d)(3), is less than 2.0 mg/L, calculated quarterly as a running annual average.

(iii) The system's source water TOC level, measured as required by § 141.131(d)(3), is less than 4.0 mg/L, calculated quarterly as a running annual average; the source water alkalinity, measured according to § 141.131(d)(1), is greater than 60 mg/L (as CaCO₃), 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 § 141.130(b), the system has made a clear and irrevocable financial commitment not later than the effective date for compliance in § 141.130(b) 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. Systems must 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 State for approval not later than the effective date for compliance in § 141.130(b). These technologies must be installed and operating not later than June 16, 2005. Failure to install and operate these technologies by the date in the approved schedule will constitute a violation of National Primary Drinking Water Regulations.

(iv) 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.

(v) The system's source water SUVA, prior to any treatment and measured monthly according to § 141.131(d)(4), is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(vi) The system's finished water SUVA, measured monthly according to § 141.131(d)(4), is less than or equal to 2.0 L/mg-m, calculated quarterly as a running annual average.

(3) *Additional alternative compliance criteria for softening systems.* Systems

practicing enhanced softening that cannot achieve the TOC removals required by paragraph (b)(2) of this section may use the alternative compliance criteria in paragraphs (a)(3)(i) and (ii) of this section in lieu of complying with paragraph (b) of this section. Systems must still comply with monitoring requirements in § 141.132(d).

(i) Softening that results in lowering the treated water alkalinity to less than 60 mg/L (as CaCO₃), measured monthly according to § 141.131(d)(1) and calculated quarterly as a running annual average.

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

(b) *Enhanced coagulation and enhanced softening performance requirements.* (1) Systems must achieve the percent reduction of TOC specified in paragraph (b)(2) of this section between the source water and the combined filter effluent, unless the State approves a system's request for alternate minimum TOC removal (Step 2) requirements under paragraph (b)(3) of this section.

(2) Required Step 1 TOC reductions, indicated in the following table, are based upon specified source water parameters measured in accordance with § 141.131(d). 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 SUBPART H SYSTEMS USING CONVENTIONAL TREATMENT ^{1, 2}

Source-water TOC, mg/L	Source-water alkalinity, mg/L as CaCO ₃		
	0-60 (percent)	≤60-120 (percent)	>120 ³ (percent)
>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 paragraph (a)(2)(i)-(vi) of this section are not required to operate with enhanced coagulation.

² Softening systems meeting one of the alternative compliance criteria in paragraph (a)(3) of this section are not required to operate with enhanced softening.

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

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

(4) *Alternate minimum TOC removal (Step 2) requirements.* Applications made to the State by enhanced coagulation systems for approval of alternative minimum TOC removal (Step 2) requirements under paragraph (b)(3) of this section must include, as a minimum, results of bench- or pilot-scale testing conducted under paragraph (b)(4)(i) of this section and used to determine the alternate enhanced coagulation level.

(i) *Alternate enhanced coagulation level is defined as coagulation at a coagulant dose and pH as determined by the method described in paragraphs (b)(4)(i) through (v) of this section such that an incremental addition of 10 mg/L of alum (as aluminum) (or equivalent amount of ferric salt) results in a TOC removal of ≤ 0.3 mg/L. The percent removal of TOC at this point on the "TOC removal versus coagulant dose" curve is then defined as the minimum TOC removal required for the system. Once approved by the State, this minimum requirement supersedes the minimum TOC removal required by the table in paragraph (b)(2) of this section. This requirement will be effective until such time as the State approves a new*

value based on the results of a new bench- and pilot-scale test. Failure to achieve State-set alternative minimum TOC removal levels is a violation of National Primary Drinking Water Regulations.

(ii) Bench- or pilot-scale testing of enhanced coagulation must 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 ₃)	Target pH
0-60	5.5
>60-120	6.3
>120-240	7.0
>240	7.5

(iii) For waters with alkalinities 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 must 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.

(iv) The system may operate at any coagulant dose or pH necessary (consistent with other NPDWRs) to achieve the minimum TOC percent removal approved under paragraph (b)(3) of this section.

(v) 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 State for

a waiver of enhanced coagulation requirements.

(c) *Compliance calculations.* (1) Subpart H systems other than those identified in paragraph (a)(2) or (a)(3) of this section must comply with requirements contained in paragraph (b)(2) of this section. Systems must calculate compliance quarterly, beginning after the system has collected 12 months of data, by determining an annual average using the following method:

(i) Determine actual monthly TOC percent removal, equal to:

$$(1 - (\text{treated water TOC} / \text{source water TOC})) \times 100$$

(ii) Determine the required monthly TOC percent removal (from either the table in paragraph (b)(2) of this section or from paragraph (b)(3) of this section).

(iii) Divide the value in paragraph (c)(1)(i) of this section by the value in paragraph (c)(1)(ii) of this section.

(iv) Add together the results of paragraph (c)(1)(iii) of this section for the last 12 months and divide by 12.

(v) If the value calculated in paragraph (c)(1)(iv) of this section is less than 1.00, the system is not in compliance with the TOC percent removal requirements.

(2) Systems may use the provisions in paragraphs (c)(2)(i) through (v) of this section in lieu of the calculations in paragraph (c)(1)(i) through (v) of this section to determine compliance with TOC percent removal requirements.

(i) In any month that the system's treated or source water TOC level, measured according to § 141.131(d)(3), is less than 2.0 mg/L, the system may assign a monthly value of 1.0 (in lieu of the value calculated in paragraph (c)(1)(iii) of this section) when calculating compliance under the provisions of paragraph (c)(1) of this section.

(ii) In any month that a system practicing softening removes at least 10 mg/L of magnesium hardness (as CaCO₃), the system may assign a

monthly value of 1.0 (in lieu of the value calculated in paragraph (c)(1)(iii) of this section) when calculating compliance under the provisions of paragraph (c)(1) of this section.

(iii) In any month that the system's source water SUVA, prior to any treatment and measured according to § 141.131(d)(4), is ≤ 2.0 L/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in paragraph (c)(1)(iii) of this section) when calculating compliance under the provisions of paragraph (c)(1) of this section.

(iv) In any month that the system's finished water SUVA, measured according to § 141.131(d)(4), is ≤ 2.0 L/mg-m, the system may assign a monthly value of 1.0 (in lieu of the value calculated in paragraph (c)(1)(iii) of this section) when calculating compliance under the provisions of paragraph (c)(1) of this section.

(v) In any month that a system practicing enhanced softening lowers alkalinity below 60 mg/L (as CaCO₃), the system may assign a monthly value of 1.0 (in lieu of the value calculated in paragraph (c)(1)(iii) of this section) when calculating compliance under the provisions of paragraph (c)(1) of this section.

(3) Subpart H systems using conventional treatment may also comply with the requirements of this section by meeting the criteria in paragraph (a)(2) or (3) of this section.

(d) *Treatment technique requirements for DBP precursors.* The Administrator identifies the following as treatment techniques to control the level of disinfection byproduct precursors in drinking water treatment and distribution systems: For Subpart H systems using conventional treatment, enhanced coagulation or enhanced softening.

11. Section 141.154 is amended by adding paragraph (e) to read as follows:

§ 141.154 Required additional health information.

* * * * *

(e) Community water systems that detect TTHM above 0.080 mg/l, but below the MCL in § 141.12, as an annual average, monitored and calculated under the provisions of § 141.30, must include health effects language prescribed by paragraph (73) of appendix C to subpart O.

PART 142—NATIONAL PRIMARY DRINKING WATER REGULATIONS IMPLEMENTATION

12. The authority citation for part 142 continues to read as follows:

Authority: 42 U.S.C. 300f, 300g-1, 300g-2, 300g-3, 300g-4, 300g-5, 300g-6, 300j-4, 300j-9, and 300j-11.

13. Section 142.14 is amended by adding new paragraphs (d)(12), (d)(13), (d)(14), (d)(15), and (d)(16) to read as follows.

§ 142.14 Records kept by States.

* * * * *

(d) * * *

(12) Records of the currently applicable or most recent State determinations, including all supporting information and an explanation of the technical basis for each decision, made under the following provisions of 40 CFR part 141, subpart L for the control of disinfectants and disinfection byproducts. These records must also include interim measures toward installation.

(i) States must keep records of systems that are installing GAC or membrane technology in accordance with § 141.64(b)(2) of this chapter. These records must include the date by which the system is required to have completed installation.

(ii) States must keep records of systems that are required, by the State, to meet alternative minimum TOC removal requirements or for whom the State has determined that the source water is not amenable to enhanced coagulation in accordance with § 141.135(b)(3) and (4) of this chapter, respectively. These records must include the alternative limits and rationale for establishing the alternative limits.

(iii) States must keep records of subpart H systems using conventional treatment meeting any of the alternative compliance criteria in § 141.135(a)(2) or (3) of this chapter.

(iv) States must keep a register of qualified operators that have met the State requirements developed under § 142.16(f)(2).

(13) Records of systems with multiple wells considered to be one treatment plant in accordance with § 141.132(a)(2) of this chapter and § 142.16(f)(5).

(14) Monitoring plans for subpart H systems serving more than 3,300 persons in accordance with § 141.132(f) of this chapter.

(15) List of laboratories approved for analyses in accordance with § 141.131(b) of this chapter.

(16) List of systems required to monitor for disinfectants and disinfection byproducts in accordance with part 141, subpart L of this chapter. The list must indicate what disinfectants and DBPs, other than

chlorine, TTHM, and HAA5, if any, are measured.

* * * * *

14. Section 142.16 is amended by adding paragraph (h) to read as follows.

§ 142.16 Special primacy requirements.

* * * * *

(h) *Requirements for States to adopt 40 CFR part 141, subpart L.* In addition to the general primacy requirements elsewhere in this part, including the requirement that State regulations be at least as stringent as federal requirements, an application for approval of a State program revision that adopts 40 CFR part 141, subpart L, must contain a description of how the State will accomplish the following program requirements:

(1) Section 141.64(b)(2) of this chapter (interim treatment requirements).

Determine any interim treatment requirements for those systems electing to install GAC or membrane filtration and granted additional time to comply with § 141.64 of this chapter.

(2) Section 141.130(c) of this chapter (qualification of operators). Qualify operators of public water systems subject to 40 CFR part 141, subpart L. Qualification requirements established for operators of systems subject to 40 CFR part 141, subpart H—Filtration and Disinfection may be used in whole or in part to establish operator qualification requirements for meeting 40 CFR part 141, subpart L requirements if the State determines that the 40 CFR part 141, subpart H requirements are appropriate and applicable for meeting subpart L requirements.

(3) Section 141.131(c)(2) of this chapter (DPD colorimetric test kits). Approve DPD colorimetric test kits for free and total chlorine measurements. State approval granted under § 141.74(a)(2) of this chapter for the use of DPD colorimetric test kits for free chlorine testing is acceptable for the use of DPD test kits in measuring free chlorine residuals as required in 40 CFR part 141, subpart L.

(4) Sections 141.131(c)(3) and (d) of this chapter (State approval of parties to conduct analyses). Approve parties to conduct pH, bromide, alkalinity, and residual disinfectant concentration measurements. The State's process for approving parties performing water quality measurements for systems subject to 40 CFR part 141, subpart H requirements in paragraph (b)(2)(i)(D) of this section may be used for approving parties measuring water quality parameters for systems subject to subpart L requirements, if the State determines the process is appropriate and applicable.

Contaminant (units)	MCLG	MCL	Major sources in drinking water
65. 1,2-Dichloropropane (ppb)	0	5	Discharge from industrial chemical factories.
66. Ethylbenzene (ppb)	700	700	Discharge from petroleum refineries.
67. Styrene (ppb)	100	100	Discharge from rubber and plastic factories; Leaching from landfills.
68. Tetrachloroethylene (ppb)	0	5	Leaching from PVC pipes; Discharge from factories and dry cleaners.
69. 1,2,4-Trichlorobenzene (ppb)	70	70	Discharge from textile-finishing factories.
70. 1,1,1-Trichloroethane (ppb)	200	200	Discharge from metal degreasing sites and other factories.
71. 1,1,2-Trichloroethane (ppb)	3	5	Discharge from industrial chemical factories.
72. Trichloroethylene (ppb)	0	5	Discharge from metal degreasing sites and other factories.
73. THMs [Total trihalomethanes] (ppb)	n/a	100	By-product of drinking water chlorination.
74. Toluene (ppm)	1	1	Discharge from petroleum factories.
75. Vinyl Chloride (ppb)	0	2	Leaching from PVC piping; Discharge from plastics factories.
76. Xylenes (ppm)	10	10	Discharge from petroleum factories; Discharge from chemical factories.

[63 FR 44526, Aug. 19, 1998; 64 FR 34733, June 29, 1999]

APPENDIX C TO SUBPART O—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 radi-

ation 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

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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 six 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 six 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 kid-

neys, 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-Dichloroethylene. 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.

Environmental

(65) 1,2-Dichloroethane. Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years could experience problems with their liver, kidney, or thyroid, and may have an increased risk of getting cancer.

(66) Ethylbenzene. Some people who drink water containing ethylbenzene in excess of the MCL over many years could experience problems with their liver, kidney, or thyroid, and may have an increased risk of getting cancer.

(67) Styrene. Some people who drink water containing styrene in excess of the MCL over many years could experience problems with their liver, kidney, or thyroid, and may have an increased risk of getting cancer.

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

(69) 1,2,4-Trichlorobenzene. Some people who drink water containing 1,2,4-trichlorobenzene in excess of the MCL over many years could experience problems with their liver, kidney, or thyroid, and may have an increased risk of getting cancer.

(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, kidney, or thyroid, and may have an increased risk of getting cancer.

(71) 1,1,2-Trichloroethane. Some people who drink water containing 1,1,2-trichloroethane in excess of the MCL over many years could experience problems with their liver, kidney, or thyroid, and may have an increased risk of getting cancer.

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

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

(74) Toluene. Some people who drink water containing toluene in excess of the MCL over many years could experience problems with their liver, kidney, or thyroid, and may have an increased risk of getting cancer.

(75) Vinyl Chloride. Some people who drink water containing vinyl chloride in excess of the MCL over many years could experience problems with their liver, kidney, or thyroid, and 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 problems with their liver, kidney, or thyroid, and may have an increased risk of getting cancer.

Subpart P—E and D

SOURCE: 63 FR 69; otherwise noted.



Rachel Carson State Office Building
P.O. Box 2063
Harrisburg, PA 17105-2063
August 8, 2000

The Secretary

717-787-2814

Mr. Robert E. Nyce
Executive Director
Independent Regulatory Review Commission
14th Floor, Harristown II
Harrisburg, PA 17101

RE: Proposed Rulemaking: Disinfectants and Disinfection Byproducts Rule (D/DBPR)
(#7-359)

Dear Bob:

Enclosed is a copy of a proposed regulation for review and comment by the Commission pursuant to Section 5(a) of the Regulatory Review Act. This proposal is scheduled for publication as a proposed rulemaking in the *Pennsylvania Bulletin* on September 2, 2000. This proposal was approved by the Environmental Quality Board (EQB) on July 18, 2000.

This proposal updates Chapter 109 to reflect the federal D/DBPR which was also promulgated on December 16, 1998. Its intent is to regulate treatment practices at public water systems to eliminate or minimize the health risks resulting from both disinfectants and disinfection byproducts at certain levels. Disinfection byproducts result when disinfectants such as chlorine, hypochlorites and chlorine dioxide react with organic and inorganic matter in the water. The proposal applies to all community and nontransient noncommunity water systems that use a chemical disinfectant or oxidant, as well as to transient noncommunity water systems that use chlorine dioxide. The proposal provides phase-in effective dates depending upon the size of the system and the type of source water.

To maintain primacy, Pennsylvania is required to adopt the proposal by December 16, 2000. The corresponding federal regulations at 40 CFR Parts 9, 141 and 142 are attached with the proposal.

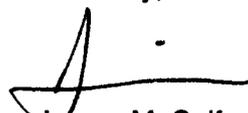
Both the Water Resources Advisory Committee (WRAC) and the Small Water Systems Technical Assistance Center Advisory Board (TAC) reviewed drafts of this proposal earlier this year. A concern expressed by WRAC was subsequently resolved with no changes needed to the proposal. The issue is described on page 4 of the preamble.

The Department will provide the Commission with any assistance required to facilitate a thorough review of this proposal. Section 5(g) of the Act provides that the Commission may, within ten days after the expiration of the Committee review period, notify the agency of any objections to the proposed regulation. The Department will consider any comments or suggestions received by the Commission, together with Committee and other public comments prior to final adoption.



For additional information, please contact Sharon Freeman, Regulatory Coordinator, at 783-1303.

Sincerely,

A handwritten signature in black ink, appearing to read 'James M. Seif', with a horizontal line extending to the right.

James M. Seif
Secretary

Enclosures

TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO THE
REGULATORY REVIEW ACT

RECEIVED

I.D. NUMBER: 7-359
SUBJECT: Disinfectants & Disinfection Byproducts Rule
AGENCY: DEPARTMENT OF ENVIRONMENTAL PROTECTION

2000 AUG -8 AM 9:48

INDEPENDENT REGULATORY
REVIEW COMMISSION



TYPE OF REGULATION

- X Proposed Regulation
Final Regulation
Final Regulation with Notice of Proposed Rulemaking Omitted
120-day Emergency Certification of the Attorney General
120-day Emergency Certification of the Governor
Delivery of Tolled Regulation
a. With Revisions b. Without Revisions

FILING OF REGULATION

DATE	SIGNATURE	DESIGNATION
8-8-00	<i>Cindy Zuni</i>	HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
8-7-00	<i>Donie Castelli</i>	SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
8/8/00	<i>J. Vaillancourt</i>	INDEPENDENT REGULATORY REVIEW COMMISSION ATTORNEY GENERAL
		LEGISLATIVE REFERENCE BUREAU