Regulatory Analysis Form

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REVIEW COMMISSION SECRETARY

IRRC Number: 2139

(1) Agency

Department of Environmental Protection

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

7-358

(3) Short Title

Interim Enhanced Surface Water Treatment 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
_X_Final Order Adopting Regulation
____Final Order, Proposed Rulemaking Omitted

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

_X_ No
____ Yes: By the Attorney General
____ Yes: By the Governor

(8) Briefly explain the regulation in clear and non-technical language.

The *Federal Interim Enhanced Surface Water Treatment Rule* (IESWTR) was promulgated on December 16, 1998. This rule is intended to improve the control of microbial pathogens, specifically including the protozoan *Cryptosporidium parvum,* in drinking water. The IESWTR applies to Public Water Systems serving 10,000 or more people and which use surface water or ground water under the direct influence of surface water (GUDI).

It is the intention of the Safe Drinking Water Program to incorporate the provisions of the Federal IESWTR into the Pennsylvania Safe Drinking Water Regulations (Chapter 109). Key provisions established include: 2-log *Cryptosporidium* removal requirements for systems that filter; strengthened combined, and individual, filter effluent turbidity performance standards; disinfection benchmark provisions to assure continued levels of microbial protection while facilities take the necessary steps to comply with new disinfection byproduct standards; inclusion of *Cryptosporidium* in the definition of GUDI; and sanitary surveys for all surface water systems regardless of size. The implementation of the final amendments will significantly reduce the level of *Cryptosporidium* in finished drinking water supplies through improvements in filtration. In addition, the filtration provisions of the rule are expected to increase the level of protection from other pathogens (i.e., *Giardia lamblia* or other waterborne bacterial or viral pathogens).

(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).

(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 EPA, or 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* on December 16, 1998. Therefore, Pennsylvania must have adopted regulations implementing the federal rules by December 16, 2000. However, the Department submitted a primacy extension request to the EPA to adopt the federal IESWTR by no later than August 31, 2001. It is expected that EPA will grant the extension. If so, then failure to adopt the regulation by August 31, 2001 may result in Pennsylvania losing its primary enforcement responsibility.

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

The final amendments will improve public health by increasing the level of protection from exposure to *Cryptosporidium* and other pathogens in drinking water supplies through improvements in filtration at large water systems. This will decrease the likelihood of endemic illness from *Cryptosporidium*, thus reducing health care costs. In addition, the filtration provisions of the rule are expected to increase the level of protection from exposure to other pathogens (i.e., *Giardia lamblia* or other waterborne bacterial or viral pathogens).

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

The final amendments will greatly reduce the chances of cryptosporidiosis outbreaks in Pennsylvania such as the single outbreak that occurred in Milwaukee in 1994 that infected over 400,000 individuals and caused about 50 fatalities.

(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 final amendments will benefit customers of public water systems serving 10,000 or more people and which use surface water or GUDI sources. Currently, there are almost 120 systems in Pennsylvania serving water to about 8,178,300 people that meet these criteria.

The economic benefits of the IESWTR derive from the increased level of protection to public health. The primary goal of the amendments is to improve public health by increasing the level of protection from exposure to *Cryptosporidium* and other pathogens (i.e., *Giardia*, or other waterborne bacteria or viral pathogens) in drinking water supplies through improvements in filtration at water systems. The final amendments are expected to reduce the level of *Cryptosporidium* and other pathogen contamination in finished drinking water supplies through improvements in filtration at water systems, such as revised turbidity requirements. In this case, benefits will accrue due to the decreased likelihood of endemic incidences of cryptosporidiosis, giardiasis and other waterborne diseases, and the avoidance of resulting health costs. The provisions are expected to reduce the likelihood of the occurrence of cryptosporidiosis outbreaks and their associated economic costs.

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

Under the final amendments, customers of large public water systems may face increased costs in their water bills. Some households served by large surface water systems will incur additional costs under the proposal since systems serving 10,000 or more people and using surface water or GUDI sources are required to perform turbidity monitoring activities. The increase in cost will be limited since most surface water systems in Pennsylvania already meet the higher turbidity standards. The actual increase in water rates will depend upon a number of factors, including population served and the filtration technology utilized. According to EPA studies conducted nationally, 92 percent of the households affected by the rule will incur a cost of less than $1 per month. Seven percent of the households affected will face an increased in cost of between $1 and $5 per month. The highest cost increase will be faced by approximately 23,000 households nationwide at approximately $8 per month.

The assumptions and structure of EPA analysis tend to overestimate the highest costs. To incur these higher costs, a system would have to implement all, or almost all, of the treatment activities. These systems, however, might seek less costly alternatives, such as connecting into a larger regional water system.

(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.)

About 120 public water systems serving 10,000 or more people and which use surface water or GUDI sources would be required to comply with the amendments. Approximately 8,178,300 Pennsylvanians obtaining their drinking water from these systems will be affected by the regulation.

(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 where involved, if applicable.

The federal IESWTR 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 proposed amendments and provided comments and suggestions. A thirty-day public comment period occurred from September 2, 2000 to October 2, 2000. The EPA provided comments during this period. The WRAC and TAC reviewed the final amendments.

(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 regulated community is considered to mean the public water suppliers who would be impacted by the final amendments. The consumers of water supplied by the public water systems serving 10,000 people or more and using surface or GUDI sources will experience higher water rates associated with costs for improved turbidity treatment and disinfection benchmark monitoring.

The EPA has estimated the annual cost of the IESWTR to be $291,165,000. This will be borne by the regulated community nationwide. The estimated total annual cost that will be borne by the regulated community in Pennsylvania will be about $10.3 million. The Department's Filter Plant Performance Evaluation program sets a goal of 0.1 NTU turbidity for filter plants versus the IESWTR 0.3 NTU requirement. Many filtration plants evaluated in Pennsylvania currently meet the Department's goal and may not incur additional expense for improved turbidity removal. The benefits for Pennsylvania resulting from these final amendments range from $20 to $100 million per year using a valuation of $2000 in health damages avoided per cryptosporidiosis illness prevented.

(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 IESWTR will affect all public water systems serving 10,000 or more people and which use surface water or ground water under the direct influence of surface water (GUDI). Currently, there are 120 systems in Pennsylvania that meet these criteria, of which 74 are owned by local governments in the form of water and municipal authorities. The local governments that own these utilities will incur estimated annual costs of $6,398,160.

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 IESWTR provisions. That is, local government is considered in this analysis to be a part of the regulated community, not the regulating community. Therefore, the $6.4 million estimate provided above is a part of the $10.3 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.

DEP will incur additional costs to implement the final amendments. Costs will also be borne by DEP for training, permitting, surveillance and compliance assistance. The final amendments call for three additional Department staff to implement the rule over the next three years.

Primary activities in the first three years after adoption of the amendments will include engineering review of permit applications and enforcement-related activities. After the initial 3-year period following adoption, program activities will shift to include field surveillance and compliance follow-up activities.

The EPA has estimated that implementing the IESWTR will cost the regulating state agencies $15,556,000 annually nationwide. It is estimated that the Department will incur an annual cost of $1,351,661 to implement the amendments.

(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	3,921,453	3,921,453	3,921,453	3,921,453	3,921,453	3,921,453
Local Government	6,398,160	6,398,160	6,398,160	6,398,160	6,398,160	6,398,160
State Government	1,351,661	1,351,661	1,351,661	1,351,661	1,351,661	1,351,661
Total Costs	11,671,274	11,671,274	11,671,274	11,671,274	11,671,274	11,671,274
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 cost estimates were derived using EPA's national estimates as published in the Preamble of the IESWTR (Federal Register, Vol. 63, No. 241). The EPA based their estimate on 1381 systems nationwide serving more than 10,000 and using surface or GUDI sources. Pennsylvania has about 120 systems that fall under this category.

The ratio of PA to nationwide is 120/1381 = 0.08689
Estimated nationwide regulated community cost to implement IESWTR* = $118,766,400
Estimated annual costs to Pennsylvania systems = $118,766,400 x 0.08689 = $10,319,613
Percentage of Pennsylvania systems that are "Local Government" water and municipal authorities = 62% (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 costs to Pennsylvania systems that are local government authorities = $10,319,613 x 0.62 = $6,398,160
Estimated annual costs to Pennsylvania systems that are not local government = $10,319,613 – $6,398,160 = $3,921,453
EPA estimated annual State costs to implement IESWTR = $15,556,000
Estimated DEP annual costs to implement the amendments = $15,556,000 x 0.08689 = 1,351,661

* The nationwide EPA estimate as per the Federal Register reference is $291,165,000. This value has been adjusted to reflect the estimated level of compliance among Pennsylvania systems.

(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 IESWTR is not expected to provide any adverse health effects. The economic benefits of the final amendments derive from the increased level of protection to public health. The final amendments are expected to reduce the level of *Cryptosporidium* and other pathogen contamination in finished drinking water supplies through improvements in filtration of water systems. In this case, benefits will accrue due to the decreased likelihood of endemic incidences of cryptosporidiosis, giardiasis and other waterborne diseases. In addition, the provisions are expected to reduce the likelihood of the occurrence of cryptosporidiosis outbreaks and their associated economic costs by providing a larger margin of safety against such outbreaks for some systems.

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

No non-regulatory 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 final amendments contain no provisions that are more stringent than the federal IESWTR.

(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 IESWTR will need to be either complied with, or adopted, by all of the other 49 states. Because of this, the final amendments will not put Pennsylvania at a competitive disadvantage with other states.

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

To the best of our knowledge, the final amendments will not affect existing or proposed regulations of DEP. The amendments will be incorporated into the existing language of Title 25, PA Code Chapter 109 and will enhance the existing Filtration Rule by reducing the risk of exposure to *Cryptosporidium.*

(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 final 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 final amendments will not create any major change in the reporting, record keeping and paperwork requirements. It is anticipated that our current data reporting forms should facilitate any additional monitoring and reporting and that little, if any, additional data 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 final amendments were originally developed to protect everyone and should have no effect on any one particular group. 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 final amendments are targeted for promulgation in July 2001. The amendments' components must be complied with by 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.

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REVIEW COMMISSION

#2139

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by below is hereby approved as to and legality. Attorney General (DEPUTY ATTORNEY GENERAL) DATE OF APPROVAL heck if applicable opy not approved. Objections tached.	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. 7-358 DATE OF ADOPTION: BY: David E. Hess TITLE: DAVID E. HESS, ACTING SECRETARY (EXECUTIVE OFFICER, CHAIRMAN OR SECRETARY)	Copy below is hereby approved as to form and legality. Executive or Independent Agencies. BY: [signature] 4/20/01 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.

ORDER ADOPTING REGULATIONS

DEPARTMENT OF ENVIRONMENTAL PROTECTION
ENVIRONMENTAL QUALITY BOARD
25 Pa. Code, Chapter 109

Interim Enhanced Surface Water Treatment Rule
(IESWTR)

Notice of Final Rulemaking
Department of Environmental Protection
Environmental Quality Board
(25 Pa. Code, Chapter 109)
(Safe Drinking Water)
(Interim Enhanced Surface Water Treatment Rule)

Preamble

The Environmental Quality Board (Board) by this order amends 25 Pa. Code, Chapter 109 (relating to Safe Drinking Water). The amendments pertain to filtration systems that serve at least 10,000 people and that use either surface water sources or ground water sources that are under the direct influence of surface water. The amendments establish a 99% removal of *Cryptosporidium*; strengthened combined filter effluent turbidity standards and individual filter turbidity provisions; and disinfection benchmark provisions to assure continued levels of microbial protection while facilities take the necessary steps to comply with new disinfection byproduct standards.

This order was adopted by the Board at its meeting of April 17, 2001.

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 final 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 of the Amendments

The Board promulgated the *Pennsylvania Filter Rule* in March of 1989 to address the rising number of waterborne disease outbreaks in Pennsylvania. The rule required public water systems with surface water sources to filter and disinfect, cover finished water reservoirs, perform treatment performance and water quality compliance monitoring, and provide public notification of violations. The rule also established design and performance standards for the filtration and disinfection treatment techniques intended to protect against the adverse health effects of exposure to *Giardia lamblia*, viruses, and legionella, as well as many other pathogenic organisms. The Pennsylvania Filter Rule was promulgated in anticipation of the federal *Surface Water Treatment Rule* (SWTR), which was promulgated by the United States Environmental Protection Agency (EPA) in 1989 pursuant to the federal Safe Drinking Water Act.

The federal SWTR did not specifically address the protozoan *Cryptosporidium parvum*. In terms of occurrence, *Cryptosporidium* is common in the environment. Most surface water sources may contain, or are vulnerable to, *Cryptosporidium* contamination. Since some people are carriers, *Cryptosporidium* may enter the water via treated or untreated sewage. Other sources of *Cryptosporidium* contamination are those animals that live in or near water. Livestock are notorious carriers of *Cryptosporidium*. Runoff from watersheds allows transport of this pathogen into water bodies used as sources for drinking water treatment plants. Complicating this matter is *Cryptosporidium's* resistance to standard disinfection practices.

In humans, *Cryptosporidium* may cause a severe gastrointestinal infection, termed cryptosporidiosis, that can last several weeks. It may cause death for individuals who have weakened immune systems due to age, cancer treatment, AIDS, and anti-rejection organ replacement drugs. In 1993, *Cryptosporidium* caused over 400,000 people in Milwaukee to experience serious intestinal illness. More than 4,000 were hospitalized and at least 50 deaths were attributed to the cryptosporidiosis outbreak. There has also been cryptosporidiosis outbreaks in Nevada, Oregon, and Georgia over the past several years.

In 1992, the EPA initiated a rulemaking process to address public health concerns associated with disinfectants, disinfection byproducts (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, such as *Cryptosporidium*. 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 to the disinfection rule.

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 federal SWTR, additional field data were critical. Thus, a key component of the regulation negotiation agreement was the promulgation of the ICR.

The federal *Interim Enhanced Surface Water Treatment Rule* (IESWTR) (40 CFR Parts 9, 141, and 142) was promulgated on December 16, 1998 by the EPA. This rule is intended to improve the control of microbial pathogens, specifically the protozoan *Cryptosporidium parvum*, in drinking water. The federal IESWTR applies to public water systems serving at least 10,000 people and which use either surface water sources or ground water sources that are under the direct influence of surface water. Key provisions of the federal IESWTR include a 99% *Cryptosporidium* removal requirement for water systems that provide filtration; combined filter effluent turbidity standards that are more stringent than current standards; individual filter requirements that are designed to bring attention to filter plant optimization; and disinfection profiling/benchmarking provisions that are designed to assure continued levels of microbial protection while systems take the necessary steps to comply with new disinfection byproduct standards. Published concurrently with the IESWTR is the federal *Disinfectants and Disinfection Byproducts Rule* (D/DBPR). The D/DBPR is intended to regulate disinfection practices at public water systems in order to eliminate or minimize disinfectant levels and disinfection byproducts that may cause harmful health effects. The approach used in developing both the IESWTR and the D/DBPR considered the constraints of simultaneously treating water to control microbial contaminants, disinfectants, and disinfection byproducts.

On January 16, 2001, EPA promulgated 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 reflected in this final 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 IESWTR and the January 16, 2001 federal corrective amendments into the Pennsylvania Safe Drinking Water

Regulations (25 Pa. Code Chapter 109) in order to obtain primary enforcement responsibility (aka "primacy") for this rule.

The proposed regulation was approved by the Board on July 18, 2000. The proposed regulation was published in the *Pennsylvania Bulletin* on September 2, 2000. The 30-day public comment period concluded on October 2, 2000. No public meetings or hearings were held on the proposed regulation.

The Technical Assistance Center Advisory Board (TAC) and the Water Resources Advisory Committee (WRAC) were each briefed on the comments received during the public comment period. The WRAC reviewed and discussed the final regulation on January 10, 2001. The WRAC had no comments and approved the final regulation for recommendation to the Board. The TAC reviewed and discussed the final regulation on January 25, 2001. The TAC had no comments and approved the final regulation for recommendation to the Board.

The federal Safe Drinking Water Act (42 U.S.C.A. § 300g-2(a)) requires that primary enforcement responsibility states, such as Pennsylvania, adopt EPA regulations no later than two years after EPA promulgation. EPA may approve an extension of up to two years for states that: 1) lack legislative or regulatory authority to enforce the new regulations, or 2) lack program capability to implement the new regulations, or 3) are adopting two or more EPA regulations at the same time.

On November 28, 2000, the Department submitted a primacy extension request to the EPA to adopt regulations implementing both the federal IESWTR and the federal D/DBPR by no later than August 31, 2001. It is expected that EPA will grant the extension because the state is adopting two or more EPA regulations at the same time, which is one of the criteria specified above for the EPA to grant an extension. If EPA grants the August 31, 2001 extension, then failure to adopt the IESWTR by this extension date may result in Pennsylvania losing its primary enforcement responsibility.

E. Summary of Comments and Responses on the Proposed Rulemaking and Changes to the Proposed Rulemaking

The amendments reflect, and are no more stringent than, both the new federal IESWTR requirements and the January 16, 2001 federal corrective amendments.

§ 109.1 *Definitions*

A commentator asserted that the definition of *CPE* contains substantive provisions that should be moved to § 109.205 of the regulation. The Board declined to make this amendment because the definition is identical to the federal definition of *CPE* at 40 CFR § 141.2. The Board feels that amending the definition would jeopardize the Department's goal of obtaining primary enforcement responsibility for the IESWTR.

A commentator requested clarification in the definition of *Disinfection profile*. Specifically, the commentator requested that an exact reference to the EPA "procedures and

measurement methods" be provided in the definition. The Board has amended the definition of *Disinfection profile* to replace the EPA reference with a Chapter 109 reference. Since Chapter 109 contains references to the aforementioned EPA "procedures and measurement methods," the Board feels that this amendment is sufficient and appropriate.

The definition of *GUDI* was amended to correct a typographical error.

§ 109.202(c) *Treatment technique requirements for pathogenic bacteria, viruses and protozoan cysts.*

A commentator asked what the circumstances would be for the Department to require water systems using "other filtration technologies" to comply with performance criteria that is more stringent than the criteria for conventional and direct filtration plants, as specified in § 109.202(c)(1)(i)(C). The Department will specify more stringent performance criteria when it deems that the results of pilot plant or onsite studies support such action. The Board has amended § 109.202(c)(1)(i)(C) to clarify this basis of onsite studies.

§ 109.204 *Disinfection profiling and benchmarking.*

A commentator asked what format is acceptable to the Department for submitting disinfection profiling and benchmarking data, as specified in § 109.204. The format for the submission of disinfection profiling and benchmarking data is specified by the Department field offices and through Department-issued guidance and policy.

§ 109.205 *Filter profile, filter self-assessment and comprehensive performance evaluations.*

The Board has deleted this section. The Board feels that the provisions of this section were inappropriate for Subchapter B (relating to MCLs or treatment technique requirements). The Board also feels that this section was redundant with the addition of § 109.714 and was unnecessary. To ensure that no provisions are lost from the deletion of this section, the Board has also amended § 109.714 to include all the provisions that were contained in § 109.205.

§ 109.301 *General monitoring requirements.*

A commentator requested that § 109.301(1)(iv) be amended to account for the fact that continuous turbidity monitors can record turbidity more frequently than every 15 minutes. The commentator suggested that the individual filter turbidity results be recorded "...at least every 15 minutes." The Board agrees and has amended § 109.301(1)(iv) accordingly.

The EPA questioned why the proposed regulation does not include the provision of 40 CFR § 141.173(a)(3) which allows turbidity samples from lime softening plants to be acidified using an approved protocol. The Department provides for this option by way of reference in § 109.304 wherein the Department requires that sampling, monitoring, and analytical techniques be acceptable to either the EPA or the Department.

§ 109.701(e) *Reporting requirements for public water systems required to perform individual filter monitoring under § 109.301(1)(iv).*

A commentator questioned if the records that are required under § 109.701(e) are subject to the recordkeeping requirements of § 109.701(d). The commentator also questioned if the requirements of § 109.701(d) meet EPA requirements. The records that are required under §109.701(e) are subject to the specific recordkeeping requirements of § 109.701(d)(2). The requirements of § 109.701(d)(2) meet EPA requirements.

The EPA requested that § 109.701(e) be amended to include the federal requirement that systems conducting individual filter monitoring must maintain this data for at least three years. The Board declined to make this amendment because the existing provisions in § 109.701(d)(2) already require that water systems retain monitoring records for a minimum of three years. These monitoring records will include individual filter monitoring data.

Section 109.701(e) was amended at EPA's request to include the requirement that systems conducting individual filter monitoring must report that they have conducted this monitoring within 10 days following the end of each month. The amended language is now consistent with the federal requirements. Sections 109.701(e)(1) and (2) were then renumbered to § 109.701(e)(2) and (3), respectively, due to the inclusion of this amendment. Several text references in § 109.701(e)(3) (formerly § 109.701(e)(2)) were changed due to this renumbering.

Section 109.701(e)(2) (formerly § 109.701(e)(1)) was amended to specify that water systems required to perform individual filter monitoring were subject to the provisions of this paragraph, not water systems providing filtration and disinfection. Accordingly, the phrase "providing filtration and disinfection of surface sources" was deleted and replaced with the phrase "required to perform individual monitoring." The amended language is now consistent with the federal requirements.

§ 109.714 *Filter profile, filter self-assessment and comprehensive performance evaluations.*

The EPA requested that this section should include the requirement that the comprehensive performance evaluation (CPE) be completed within 90 days of the triggering event. The Board decided to amend this entire section in order to both clarify it and to capture all of the associated provisions that were deleted with § 109.205. One of these provisions was the 90-day completion deadline for CPEs. Accordingly, the amended language contains this 90-day completion deadline, as well as all other federal requirements.

A commentator expressed confusion over the 30-day CPE deadline and the 90-day CPE deadline. Systems must make arrangements with the Department within 30 days following the CPE triggering event. These arrangements are for the planning of the CPE. The system must then ensure that the CPE has been completed by no later than 90 days following the CPE triggering event.

F. Benefits, Costs and Compliance

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

Benefits

The amendments will benefit customers of public water systems serving at least 10,000 people and which use either surface water sources or ground water sources that are under the influence of surface water. Currently, there are almost 120 systems in Pennsylvania serving water to over 8.1 million people that meet these criteria.

The economic benefits of the IESWTR will derive from the increased level of protection to public health. The primary goal of the amendments is to improve public health by increasing the level of protection from exposure to *Cryptosporidium* and other pathogens (i.e. *Giardia*, or other waterborne bacteria or viral pathogens) in drinking water supplies through improvements in filtration at water systems. The amendments are expected to reduce the level of *Cryptosporidium* and other pathogenic contamination in finished drinking water supplies through improvements in filtration at water systems, such as revised turbidity requirements. In this case, benefits will accrue due to the decreased likelihood of endemic incidences of cryptosporidiosis, giardiasis and other waterborne diseases, and the avoidance of resulting health costs. The provisions are expected to reduce the likelihood of the occurrence of cryptosporidiosis outbreaks and their associated economic costs.

Compliance Costs

Approximately 120 public water systems will be affected by these amendments. These systems will incur increased costs as a result of improved turbidity treatment and disinfection benchmark monitoring. The customers of these affected water systems may experience higher water rates as a result of these increased costs. The actual increase in water rates will depend on a number of factors, including population served and the filtration technology utilized. According to EPA studies conducted nationally, 92 percent of the households affected by the rule will incur a cost of less than $1 per month. Seven percent of the affected households will face an increase in cost of $1 to $5 per month. The highest increase in cost will be approximately $8 per month and will be faced by approximately 23,000 households nationally.

The assumptions and structure of EPA's analysis tend to overestimate the highest costs. To incur these higher costs, a system would have to implement all, or almost all, of the treatment activities. These systems, however, might seek less costly alternatives, such as connecting to a larger regional water system.

The estimated total annual cost that will be borne by the regulated community in Pennsylvania will be about $10.3 million. Many filtration plants evaluated in Pennsylvania currently meet the IESWTR turbidity requirements and, possibly, may not incur additional expense for improved turbidity removal. The benefits that may result from this rule in Pennsylvania may range from $20 to $100 million per year using a valuation of $2,000 in health damages avoided per cryptosporidiosis illness prevented.

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 and Wastewater 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 amendments will require public water systems to monitor and report individual filter turbidity. It is anticipated that the Department's current data reporting forms should facilitate this additional monitoring and reporting and that little, if any, additional data or paperwork will be necessary.

G. Sunset Review

This regulation will be reviewed in accordance with the sunset review schedule published by the Department to determine whether the regulation effectively fulfills the goals for which it was intended.

H. Regulatory Review

Under section 5(a) of the Regulatory Review Act (71 P.S. § 745.5(a)), on August 8, 2000 the Department submitted a copy of the notice of proposed rulemaking, published at 30 Pa.B. 4611, September 2, 2000 to the Independent Regulatory Review Commission (IRRC) and the Chairpersons of the House and Senate Environmental Resources and Energy Committees for review and comment.

Under section 5(c) of the Regulatory Review Act, IRRC and the Committees were provided with copies of the comments received during the public comment period, as well as other documents when requested. In preparing these final-form regulations, the Department has considered all comments from IRRC, the Committees and the public.

Under section 5.1(d) of the Regulatory Review Act (71 P.S. § 745.5a(d)), on _____, these final-form regulations were deemed approved by the House and Senate

Committees. Under section 5.1(e) of the Regulatory Review Act, IRRC met on _____ and approved the final-form regulations.

I. Findings of the Board

The Board finds that:

(1) Public notice of proposed rulemaking was given under sections 201 and 202 of the act of July 31, 1968 (P.L. 769, No. 240) (45 P.S. §§ 1201 and 1202) and regulations promulgated thereunder at *1 Pennsylvania Code* §§ 7.1 and 7.2.

(2) A public comment period was provided as required by law, and all comments were considered.

(3) These regulations do not enlarge the purpose of the proposal published at 30 *Pennsylvania Bulletin* 4611 (September 2, 2000).

(4) These regulations are necessary and appropriate for administration and enforcement of the authorizing acts identified in Section C of this order.

J. Order of the Board

The Board, acting under the authorizing statutes, orders that:

(a) The regulations of the Department of Environmental Protection, *25 Pennsylvania Code*, Chapter 109, are amended to read as set forth in Annex A.

(b) The Chairman of the Board shall submit this order and Annex A to the Office of General Counsel and the Office of Attorney General for review and approval as to legality and form, as required by law.

(c) The Chairman of the Board shall submit this order and Annex A to the Independent Regulatory Review Commission and the House and Senate Environmental Resources and Energy Committees as required by the Regulatory Review Act.

(d) The Chairman of the Board shall certify this order and Annex A and deposit them with the Legislative Reference Bureau, as required by law.

(e) This order shall take effect immediately.

BY:

DAVID E. HESS
Chairman
Environmental Quality Board

Annex A

TITLE 25. ENVIRONMENTAL PROTECTION

Subpart C. PROTECTION OF NATURAL RESOURCES

ARTICLE II. WATER RESOURCES

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:

Act—The Pennsylvania Safe Drinking Water Act (35 P. S. § § 721.1—721.17).

Administrator—The Administrator of the EPA.

ANSI—The American National Standards Institute, Inc. of New York, New York.

BAT—Best Available Technology—The best technology, treatment techniques or other means which the Administrator finds are available for achieving compliance with maximum contaminant levels.

Bottled water system—A public water system which provides water for bottling in sealed

bottles or other sealed containers. The term includes, but is not limited to, the sources of water and treatment, storage, bottling, manufacturing and distribution facilities. The term does not include a public water system which provides only a source of water supply for a bottled water system and excludes an entity providing only transportation, distribution or sale of bottled water in sealed bottles or other sealed containers.

Bulk water hauling system—A public water system which provides water piped into a carrier vehicle and withdrawn by a similar means into the user's storage facility or vessel. The term includes, but is not limited to, the sources of water, treatment, storage or distribution facilities. The term does not include a public water system which provides only a source of water supply for a bulk water hauling system.

CPE--COMPREHENSIVE PERFORMANCE EVALUATION--A THOROUGH REVIEW AND ANALYSIS OF A TREATMENT PLANT'S PERFORMANCE-BASED CAPABILITIES AND ASSOCIATED ADMINISTRATIVE, OPERATION AND MAINTENANCE PRACTICES.

(i) THE CPE IS CONDUCTED TO IDENTIFY FACTORS THAT MAY BE ADVERSELY IMPACTING A PLANT'S CAPABILITY TO ACHIEVE COMPLIANCE AND EMPHASIZES APPROACHES THAT CAN BE IMPLEMENTED WITHOUT SIGNIFICANT CAPITAL IMPROVEMENTS.

(ii) THE CPE SHALL CONSIST OF AT LEAST THE FOLLOWING COMPONENTS:

(A) ASSESSMENT OF PLANT PERFORMANCE.

(B) EVALUATION OF MAJOR UNIT PROCESSES.

(C) IDENTIFICATION AND PRIORITIZATION OF PERFORMANCE LIMITING FACTORS.

(D) ASSESSMENT OF THE APPLICABILITY OF COMPREHENSIVE TECHNICAL ASSISTANCE.

(E) PREPARATION OF A CPE REPORT.

CT—The product of residual disinfectant concentration (C) measured in mg/l in a representative sample of water prior to the first customer, and disinfectant contact time (T); that is, "C" x "T." If disinfectants are applied at more than one point prior to the first customer, the CT is determined for each disinfectant sequence prior to the first customer to determine the total percent inactivation achieved by disinfection prior to the first customer. In determining the total percent inactivation, the residual disinfectant concentration of each disinfection sequence and corresponding contact time before subsequent disinfection application points shall be determined.

Coagulation—A process using coagulant chemicals and mixing by which colloidal and suspended material are destabilized and agglomerated into settleable or filterable flocs, or both.

Collection—The parts of a public water system occurring prior to treatment, including source, transmission facilities and pretreatment storage facilities.

Community water system—A public water system which serves at least 15 service connections used by year-round residents or regularly serves at least 25 year-round residents.

Compliance cycle—A 9-year calendar year cycle during which public water suppliers shall monitor for contaminants. The first compliance cycle begins January 1, 1993, and ends December 31, 2001.

Compliance period—A 3-year calendar year period within a compliance cycle. Each compliance cycle is made up of three 3-year compliance periods. Within the first compliance cycle, the first compliance period runs from January 1, 1993, through December 31, 1995.

Confluent growth—Bacterial growth, with or without sheen, covering the entire membrane filter, or a portion thereof, in which bacterial colonies are not discrete.

Consecutive water system—A public water system which obtains all of its water from another public water system and resells the water to a person, provides treatment to meet a primary MCL or provides drinking water to an interstate carrier. The term does not include bottled water and bulk water systems.

Contaminant—A physical, chemical, biological or radiological substance or matter in water.

Conventional filtration—The series of processes for the purpose of substantial particulate removal consisting of coagulation, flocculation, sedimentation and filtration.

Corrosion inhibitor—A substance capable of reducing the corrosivity of water toward metal

plumbing materials, especially lead and copper, by forming a protective film on the interior surface of those materials.

Cross-connection—An arrangement allowing either a direct or indirect connection through which backflow, including backsiphonage, can occur between the drinking water in a public water system and a system containing a source or potential source of contamination, or allowing treated water to be removed from any public water system, used for any purpose or routed through any device or pipes outside the public water system, and returned to the public water system. The term does not include connections to devices totally within the control of one or more public water systems and connections between water mains.

Diatomaceous earth filtration—A process for the purpose of substantial particulate removal in which a precoat cake of diatomaceous earth filter media is deposited on a support membrane (septum), and while the water is filtered by passing through the cake on the septum, additional filter media, known as body feed, is continuously added to the feed water, to maintain the permeability of the filter cake.

Direct filtration—A series of processes for the purpose of substantial particulate removal consisting of coagulation and filtration. The term normally includes flocculation after coagulation, but does not include sedimentation.

Disinfectant contact time—The time in minutes that it takes for water to move from the point of disinfectant application to the point where residual disinfectant concentration is measured.

Contact time in pipelines is calculated based on plug flow by dividing the internal volume of the pipeline by the flow rate through that pipeline. Contact time within mixing basins and storage reservoirs is determined by tracer studies or an equivalent demonstration. Guidance for making these determinations appears in the "Guidance Manual for Compliance with the Filtration and Disinfection Requirements for Public Water Systems Using Surface Water Sources" (U. S. EPA, Office of Drinking Water, Criteria and Standards Division).

Disinfection—A process which inactivates pathogenic organisms in water by chemical oxidants or equivalent agents, such as ultraviolet light.

DISINFECTION PROFILE--THE SUMMARY OF DAILY *GIARDIA LAMBLIA* INACTIVATION THROUGH THE TREATMENT PLANT AS DETERMINED THROUGH PROCEDURES AND MEASUREMENT METHODS ESTABLISHED BY **[THE EPA] THIS CHAPTER.**

Entry point—A point acceptable to the Department at which finished water representative of each source enters the distribution system.

Environmental acts—The Clean Streams Law (35 P. S. § § 691.1—691.1001), the Air Pollution Control Act (35 P. S. § § 4001—4015), the Radiation Protection Act (35 P. S. § § 7110.101—7110.703), the Surface Mining Conservation and Reclamation Act (52 P. S. § § 1396.1—1396.31), the Noncoal Surface Mining Conservation and Reclamation Act (52 P. S. § § 3301—3326), section 1917-A of The Administrative Code of 1929 (71 P. S. § 510-17), the Dam Safety and Encroachment Act (32 P. S. § § 693.1—693.27), the Solid Waste Management

Act (35 P. S. § § 6018.101—6018.1003), the Plumbing System Lead Ban and Notification Act (35 P. S. § § 723.1—723.17) and any other State or Federal statutes relating to environmental protection or to the protection of the public health, safety and welfare.

Facility—A part of a public water system used for collection, treatment, storage or distribution of drinking water.

Federal act—The Safe Drinking Water Act (42 U.S.C.A. § § 300f—300j-10).

Federal regulations—The National Primary Drinking Water Regulations and the National Secondary Drinking Water Regulations.

FILTER PROFILE--A GRAPHICAL REPRESENTATION OF INDIVIDUAL FILTER PERFORMANCE, BASED ON CONTINUOUS TURBIDITY MEASUREMENTS OR TOTAL PARTICLE COUNTS VERSUS TIME FOR AN ENTIRE FILTER RUN, FROM STARTUP TO BACKWASH INCLUSIVELY, THAT INCLUDES AN ASSESSMENT OF FILTER PERFORMANCE WHILE ANOTHER FILTER IS BEING BACKWASHED.

Filtration—A process for removing particulate matter from water by passage through porous media.

Finished water—Water that has been treated in compliance with the treatment technique requirements established in this chapter by a permitted public water system and is ready for consumption by the public.

First-draw sample—A 1-liter sample of tap water collected in accordance with § 109.1103 (relating to monitoring requirements), that has been standing in plumbing pipes at least 6 hours and is collected without flushing the tap.

Flocculation—A process to enhance agglomeration or collection of smaller floc particles into larger, more easily settleable or filterable particles through gentle stirring by hydraulic or mechanical means.

GUDI--GROUNDWATER UNDER THE DIRECT INFLUENCE OF SURFACE WATER--

[(i)] 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.

IBWA—The International Bottled Water Association, Alexandria, Virginia 22314.

IOC—Inorganic chemical.

Initial compliance period—The first full 3-year compliance period during which a public water supply is required to monitor for a contaminant.

Innovative technology—A method, process or equipment for the treatment of drinking water which is not designated as BAT under EPA regulations and the effectiveness of which has not been commercially demonstrated in the water supply industry.

Lead service line—A service line made of lead which connects a water main to a building inlet and a lead pigtail, gooseneck or other fitting which is connected to the lead line.

MCL—Maximum Contaminant Level—The maximum permissible level of a contaminant in water which is delivered to a user of a public water system, and includes the primary and secondary MCLs established under the Federal act, and MCLs adopted under the act. For MCLs incorporated into this chapter by reference, the term refers to the numerical value and the means of determining compliance with that value and does not refer to the EPA applications to specific types of public water systems or sources.

Method detection limit—The amount of a substance which the EPA has determined to be the minimum concentration which can be measured and be reported with 99% confidence that the true value is greater than zero.

NAMA—The National Automatic Merchandising Association of Chicago, Illinois.

NSF—NSF International, Ann Arbor, Michigan 48105.

NTU—Nephelometric Turbidity Unit.

National Primary Drinking Water Regulations--Primary drinking water regulations and implementation regulations promulgated by the Administrator under the Federal act [at] IN 40 CFR [141.1--141.42 and 142.1--142.55] PARTS 141 AND 142 (RELATING TO NATIONAL PRIMARY DRINKING WATER REGULATIONS; AND NATIONAL PRIMARY DRINKING WATER REGULATIONS IMPLEMENTATION). The term includes interim, revised and final regulations.

National Secondary Drinking Water Regulations—Secondary drinking water regulations promulgated by the Administrator under the Federal act at 40 CFR 143.1—143.4.

New source—A source of water supply that is not covered by a valid permit issued under the act of April 22, 1905 (P. L. 260, No. 182) (35 P. S. § § 711—716) (Repealed) or under this chapter as a regular source of supply for the public water system.

Noncommunity water system—A public water system which is not a community water system.

Nontransient noncommunity water system—A noncommunity water system that regularly serves at least 25 of the same persons over 6 months per year.

Person—An individual, partnership, association, company, corporation, municipality, municipal authority, political subdivision or an agency of Federal or State government. The term

includes the officers, employes and agents of a partnership, association, company, corporation, municipality, municipal authority, political subdivision, or an agency of Federal or State government.

Point-of-Entry (POE) device—A treatment device used as an alternative to central treatment that is installed on a public water line or service connection to a house, building or other facility for the purpose of reducing contaminants in the water distributed throughout the house, building or facility.

Public water supplier—A person who owns or operates a public water system.

Public water system—A system which provides water to the public for human consumption which has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. The term includes collection, treatment, storage and distribution facilities under control of the operator of the system and used in connection with the system. The term includes collection or pretreatment storage facilities not under control of the operator which are used in connection with the system. The term also includes a system which provides water for bottling or bulk hauling for human consumption. Water for human consumption includes water that is used for drinking, bathing and showering, cooking, dishwashing or maintaining oral hygiene.

Repeat compliance period—A subsequent compliance period after the initial compliance period.

Retail water facility—A public water system which provides water for bottling without the use of a water vending machine by dispensing unit servings of water in containers whether or not the containers are provided by the customers.

SOC—Synthetic Organic Chemical.

Sanitary survey—An onsite review and evaluation of a public water system's source, facilities and equipment and the operation and maintenance procedures used by a public water supplier for producing and distributing safe drinking water.

Sedimentation—A process for the removal by gravity of settleable solids before filtration.

Slow sand filtration—A process for the purpose of substantial particulate removal by physical and biological mechanisms during the passage of raw water through a bed of sand at low velocity—generally less than .4 meters per hour.

Source—The place from which water for a public water system originates or is derived, including, but not limited to, a well, spring, stream, reservoir, pond, lake or interconnection.

Substantial modification—A change in a public water system that may affect the quantity or quality of water served to the public or which may be prejudicial to the public health or safety and includes the addition of new sources; the expansion of existing facilities; changes in

treatment processes; addition, removal, renovation or substitution of equipment or facilities; and interconnections.

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.]

System—

(i) A group of facilities used to provide water for human consumption including facilities used for collection, treatment, storage and distribution. The facilities shall constitute a system if they are adjacent or geographically proximate to each other and meet at least one of the following criteria:

(A) The facilities provide water to the same establishment which is a business or commercial enterprise or an arrangement of residential or nonresidential structures

having a common purpose and includes mobile home parks, multi-unit housing complexes, phased subdivisions, campgrounds and motels.

(B) The facilities are owned, managed or operated by the same person.

(C) The facilities have been regulated as a single public water system under the Federal act or the act.

(ii) This definition may not be interpreted to require two or more currently-regulated public water systems to become one system.

Too numerous to count—Two hundred or more total bacterial colonies on a 47-mm diameter membrane filter.

Transient noncommunity water system—A public water system which is not a community, nontransient noncommunity, bottled or vended water system, nor a retail water facility or a bulk water hauling system.

Transmission—The movement of water from the source to a point of storage, treatment or distribution or from the point of treatment to the distribution system.

Treatment technique—A requirement which specifies a specific treatment method known to cause a reduction in the level of a contaminant which cannot practically be regulated by establishing an MCL. The term includes treatment technique requirements established under the Federal act, and treatment technique requirements adopted under

the act.

Type of product—A particular kind of water for bottling characterized by its source or treatment process. Examples of the water include distilled water, mineral water, spring water and well water.

VOC—Volatile synthetic organic chemical.

Vended water system—A public water system which provides water for bottling through the use of one or more water vending machines.

Waterborne disease outbreak—An illness of the same etiology experienced by two or more persons and attributed to pathogenic organisms in which the public water system is implicated as the source of illness by the Department of Health.

Water for bottling—Artificial or natural mineral, spring or other water for bottling as drinking water.

Water vending machine—A self-contained, self-service device which, upon insertion of a coin, paper currency, token, card, key or other similar means or through manual operation, dispenses unit servings of water, either in bulk or in packages, without the necessity of replenishing the device between each vending operation.

Wellhead protection area—The surface and subsurface area surrounding a water well, well field, spring or infiltration gallery supplying a public water system, through which contaminants are reasonably likely to move toward and reach the water source. A wellhead protection area shall consist of the following zones:

(i) *Zone I.* The protective zone immediately surrounding a well, spring or infiltration gallery which shall be a 100-to-400-foot radius depending on site-specific source and aquifer characteristics.

(ii) *Zone II.* The zone encompassing the portion of the aquifer through which water is diverted to a well or flows to a spring or infiltration gallery. Zone II shall be a 1/2 mile radius around the source unless a more detailed delineation is approved.

(iii) *Zone III.* The zone beyond Zone II that contributes surface water and groundwater to Zones I and II.

Wellhead protection program—A comprehensive program designed to protect a well, spring or infiltration gallery used by a public water system from contamination.

Subchapter B. MCLS OR TREATMENT TECHNIQUE REQUIREMENTS

§ 109.202. State MCLs 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 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.

(b) *Secondary MCLs.*

(1) A public water system shall supply drinking water that complies with the secondary MCLs adopted by the EQB under the act, except for the MCL for pH which represents a reasonable goal for drinking water quality.

(2) This subchapter incorporates by reference the secondary MCLs established by the EPA in the National Secondary Drinking Water Regulations, 40 CFR 143.3 (relating to Secondary MCLs), as of January 30, 1991, as State MCLs, under the authority of section 4 of the act, unless other MCLs are established by regulations of the Department. The secondary MCL for copper is not incorporated by reference.

(3) A secondary MCL for aluminum of 0.2 mg/L is adopted as a State MCL.

(c) *Treatment technique requirements for pathogenic bacteria, viruses and protozoan cysts.* A public water system shall provide adequate treatment to reliably protect users from the adverse health effects of microbiological contaminants, including pathogenic bacteria, viruses and protozoan cysts. The number and type of treatment barriers and the efficacy of treatment provided shall be commensurate with the type, degree and likelihood of contamination in the source water.

(1) A public water supplier shall provide, as a minimum, continuous filtration and disinfection for surface water AND GUDI sources. The treatment technique shall provide at least 99.9% removal and inactivation of Giardia lamblia cysts, and at least 99.99% removal and inactivation of enteric viruses. BEGINNING JANUARY 1, 2002, PUBLIC WATER SUPPLIERS SERVING 10,000 OR MORE PEOPLE SHALL PROVIDE AT LEAST 99% REMOVAL OF CRYPTOSPORIDIUM OOCYSTS. The Department, depending on source water quality conditions, may require additional treatment as necessary to meet the requirements of this chapter and to protect the public health.

(i) The filtration process shall meet the following performance requirements:

(A) *Conventional or direct filtration.*

(I) The filtered water turbidity shall be less than or equal to .5 NTU in 95% of the measurements taken each month under § 109.301(1) (relating to general monitoring requirements).

(II) The filtered water turbidity shall be less than or equal to 2.0 NTU at all times, measured under § 109.301(1).

(III) BEGINNING JANUARY 1, 2002, FOR PUBLIC WATER SYSTEMS SERVING 10,000 OR MORE PERSONS, THE FILTERED WATER TURBIDITY SHALL MEET THE FOLLOWING CRITERIA:

(-a-) BE LESS THAN OR EQUAL TO 0.3 NTU IN AT LEAST 95% OF THE MEASUREMENTS TAKEN EACH MONTH UNDER § 109.301(1).

(-b-) BE LESS THAN OR EQUAL TO 1 NTU AT ALL TIMES, MEASURED UNDER § 109.301(1).

(B) *Slow sand or diatomaceous earth filtration.*

(I) The filtered water turbidity shall be less than or equal to 1.0 NTU in 95% of the measurements taken each month under § 109.301(1).

(II) The filtered water turbidity shall be less than or equal to 2.0 NTU at all times, measured under § 109.301(1).

(C) *Other filtration technologies.* The same performance criteria as those given for conventional filtration and direct filtration in clause (A) shall be achieved UNLESS THE DEPARTMENT SPECIFIES MORE STRINGENT PERFORMANCE CRITERIA **BASED UPON ONSITE STUDIES, INCLUDING PILOT PLANT STUDIES, WHERE APPROPRIATE.**

(ii) The combined total effect of disinfection processes utilized in a filtration plant shall achieve at least a 90% inactivation of Giardia cysts and a 99.9% inactivation of viruses, as determined by CTs and measurement methods established by the EPA. The residual disinfectant concentration in the water delivered to the distribution system prior to the first customer may not be less than .2 mg/l for more than 4 hours, as demonstrated by measurement taken under § 109.301(1). Failure to maintain this level that extends beyond 4 hours constitutes a breakdown in treatment under § 109.402 (relating to emergency public notification).

(iii) For an unfiltered surface water source permitted for use prior to March 25, 1989, the public water supplier shall:

(A) Maintain a minimum residual disinfectant concentration in the water delivered to the distribution system prior to the first customer of 2.5 mg/l expressed as free chlorine or its equivalent as approved by the Department. The residual disinfectant concentration shall be demonstrated by measurements taken under § 109.301(2).

(I) For a system using disinfectants other than free chlorine, the water supplier shall maintain:

(-a-) A minimum concentration that provides, in terms of CTs achieved, a level of protection equivalent to that provided by 2.5 mg/l free chlorine, as determined by the available contact time between the point of application and the first customer, under peak flow conditions.

(-b-) At least .2 mg/l of disinfectant in the water delivered to the distribution system prior to the first customer.

(II) For a system with extended contact times, generally 60 minutes or more, between the point of application and the first customer, the Department may allow the water supplier to maintain a disinfectant residual concentration less than 2.5 mg/l free chlorine or its equivalent if the CTs established by the EPA are achieved.

(B) Provide continuous filtration and disinfection in accordance with this paragraph according to the following schedule:

(I) By December 31, 1991, for a public water system that, prior to March 25, 1989, had a waterborne disease outbreak or Giardia contamination in its surface water source.

(II) Within 48 months after the discovery of one of the following conditions, or by December 31, 1995, whichever is earlier, for a public water system that experiences the condition after March 25, 1989:

(-a-) A waterborne disease outbreak.

(-b-) Giardia contamination in its surface water source.

(-c-) A violation of the microbiological MCL, the turbidity MCL or the monitoring or reporting requirements for the microbiological MCL.

(-d-) A violation of the source microbiological or turbidity monitoring requirements under § 109.301(2)(i)(A) and (B) or the related reporting requirements.

(-e-) The source water fecal coliform concentration exceeds 20/100 ml or the total coliform concentration exceeds 100/100 ml in a source water sample collected under § 109.301(2).

(-f-) The source water turbidity level exceeds 5.0 NTU in a sample collected under § 109.301(2).

(-g-) The system fails to maintain a continuous residual disinfectant concentration as required under this subparagraph.

(III) By December 31, 1995, for other public water systems not covered by subclause (I) or (II).

(iv) For an unfiltered surface water source which is subject to subparagraph (iii)(B)(II) and (III), the public water supplier shall:

(A) Submit to the Department for approval a feasibility study which specifies the means by which the supplier shall, by the applicable deadline established in subparagraph (iii)(B), meet the requirements of this paragraph. The study shall identify the alternative which best assures the long-term viability of the public water system to meet drinking water standards. The study shall propose a schedule for completion of work, including the design, financing, construction and operation of one of the following alternatives:

(I) Permanent filtration treatment facilities that meet the requirements of this chapter.

(II) Abandonment of the unfiltered surface water source and one of the following:

(-a-) Permanent interconnection with another water supply which meets the requirements of this chapter.

(-b-) Permanent water treatment facilities, utilizing groundwater as the source of supply, which meet the requirements of this chapter.

(-c-) Provision for adequate supply from existing sources which meets the requirements of this chapter.

(B) Submit the feasibility study according to the following schedule:

(I) By March 31, 1992, for a supplier which prior to August 31, 1991, experienced a triggering event as specified in subparagraph (iii)(B)(II).

(II) By June 30, 1992, for a supplier which after August 31, 1991, but before January 1, 1992, experienced a triggering event as specified in subparagraph (iii)(B)(II).

(III) By August 31, 1992, for other suppliers.

(C) Submit a full and complete permit application for the means identified in the approved feasibility study by which the supplier shall meet the requirements of this paragraph, according to the following schedule:

(I) By the date set in the approved feasibility study for a supplier which, prior to January 1, 1992, experienced a triggering event as specified in subparagraph (iii)(B)(II).

(II) By June 30, 1993, for a supplier subject to the requirements of subparagraph (iii)(B)(III), except that a public water supplier serving fewer than 3,300 people may submit its permit application by December 31, 1993.

(D) Initiate construction of the means identified in the approved feasibility study by which the supplier shall meet the requirements of this paragraph, according to the following schedule:

(I) By the date set in the approved feasibility study for a supplier which, prior to January 1, 1992, experienced a triggering event as specified in subparagraph (iii)(B)(II).

(II) By June 30, 1994, for a supplier subject to the requirements of subparagraph (iii)(B)(III), except that a public water supplier serving fewer than 3,300 people may initiate construction by December 31, 1994.

(E) Complete construction and commence operation of the alternative identified in the approved feasibility study by the dates specified in subparagraph (iii)(B).

(v) The requirements of subparagraph (iv) do not modify, repeal, suspend, supersede or otherwise change the terms of a compliance schedule or deadline, established by an existing compliance order, consent order and agreement, consent adjudication, court order or consent decree. For purposes of this paragraph, the term "existing" means a compliance order, consent order and agreement, consent adjudication, court order or consent decree which was issued or dated before December 14, 1991.

(vi) For a source including springs, infiltration galleries, cribs or wells permitted for use by the Department prior to May 16, 1992, and determined by the Department to be [directly influenced by surface water] A GUDI SOURCE, the public water supplier shall:

(A) Maintain a minimum residual disinfectant concentration in the water delivered to the distribution system prior to the first customer in accordance with subsection (c)(1)(iii)(A).

(B) Provide continuous filtration and disinfection in accordance with this paragraph within 48 months after the Department determines the source of supply is [directly influenced by surface water] A GUDI SOURCE.

(C) Submit to the Department for approval a feasibility study within 1 year after the Department determines the source of supply is [directly influenced by surface water] A GUDI SOURCE. The feasibility study shall specify the means by which the supplier shall, within the deadline established in clause (B), meet the requirements of this paragraph and shall otherwise comply with paragraph (1)(iv)(A).

(2) A community public water system shall provide continuous disinfection for groundwater sources.

(d) *Fluoride.* A public water system shall comply with the primary MCL for fluoride of 2 mg/l, except that a noncommunity water system implementing a fluoridation program approved by the Department of Health and using fluoridation facilities approved by the Department under § 109.505 (relating to requirements for noncommunity water systems) may exceed the MCL for fluoride but may not exceed the fluoride level approved by the

Department of Health. The secondary MCL for fluoride of 2 mg/l established by the EPA under 40 CFR 143.3 (relating to secondary MCLs) is not incorporated into this chapter.

(e) *Treatment technique requirements for acrylamide and epichlorohydrin.* Systems which use acrylamide or epichlorohydrin in the water treatment process shall certify in accordance with § 109.701(d)(7) (relating to reporting and recordkeeping) that the following specified levels have not been exceeded:

(1) Acrylamide = 0.05% dosed at 1 ppm (or equivalent).

(2) Epichlorohydrin = 0.01% dosed at 20 ppm (or equivalent).

§ 109.204. DISINFECTION PROFILING AND BENCHMARKING.

THE DISINFECTION PROFILING AND BENCHMARKING REQUIREMENTS, ESTABLISHED BY THE EPA UNDER THE NATIONAL PRIMARY DRINKING WATER REGULATIONS IN 40 CFR 141.172 (RELATING TO DISINFECTION PROFILING AND BENCHMARKING) ARE INCORPORATED BY REFERENCE EXCEPT AS OTHERWISE ESTABLISHED BY THIS CHAPTER. THE PUBLIC WATER SUPPLIER SHALL CONDUCT DISINFECTION PROFILING IN ACCORDANCE WITH THE PROCEDURES AND METHODS IN THE MOST CURRENT EDITION OF THE *DISINFECTION PROFILING AND BENCHMARKING GUIDANCE MANUAL* PUBLISHED BY THE EPA. THE PUBLIC WATER SUPPLIER REQUIRED TO CONDUCT DISINFECTION PROFILING SHALL SUBMIT THE DISINFECTION PROFILING DATA AND THE

BENCHMARK DATA TO THE DEPARTMENT BY JUNE 1, 2001, IN A FORMAT ACCEPTABLE TO THE DEPARTMENT.

[§ 109.205. FILTER PROFILE, FILTER SELF-ASSESSMENT AND COMPREHENSIVE PERFORMANCE EVALUATIONS.

PUBLIC WATER SYSTEMS ARE REQUIRED TO PERFORM OR CONDUCT A FILTER PROFILE, FILTER SELF-ASSESSMENT OR COMPREHENSIVE PERFORMANCE EVALUATION IF ANY INDIVIDUAL FILTER MONITORING CONDUCTED UNDER § 109.301(1)(iv) (RELATING TO GENERAL MONITORING REQUIREMENTS) DEMONSTRATES THAT ONE OR MORE OF THE FOLLOWING CONDITIONS EXIST:

(1) A PUBLIC WATER SYSTEM SHALL PRODUCE A FILTER PROFILE WITHIN 7 DAYS OF AN INDIVIDUAL FILTER TURBIDITY EXCEEDANCE (UNLESS THE REASON FOR THE EXCEEDANCE CAN BE DETERMINED) IF ANY INDIVIDUAL FILTER HAS A MEASURED TURBIDITY LEVEL GREATER THAN 1.0 NTU IN TWO CONSECUTIVE MEASUREMENTS TAKEN 15 MINUTES APART; OR, IF ANY INDIVIDUAL FILTER HAS A MEASURED TURBIDITY LEVEL GREATER THAN 0.5 NTU IN TWO CONSECUTIVE MEASUREMENTS TAKEN 15 MINUTES APART AT THE END OF THE FIRST 4 HOURS OF CONTINUOUS FILTER OPERATION AFTER THE FILTER HAS BEEN BACKWASHED OR OTHERWISE TAKEN OFFLINE.

(2) A PUBLIC WATER SYSTEM SHALL CONDUCT A FILTER SELF-ASSESSMENT WITHIN 14 DAYS OF AN INDIVIDUAL FILTER TURBIDITY

EXCEEDANCE IF ANY INDIVIDUAL FILTER HAS A MEASURED TURBIDITY LEVEL GREATER THAN 1.0 NTU IN TWO CONSECUTIVE MEASUREMENTS TAKEN 15 MINUTES APART AT ANY TIME IN EACH OF 3 CONSECUTIVE MONTHS.

(3) A PUBLIC WATER SYSTEM SHALL ARRANGE FOR A COMPREHENSIVE PERFORMANCE EVALUATION TO BE CONDUCTED BY THE DEPARTMENT WITHIN 30 DAYS OF ANY INDIVIDUAL FILTER HAVING A MEASURED TURBIDITY LEVEL GREATER THAN 2.0 NTU IN 2 CONSECUTIVE MEASUREMENTS TAKEN 15 MINUTES APART AT ANY TIME IN EACH OF 2 CONSECUTIVE MONTHS. THE COMPREHENSIVE PERFORMANCE EVALUATION SHALL BE COMPLETED WITHIN 90 DAYS FOLLOWING THE INDIVIDUAL FILTER TURBIDITY EXCEEDANCE.]

Subchapter C. MONITORING REQUIREMENTS

§ 109.301. General monitoring requirements.

The monitoring and analytical requirements, including approved sampling procedures and analytical techniques, 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 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:

(1) *Performance monitoring for filtration and disinfection.* A public water supplier providing filtration and disinfection of surface water OR GUDI sources shall[, beginning July 1, 1990,] conduct the performance monitoring requirements established by the EPA under the National Primary Drinking Water Regulations, unless increased monitoring is required by the Department under § 109.302.

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

(A) Shall determine AND RECORD the turbidity level of representative samples of the system's filtered water at least once every 4 hours that the system is in operation, except as provided in clause (B).

(B) May substitute continuous turbidity monitoring AND RECORDING for grab sample monitoring AND MANUAL RECORDING if it validates the continuous measurement for accuracy on a regular basis using a [protocol approved] PROCEDURE SPECIFIED by the [Department] MANUFACTURER. For systems using slow sand filtration or filtration treatment other than conventional filtration, direct filtration or diatomaceous earth filtration, the Department may reduce sampling frequency to once per day.

(C) Shall continuously monitor AND RECORD the residual disinfectant concentration of the water being supplied to the distribution system and record both the lowest value for each day and

the number of periods each day when the value is less than .2 mg/l for more than 4 hours. If a public water system's continuous monitoring OR RECORDING equipment fails, the public water supplier may, upon notification of the Department under § 109.402 (relating to emergency public notification), substitute grab sampling OR MANUAL RECORDING every 4 hours in lieu of continuous monitoring. Grab sampling OR MANUAL RECORDING may not be substituted for continuous monitoring OR RECORDING for longer than 5 days after the equipment fails.

(D) Shall measure AND RECORD the residual disinfectant concentration at representative points in the distribution system no less frequently than the frequency required for total coliform sampling for compliance with the MCL for microbiological contaminants.

(ii) For a public water supplier serving 3,300 or fewer people, the Department may reduce the residual disinfectant concentration monitoring for the water being supplied to the distribution system to a minimum of 2 hours between samples at the grab sampling frequencies prescribed as follows if the historical performance and operation of the system indicate the system can meet the residual disinfectant concentration at all times:

System Size (People)	*Samples/Day*
‹500	1
500—1,000	2
1,001—2,500	3
2,501—3,300	4

If the Department reduces the monitoring, the supplier shall nevertheless collect and analyze another residual disinfectant measurement as soon as possible, but no longer than 4 hours from any measurement which is less than .2 mg/l.

(iii) For a public water supplier serving fewer than 500 people, the Department may reduce the filtered water turbidity monitoring to one grab sample per day, if the historical performance and operation of the system indicate effective turbidity removal is maintained under the range of conditions expected to occur in the system's source water.

(iv) A PUBLIC WATER SUPPLIER PROVIDING CONVENTIONAL FILTRATION TREATMENT OR DIRECT FILTRATION AND SERVING 10,000 OR MORE PEOPLE AND USING SURFACE WATER OR GUDI SOURCES SHALL, BEGINNING JANUARY 1, 2002, CONDUCT CONTINUOUS MONITORING OF TURBIDITY FOR EACH INDIVIDUAL FILTER USING AN APPROVED METHOD UNDER THE EPA REGULATION IN 40 CFR 141.74(a) (RELATING TO ANALYTICAL AND MONITORING REQUIREMENTS) AND RECORD THE RESULTS **AT LEAST** EVERY 15 MINUTES.

(A) THE WATER SUPPLIER SHALL CALIBRATE TURBIDIMETERS USING THE PROCEDURE SPECIFIED BY THE MANUFACTURER.

(B) IF THERE IS FAILURE IN THE CONTINUOUS TURBIDITY MONITORING EQUIPMENT, THE SYSTEM SHALL CONDUCT GRAB SAMPLING EVERY 4 HOURS IN LIEU OF CONTINUOUS MONITORING.

(C) A PUBLIC WATER SUPPLIER HAS A MAXIMUM OF 5 DAYS FOLLOWING THE FAILURE OF THE EQUIPMENT TO REPAIR OR REPLACE THE EQUIPMENT.

(2) *Performance monitoring for unfiltered surface water AND GUDI*. A public water supplier using unfiltered surface water OR GUDI 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:

(A) Shall perform fecal coliform or total coliform density determinations on samples of the source water immediately prior to disinfection. Regardless of source water turbidity, the minimum frequency of sampling for fecal or total coliform determination may be no less than the following:

System Size (People)	*Samples/Week*
‹500	1
500—3,299	2
3,300—10,000	3
10,001—25,000	4
25,001 or more	5

(B) Shall measure the turbidity of a representative grab sample of the source water immediately prior to disinfection at least once every 4 hours that the system is in operation, except as provided in clause (C).

(C) May substitute continuous turbidity monitoring for grab sample monitoring if it validates the continuous measurement for accuracy on a regular basis using a protocol approved by the Department.

(D) Shall continuously monitor the residual disinfectant concentration required under § 109.202(c)(1)(iii) (relating to State MCLs 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 longer than 5 days after the equipment fails.

(E) Shall measure the residual disinfectant concentration at representative points in the distribution system no less frequently than the frequency required for total coliform sampling for compliance with the MCL for microbiological contaminants.

(ii) For a public water supplier serving 3,300 or fewer people, the Department may reduce the residual disinfectant concentration monitoring for the water being supplied to the distribution system to a minimum of 2 hours between samples at the grab sampling frequencies prescribed as follows if the historical performance and operation of the system indicate the system can meet the residual disinfectant concentration at all times:

System Size (People)	*Samples/Day*
<500	1
500—1,000	2
1,001—2,500	3
2,501—3,300	4

If the Department reduces the monitoring, the supplier shall nevertheless collect and analyze another residual disinfectant measurement as soon as possible, but no longer than 4 hours from any measurement which is less than the residual disinfectant concentration approved under § 109.202(c)(1)(iii).

(iii) For a public water supplier serving fewer than 500 people, the Department may reduce the source water turbidity monitoring to one grab sample per day, if the historical performance and operation of the system indicate effective disinfection is maintained under the range of conditions expected to occur in the system's source water.

(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.

(A) Except as provided under § 109.705(b) (relating to sanitary surveys), the number of monthly total coliform samples that community water systems shall take is based on the population served by the system as follows:

Population Served	*Minimum Number of Samples per Month*
25 to 1,000	1
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6

5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50
50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210

600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300
1,230,001 to 1,520,000	330
1,520,001 to 1,850,000	360
1,850,001 to 2,270,000	390
2,270,001 to 3,020,000	420
3,020,001 to 3,960,000	450
3,960,001 or more	480

(B) Except as provided under § 109.705(c), the number of periodic total coliform samples that noncommunity water systems shall take is as follows:

(I) A noncommunity water system using only groundwater and serving 1,000 or fewer persons per day on a permanent basis, January through December each year, shall take one sample each calendar quarter that the system provides water to the public.

(II) A noncommunity water system using surface water (in total or in part) or serving more than 1,000 persons per day during a given month shall take the same number of samples as a community water system serving the same number of persons specified in clause (A) for each month the system provides water to the public, even if the population served is temporarily fewer than 1,000 persons per day. A groundwater system determined to be under the influence of surface water shall begin monitoring at

this frequency 6 months after the Department determines that the source water is under the direct influence of surface water.

(C) A public water system that uses a surface water source and does not practice filtration in compliance with Subchapter B (relating to MCLs 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 Department 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).

(ii) *Repeat monitoring.* A public water system shall collect a set of check samples within 24 hours of being notified of a total coliform-positive routine or check sample. 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 check samples analyzed within 30 hours of collection. A logistical problem outside the system's control may include a coliform-positive sample result received over

a holiday or weekend in which the services of a Department certified laboratory are not available within the prescribed sample holding time.

(A) A system which collects more than one routine sample per monitoring period shall collect at least three check samples for each total coliform-positive sample found.

(B) A system which collects only one routine sample per monitoring period shall collect at least four check samples for each total coliform-positive sample found.

(C) The system shall collect at least one check sample from the sampling tap where the original total coliform-positive sample was taken, at least one check sample at a tap within five service connections upstream of the original coliform-positive sample and at least one check sample within five service connections downstream of the original sampling site. If a total coliform-positive sample occurs at the end of the distribution system or one service connection away from the end of the distribution system, the water supplier shall collect an additional check sample upstream of the original sample site in lieu of a downstream check sample.

(D) A system shall collect all check samples on the same day, except that a system with a single service connection may collect the required set of check samples all on the same day or consecutively over a 4-day period.

(E) If a check sample is total coliform-positive, the public water system shall collect additional check samples in the manner specified in this subparagraph. The system shall continue to collect check samples until either total coliforms are not detected in check

samples, or the system determines that the MCL for total coliforms as established under § 109.202(a)(2) has been exceeded and notifies the Department.

(F) If a system collecting fewer than five routine samples per month has one or more valid total coliform-positive samples, the system shall collect at least five routine samples during the next month the system provides water to the public. The number of routine samples for the month following a total coliform-positive sample may be reduced by the Department to at least one sample the next month if the reason for the total coliform-positive sample is determined and the problem has been corrected or will be corrected before the end of the next month.

(G) Results of all routine and check samples not invalidated by the Department shall be included in determining compliance with the MCL for total coliforms as established under § 109.202(a)(2).

(iii) *Invalidation of total coliform samples.* A total coliform sample invalidated under this paragraph does not count towards meeting the minimum monitoring requirements of this section.

(A) The Department may invalidate a total coliform-positive sample if one of the following applies:

(I) The laboratory which performed the analysis establishes that improper sample analysis caused the total coliform-positive result.

(II) A domestic or other nondistribution system plumbing problem exists when a coliform contamination incident occurs that is limited to a specific service connection from which a coliform-positive sample was taken in a public water system with more than one service connection. The Department's determination to invalidate a sample shall be based on a total coliform-positive check sample collected at the same tap as the original total coliform-positive sample and all total coliform-negative check samples collected within five service connections of the original total coliform positive sample. This type of sample invalidation does not apply to public water systems with only one service connection.

(III) A total coliform-positive sample result is due to a circumstance or condition which does not reflect water quality in the distribution system. The Department's decision to invalidate a sample shall be based on evidence that the sample result does not reflect water quality in the distribution system. In this case, the system shall still collect all check samples required under subparagraph (ii) to determine compliance with the MCL for total coliforms as established under § 109.202(a)(2).

(B) A laboratory shall invalidate a total coliform sample if no total coliforms are detected and one of the following occurs:

(I) The sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined.

(II) The sample exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter.

(C) If a laboratory invalidates a sample because of interference as specified in clause (B), the laboratory shall notify the system within 1 business day to collect another sample from the same location as the original sample within 24 hours of being notified of the interference and have it analyzed for the presence of total coliforms. The system shall resample within 24 hours of being notified of interference and continue to resample every 24 hours until it receives a valid result. The Department may extend this 24-hour limit to a maximum of 72 hours if the system adequately demonstrates a logistical problem outside the system's control in having the resamples analyzed within 30 hours. A logistical problem outside the system's control may include a notification of a laboratory sample invalidation, due to interference, which is received over a holiday or weekend in which the services of a Department certified laboratory are not available within the prescribed sample holding time.

(iv) Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement or repair, may not be used to determine compliance with the MCL for total coliform. Check samples taken under subparagraph (ii) are not considered special purpose samples, and shall be used to determine compliance with the monitoring and MCL requirements for total coliforms established under this paragraph and § 109.202(a)(2).

(4) *Exception.* For a water system which complies with the performance monitoring requirements under paragraph (2), the monitoring requirements for compliance with the turbidity MCL do not apply.

(5) *Monitoring requirements for VOCs.* Community water systems and nontransient noncommunity water systems shall monitor for compliance with the MCLs for VOCs established by the EPA under 40 CFR 141.61(a) (relating to MCLs for organic contaminants). The monitoring shall be conducted according to the requirements established by the EPA under 40 CFR 141.24(f) (relating to organic chemicals other than total trihalomethanes, sampling and analytical requirements), incorporated herein by reference, except as modified by this chapter. Initial or first year monitoring mentioned in this paragraph refers to VOC monitoring conducted on or after January 1, 1993.

(i) *Vinyl chloride.* Monitoring for compliance with the MCL for vinyl chloride is required only for groundwater entry points at which one or more of the following two-carbon organic compounds have been detected: trichloroethylene, tetrachloroethylene, 1,2-dichloroethane, 1,1,1-trichloroethane, cis-1,2-dichloroethylene, trans-1,2-dichloroethylene or 1,1-dichloroethylene.

(ii) *Initial monitoring schedule.* The initial monitoring shall consist of four consecutive quarterly samples at each entry point in accordance with the following monitoring schedule during the compliance period beginning January 1, 1993, except for systems which are granted reduced initial monitoring in accordance with clauses (E) and (F). A system which monitors during the initial monitoring period, but begins monitoring before its scheduled initial monitoring year specified in this subparagraph, shall begin monitoring every entry point during the first calendar quarter of the year it begins monitoring, except as provided in clause (E).

(A) Systems serving more than 10,000 persons shall begin monitoring during the quarter beginning January 1, 1994.

(B) Systems serving 3,301 persons to 10,000 persons shall begin monitoring during the quarter beginning January 1, 1995.

(C) Systems serving 500 to 3,300 persons shall begin monitoring during the quarter beginning January 1, 1993.

(D) Systems serving fewer than 500 persons shall begin monitoring during the quarter beginning January 1, 1994.

(E) For systems serving 3,300 or fewer people which monitor at least one quarter prior to October 1, 1993, and do not detect VOCs at an entry point during the first quarterly sample, the required initial monitoring is reduced to one sample at that entry point. For systems serving 500 to 3,300 people to qualify for this reduced monitoring, the initial monitoring shall have been conducted during the quarter beginning January 1, 1993.

(F) For systems serving more than 3,300 people, which were in existence prior to January 1, 1993, initial monitoring for compliance with the MCLs for VOCs established by the EPA under 40 CFR 141.61(a) is reduced to one sample for each entry point which meets the following conditions:

(I) VOC monitoring required by the Department between January 1, 1988, and December 31, 1992, has been conducted and no VOCs regulated under 40 CFR 141.61(a) were detected.

(II) The first quarter monitoring required by this paragraph has been conducted during the first quarter of the system's scheduled monitoring year under this paragraph, with no detection of a VOC.

(G) Initial monitoring of new entry points associated with new sources which are permitted under Subchapter E (relating to permit requirements) to begin operation after December 31, 1992, shall conduct initial monitoring as follows:

(I) Entry points at which a VOC is detected during new source monitoring shall be monitored quarterly beginning the first quarter the entry points begin serving the public. Quarterly monitoring shall continue until reduced monitoring is granted in accordance with subparagraph (iii)(D).

(II) Entry points at which no VOC is detected during new source monitoring shall begin initial quarterly monitoring during the first calendar quarter of the year after the entry point begins serving the public. If no VOC is detected during the first quarter of monitoring, first year monitoring is reduced to one sample at that entry point.

(iii) *Repeat monitoring for entry points at which a VOC is detected.*

(A) For entry points at which a VOC is detected at a level equal to or greater than its MCL during the first year of quarterly monitoring, the monitoring shall be repeated

quarterly beginning the quarter following detection at a level equal to or greater than the MCL, for VOCs for which the EPA has established MCLs under 40 CFR 141.61(a), except for vinyl chloride as provided in subparagraph (i), until reduced monitoring is granted in accordance with clause (D).

(B) For entry points at which a VOC is detected, and reduced monitoring is granted in accordance with clause (D), and a VOC is thereafter detected at a level greater than the MCL, the monitoring shall be repeated quarterly beginning the quarter following detection at a level for the VOCs for which the EPA has established MCLs under 40 CFR 141.61(a), except for vinyl chloride as provided in subparagraph (i), until reduced monitoring is granted in accordance with clause (D).

(C) For entry points at which no VOC is detected during the first year of monitoring but a VOC is detected thereafter, the monitoring shall be repeated quarterly beginning the quarter following detection at a level for the VOCs for which the EPA has established MCLs under 40 CFR 141.61(a), except for vinyl chloride as provided in subparagraph (i), or until reduced monitoring is granted in accordance with clause (D).

(D) After analyses of four consecutive quarterly samples at an entry point, including initial quarterly samples, demonstrate that the VOC levels in each quarterly sample are less than the MCLs, the required monitoring is reduced to one sample per year at the entry point for the VOCs for which the EPA has established MCLs under 40 CFR 141.61(a), except for vinyl chloride as provided in subparagraph (i).

(E) A confirmation sample shall be collected and analyzed for each VOC listed under 40 CFR 141.61(a) which is detected at a level in excess of its MCL during annual or less frequent compliance monitoring. The confirmation sample shall be collected within 2 weeks of notification by the certified laboratory performing the analysis that an MCL has been exceeded. The average of the results of the original and the confirmation sample will be used to determine compliance. Monitoring shall be completed by the deadline specified for VOC compliance monitoring.

(iv) *Repeat monitoring for entry points at which no VOC is detected.*

(A) For entry points at which VOCs are not detected during the first year of quarterly monitoring, or annual monitoring if only one sample was required at an entry point for first year monitoring under subparagraph (ii) (E), (F) or (G)(II), required monitoring is reduced to one sample per entry point per year.

(B) For groundwater entry points where VOCs are monitored in accordance with this paragraph, but are not detected during 3 years of quarterly or annual monitoring, or both, required monitoring is reduced to one sample per entry point during each subsequent compliance period. Reduced monitoring shall be conducted at 3-year intervals from the year of required initial monitoring.

(v) *Reduced monitoring.* When reduced monitoring is provided under subparagraph (iii)(D), or subparagraph (iv)(A) or (B), the system shall monitor the entry point during the calendar year quarter of highest anticipated VOC levels or as specified by the Department. The reduced monitoring option in subparagraph (iv)(B) does not apply to

entry points at which treatment has been installed for VOC removal. Quarterly performance monitoring is required for VOCs for which treatment has been installed.

(vi) *Waivers.* Waivers under 40 CFR 141.24(f) will not be available for the VOC monitoring requirements in this paragraph.

(6) *Monitoring requirements for SOCs (pesticides and PCBs).* Community water systems and nontransient noncommunity water systems shall monitor for compliance with the MCLs for SOCs established by the EPA under 40 CFR 141.61(c). The monitoring shall be conducted according to the requirements established by the EPA under 40 CFR 141.24(h), incorporated herein by reference except as modified by this chapter.

(i) *Initial monitoring schedule.* Initial monitoring shall consist of four consecutive quarterly samples at each entry point beginning during the quarter beginning January 1, 1995, except for systems which are granted an initial monitoring waiver in accordance with subparagraph (v). Systems which monitor during the initial monitoring period but begin monitoring before 1995 shall begin monitoring during the first calendar quarter of the year.

(A) New entry points associated with new sources which are vulnerable to SOC contamination, as determined in accordance with subparagraph (v), and which begin operation after March 31, 1995, and do not detect an SOC during new source sampling shall begin initial quarterly monitoring during the first calendar year quarter of the year after the entry point begins serving the public.

(B) New entry points associated with new sources which are vulnerable to SOC contamination as determined in accordance with subparagraph (v), at which an SOC is detected during new source sampling shall begin initial quarterly monitoring the first quarter the entry point begins serving the public. Quarterly monitoring shall continue until reduced monitoring is granted in accordance with subparagraph (ii)(E).

(ii) *Repeat monitoring for SOCs that are detected.* For entry points which were monitored for SOCs during the initial quarterly monitoring period or during the required quarterly monitoring immediately after being determined vulnerable to contamination by an SOC, repeat monitoring shall be conducted as follows:

(A) For entry points at which an SOC is detected at a level equal to or greater than its MCL, the monitoring for the detected SOC shall be continued quarterly, until reduced monitoring is granted in accordance with clause (E).

(B) For entry points at which an SOC is detected during the first year of quarterly monitoring, and reduced monitoring is granted in accordance with clause (E), and the SOC is thereafter detected at a level greater than its MCL, the monitoring for the detected SOC shall be repeated quarterly, until reduced monitoring is granted in accordance with clause (E).

(C) For entry points at which an SOC is not detected during the first year of quarterly monitoring, but an SOC is detected initially thereafter at a level less than the MCL, monitoring shall be repeated annually for the detected SOC.

(D) For entry points at which an SOC is not detected during the first year of quarterly monitoring, but the SOC is detected thereafter at a level equal to or greater than the MCL, monitoring for that SOC shall be repeated quarterly, until reduced monitoring is granted in accordance with clause (E).

(E) After analyses of four consecutive quarterly samples at an entry point, including initial quarterly samples, demonstrate that the SOC level in each quarterly sample is less than the MCL, the required monitoring for each SOC detected below the MCL is reduced to one sample per year at the entry point.

(F) For entry points at which either heptachlor or heptachlor epoxide is detected during the initial round of consecutive quarterly samples, or in subsequent repeat samples, the monitoring shall be continued for both contaminants in accordance with the more frequent monitoring required of the two contaminants based on the level at which each is detected.

(G) A confirmation sample shall be collected and analyzed for each SOC listed under 40 CFR 141.61(c) which is detected at a level in excess of its MCL during annual or less frequent compliance monitoring. The confirmation sample shall be collected within 2 weeks of the water supplier receiving notification from the certified laboratory performing the analysis that an MCL has been exceeded. The average of the results of the original and the confirmation samples will be used to determine compliance. Confirmation monitoring shall be completed by the deadline specified for SOC compliance monitoring.

(iii) *Repeat monitoring for SOCs that are not detected.* For entry points at which SOCs are not detected during the first year of quarterly monitoring, the required monitoring is reduced to one sample in each 3-year compliance period for systems serving 3,300 or fewer persons and to two consecutive quarterly samples in each compliance period for systems serving more than 3,300 persons. Reduced monitoring shall be conducted at 3-year intervals from the year of required initial VOC monitoring, in accordance with paragraph (5)(ii).

(iv) *Reduced monitoring.* When reduced monitoring is provided under subparagraph (ii) or (iii), the system shall monitor the entry point during the second calendar year quarter, or the second and third calendar year quarter when two quarterly samples are required in each compliance period, unless otherwise specified by the Department. The reduced monitoring option in subparagraph (iii) does not apply to entry points at which treatment has been installed for SOC removal. Compliance monitoring for SOCs for which treatment has been installed to comply with an MCL shall be conducted at least annually, and performance monitoring shall be conducted quarterly.

(v) *Waivers.* A waiver will be granted to a public water supplier from conducting the initial compliance monitoring or repeat monitoring, or both, for an SOC based on documentation provided by the public water supplier and a determination by the Department that the criteria in clause (B), (C) or (D) has been met. A waiver is effective for one compliance period and may be renewed in each subsequent compliance period. If the Department has not granted an areawide use waiver in accordance with clause (B), the public water supplier is responsible for submitting a waiver application and renewal

application to the Department for review in accordance with clause (B) or (C) for specific entry points. Waiver applications will be evaluated relative to the vulnerability assessment area described in clause (A) and the criteria in clause (B) or (C). Entry points at which treatment has been installed to remove an SOC are not eligible for a monitoring waiver for the SOCs for which treatment has been installed.

(A) *Vulnerability assessment area for SOCs except dioxin and PCBs.*

(I) For groundwater entry points, the vulnerability assessment area shall consist of wellhead protection area Zones I and II.

(II) For surface water entry points, the vulnerability assessment area shall consist of the area that supplies water to the entry point and is separated from other watersheds by the highest topographic contour.

(B) *Use waivers.* An areawide use waiver will be granted by the Department for contaminants which the Department has determined have not been used, stored, manufactured or disposed of in this Commonwealth, or portions of this Commonwealth. A use waiver specific to a particular entry point requires that an SOC was not used, stored, manufactured or disposed of in the vulnerability assessment area. If use waiver criteria cannot be met, a public water supplier may apply for a susceptibility waiver.

(C) *Susceptibility waivers.* A susceptibility waiver for specific contaminants may be granted based on the following criteria, and only applies to groundwater entry points:

(I) Previous analytical results.

(II) Environmental persistence and transport of the contaminant.

(III) Proximity of the drinking water source to point or nonpoint source contamination.

(IV) Elevated nitrate levels as an indicator of the potential for pesticide contamination.

(V) Extent of source water protection or approved wellhead protection program.

(D) *Waivers for dioxin and PCBs.* A system is granted a waiver from monitoring for dioxin and PCBs unless the Department determines that there is a source of dioxin or PCB contamination which poses a threat to a drinking water source.

(7) *Monitoring requirements for IOCs.* Community water systems and nontransient noncommunity water systems shall monitor for compliance with the MCLs for IOCs established by the EPA under 40 CFR 141.62 (relating to maximum contaminant levels (MCLs) for inorganic contaminants), and for arsenic established by the EPA under 40 CFR 141.11 (relating to maximum contaminant levels for inorganic contaminants). Transient noncommunity water suppliers shall monitor for compliance with the MCLs for nitrate and nitrite. The monitoring shall be conducted according to the requirements established by the EPA under 40 CFR 141.23 (relating to inorganic chemical sampling and analytical requirements). The requirements are incorporated by reference except as modified by this chapter.

(i) *Monitoring requirements for asbestos.*

(A) *Waivers for asbestos monitoring.* A system is granted a waiver from asbestos monitoring unless the Department determines that the system's distribution system contains asbestos cement pipe and the system has not implemented optimum corrosion control measures, or the Department determines that the system's source water is vulnerable to asbestos contamination.

(B) *Initial monitoring schedule.* Community water systems and nontransient noncommunity water systems not granted a waiver under clause (A) shall monitor for compliance with the MCL for asbestos by taking one sample at each vulnerable sampling point during the first 3-year compliance period of each 9-year compliance cycle, with the initial compliance monitoring beginning not later than the calendar year beginning January 1, 1995.

(C) *Monitoring of new entry points.* New entry points which begin operation after December 31, 1995, shall conduct initial monitoring during the first compliance period of the first compliance cycle after the entry point begins serving the public, if the Department determines that a waiver cannot be granted in accordance with clause (A).

(D) *Repeat monitoring for systems that detect asbestos.* If a sample exceeds the MCL for asbestos, the monitoring at that sampling point shall be continued quarterly beginning in the quarter following the MCL violation. After four consecutive quarterly samples less than the MCL at that entry point, the required monitoring is reduced to one sample at that entry point during the first 3-year compliance period of each subsequent 9-year compliance cycle, if treatment has not been installed to remove asbestos from the source water. Compliance monitoring at entry points at which treatment has been

installed to remove asbestos from source water shall be conducted at least annually, and performance monitoring shall be conducted quarterly.

(ii) *Monitoring requirements for nitrate and nitrite.* The following compliance monitoring for nitrite is not required at entry points receiving water which has been disinfected with free chlorine, chlorine dioxide or ozone:

(A) *Initial monitoring schedule.* A public water system shall begin new monitoring for nitrate and nitrite by taking one annual sample at each groundwater entry point to the system beginning during the year beginning January 1, 1993. Community water systems and nontransient noncommunity water systems with surface water sources shall monitor quarterly at each surface water entry point for nitrate and nitrite beginning during the quarter beginning January 1, 1993. Transient noncommunity water systems shall monitor each surface water entry point by taking one annual sample beginning during the year beginning January 1, 1993.

(B) *Monitoring of new entry points.* New community and nontransient noncommunity surface water entry points which begin serving the public after the first calendar quarter of a year and did not detect levels of nitrate or nitrite equal to or greater than 50% of the MCL during new source sampling shall begin initial monitoring for nitrate and nitrite during the first calendar quarter of the year after the entry point begins serving the public. New community and nontransient noncommunity groundwater and surface water entry points at which nitrate or nitrite is detected at levels equal to or greater than 50% of the MCL during new source sampling shall begin initial quarterly monitoring the first quarter the entry point begins serving the public. New community

and nontransient noncommunity groundwater entry points at which nitrate and nitrite are not detected at levels equal to or greater than 50% of the MCL, and all transient noncommunity entry points, shall begin initial annual monitoring during the first new calendar year after the entry point begins serving the public.

(C) *Repeat monitoring for systems with nitrate or nitrite levels equal to or greater than 50% of the MCL.*

(I) For entry points at which initial monitoring results or subsequent monitoring indicate nitrate or nitrite levels equal to or greater than 50% of the MCL, community and nontransient noncommunity water systems shall begin quarterly monitoring the quarter following detection at that level and continue quarterly monitoring for both nitrate and nitrite, unless reduced monitoring is granted in accordance with subclause (III).

(II) For entry points at which initial monitoring results or subsequent monitoring indicate nitrate or nitrite levels greater than the MCL, transient noncommunity systems shall begin quarterly monitoring the quarter following detection at that level and continue quarterly monitoring for both nitrate and nitrite, unless reduced monitoring is granted in accordance with subclause (IV).

(III) After four consecutive quarterly samples at an entry point for a community or nontransient noncommunity system indicate nitrate and nitrite levels in each sample are less than 50% of the MCLs, the required compliance monitoring is reduced to one sample per year at the entry point. Annual monitoring shall be conducted during the calendar quarter in which the consecutive quarterly monitoring indicated that the highest levels of

contamination were present, unless the Department determines that a different monitoring quarter should be used in accordance with paragraph (10).

(IV) After four consecutive quarterly samples at an entry point for a transient noncommunity system indicate nitrate and nitrite levels in each sample are less than the MCLs, the required compliance monitoring is reduced to one sample per year at the entry point. Annual monitoring shall be conducted during the calendar quarter in which the consecutive quarterly monitoring indicated that the highest levels of contamination were present, unless the Department determines that a different monitoring quarter should be used in accordance with paragraph (10).

(V) For nitrate or nitrite sample results in excess of the MCLs, the water supplier shall take a confirmation sample within 24 hours of having received the original sample result. Noncommunity water systems for which an alternate nitrate level has been approved by the Department in accordance with 40 CFR 141.11(d) are not required to collect a confirmation sample if only the nitrate MCL is exceeded and nitrate is not in excess of the alternate nitrate level. If the alternate nitrate level is exceeded, the water supplier shall collect a confirmation sample within 24 hours after being advised by the certified laboratory performing the analysis that the compliance sample exceeded 20 mg/l for nitrate. Confirmation monitoring shall be completed by the deadline for compliance monitoring. Quarterly performance monitoring is required for nitrate and nitrite at entry points where treatment has been installed to remove nitrate or nitrite.

(D) *Repeat monitoring for systems with nitrate and nitrite levels less than 50% of the MCLs.* For entry points at which initial monitoring results indicate nitrate and nitrite

levels in each sample are less than 50% of the MCLs, nitrate and nitrite monitoring shall be repeated annually during the calendar quarter in which the water supplier anticipates the highest levels of contamination, unless the Department determines that a different monitoring quarter should be used in accordance with paragraph (10).

(iii) *Monitoring requirements for antimony, arsenic, barium, beryllium, cadmium, cyanide, chromium, fluoride, mercury, nickel, selenium and thallium.*

(A) *Initial monitoring schedule.* Community water systems and nontransient noncommunity water systems shall monitor each surface water entry point annually beginning during the year beginning January 1, 1993, and shall monitor each groundwater entry point once every 3 years beginning during the year beginning January 1, 1994.

(B) *Monitoring of new entry points.* New groundwater entry points which begin operation after December 31, 1994, shall begin initial monitoring in accordance with the schedule in clause (A)—that is, 1997, and so forth. New surface water entry points shall begin initial annual monitoring during the first new calendar year after the entry point begins serving the public.

(C) *Repeat monitoring for entry points at which an IOC MCL is exceeded.*

(I) For entry points at which initial monitoring results or subsequent monitoring indicates an IOC level in excess of the MCL, monitoring shall be repeated quarterly beginning the quarter following detection at that level for each IOC in excess of an MCL, until reduced monitoring is granted in accordance with subclause (II).

(II) After analyses of four consecutive quarterly samples at an entry point where treatment has not been installed to comply with an IOC MCL indicate that contaminant levels are less than the MCLs, the required monitoring for each IOC less than the MCL is reduced to the frequencies stated in clause (A). This reduced monitoring option does not apply to entry points at which treatment has been installed for IOC removal. Compliance monitoring for IOCs for which treatment has been installed to comply with an MCL shall be conducted at least annually, and performance monitoring shall be conducted quarterly.

(III) A confirmation sample shall be collected and analyzed for each IOC listed under 40 CFR 141.11(b) or 141.62(b) which is detected at a level in excess of its MCL during annual or less frequent compliance monitoring. The confirmation sample shall be collected within 2 weeks of notification by the certified laboratory performing the analysis that an MCL has been exceeded. The average of the results of the original and the confirmation samples will be used to determine compliance. Confirmation monitoring shall be completed by the deadline specified for IOC compliance monitoring.

(D) *Waivers for IOC monitoring.* Except when treatment has been installed to remove the IOC, after three consecutive rounds of quarterly, annual or triennial monitoring indicate the contaminant level for an IOC is below the MCL in all samples at an entry point, routine monitoring for the remainder of the compliance cycle for that IOC is waived and the required monitoring for the IOC is reduced to one sample per 9-year compliance cycle at that entry point. Reduced monitoring shall be conducted during the first monitoring period of the next monitoring cycle. A waiver is effective for one compliance cycle and may be renewed in each subsequent compliance cycle.

(E) *Operational monitoring for fluoride.* Public water suppliers who fluoridate shall conduct operational monitoring for fluoride daily.

(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) 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.

(B) Monitor the distribution system for compliance with the MCL for asbestos at the frequency indicated in paragraph (7)(i), when the Department determines that the system's distribution system contains asbestos cement pipe and optimum corrosion control measures have not been implemented.

(iii) Consecutive water suppliers are exempt from conducting monitoring for the MCLs for VOCs, SOCs and IOCs if the public water system from which the finished water is obtained complies with paragraphs (5)—(7), except that asbestos monitoring is required in accordance with subparagraph (ii)(B).

(iv) For a public water system which is not a consecutive water system, the exemption in subparagraph (iii) applies to entry points which obtain finished water from another public water system.

(v) A public water supplier that obtains finished water from another permitted public water system using surface water sources shall, beginning May 16, 1992, measure the residual disinfectant concentration at representative points in the distribution system at least as frequently as the frequency required for total coliform sampling for compliance with the MCL for microbiological contaminants.

(9) *Monitoring requirements for POE devices.* A public water supplier using a POE device shall, in addition to the monitoring requirements specified in paragraphs (1)—(8), conduct monitoring on the devices installed. As a minimum, the monitoring shall include the MCLs for which the POE device is intended to treat and monthly microbiological monitoring. The Department may allow the water supplier to reduce the frequency of microbiological monitoring based upon historical performance. Except for microbiological contaminants, monitoring shall be performed quarterly on 25% of the installed POE devices with the locations rotated so that each device is monitored at least once annually, unless increased monitoring is required by the Department under § 109.302.

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

(11) *Monitoring requirements for entry points that do not provide water continuously.* Entry points from which water is not provided during every quarter of the year shall monitor in accordance with paragraphs (5)—(7), except that monitoring is not required during a quarter when water is not provided to the public, unless special monitoring is required by the Department under § 109.302.

Subchapter F. DESIGN AND CONSTRUCTION STANDARDS

§ 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 AND GUDI sources, the minimum treatment design standard for filtration technologies is a 99% removal of Giardia cysts, A 99% REMOVAL OF CRYPTOSPORIDIUM OOCYSTS and a 99% removal of viruses. The determination of the appropriate filtration technology to be used shall be based on the following:

(i) Conventional filtration designed and operated in accordance with standards established in the Department's *Public Water Supply Manual* can be expected to achieve the minimum treatment design standard and shall be considered the best treatment for most surface water sources in this Commonwealth because of the multiple barriers of protection that it provides.

(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 and treatment technique requirements), that the minimum treatment design standard can be achieved consistently, reliably and practically under appropriate design and operating conditions.

(iii) Other filtration technologies may be permitted after onsite studies, including pilot plant studies where appropriate, using seeded indicator organisms in the raw water or other equivalent means as approved by the Department, that demonstrate that the technology can consistently achieve the minimum treatment design standard.

(2) For surface water AND GUDI sources, the minimum treatment design standard for disinfection technologies utilized prior to the first user of the system is a total of 99.9% inactivation of Giardia cysts and a 99.99% inactivation of viruses. Total treatment system disinfection capability will be credited toward this design standard. The CT factors and

measurement methods established by the EPA are the criteria to be used in determining compliance with this minimum treatment design standard.

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:

(1) *General reporting requirements.* Unless a shorter period is specified in this section, the water supplier shall assure that the results of test measurements or analyses required by this chapter are reported to the Department within either the first 10 days following the month in which the result is received or the first 10 days following the end of the required monitoring period as stipulated by the Department, whichever is shorter. The test results shall include the following at a minimum:

(i) The name, address and public water system identification number (PWSID) of the public water system from which the sample was taken.

(ii) The name, address and identification number of the laboratory performing the analysis unless the analysis is not required to be performed by a certified laboratory.

(iii) The results of analytical methods, including negative results.

(iv) Contaminants.

(v) Analytical methods used.

(vi) The date of sample.

(vii) The date of analysis.

(viii) Sample location.

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

(i) The test results of performance monitoring required under § 109.301(1) (relating to general monitoring requirements) for public water suppliers providing filtration and disinfection of surface water OR GUDI sources shall include the following at a minimum:

(A) For turbidity performance monitoring:

(I) The number of days of filtration operation.

(II) The number of FILTERED WATER TURBIDITY measurements taken each month.

(III) The number of FILTERED WATER TURBIDITY measurements that ARE LESS THAN OR equal [or exceed] TO .5 NTU for conventional, direct or other filtration technologies, or 1.0 NTU for slow sand or diatomaceous earth filtration technologies.

(IV) The date, time and values of ANY FILTERED WATER TURBIDITY measurements exceeding 2.0 NTU.

(V) IN LIEU OF CLAUSE (A)(III) AND (IV), BEGINNING JANUARY 1, 2002, FOR PUBLIC WATER SYSTEMS THAT SERVE 10,000 OR MORE PEOPLE AND USE CONVENTIONAL OR DIRECT FILTRATION:

(-a-) THE NUMBER OF FILTERED WATER TURBIDITY MEASUREMENTS THAT ARE LESS THAN OR EQUAL TO 0.3 NTU.

(-b-) THE DATE, TIME AND VALUES OF ANY FILTERED WATER TURBIDITY MEASUREMENTS THAT EXCEED 1 NTU FOR SYSTEMS USING CONVENTIONAL OR DIRECT FILTRATION OR THAT EXCEED THE MAXIMUM LEVEL SET UNDER § 109.202(c)(1)(i)(A)(III) (RELATING TO STATE MCLS AND TREATMENT TECHNIQUE REQUIREMENTS).

(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.

(II) The date, duration and number of periods each day when the concentration is less than .2 mg/l for more than 4 hours.

(III) THE DATE, TIME AND HIGHEST VALUE EACH DAY THE CONCENTRATION IS GREATER THAN THE RESIDUAL DISINFECTANT CONCENTRATION REQUIRED UNDER § 109.202(c)(1)(ii).

(IV) IF THE CONCENTRATION DOES NOT RISE ABOVE THAT REQUIRED UNDER § 109.202(c)(1)(ii), THE DATE, TIME AND HIGHEST VALUE MEASURED THAT MONTH.

(C) For performance monitoring of the residual disinfectant concentration at representative points in the distribution system report the following:

(I) The number of monthly routine samples required.

(II) The number of monthly routine samples collected and analyzed.

(III) The number of samples in which the residual disinfectant concentration was less than 0.02 mg/l.

(IV) For samples in which the residual disinfectant concentration was less than 0.02 mg/l: the date, time and value of each sample.

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

(A) For turbidity performance monitoring:

(I) The date, time and value of each sample that exceeds 1.0 NTU.

(II) The date, time and highest turbidity value, if the turbidity does not exceed 1.0 NTU in a sample.

(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 and treatment technique requirements).

(II) If the concentration does not fall below that required under § 109.202(c)(1)(iii) during the month, report the date, time and lowest value measured that month.

(C) For performance monitoring of the residual disinfectant concentration at representative points in the distribution system, report the following:

(I) The number of monthly routine samples required.

(II) The number of monthly routine samples collected and analyzed.

(III) The number of samples in which the residual disinfectant concentration was less than 0.02 mg/l.

(IV) For samples in which the residual disinfectant concentration was less than 0.02 mg/l: the date, time and value of each sample.

(D) For performance monitoring of the fecal coliform or total coliform density determinations on samples of the source water immediately prior to disinfection: the date, time and value of each sample.

(iii) The test results from performance monitoring required under § 109.301(7)(v) of the residual disinfectant concentration of the water in the distribution system shall include the date, time and value of each sample.

(iv) The test results of heterotrophic plate count measurements taken under § 109.710(b) (relating to disinfectant residual in the distribution system) shall include the date, time and value of each sample.

(3) *Compliance report.* The water supplier shall report to the Department within 48 hours failure to comply with Subchapter C (relating to monitoring requirements), except that emergency notification shall be made under § 109.402 (relating to emergency public notification).

(4) *Notice.* The water supplier shall, within 10 days of completion of each public notification required under Subchapter D (relating to public notification), submit to the Department a representative copy of each type of notice and a description of the publication, distribution, posting or other means undertaken to make the notice available.

(5) *Siting plan.* The water supplier shall submit to the Department a written sample siting plan for routine coliform sampling as required by § 109.303(a)(2) within 30 days of receipt of the Department's request for this information.

(i) A sample siting plan shall include at a minimum the following:

(A) A list of available sample site locations in the distribution system to be used for routine monitoring purposes, including the first service connection (or Department approved equivalent) and dead ends.

(B) The name of the company or individual collecting the samples.

(C) A time period by which available sites representative of the distribution system are to be sampled during each monitoring period.

(ii) The Department's approval of a sample siting plan will be based upon the following:

(A) The population served by the system.

(B) The accessibility of sample sites.

(C) The past monitoring history for the system.

(D) The completeness of the sample siting plan which includes the information specified in subparagraph (i) and other information relating to the criteria in this subparagraph necessary for evaluation of the sample siting plan.

(iii) A water supplier shall revise and resubmit its sample siting plan within 30 days of notification by the Department of a sample siting plan which fails to meet the criteria in subparagraphs (i) and (ii).

(iv) The water supplier shall notify the Department of subsequent revisions to an approved coliform sample siting plan for approval as they occur. Revisions to an approved coliform sample siting plan shall be submitted in written form to the Department within 30 days of notifying the Department of the revisions.

(6) *Records.* Upon request by the Department, the water supplier shall submit copies of records required to be maintained under this subchapter.

(7) *Form.* Reports required by this chapter shall be submitted in a manner or form acceptable to the Department.

(b) *Reporting requirements for community water systems.* In addition to the reporting requirements for a public water system, a community water supplier shall comply with the following requirements:

(1) The water supplier shall prepare a monthly operational report on forms provided by the Department or in a form acceptable to the Department. The report shall be maintained on file by the operator for at least 2 years and submitted upon request of the Department. The report shall include at least the following:

(i) The water produced daily.

(ii) The chemical added daily.

(iii) The physical and chemical determinations taken daily.

(iv) Water-level monitoring data for supply and any associated monitoring wells.

(v) The maintenance performed.

(vi) Operational problems.

(2) The water supplier shall submit by March 31 an annual water supply report for the prior calendar year on forms provided by the Department or in a form acceptable to the Department. This report shall include information relating to water use, connections, distribution system and storage.

(3) The water supplier shall keep a record of complaints received from consumers related to this act or this chapter on forms provided by the Department or in a form acceptable to the Department. Water suppliers complying with the Pennsylvania Public Utility Commission (PUC) complaint recordkeep ing requirements under 52 Pa. Code § 65.3 (relating to complaints) shall be in compliance with this subsection if the complaints related to the act or this chapter are cross referenced within the PUC required records in a manner to make them readily available. The records shall be maintained on file by the operator for at least 3 years and submitted upon request of the Department.

(c) *Reporting requirements for nontransient noncommunity water systems.* In addition to complying with the reporting requirements for public water systems under subsection (a), a nontransient noncommunity water system shall comply with subsection (b)(1) except that records of water produced daily are not required.

(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:

(1) Records of bacteriological analyses which shall be kept for at least 5 years, and records of chemical analyses which shall be kept for at least 12 years. Actual laboratory reports may be kept, or data may be transferred to tabular summaries, if the following information is included:

(i) The date, place and time of sampling, and the name of the person who collected the sample.

(ii) Identification of the sample as to whether it was a routine distribution system sample, check sample, raw or finished water sample or other special purpose sample.

(iii) The date of analysis.

(iv) The laboratory, certification number and person responsible for performing the analysis.

(v) The analytical technique and methods used.

(vi) The results of the analysis.

(2) Records of performance monitoring required under § 109.301 which shall be kept for at least 3 years. At a minimum, these records shall contain the reporting requirements under subsection (a).

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

(4) Copies of written reports or communications relating to sanitary surveys conducted by a water supplier or his agent, which shall be kept for at least 12 years.

(5) Records concerning a variance or exemption granted to the system which shall be kept at least 5 years following the expiration of the variance or exemption.

(6) Plans, specifications and permits for water system facilities which shall be kept for the life of the facility.

(7) Records concerning the use of acrylamide and epichlorohydrin shall be kept for at least 12 years. These records shall include verification that the chemicals used were certified for conformance with ANSI/NSF Standard 60 in accordance with § 109.606 (relating to chemicals, materials and equipment) and that the combination—or product—of dose and monomer level did not exceed the following:

(i) Acrylamide = 0.05% dosed at 1 ppm (or equivalent).

(ii) Epichlorohydrin = 0.01% dosed at 20 ppm (or equivalent).

(e) *REPORTING REQUIREMENTS FOR PUBLIC WATER SYSTEMS REQUIRED TO PERFORM INDIVIDUAL FILTER MONITORING UNDER § 109.301(1)(iv).*

(1) PUBLIC WATER SYSTEMS REQUIRED TO PERFORM INDIVIDUAL FILTER MONITORING SHALL REPORT THAT THEY HAVE CONDUCTED INDIVIDUAL

FILTER MONITORING WITHIN 10 DAYS FOLLOWING THE END OF EACH MONTH THAT THE SYSTEM SERVES WATER TO THE PUBLIC.

([1]2) PUBLIC WATER SYSTEMS [**PROVIDING FILTRATION AND DISINFECTION OF SURFACE WATER SOURCES**] **REQUIRED TO PERFORM INDIVIDUAL MONITORING** SHALL REPORT INDIVIDUAL FILTER TURBIDITY RESULTS IF INDIVIDUAL FILTER TURBIDITY MEASUREMENTS DEMONSTRATE THAT ONE OR MORE OF THE FOLLOWING CONDITIONS EXIST:

(i) AN INDIVIDUAL FILTER HAS A MEASURED TURBIDITY LEVEL GREATER THAN 1.0 NTU IN TWO CONSECUTIVE MEASUREMENTS TAKEN 15 MINUTES APART.

(ii) AN INDIVIDUAL FILTER HAS A MEASURED TURBIDITY LEVEL OF GREATER THAN 0.5 NTU IN TWO CONSECUTIVE MEASUREMENTS TAKEN 15 MINUTES APART AT THE END OF THE FIRST 4 HOURS OF CONTINUOUS FILTER OPERATION AFTER THE FILTER HAS BEEN BACKWASHED OR OTHERWISE TAKEN OFFLINE.

(iii) AN INDIVIDUAL FILTER HAS A MEASURED TURBIDITY LEVEL GREATER THAN 1.0 NTU IN TWO CONSECUTIVE MEASUREMENTS TAKEN 15 MINUTES APART AT ANY TIME IN EACH OF 3-CONSECUTIVE MONTHS.

(iv) AN INDIVIDUAL FILTER HAS A MEASURED TURBIDITY LEVEL GREATER THAN 2.0 NTU IN TWO CONSECUTIVE MEASUREMENTS TAKEN 15 MINUTES APART AT ANY TIME IN EACH OF 2-CONSECUTIVE MONTHS.

([2]3) INDIVIDUAL FILTER TURBIDITY MONITORING REPORTED AS REQUIRED UNDER PARAGRAPH ([1]2) SHALL INCLUDE THE FOLLOWING AT A MINIMUM:

(i) FILTER NUMBER.

(ii) TURBIDITY MEASUREMENTS.

(iii) THE DATES ON WHICH THE EXCEEDANCE OCCURRED.

(iv) IF AN INDIVIDUAL FILTER DEMONSTRATES A CONDITION UNDER PARAGRAPH ([1]2)(i) OR (ii), THE DATE ON WHICH A FILTER PROFILE WAS PRODUCED OR THE DATE ON WHICH THE REASON FOR A TURBIDITY EXCEEDANCE WAS DETERMINED.

(v) IF AN INDIVIDUAL FILTER DEMONSTRATES A CONDITION UNDER PARAGRAPH ([1]2)(iii), THE DATE ON WHICH A FILTER SELF-ASSESSMENT WAS CONDUCTED.

(vi) IF AN INDIVIDUAL FILTER DEMONSTRATES A CONDITION UNDER PARAGRAPH ([1]2)(iv), THE DATE ON WHICH A COMPREHENSIVE PERFORMANCE EVALUATION WAS CONDUCTED.

(f) *ALTERNATIVE INDIVIDUAL FILTER TURBIDITY EXCEEDANCE LEVELS.* PUBLIC WATER SYSTEMS USING LIME SOFTENING MAY APPLY TO THE DEPARTMENT FOR ALTERNATIVE INDIVIDUAL FILTER TURBIDITY EXCEEDANCE LEVELS IF THEY DEMONSTRATE THAT THE HIGHER INDIVIDUAL FILTER TURBIDITY LEVELS ARE DUE TO LIME CARRYOVER AND NOT TO DEGRADED FILTER PERFORMANCE.

§ 109.703. Facilities operation.

(a) Public water system facilities approved by written permit from the Department shall be operated in a manner consistent with the terms and conditions of the permit to achieve the level of treatment for which the facilities were designed.

(b) For surface water OR GUDI sources, a public water supplier using filtration shall comply with the following requirements:

(1) By July 1, 1990, suppliers using conventional or direct filtration shall, after filter backwash, and before putting the backwashed filter back on line, filter-to-waste until one of the following occurs:

(i) The filter bed effluent turbidity is less than .5 NTU at the normal production flow rate.

(ii) When source water turbidity is less than 1.0 NTU, a 50% reduction in turbidity is achieved.

(2) Beginning May 16, 1992, a supplier using slow sand filtration shall, following sanding, scraping or resanding of slow sand filters, filter-to-waste until one of the following occurs:

(i) The filter bed effluent turbidity is less than 1.0 NTU at the normal production flow rate.

(ii) A reduction in turbidity is achieved when the source water turbidity is less than 1.0 NTU.

(3) Beginning May 16, 1992, a supplier using diatomaceous earth filtration shall, following backwashing and recoating of diatomaceous earth filters, filter-to-waste until one of the following occurs:

(i) The filter bed effluent turbidity is less than 1.0 NTU at the normal production flow rate.

(ii) A reduction in turbidity is achieved when the source water turbidity is less than 1.0 NTU.

(4) For a conventional or direct filtration facility permitted prior to March 25, 1989, without filter-to-waste capability, the Department, upon the supplier's request, may allow the supplier to utilize other operating techniques which minimize the initial increased turbidity peak when a filter is initially placed back into service after backwashing. The technique, which may include filter settling periods, ramping open the effluent valve or use of a coagulant in the backwash water, shall be justified by a filter performance study approved by the Department.

(5) [In lieu of individual filter bed turbidity monitoring] EXCEPT FOR PUBLIC WATER SYSTEMS COVERED UNDER § 109.301(1)(iv) (RELATING TO GENERAL MONITORING), a system with conventional or direct filtration facilities permitted prior to

March 25, 1989, without [those] INDIVIDUAL FILTER BED TURBIDITY MONITORING capabilities shall conduct an annual filter bed evaluation program, acceptable to the Department, which includes an evaluation of filter media, valves, surface sweep and sampling of filter turbidities over one entire filter run; and shall submit to the Department, with the Annual Water Supply Report, a study that demonstrates that the water supplier's filter-to-waste or alternate approved operating procedures are meeting the operating conditions under paragraph (1) or (4).

§ 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 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.

(b) A public water system that uses surface water OR GUDI sources or obtains finished water from another permitted public water system using surface water OR GUDI sources shall comply with the following requirements:

(1) As a minimum, a detectable residual disinfectant concentration of 0.02 mg/l measured as total chlorine, combined chlorine or chlorine dioxide shall be maintained

throughout the distribution system as demonstrated by monitoring conducted under § 109.301(1) and (2) or (7)(v) (relating to general monitoring requirements).

(2) Sampling points with nondetectable disinfectant residuals which have heterotrophic plate count (HPC) measurements of less than 500/ml are deemed to be in compliance with paragraph (1).

(3) When the requirements of paragraph (1) or (2) cannot be achieved, the supplier shall initiate an investigation under the Department's direction to determine the cause, potential health risks and appropriate remedial measures.

§ 109.714. FILTER PROFILE, FILTER SELF-ASSESSMENT AND COMPREHENSIVE PERFORMANCE EVALUATIONS.

[PUBLIC WATER SYSTEMS REQUIRED TO PERFORM INDIVIDUAL FILTER MONITORING UNDER § 109.301(1)(iv) (RELATING TO GENERAL MONITORING REQUIREMENTS) SHALL NOTIFY THE DEPARTMENT IF INDIVIDUAL FILTER TURBIDITY MEASUREMENTS DEMONSTRATE THAT ONE OR MORE OF THE FOLLOWING CONDITIONS EXIST:

(1) IF AN INDIVIDUAL FILTER DEMONSTRATES A CONDITION UNDER § 109.701(e)(1)(i) OR (ii) (RELATING TO REPORTING AND RECORDKEEPING), THE DEPARTMENT SHALL BE NOTIFIED WITHIN 24 HOURS OF THE TURBIDITY LEVEL EXCEEDANCE THAT A FILTER PROFILE WILL BE PRODUCED WITHIN 7

DAYS OF THE TURBIDITY LEVEL EXCEEDANCE, UNLESS THE SYSTEM NOTIFIES THE DEPARTMENT OF THE REASON FOR THE EXCEEDANCE.

(2) IF AN INDIVIDUAL FILTER DEMONSTRATES A CONDITION UNDER § 109.701(e)(1)(iii), THE DEPARTMENT SHALL BE NOTIFIED WITHIN 24 HOURS OF THE TURBIDITY LEVEL EXCEEDANCE THAT A SELF-ASSESSMENT OF THE FILTER WILL BE CONDUCTED WITHIN 14 DAYS OF THE TURBIDITY LEVEL EXCEEDANCE. A FILTER SELF-ASSESSMENT SHALL CONSIST OF AT LEAST THE FOLLOWING COMPONENTS:

(i) ASSESSMENT OF FILTER PERFORMANCE.

(ii) DEVELOPMENT OF A FILTER PROFILE.

(iii) IDENTIFICATION AND PRIORITIZATION OF FACTORS LIMITING FILTER PERFORMANCE.

(iv) ASSESSMENT OF THE APPLICABILITY OF CORRECTIONS.

(v) PREPARATION OF A FILTER SELF-ASSESSMENT REPORT.

(3) IF AN INDIVIDUAL FILTER DEMONSTRATES A CONDITION UNDER § 109.701(e)(1)(iv), THE DEPARTMENT SHALL BE NOTIFIED WITHIN 24 HOURS OF THE TURBIDITY LEVEL EXCEEDANCE THAT A COMPREHENSIVE PERFORMANCE EVALUATION WILL NEED TO BE CONDUCTED BY THE DEPARTMENT WITHIN 30 DAYS FOLLOWING THE TURBIDITY LEVEL EXCEEDANCE.]

PUBLIC WATER SYSTEMS ARE REQUIRED TO PERFORM OR CONDUCT A FILTER PROFILE, FILTER SELF-ASSESSMENT OR CPE IF ANY INDIVIDUAL FILTER MONITORING CONDUCTED UNDER § 109.301(1)(iv) (RELATING TO GENERAL MONITORING REQUIREMENTS) DEMONSTRATES ONE OR MORE OF THE CONDITIONS IN PARAGRAPHS (1) THROUGH (3).

(1) IF AN INDIVIDUAL FILTER DEMONSTRATES A CONDITION UNDER § 109.701(e)(2)(i) OR (ii) (RELATING TO REPORTING AND RECORDKEEPING), THE PUBLIC WATER SYSTEM SHALL NOTIFY THE DEPARTMENT WITHIN 24 HOURS OF THE INDIVIDUAL FILTER TURBIDITY LEVEL EXCEEDANCE AND SHALL REPORT THE OBVIOUS REASON FOR THE ABNORMAL FILTER PERFORMANCE. IF THE SYSTEM IS NOT ABLE TO IDENTIFY THE REASON FOR THE EXCEEDANCE, THE SYSTEM SHALL PRODUCE A FILTER PROFILE WITHIN 7 DAYS OF THE EXCEEDANCE AND REPORT TO THE DEPARTMENT THAT A FILTER PROFILE WAS PRODUCED.

(2) IF AN INDIVIDUAL FILTER DEMONSTRATES A CONDITION UNDER § 109.701(e)(2)(iii), THE PUBLIC WATER SYSTEM SHALL NOTIFY THE DEPARTMENT WITHIN 24 HOURS OF THE INDIVIDUAL FILTER TURBIDITY LEVEL EXCEEDANCE, SHALL CONDUCT A SELF-ASSESSMENT OF THE FILTER WITHIN 14 DAYS OF THE EXCEEDANCE AND SHALL REPORT TO THE DEPARTMENT THAT A FILTER SELF-ASSESSMENT WAS CONDUCTED. A

FILTER SELF-ASSESSMENT SHALL CONSIST OF AT LEAST THE FOLLOWING COMPONENTS:

(i) ASSESSMENT OF FILTER PERFORMANCE.

(ii) DEVELOPMENT OF A FILTER PROFILE.

(iii) IDENTIFICATION AND PRIORITIZATION OF FACTORS LIMITING FILTER PERFORMANCE.

(iv) ASSESSMENT OF THE APPLICABILITY OF CORRECTIONS.

(v) PREPARATION OF A FILTER SELF-ASSESSMENT REPORT.

(3) IF AN INDIVIDUAL FILTER DEMONSTRATES A CONDITION UNDER § 109.701(e)(2)(iv), THE PUBLIC WATER SYSTEM SHALL:

(i) NOTIFY THE DEPARTMENT WITHIN 24 HOURS OF THE TURBIDITY LEVEL EXCEEDANCE;

(ii) ARRANGE FOR THE CONDUCTION OF A CPE BY THE DEPARTMENT NO LATER THAN 30 DAYS FOLLOWING THE TURBIDITY LEVEL EXCEEDANCE; AND

(iii) ENSURE THAT THE CPE IS COMPLETED AND SUBMITTED TO THE DEPARTMENT NO LATER THAN 90 DAYS FOLLOWING THE TURBIDITY LEVEL EXCEEDANCE.

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federal register

Wednesday
December 16, 1998

Part V

Environmental Protection Agency

40 CFR Parts 9, 141, and 142
National Primary Drinking Water Regulations: Interim Enhanced Surface Water Treatment; Final Rule

West T, P Daniel, P Meyerhofer, A DeGraca, S Leonard, and C Gerba (1994). Evaluation of *Cryptosporidium* Removal through High-Rate Filtration. Proceedings AWWA Annual Conf., June 1994, pp 493–504.

Wilson M P, W D Gollnitz, S N Boutros, and W T Boria (1996). Determining Groundwater Under the Direct Influence of Surface Water. AWWA Research Foundation, Denver CO.

List of Subjects

40 CFR Parts 9

Reporting and recordkeeping requirements.

40 CFR Parts 141 and 142

Drinking water, Environmental protection, Public utilities, Reporting and recordkeeping requirements, Reservoirs, Utilities, Water supply, Watersheds.

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	
* * * * *	
141.170	2040–0205
141.172	2040–0205
141.174–141.175	2040–0205
* * * * *	

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 revising the definition of "ground water under the direct influence of surface water" and adding the following definitions in alphabetical order to read as follows:

§ 141.2 Definitions.

* * * * *

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

* * * * *

Disinfection profile is a summary of daily *Giardia lamblia* inactivation through the treatment plant. The procedure for developing a disinfection profile is contained in § 141.172.

* * * * *

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

* * * * *

Ground water under the direct influence of surface water means any water beneath the surface of the ground with significant occurrence of insects or other macroorganisms, algae, or large-diameter pathogens such as *Giardia lamblia* or (for subpart H systems serving at least 10,000 people only) *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. Direct influence must be determined for individual sources in accordance with criteria established by the State. The State determination of direct influence may be based on site-specific measurements of water quality and/or documentation of well construction characteristics and geology with field evaluation.

* * * * *

Uncovered finished water storage facility is a tank, reservoir, or other facility used to store water that will undergo no further treatment except residual disinfection and is open to the atmosphere.

* * * * *

5. Section 141.32 is amended by revising paragraph (e)(10) to read as follows:

§ 141.32 Public notification.

* * * * *

(e) * * *

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

* * * * *

6. In § 141.52, the table is amended by adding a new entry, in numerical order, to read as follows:

§ 141.52 Maximum contaminant level goals for microbiological contaminants.

* * * * *

Contaminant	MCLG
* * * * *	
(5) *Cryptosporidium*	zero.

7. Section 141.70 is amended by adding paragraph (d) to read as follows:

§ 141.70 General requirements.

* * * * *

(d) *Additional requirements for systems serving at least 10,000 people.* In addition to complying with requirements in this subpart, systems serving at least 10,000 people must also comply with the requirements in subpart P of this part.

8. Section 141.71 is amended by revising paragraph (b)(6) to read as follows:

§ 141.71 Criteria for avoiding filtration.

* * * * *

(b) * * *

(6) The public water system must comply with the requirements for trihalomethanes in §§ 141.12 and 141.30 until December 17, 2001. After December 17, 2001, the system must comply with the requirements for total trihalomethanes, haloacetic acids (five), bromate, chlorite, chlorine, chloramines, and chlorine dioxide in subpart L of this part.

* * * * *

9. Section 141.73 is amended by adding paragraph (a)(3) and revising paragraph (d) to read as follows:

§ 141.73 Filtration.

* * * * *

(a) * * *

(3) Beginning December 17, 2001, systems serving at least 10,000 people must meet the turbidity requirements in § 141.173(a).

* * * * *

(d) *Other filtration technologies.* A public water system may use a filtration technology not listed in paragraphs (a) through (c) of this section if it demonstrates to the State, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of § 141.72(b), consistently achieves 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts and 99.99 percent removal and/or inactivation of viruses. For a system that makes this demonstration, the requirements of paragraph (b) of this section apply. Beginning December 17, 2001, systems serving at least 10,000 people must meet the requirements for other filtration technologies in § 141.173(b).

10. Section 141.153 is amended by revising the first sentence of paragraph (d)(4)(v)(C) to read as follows:

§ 141.153 Content of the reports.

* * * * *

(d) * * *

(4) * * *

(v) * * *

(C) When it is reported pursuant to §§ 141.73 or 141.173: The highest single measurement and the lowest monthly percentage of samples meeting the turbidity limits specified in §§ 141.73 or 141.173 for the filtration technology being used. * * *

* * * * *

11. Part 141 is amended by adding a new subpart P to read as follows:

Subpart P—Enhanced Filtration and Disinfection

Sec.

141.170 General requirements.
141.171 Criteria for avoiding filtration.
141.172 Disinfection profiling and benchmarking.
141.173 Filtration.
141.174 Filtration sampling requirements.
141.175 Reporting and recordkeeping requirements.

§ 141.170 General requirements.

(a) The requirements of this subpart P constitute national primary drinking water regulations. These regulations establish requirements for filtration and disinfection that are in addition to criteria under which filtration and disinfection are required under subpart H of this part. The requirements of this subpart are applicable to subpart H systems serving at least 10,000 people, beginning December 17, 2001 unless otherwise specified in this subpart. The regulations in this subpart establish or extend treatment technique requirements in lieu of maximum contaminant levels for the following contaminants: *Giardia lamblia*, viruses, heterotrophic plate count bacteria, *Legionella*, *Cryptosporidium*, and turbidity. Each subpart H system serving at least 10,000 people must provide treatment of its source water that complies with these treatment technique requirements and are in addition to those identified in § 141.70. The treatment technique requirements consist of installing and properly operating water treatment processes which reliably achieve:

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

(2) Compliance with the profiling and benchmark requirements under the provisions of § 141.172.

(b) A public water system subject to the requirements of this subpart is considered to be in compliance with the requirements of paragraph (a) of this section if:

(1) It meets the requirements for avoiding filtration in §§ 141.71 and 141.171 and the disinfection requirements in §§ 141.72 and 141.172; or

(2) It meets the applicable filtration requirements in either § 141.73 or § 141.173 and the disinfection requirements in §§ 141.72 and 141.172.

(c) Systems are not permitted to begin construction of uncovered finished water storage facilities beginning February 16, 1999.

§ 141.171 Criteria for avoiding filtration.

In addition to the requirements of § 141.71, a public water system subject to the requirements of this subpart that does not provide filtration must meet all of the conditions of paragraphs (a) and (b) of this section.

(a) *Site-specific conditions.* In addition to site-specific conditions in § 141.71(b), systems must maintain the watershed control program under § 141.71(b)(2) to minimize the potential for contamination by *Cryptosporidium* oocysts in the source water. The watershed control program must, for *Cryptosporidium*:

(1) Identify watershed characteristics and activities which may have an adverse effect on source water quality; and

(2) Monitor the occurrence of activities which may have an adverse effect on source water quality.

(b) During the onsite inspection conducted under the provisions of § 141.71(b)(3), the State must determine whether the watershed control program established under § 141.71(b)(2) is adequate to limit potential contamination by *Cryptosporidium* oocysts. The adequacy of the program must be based on the comprehensiveness of the watershed review; the effectiveness of the system's program to monitor and control detrimental activities occurring in the watershed; and the extent to which the water system has maximized land ownership and/or controlled land use within the watershed.

§ 141.172 Disinfection profiling and benchmarking.

(a) *Determination of systems required to profile.* A public water system subject to the requirements of this subpart must determine its TTHM annual average using the procedure in paragraph (a)(1) of this section and its HAA5 annual average using the procedure in

paragraph (a)(2) of this section. The annual average is the arithmetic average of the quarterly averages of four consecutive quarters of monitoring.

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

(i) Those systems that collected data under the provisions of subpart M (Information Collection Rule) must use the results of the samples collected during the last four quarters of required monitoring under § 141.142.

(ii) Those systems that use "grandfathered" HAA5 occurrence data that meet the provisions of paragraph (a)(2)(ii) of this section must use TTHM data collected at the same time under the provisions of §§ 141.12 and 141.30.

(iii) Those systems that use HAA5 occurrence data that meet the provisions of paragraph (a)(2)(iii)(A) of this section must use TTHM data collected at the same time under the provisions of §§ 141.12 and 141.30.

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

(i) Those systems that collected data under the provisions of subpart M (Information Collection Rule) must use the results of the samples collected during the last four quarters of required monitoring under § 141.142.

(ii) Those systems that have collected four quarters of HAA5 occurrence data that meets the routine monitoring sample number and location requirements for TTHM in §§ 141.12 and 141.30 and handling and analytical method requirements of § 141.142(b)(1) may use those data to determine whether the requirements of this section apply.

(iii) Those systems that have not collected four quarters of HAA5 occurrence data that meets the provisions of either paragraph (a)(2)(i) or (ii) of this section by March 16, 1999 must either:

(A) Conduct monitoring for HAA5 that meets the routine monitoring sample number and location requirements for TTHM in §§ 141.12 and 141.30 and handling and analytical method requirements of § 141.142(b)(1) to determine the HAA5 annual average and whether the requirements of paragraph (b) of this section apply. This monitoring must be completed so that the applicability determination can be made no later than March 16, 2000, or

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

(3) The system may request that the State approve a more representative annual data set than the data set determined under paragraph (a)(1) or (2) of this section for the purpose of determining applicability of the requirements of this section.

(4) The State may require that a system use a more representative annual data set than the data set determined under paragraph (a)(1) or (2) of this section for the purpose of determining applicability of the requirements of this section.

(5) The system must submit data to the State on the schedule in paragraphs (a)(5)(i) through (v) of this section.

(i) Those systems that collected TTHM and HAA5 data under the provisions of subpart M (Information Collection Rule), as required by paragraphs (a)(1)(i) and (a)(2)(i) of this section, must submit the results of the samples collected during the last 12 months of required monitoring under § 141.142 not later than December 16, 1999.

(ii) Those systems that have collected four consecutive quarters of HAA5 occurrence data that meets the routine monitoring sample number and location for TTHM in §§ 141.12 and 141.30 and handling and analytical method requirements of § 141.142(b)(1), as allowed by paragraphs (a)(1)(ii) and (a)(2)(ii) of this section, must submit those data to the State not later than April 16, 1999. Until the State has approved the data, the system must conduct monitoring for HAA5 using the monitoring requirements specified under paragraph (a)(2)(iii) of this section.

(iii) Those systems that conduct monitoring for HAA5 using the monitoring requirements specified by paragraphs (a)(1)(iii) and (a)(2)(iii)(A) of this section, must submit TTHM and HAA5 data not later than March 16, 2000.

(iv) Those systems that elect to comply with all other provisions of this section as if the HAA5 monitoring had been conducted and the results required compliance with this section, as allowed under paragraphs (a)(2)(iii)(B) of this section, must notify the State in writing of their election not later than December 16, 1999.

(v) If the system elects to request that the State approve a more representative annual data set than the data set determined under paragraph (a)(2)(i) of this section, the system must submit this request in writing not later than December 16, 1999.

(6) Any system having either a TTHM annual average ≥0.064 mg/L or an HAA5 annual average ≥0.048 mg/L during the period identified in paragraphs (a)(1) and (2) of this section must comply with paragraph (b) of this section.

(b) *Disinfection profiling.* (1) Any system that meets the criteria in paragraph (a)(6) of this section must develop a disinfection profile of its disinfection practice for a period of up to three years.

(2) The system must monitor daily for a period of 12 consecutive calendar months to determine the total logs of inactivation for each day of operation, based on the CT99.9 values in Tables 1.1–1.6, 2.1, and 3.1 of § 141.74(b), as appropriate, through the entire treatment plant. This system must begin this monitoring not later than March 16, 2000. As a minimum, the system with a single point of disinfectant application prior to entrance to the distribution system must conduct the monitoring in paragraphs (b)(2)(i) through (iv) of this section. A system with more than one point of disinfectant application must conduct the monitoring in paragraphs (b)(2)(i) through (iv) of this section for each disinfection segment. The system must monitor the parameters necessary to determine the total inactivation ratio, using analytical methods in § 141.74(a), as follows:

(i) The temperature of the disinfected water must be measured once per day at each residual disinfectant concentration sampling point during peak hourly flow.

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

(iii) The disinfectant contact time(s) ("T") must be determined for each day during peak hourly flow.

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

(3) In lieu of the monitoring conducted under the provisions of paragraph (b)(2) of this section to develop the disinfection profile, the system may elect to meet the requirements of paragraph (b)(3)(i) of this section. In addition to the monitoring conducted under the provisions of paragraph (b)(2) of this section to develop the disinfection profile, the system may elect to meet the requirements of paragraph (b)(3)(ii) of this section.

(i) A PWS that has three years of existing operational data may submit those data, a profile generated using those data, and a request that the State approve use of those data in lieu of monitoring under the provisions of

paragraph (b)(2) of this section not later than March 16, 2000. The State must determine whether these operational data are substantially equivalent to data collected under the provisions of paragraph (b)(2) of this section. These data must also be representative of *Giardia lamblia* inactivation through the entire treatment plant and not just of certain treatment segments. Until the State approves this request, the system is required to conduct monitoring under the provisions of paragraph (b)(2) of this section.

(ii) In addition to the disinfection profile generated under paragraph (b)(2) of this section, a PWS that has existing operational data may use those data to develop a disinfection profile for additional years. Such systems may use these additional yearly disinfection profiles to develop a benchmark under the provisions of paragraph (c) of this section. The State must determine whether these operational data are substantially equivalent to data collected under the provisions of paragraph (b)(2) of this section. These data must also be representative of inactivation through the entire treatment plant and not just of certain treatment segments.

(4) The system must calculate the total inactivation ratio as follows:

(i) If the system uses only one point of disinfectant application, the system may determine the total inactivation ratio for the disinfection segment based on either of the methods in paragraph (b)(4)(i)(A) or (b)(4)(i)(B) of this section.

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

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

(ii) If the system uses more than one point of disinfectant application before the first customer, the system must determine the CT value of each disinfection segment immediately prior to the next point of disinfectant application, or for the final segment, before or at the first customer, during peak hourly flow. The ($CTcalc/CT_{99.9}$) value of each segment and (($CTcalc/CT_{99.9}$)) must be calculated using the method in paragraph (b)(4)(i) of this section.

(iii) The system must determine the total logs of inactivation by multiplying the value calculated in paragraph (b)(4)(i) or (ii) of this section by 3.0.

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

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

(c) *Disinfection benchmarking.* (1) Any system required to develop a disinfection profile under the provisions of paragraphs (a) and (b) of this section and that decides to make a significant change to its disinfection practice must consult with the State prior to making such change. Significant changes to disinfection practice are:

(i) Changes to the point of disinfection;

(ii) Changes to the disinfectant(s) used in the treatment plant;

(iii) Changes to the disinfection process; and

(iv) Any other modification identified by the State.

(2) Any system that is modifying its disinfection practice must calculate its disinfection benchmark using the procedure specified in paragraphs (c)(2)(i) through (ii) of this section.

(i) For each year of profiling data collected and calculated under paragraph (b) of this section, the system must determine the lowest average monthly *Giardia lamblia* inactivation in each year of profiling data. The system must determine the average *Giardia lamblia* inactivation for each calendar month for each year of profiling data by dividing the sum of daily *Giardia lamblia* of inactivation by the number of values calculated for that month.

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

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

(4) The system must submit information in paragraphs (c)(4)(i) through (iii) of this section to the State as part of its consultation process.

(i) A description of the proposed change;

(ii) The disinfection profile for *Giardia lamblia* (and, if necessary, viruses) under paragraph (b) of this section and benchmark as required by paragraph (c)(2) of this section; and

(iii) An analysis of how the proposed change will affect the current levels of disinfection.

§ 141.173 Filtration.

A public water system subject to the requirements of this subpart that does not meet all of the criteria in this subpart and subpart H of this part for avoiding filtration must provide treatment consisting of both disinfection, as specified in § 141.72(b), and filtration treatment which complies with the requirements of paragraph (a) or (b) of this section or § 141.73 (b) or (c) by December 17, 2001.

(a) *Conventional filtration treatment or direct filtration.* (1) For systems using conventional filtration or direct filtration, the turbidity level of representative samples of a system's filtered water must be less than or equal to 0.3 NTU in at least 95 percent of the measurements taken each month, measured as specified in § 141.74(a) and (c).

(2) The turbidity level of representative samples of a system's filtered water must at no time exceed 1 NTU, measured as specified in § 141.74(a) and (c).

(3) A system that uses lime softening may acidify representative samples prior to analysis using a protocol approved by the State.

(b) *Filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration.* A public water system may use a filtration technology not listed in paragraph (a) of this section or in § 141.73(b) or (c) if it demonstrates to the State, using pilot plant studies or other means, that the alternative filtration technology, in combination with disinfection treatment that meets the requirements of § 141.72(b), consistently achieves 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts and 99.99 percent removal and/or inactivation of viruses, and 99 percent removal of *Cryptosporidium* oocysts, and the State approves the use of the filtration technology. For each approval, the State will set turbidity performance requirements that the system must meet at least 95 percent of the time and that the system may not exceed at any time at a level that consistently achieves 99.9 percent removal and/or inactivation of *Giardia lamblia* cysts, 99.99 percent removal and/or inactivation of viruses,

and 99 percent removal of *Cryptosporidium* oocysts.

§ 141.174 Filtration sampling requirements.

(a) Monitoring requirements for systems using filtration treatment. In addition to monitoring required by § 141.74, a public water system subject to the requirements of this subpart that provides conventional filtration treatment or direct filtration must conduct continuous monitoring of turbidity for each individual filter using an approved method in § 141.74(a) and must calibrate turbidimeters using the procedure specified by the manufacturer. Systems must record the results of individual filter monitoring every 15 minutes.

(b) If there is a failure in the continuous turbidity monitoring equipment, the system must conduct grab sampling every four hours in lieu of continuous monitoring, but for no more than five working days following the failure of the equipment.

§ 141.175 Reporting and recordkeeping requirements.

In addition to the reporting and recordkeeping requirements in § 141.75, a public water system subject to the requirements of this subpart that provides conventional filtration treatment or direct filtration must report monthly to the State the information specified in paragraphs (a) and (b) of this section beginning December 17, 2001. In addition to the reporting and recordkeeping requirements in § 141.75, a public water system subject to the requirements of this subpart that provides filtration approved under § 141.173(b) must report monthly to the State the information specified in paragraph (a) of this section beginning December 17, 2001. The reporting in paragraph (a) of this section is in lieu of the reporting specified in § 141.75(b)(1).

(a) Turbidity measurements as required by § 141.173 must be reported within 10 days after the end of each month the system serves water to the public. Information that must be reported includes:

(1) The total number of filtered water turbidity measurements taken during the month.

(2) The number and percentage of filtered water turbidity measurements taken during the month which are less than or equal to the turbidity limits specified in § 141.173(a) or (b).

(3) The date and value of any turbidity measurements taken during the month which exceed 1 NTU for systems using conventional filtration treatment or direct filtration, or which exceed the maximum level set by the State under § 141.173(b).

(b) Systems must maintain the results of individual filter monitoring taken under § 141.174 for at least three years. Systems must report that they have conducted individual filter turbidity monitoring under § 141.174 within 10 days after the end of each month the system serves water to the public. Systems must report individual filter turbidity measurement results taken under § 141.174 within 10 days after the end of each month the system serves water to the public only if measurements demonstrate one or more of the conditions in paragraphs (b)(1) through (4) of this section. Systems that use lime softening may apply to the State for alternative exceedance levels for the levels specified in paragraphs (b)(1) through (4) of this section if they can demonstrate that higher turbidity levels in individual filters are due to lime carryover only and not due to degraded filter performance.

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

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

(3) For any individual filter that has a measured turbidity level of greater than 1.0 NTU in two consecutive measurements taken 15 minutes apart at any time in each of three consecutive months, the system must report the filter number, the turbidity measurement, and the date(s) on which the exceedance occurred. In addition, the system must conduct a self-assessment of the filter within 14 days of the exceedance and report that the self-assessment was conducted. The self assessment must consist of at least the following components: assessment of filter performance; development of a filter profile; identification and prioritization of factors limiting filter performance; assessment of the applicability of corrections; and preparation of a filter self-assessment report.

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

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 revising paragraphs (a)(3), (a)(4)(i), and (a)(4)(ii) introductory text, and adding paragraph (a)(7) to read as follows:

§ 142.14 Records kept by States.

(a) * * *

(3) Records of turbidity measurements must be kept for not less than one year. The information retained must be set forth in a form which makes possible comparison with the limits specified in §§ 141.71, 141.73, 141.173 and 141.175 of this chapter. Until June 29, 1993, for any public water system which is providing filtration treatment and until December 30, 1991, for any public water system not providing filtration treatment and not required by the State to provide filtration treatment, records kept must be set forth in a form which makes possible comparison with the limits contained in § 141.13 of this chapter.

* * * * *

(4)(i) Records of disinfectant residual measurements and other parameters necessary to document disinfection effectiveness in accordance with §§ 141.72 and 141.74 of this chapter and

Federal Register

Tuesday,
January 16, 2001

Part V

Environmental Protection Agency

40 CFR Parts 9, 141, and 142
Revisions to the Interim Enhanced Surface Water Treatment Rule (IESWTR), the Stage 1 Disinfectants and Disinfection Byproducts Rule (Stage 1DBPR), and Revisions to State Primacy Requirements To Implement the [illegible] ing Water Act (SDWA) Amendments; Final Rule

is published in the **Federal Register**. This action is not a "major rule" as defined by 5 U.S.C. 804(2). This rule will be effective February 15, 2001.

List of Subjects in 40 CFR Parts 9, 141, and 142

Environmental protection, Analytical methods, Drinking water, Intergovernmental relations, Public utilities, Reporting and recordkeeping requirements, Reservoirs, Utilities, Water supply, Watersheds.

Dated: December 22, 2000.

Carol M. Browner,

Administrator.

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

PART 9—OMB APPROVALS UNDER THE PAPERWORK REDUCTION ACT

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

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. Section 9.1 is amended by removing the entry for § 141.174–141.175 in the table and adding new entries in its place to read as follows:

§ 9.1 [Amended]

* * * * *

40 CFR citation	*OMB control No.*
* * *	* *
141.174(a)–(b)	2040–0205
141.175	2040–0205
141.175(a)–(b)	2040–0205
141.175(c)	2040–0090
* * *	* *

PART 141—NATIONAL PRIMARY DRINKING WATER REGULATIONS

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

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.

§ 141.12 [Amended]

4. Section 141.12 is amended by revising "December 16, 2001" to read "December 31, 2001" and by revising the two occurrences of "December 16, 2003" to read "December 31, 2003".

§ 141.30 [Amended]

5. Amend § 141.30 by:

a. Revising the first sentence of paragraph (e); and

b. In paragraph (h), revising "December 16, 2001" to read "December 31, 2001", and revising the two occurrences of "December 16, 2003" to read "December 31, 2003".

§ 141.30 Total trihalomethanes sampling, analytical and other requirements.

* * * * *

(e) Sampling and analyses made pursuant to this section shall be conducted by one of the total trihalomethanes methods as directed in § 141.24(e), and the *Technical Notes on Drinking Water Methods*, EPA–600/R–94–173, October 1994, which is available from NTIS, PB–104766, or in § 141.131(b). * * *

* * * * *

§ 141.64 [Amended]

6. Amend § 141.64 by:

a. In paragraph (b)(1), revising "December 16, 2001" to read "January 1, 2002" and revising "December 16, 2003" to read "January 1, 2004"; and

b. In paragraph (b)(2), revising "December 16, 2003" to read "December 31, 2003".

§ 141.65 [Amended]

7. Section 141.65, paragraphs (b)(1) and (b)(2) are amended by revising "December 16, 2001" to read "January 1, 2002" and revising "December 16, 2003" to read "January 1, 2004", wherever they appear.

§ 141.71 [Amended]

8. Section 141.71(b)(6) is amended by revising the two occurrences of "December 17, 2001" to read "December 31, 2001".

§ 141.73 [Amended]

9. Amend § 141.73 by:

a. In paragraph (a)(3), revising "December 17, 2001" to read "January 1, 2002"; and

b. In paragraph (d), revising "December 17, 2001" to read "January 1, 2002".

§ 141.130 [Amended]

10. Amend § 141.130 by:

a. In paragraphs (b)(1) and (b)(2), revising "December 16, 2001" to read "January 1, 2002" and revising "December 16, 2003" to read "January 1, 2004"; and

b. In paragraph (b)(2), removing the phrase "and chlorite" from the first and second sentences.

§ 141.131 [Amended]

11. Amend § 141.131 by revising the first sentence of paragraph (b)(2) and adding paragraph (b)(3) to read:

§ 141.131 Analytical requirements.

* * * * *

(b) * * *

(2) Analysis under this section for disinfection byproducts must be conducted by laboratories that have received certification by EPA or the State, except as specified under paragraph (b)(3) of this section. * * *

(3) A party approved by EPA or the State must measure daily chlorite samples at the entrance to the distribution system.

* * * * *

§ 141.132 [Amended]

12. Amend § 141.132 by:

a. In paragraph (a)(2), revising the reference "§ 142.16(f)(5)" to read "§ 142.16(h)(5)";

b. In paragraph (b)(1)(i), revising the third and fifth entries and footnote 2 in the table;

c. In paragraph (b), revising the last two sentences in paragraph (b)(1)(iii), redesignating paragraph (b)(1)(iv) as (b)(1)(v), adding a new paragraph (b)(1)(iv); and

d. In paragraph (c), revising the first sentence after the heading in paragraph (c)(1)(i).

The addition and revisions read as follows:

§ 141.132 Monitoring requirements.

* * * * *

(b) * * *

(1) * * *

(i) * * *

ROUTINE MONITORING FREQUENCY FOR TTHM AND HAA5

Type of system	Minimum monitoring frequency	Sample location in the distribution system
* *	* * *	* *
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 the MCL, the 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 the system meets criteria in paragraph (b)(1)(iv) of this section.
* *	* * *	* *
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 the MCL, the 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 the system meets criteria in paragraph (b)(1)(iv) of this section.
* *	* * *	* *

[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(h)(5) of this chapter.

(ii) * * *

(iii) * * * Systems that do not meet these levels must resume monitoring at the frequency identified in paragraph (b)(1)(i) of this section (minimum monitoring frequency column) in the quarter immediately following the monitoring period in which the system exceeds 0.060 mg/L or 0.045 mg/L for TTHM or HAA5 respectively. For systems using only ground water not under the direct influence of surface water and serving fewer than 10,000 persons, if either the TTHM annual average is >0.080 mg/L or the HAA5 annual average is >0.060 mg/L, the system must go to the increased monitoring identified in paragraph (b)(1)(i) of this section (sample location column) in the quarter immediately following the monitoring period in which the system exceeds 0.080 mg/L or 0.060 mg/L for TTHMs or HAA5 respectively.

(iv) Systems on increased monitoring may return to routine monitoring if, after at least one year of monitoring their TTHM annual average is ≤0.060 mg/L and their HAA5 annual average is ≤0.045 mg/L.

* * * * *

(c) * * *

(1) * * *

(i) *Routine Monitoring.* Community and nontransient noncommunity water systems that use chlorine or chloramines must measure the residual disinfectant level in the distribution system at the same point in the distribution system and at the same time as total coliforms are sampled, as specified in § 141.21. * * *

* * * * *

13. Amend § 141.133 by:

a. In the first sentence of paragraph (a)(1), revising "system's failure" to read "system fails";

b. In paragraph (b), removing the last two sentences of paragraph (b)(1)(i), revising paragraphs (b)(1) (ii) and (iii), and adding new paragraph (b)(1)(iv);

c. In paragraph (c), removing the phrase "of quarterly averages" in the second sentence of paragraph (c)(1)(i) and adding the phrase "in addition to reporting to the State pursuant to § 141.134" to the end of the second and third sentences in paragraph (c)(2)(i) and the second and third sentences of paragraph (c)(2)(ii); and

d. In paragraph (d), revising the reference "§ 141.135(b)" in the first sentence to read "§ 141.135(c)" and adding a sentence to the end of the paragraph.

The additions and revisions as follows

§ 141.133 Compliance requirements.

* * * * *

(b) * * *

(1) * * *

(ii) For systems monitoring less frequently than quarterly, systems demonstrate MCL compliance if the average of samples taken that year under the provisions of § 141.132(b)(1) does not exceed the MCLs in § 141.64. If the average of these samples exceeds the MCL, the system must increase monitoring to once per quarter per treatment plant and such a system is not in violation of the MCL until it has completed one year of quarterly monitoring, unless the result of fewer than four quarters of monitoring will cause the running annual average to exceed the MCL, in which case the system is in violation at the end of that quarter. Systems required to increase monitoring frequency to quarterly monitoring must calculate compliance by including the sample which triggered the increased monitoring plus the following three quarters of monitoring.

(iii) 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 or § 141.202, whichever is effective for your system, in addition to reporting to the State pursuant to § 141.134.

(iv) If a PWS fails to complete four consecutive quarters of monitoring, compliance with the MCL for the last four-quarter compliance period must be

based on an average of the available data.

* * * * *

(d) * * * For systems required to meet Step 1 TOC removals, if the value calculated under § 141.135(c)(1)(iv) is less than 1.00, the system is in violation of the treatment technique requirements and must notify the public pursuant to § 141.32, in addition to reporting to the State pursuant to § 141.134.

14. Amend § 141.134 by:

a. In paragraph (b), revising the table;

b. In paragraph (c), revising the table; and

c. In paragraph (d), revising the first entry in the table, designating the second entry in the first column as (2), and redesignating its corresponding entries in the second column as (i) through (ix).

The revisions read as follows:

§ 141.134 Reporting and recordkeeping requirements.

* * * * *

(b) * * *

If you are a * * *	You must report * * *
(1) System monitoring for TTHMs and HAA5 under the requirements of § 141.132(b) on a quarterly or more frequent basis.	(i) The number of samples taken during the last quarter. (ii) The location, date, 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 of this section for the last four quarters. (v) Whether, based on § 141.133(b)(1), the MCL was violated.
(2) System monitoring for TTHMs and HAA5 under the requirements of § 141.132(b) less frequently than quarterly (but as least annually).	(i) The number of samples taken during the last year. (ii) The location, date, and result of each sample taken during the last monitoring period. (iii) The arithmetic average of all samples taken over the last year. (iv) Whether, based on § 141.133(b)(1), the MCL was violated.
(3) System monitoring for TTHMs and HAA5 under the requriements of § 141.132(b) less frequently than annually.	(i) The location, date, and result of each sample taken (ii) Whether, based on § 141.133(b)(1), the MCL was violated.
(4) System monitoring for chlorite under the requirements of § 141.132(b).	(i) The number of entry point samples taken each month for the last 3 months. (ii) The location, date, and result of each sample (both entry point and distribution system) taken during the last quarter. (iii) For each month in the reporting period, the arithmetic average of all samples taken in each three samples set taken in the distribution system. (iv) Whether, based on § 141.133(b)(3), the MCL was violated, in which month, and how many times it was violated each month.
(5) System monitoring for bromate under the requirements of § 141.132(b).	(i)The number of samples taken during the last quarter. (ii)The location, date, and result of each sample taken during the last quarter. (iii) The arithmetic average of the monthly arithmetic averages of all samples taken in the last year. (iv) Whether, based on § 141.133(b)(2), the MCL was violated.

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

(c) * * *

If you are a * * *	You must report * * *
(1) System monitoring for chlorine or chloramines under the requirements of § 141.132(c).	(i) The number of samples taken during each month of the last quarter. (ii) The month arithmetic average of all samples taken in each month for the last 12 months. (iii) The arithmetic average of the monthly averages for the last 12 months. (iv) Whether, based on § 141.133(c)(1), the MRD was violated.
(2) System monitoring for chlorine dioxide under the requirements of § 141.132(c).	(i) The dates, result, and locations of samples taken during the last quarter. (ii) Whether, based on § 141.133(c)(2), the MRDL was violated. (iii) Whether the MRDL was exceeded in any two consecutive daily samples and whether the resulting violation was acuate 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) * * *

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).	(i) The number of paired (source water and treated water) samples taken during the last quarter. (ii) The location, date, and results of each paired sample and associated alkalinity taken during the last quarter. (iii) 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. (iv) Calculations for determining compliance with the TOC prevent removal requirements, as provided in § 141.135(c)(1). (v) Whether the system is in compliance with the ehnanced coagulation or enhanced softening percent removal requirements in § 141.135(b) in § 141.135(b) for the last four quarters.
* * * * * * *	

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

§ 141.135 [Amended]

15. Amend § 1A141.135 by:

a. In paragraph (a)(2)(iii), revising "as required by" in the first sentence to read "according to", and revising "June 16, 2005" in the third sentence to read "June 30, 2005";

b. In paragraph (b)(2), revising the table;

c. In paragraph (b)(4), removing the phrase "(as aluminum)" wherever it appears and revising the introductory text; and

d. In paragraph (c)(1), revising the table;

The revisions read as follows:

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

* * * * *

(b) * * *

(2) * * *

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 $CaCO_3$ (in precentages)		
	0–60	>60–120	>120 [3]
>2.0–4.0	35.0	25.0	15.0
>4.0–8.0	45.0	35.0	25.0
>8.0	50.0	40.0	30.0

[1] Systems meeting at least one of the conditions in paragraph (a)(2)(i)–(vi) of this section are not required to operate with enhanced coagulation.

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

[3] System practicing softening must meet the TOC removal requirements in this column.

(3) * * *

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

* * * * *

(c) * * *

(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) or (b)(3) of this section. * * *

* * * * *

§ 141.170 [Amended]

16. Section 141.170(a) is amended in the introductory text by revising "December 17, 2001" to read "January 1, 2002".

§ 141.172 [Amended]

17. Amend § 141.172 by:

a. In paragraph (a)(2)(iii)(A), revising "March 16, 2000" to read "March 31, 2000";

b. In paragraph (a)(5), revising "December 16, 1999" to read "December 31, 1999" wherever it appears;

c. In paragraph (a)(5)(iii), revising "March 16, 2000" to read "March 31, 2000";

d. In the introductory text of paragraph (b)(2), revising "March 16, 2000" to read "April 1, 2000";

e. In paragraph (b)(3)(i), revising "March 16, 2000" to read "March 31, 2000"; and

f. In paragraph (b)(4)(ii), revising the last sentence to read:

§ 141.172 Disinfection profiling and benchmarking.

* * * * *

(b) * * *

(4) * * *

(ii) * * * The ($CTcalc/CT_{99.9}$) value of each segment and ($\Sigma(CTcalc/CT_{99.9})$) must be calculated using the method in paragraph (b)(4)(i) of this section.

* * * * *

§ 141.173 [Amended]

18.–19. In § 141.173, amend the introductory text by revising "December 17, 2001" to read "December 31, 2001".

§ 141.175 [Amended]

20. Amend § 141.175 by revising the two occurrences of "December 17, 2001" to read "January 1, 2002" in the introductory text and adding paragraph (c);

§ 141.175 Reporting and recordkeeping requirements

* * * * *

(c) *Additional reporting requirements.*

(1) If at any time the turbidity exceeds 1 NTU in representative samples of filtered water in a system using conventional filtration treatment or direct filtration, the system must inform the State as soon as possible, but no later than the end of the next business day.

(2) If at any time the turbidity in representative samples of filtered water exceeds the maximum level set by the State under § 141.173(b) for filtration technologies other than conventional filtration treatment, direct filtration, slow sand filtration, or diatomaceous earth filtration, the system must inform the State as soon as possible, but no later than the end of the next business day.

PART 142—NATIONAL PRIMARY DRINKING WATER REGULATIONS IMPLEMENTATION

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

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

22. In § 142.12, revise paragraph (b)(3)(i) and the last sentence of (d)(2), to read as follows:

§ 142.12 Revision of state programs

* * * * *

(b) * * *

(3) * * *

(i) Informing public water systems of the new EPA (and upcoming State) requirements and that EPA will be overseeing implementation of the requirements until the State, if eligible for interim primacy, submits a complete and final primacy revision request to EPA, or in all other cases, until EPA approves the State program revision;

* * * * *

(d) * * *

(2) *Final request.* * * * Complete and final State requests for program revisions shall be submitted within two years of the promulgation of the new or revised EPA regulations, as specified in paragraph (b) of this section.

* * * * *

§ 142.15 [Amended]

23. In the first sentence of paragraph (c)(5), revise the reference "§ 141.16(b)(3)" to read "§ 142.16(b)(3)".

[FR Doc. 01–655 Filed 1–12–01; 8:45 am]

BILLING CODE 6560–50–P

INTERIM ENHANCED SURFACE WATER TREATMENT RULE (IESWTR)

COMMENT AND RESPONSE DOCUMENT

List of Commentators

1. Mr. Jason Gambatese
   U.S. EPA (3WP22)
   1650 Arch Street
   Philadelphia, PA 19103

2. Mr. John S. Poklembo
   Filter Plant Superintendent
   The York Water Company
   130 East Market Street
   P.O. Box 15089
   York, PA 17405-7089

3. Independent Regulatory Review Commission

Definitions

Comment #1: The provisions under subsection (ii) of the *Comprehensive Performance Evaluation* (CPE) definition are substantive. Definitions should not contain substantive provisions. These minimum components of the CPE should be moved to § 109.205 of the proposed amendments. (3)

Response #1: For the purpose of achieving primacy requirements, the proposed definition is identical to the federal definition of *CPE* at 40 CFR § 141.2.

Comment #2: The definition of *Disinfection Profile* mentions "...procedures and measurement methods established by the EPA." For clarity, a specific reference to the EPA procedures and measurement methods should be added. (3)

Response #2: The EPA procedures and measurement methods are referenced in the proposed language of § 109.204. For clarity, the proposed definition of *Disinfection Profile* has been revised to include a reference to this Chapter.

State MCLs and Treatment Technique Requirements

Comment #3: In § 109.202(c)(1)(i)(C), "other filtration technologies" must achieve the same performance criteria as conventional and direct filtration technologies "...unless the Department specifies more stringent performance criteria." Under what circumstances would the Department require these "other filtration technologies" to meet criteria more stringent than conventional filtration? What process will the Department use to impose more stringent performance criteria? (3)

Response #3: The Department will prescribe criteria more stringent than conventional filtration criteria as deemed appropriate by pilot plant studies. Accordingly, the proposed language in § 109.202(c)(1)(i)(C) has been revised to include a reference to such studies. Based upon compliance records and Department initiatives to optimize filtration plants, the Department estimates that very few systems will be required to meet criteria more stringent than conventional filtration criteria. If more stringent criteria are imposed, it will be by way of the permitting process.

Comment #4: In § 109.204, disinfection profiling and benchmarking data must be submitted "...in a format acceptable to the Department." What format does the Department intend to accept? How will the person filing the data be notified of what format is acceptable to the Department? (3)

Response #4: The format for disinfection profiling/benchmarking data submission is being specified by the Department field offices and through Department-issued guidance and policy.

General Monitoring Requirements

Comment #5: In § 109.301(1)(iv), public water suppliers must "...conduct continuous monitoring of turbidity...and record the results every 15 minutes." In light of most systems' ability to record data continuously, could continuous turbidity recording satisfy this requirement? If so, then it is suggested to revise the current proposed language to read "...and record the results at least every 15 minutes." (2,3)

Response #5: Continuous turbidity recording will satisfy the requirements of § 109.301(1)(iv). The proposed language in § 109.301(1)(iv) has been revised as suggested.

Comment #6: The federal language in 40 CFR § 141.173(a)(3) indicates that systems using lime softening may acidify representative turbidity samples prior to analysis using a protocol approved by the state. The Department, however, did not include this provision in the proposed rulemaking. (1,3)

Response #6: The Department provides for this option by way of reference in § 109.304 wherein the Department requires that sampling, monitoring, and analytical techniques be acceptable to either the Environmental Protection Agency or the Department. The specific protocol will be addressed through Department-issued guidance and/or policy.

Reporting and Recordkeeping

Comment #7: In § 109.701(e), it should be noted that systems must maintain individual filter monitoring data for at least 3 years and that they must report that they have conducted individual filter monitoring within 10 days following the end of each month that the system serves water to the public. (1,3)

Response #7: The existing provisions in § 109.701(d)(2) require that water systems retain monitoring records for a minimum of three years. These monitoring records will include individual filter monitoring data. The Department agrees that systems must report that individual filter monitoring has been conducted and has made the suggested revision.

Comment #8: Are the records that are required under § 109.701(e) subject to the recordkeeping requirements of § 109.701(d)? Do the requirements of § 109.701(d) meet EPA requirements? (3)

Response #8: The records that are required under §109.701(e) are subject to the specific recordkeeping requirements of § 109.701(d)(2). The requirements of § 109.701(d)(2) meet EPA requirements.

Filter Profile, Filter Self-Assessment and Comprehensive Performance Evaluations

Comment #9: In § 109.714, it should be noted that systems must complete the comprehensive performance evaluation within 90 days following the triggering criteria. (1,3)

Response #9: The Department agrees and has made the suggested revision.

Comment #10: The proposed language in § 109.714(3) states that the CPE must be conducted within 30 days of the triggering event. Why is Pennsylvania requiring 30 days when EPA requires 90 days? (3)

Response #10: The proposed 30-day provision in § 109.714(3) is incorrect. Therefore, § 109.714(3) has been revised to more accurately indicate that systems must arrange for a CPE no later than 30 days from the triggering event. As stated above, § 109.714(3) has also been revised to include the 90-day completion requirement.

Pennsylvania Department of Environmental Protection

Rachel Carson State Office Building
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May 8, 2001

The Secretary **717-787-2814**

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

RE: Final Rulemaking: Interim Enhanced Surface Water Treatment Rule (IESWTR) (#7-358)

Dear Bob:

Pursuant to Section 5.1(a) of the Regulatory Review Act, enclosed is a copy of a final-form regulation for review by the Commission. This final rulemaking was approved by the Environmental Quality Board (EQB) on April 17, 2001.

This final rulemaking amends Chapter 109 (Safe Drinking Water) to incorporate requirements of the federal Interim Enhanced Surface Water Treatment Rule (IESWTR), which EPA promulgated on December 16, 1998, with corrective amendments on January 16, 2001. The IESWTR is intended to improve the control of disease-causing pathogens, specifically the protozoan *Cryptosporidium parvum*, in drinking water. The rulemaking applies to public water systems that use surface water or groundwater under direct influence of surface water and serve 10,000 or more people. Implementation of the federal IESWTR will significantly reduce the level of *Cryptosporidium* in finished drinking water supplies through improvements in filtration. The filtration provisions will also provide additional protection against other disease-causing organisms in drinking water.

The federal IESWTR was promulgated concurrently with a companion rule, the Disinfectants and Disinfection Byproducts Rule (D/DBPR). Combined, the two proposals provide a balance between microbial risks and disinfection risks. To maintain primacy, Pennsylvania is required to adopt the two proposals within two years of the federal promulgation, which would have been December 16, 2000. However, EPA allows states to request an extension of up to two years if they are adopting two or more regulations at the same time. Since this criterion applies in this instance, DEP requested an extension on November 28, 2000, and expects EPA to grant the extension in the near future.

The proposed rulemaking was adopted by the EQB on July 18, 2000, and published on September 2 with a 30-day public comment period. There were three commentators to the proposal.

DEP worked with two advisory groups in developing the IESWTR and D/DBPR. The Water Resources Advisory Committee reviewed drafts of the final rulemakings on January 10, 2001. The Small Water Systems Technical Advisory Committee reviewed the documents on January 25, 2001. Both advisory groups recommended that the two rules proceed to the EQB.

The Department will provide the Commission with any assistance required to facilitate a thorough review of this final-form regulation. Section 5.1(e) of the Act provides that the Commission shall, within ten days after the expiration of the committee review period, approve or disapprove the final-form regulation.

For additional information, please contact Sharon Trostle, Regulatory Coordinator, at 783-8727.

Sincerely,

David E. Hess

David E. Hess
Acting Secretary

Enclosures

TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO THE REGULATORY REVIEW ACT

I.D. NUMBER: 7-358

SUBJECT: Interim Enhanced Surface Water Treatment (IESWTR)

AGENCY: DEPARTMENT OF ENVIRONMENTAL PROTECTION

TYPE OF REGULATION

Proposed Regulation

X 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
5/8/01	Nancy Bongiorno	HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
5-8-01	Dick Castelli	SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
5-8-01	Elena Pagán	INDEPENDENT REGULATORY REVIEW COMMISSION
		ATTORNEY GENERAL
		LEGISLATIVE REFERENCE BUREAU

April 20, 2001