

Regulatory Analysis Form		This space for use by IRRC DEPARTMENT OF ENVIRONMENTAL PROTECTION 2004 MAY -7 PM 2:05 REGULATORY REVIEW COMMISSION
(1) Agency Department of Environmental Protection		IRRC Number: 2345
(2) I.D. Number (Governor's Office Use) 7-383		
(3) Short Title Microbial & Disinfection Byproducts Corrective Amendments		
(4) PA Code Cite 25 Pa. Code, Chapter 109	(5) Agency Contacts & Telephone Numbers Primary Contact: Sharon F. Trostle, 783-1303 Secondary Contact: Michele Tate, 783-1303	
(6) Type of Rulemaking (Check One) <input type="checkbox"/> Proposed Rulemaking <input checked="" type="checkbox"/> Final Order Adopting Regulation <input type="checkbox"/> Final Order, Proposed Rulemaking Omitted	(7) Is a 120-Day Emergency Certification Attached? <input checked="" type="checkbox"/> No <input type="checkbox"/> Yes: By the Attorney General <input type="checkbox"/> Yes: By the Governor	
(8) Briefly explain the regulation in clear and nontechnical language. The final amendments will correct several provisions in Chapter 109 relating to disinfectants, disinfection byproducts, and surface water treatment. These provisions currently are more stringent than federal requirements. The final amendments will make these provisions no more stringent than federal requirements. The final amendments will also clarify several provisions relating to disinfectants and disinfection byproducts for better understanding and readability. The final amendments will also correct several typographical errors and incorrect cross-references throughout Chapter 109. Lastly, the final amendments will revise three provisions according to instructions from the United States Environmental Protection Agency (EPA) in order to obtain primary enforcement responsibility (aka "primacy") for the federal <i>Disinfectants and Disinfection Byproducts Rule</i> (D/DBPR) and the federal <i>Interim Enhanced Surface Water Treatment Rule</i> (IESWTR), both of which were promulgated by the EPA on December 16, 1998.		
(9) State the statutory authority for the regulation and any relevant state or federal court decisions. The Pennsylvania Safe Drinking Water Act, 35 P.S. § 721.4(a), and sections 1917-A and 1920-A of the Administrative Code of 1929, 71 P.S. §§ 510-7 and 510-20(b).		

Regulatory Analysis Form

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

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

Tentatively, EPA has granted primacy to the Pennsylvania Department of Environmental Protection (DEP) for both the *Interim Enhanced Surface Water Treatment Rule (IESWTR)* and *Disinfectants and Disinfection Byproduct Rule (D/DBPR)* contingent upon three regulatory provisions being added to Chapter 109 in 2004. Failure to add these provisions by that date may result in Pennsylvania losing primacy for these two federal rules.

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

With one minor exception, the final amendments will require public water systems in Pennsylvania to comply with requirements that are consistent with federal requirements and are no more burdensome than federal requirements. The one exception to this is that the final amendments will require monthly chlorite reporting, as opposed to the quarterly reporting required by federal regulations. DEP feels that monthly chlorite reporting is in the best interest of the regulated community since it will streamline the chlorite reporting procedures and make chlorite reporting easier to remember and understand. The final amendments will also enable DEP to obtain primacy for the IESWTR and D/DBPR. In turn, public water systems across Pennsylvania will benefit from the local DEP field presence, as well as from the many DEP compliance-, technical-, and financial-assistance programs that are already in place.

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

Since the final amendments are primarily minor corrections to monitoring criteria, reporting requirements, and text wording, there will be no health, safety, environmental, or welfare risks that will result from the withdrawal of these final amendments.

(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 affect approximately 2,565 public water systems in Pennsylvania. Approximately 2,141 of these systems are groundwater systems serving less than 10,000 people that will potentially benefit from less-stringent monitoring criteria. Eighty-five (85) surface water systems serving less than 500 people also have the potential to benefit from less-stringent monitoring criteria. Twenty one (21) systems using chlorine dioxide will benefit from cleaner, more-understandable chlorite reporting. Eight (8) transient noncommunity water systems will benefit from the elimination of the enhanced coagulation treatment technique requirement. Several purchasing and consecutive water systems may benefit from the elimination of the monitoring requirements for chlorite, bromate, and chlorine dioxide. All systems that are affected by either the D/DBPR or the IESWTR will benefit from the numerous clarifications of the final amendments. Every system in the state, regardless of D/DBPR or IESWTR applicability, will benefit from the correction of the typographical errors and incorrect cross-references that are throughout Chapter 109. Lastly, DEP will benefit by attaining primacy from EPA for both the D/DBPR and the IESWTR.

Regulatory Analysis Form

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

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

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

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

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

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 August 2, 2003, to September 2, 2003. No comments were received during or after this comment period. The WRAC and TAC also reviewed the final amendments. The WRAC provided comments on the final amendments. The TAC had no comments on 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 final amendments will not increase compliance costs to that which is already being borne by the regulated community for the D/DBPR and IESWTR. The final amendments may result in undeterminable savings to some water systems due to less-stringent monitoring criteria. At least \$6,720 will be saved annually by eight (8) transient noncommunity water systems that will no longer need to comply with the enhanced coagulation treatment technique.

Regulatory Analysis Form

(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 final amendments will effect no costs or savings to local governments. It should be noted, however, that some local governments may actually be considered as members of the regulated community in the form of municipal authorities and similar entities. To that extent, some of the savings listed in (17) above will be to local governments. Approximately 27% of the public water systems affected by these final amendments are municipal authorities or are owned by municipalities.

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

The final amendments will effect no costs or savings to state government. It should be noted, however, that DEP will obtain primacy from EPA for both the D/DBPR and IESWTR if these final amendments are adopted into Chapter 109. This, in turn, will secure continued federal funding at current annual levels.

Regulatory Analysis Form

(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	6,720*	6,720*	6,720*	6,720*	6,720*	6,720*
Local Government	0	0	0	0	0	0
State Government	0	0	0	0	0	0
Total Savings	6,720*	6,720*	6,720*	6,720*	6,720*	6,720*
COSTS:						
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 Costs	0	0	0	0	0	0
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.

Eight (8) transient noncommunity water systems will save at least \$6,720 annually by not having to comply with the enhanced coagulation treatment technique. This treatment technique requires that a set of water samples be taken every month. The approximate cost of the water samples is \$70.

$$(\$70 \text{ per month}) \times (12 \text{ months}) \times (8 \text{ systems}) = \$6,720$$

* As mentioned in (17) above, the final amendments will probably result in certain, yet undeterminable, savings for some water systems because of less-stringent monitoring criteria. At this point in time, however, these savings are impossible to estimate due to a lack of disinfection byproduct compliance data.

As mentioned in (17), (18), and (19) above, the final amendments will not result in any new costs.

Regulatory Analysis Form

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

Program	FY-3 (00 - 01)	FY-2 (01 - 02)	FY-1 (02 - 03)	Current FY (03 - 04)
Env. Prot. Operations (160)	\$76,018,000	\$75,074,000	\$75,559,000	\$76,393,000
Env. Program Management (161)	\$41,471,000	\$43,354,000	\$43,780,000	\$43,679,000

The safe drinking water expenditures from the above appropriations are as follows:

<i>Env. Protection Operations (160)</i>	<i>\$491,116</i>	<i>\$792,445</i>	<i>\$853,816</i>	<i>\$950,000</i>
<i>Env. Program Management (161)</i>	<i>\$2,210,022</i>	<i>\$3,566,000</i>	<i>\$3,842,170</i>	<i>\$5,420,000</i>

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

There will be no adverse effects or added costs that will result from this regulation. There will be definite, yet not currently determinable, savings that will be realized by the regulated community.

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

No nonregulatory alternatives were considered. These final amendments originated from two federal rules whose provisions were incorporated into Chapter 109.

(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. These final amendments originated from two federal rules whose provisions were incorporated into Chapter 109.

Regulatory Analysis Form

(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.

Yes. The final amendments contain one provision that is more stringent than the federal D/DBPR. This provision is in § 109.701(a)(9)(ii) and will require monthly reporting of chlorite monitoring results. This is contrasted by the federal D/DBPR which requires quarterly reporting of chlorite monitoring results. DEP feels that monthly reporting of chlorite is more appropriate than quarterly for the following reasons:

- 1) Compliance with the chlorite MCL is based upon the monthly distribution sampling. If one month's distribution average exceeds the chlorite MCL, then the system will be in violation. In this case, there is nothing that the other two months' results can do to redeem the system from being in violation. To that extent, DEP feels that monthly reporting of chlorite results is appropriate for compliance determination.
- 2) Public water systems must report monthly the sampling results for parameters that are sampled daily (e.g., turbidity, disinfectant residual). With this being the case, DEP feels that it would be confusing to water system operators to report daily entry point chlorite results on a quarterly basis. DEP feels that it would be easier for water system operators to remember that daily entry point chlorite results get reported on a monthly basis, consistent with all of the other daily sampling parameters.
- 3) As per the previous reason, systems that must monitor for chlorite will need to report their daily chlorine dioxide monitoring results on a monthly basis.
- 4) Monthly reporting would be more appropriate for, and consistent with, the acute health concerns associated with the parent chlorine dioxide disinfectant.

Twenty-one (21) water systems in Pennsylvania treat with chlorine dioxide and, accordingly, will need to monitor for chlorite.

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

The federal D/DBPR rule 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 any other state.

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

The final amendments will not affect any other existing or proposed regulations under Title 25 of the Pennsylvania Code. The final amendments will not affect any other existing or proposed regulations of any other state agency.

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

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

Regulatory Analysis Form

(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 cause no additional paperwork (e.g., reporting forms, record keeping, application forms, letters, public notices, etc.) for public water systems in Pennsylvania.

The proposed chlorite reporting requirements, which will increase chlorite reporting from quarterly to monthly, will nevertheless cause no additional paperwork since the actual number of required reporting forms will not change over a given period of time. The proposed monthly reporting will simply increase the frequency of submitting these forms. That is, affected water systems will be submitting three forms per month rather than nine forms per quarter.

It should be noted that DEP has been actively endorsing electronic data reporting in lieu of conventional paper form reporting to water systems throughout the state. If employed, electronic data reporting would greatly reduce a water system's current paperwork requirements.

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

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

The final amendments are targeted for promulgation in 2004. Compliance will become effective immediately upon promulgation. The final amendments will not result in the need for permits and approvals.

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

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

**FACE SHEET
FOR FILING DOCUMENTS
WITH THE LEGISLATIVE REFERENCE
BUREAU**

(Pursuant to Commonwealth Documents Law)

2004 MAY -7 PM 2:05

REVIEW COMMISSION

DO NOT WRITE IN THIS SPACE # 2345

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

By: _____
(Deputy Attorney General)

DATE OF APPROVAL _____

Check if applicable
Copy not approved. Objections attached.

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

**DEPARTMENT OF ENVIRONMENTAL
PROTECTION
ENVIRONMENTAL QUALITY BOARD**
(AGENCY)

DOCUMENT/FISCAL NOTE NO. 7-383

DATE OF ADOPTION _____

BY Kathleen A. McGinty
TITLE **KATHLEEN A MCGINTY
CHAIRPERSON**

EXECUTIVE OFFICER CHAIRMAN OR SECRETARY

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

By: _____
DATE OF APPROVAL
4/26/04

(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**

Microbial and Disinfection Byproducts Corrective Amendments

25 Pa. Code, Chapter 109

**Notice of Final Rulemaking
Department of Environmental Protection
Environmental Quality Board
(25 Pa. Code, Chapter 109)
(Safe Drinking Water)
(Microbial & Disinfection Byproducts Corrective Amendments)**

Order

The Environmental Quality Board (Board) by this Order amends 25 Pa. Code, Chapter 109 (relating to Safe Drinking Water). The amendments update and clarify several requirements concerning disinfectants, disinfection byproducts, and surface water treatment. The amendments also add three requirements concerning disinfection byproduct monitoring, increased monitoring criteria, and surface water turbidity reporting, which are necessary for Pennsylvania to obtain primary enforcement responsibility for the Safe Drinking Water Program. Lastly, the amendments correct minor typographical errors throughout Chapter 109.

This order was adopted by the Board at its meeting of April 20, 2004.

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, Chief, Division of Drinking Water Management, P.O. Box 8467, Rachel Carson State Office Building, Harrisburg, PA 17105-8467, (717) 772-4018 or Marylou Barton, 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 public health benefits of disinfection are significant and well recognized. However, these very disinfection practices pose health risks of their own. Although disinfectants such as chlorine, hypochlorites, and chlorine dioxide are effective in controlling many harmful microorganisms, they react with organic and inorganic matter in the water to form disinfection byproducts (DBPs), which pose health risks at certain levels.

The first DBPs discovered in public drinking water were halogenated methanes in 1974. In 1979, the United States Environmental Protection Agency (EPA) promulgated a Maximum Contaminant Level (MCL) in order to regulate these compounds. Since then, other DBPs have been identified and studied for their health effects. Many of these studies have shown DBPs to be carcinogenic and/or to cause adverse reproductive or developmental effects in laboratory animals. Studies have also shown that high levels of the disinfectants themselves may cause health problems over long periods of time, including damage to both the blood and the kidneys.

In 1992, the EPA initiated a rulemaking process to address public health concerns associated with disinfectants and DBPs. During this rulemaking, EPA was concerned that new regulations that would control disinfection practices and limit DBP formation would also compromise, and perhaps even jeopardize, safeguards already in place for limiting risks from microbial pathogens. Accordingly, one of the major goals in this rulemaking process was to develop an approach that would reduce exposure to disinfectants and DBPs without undermining the control of microbial pathogens. The intent was to ensure that drinking water remained microbiologically safe at the limits set for disinfectants and DBPs. Thus, the EPA proposed a companion microbial rule to accompany the disinfectants and DBP rule.

On December 16, 1998, EPA promulgated both the federal *Interim Enhanced Surface Water Treatment Rule (IESWTR)* and the federal *Disinfectants and Disinfection Byproducts Rule (D/DBPR)*. These companion rules were intended to simultaneously address microbial pathogens, such as *Cryptosporidium parvum*, and harmful disinfection byproducts. In response to these federal rulemakings, the Safe Drinking Water Program of the Department of Environmental Protection (Department) promulgated amendments to the Chapter 109 safe drinking water regulations on July 21, 2001, that reflected the provisions of both the IESWTR and D/DBPR.

After the original publishing of the IESWTR and D/DBPR in December 1998, several issues arose at the federal level regarding compliance dates, monitoring requirements, compliance determinations, reporting requirements, consecutive systems, and typographical errors. In response to these issues, EPA promulgated corrective amendments to the IESWTR and D/DBPR on January 16, 2001. However, since the Department was already in the final rulemaking phase for the IESWTR and D/DBPR at that time, several provisions of the January 16, 2001 federal corrective amendments were not included in the final regulation. As a result, several provisions in Chapter 109 are unnecessarily more stringent than current federal requirements.

This M/DBP Corrective Amendments package addresses these more stringent provisions. Some notable examples include more-stringent monitoring requirements for small systems and inclusion of both consecutive and purchasing water systems for most of the D/DBPR requirements. There are also provisions in Chapter 109 that DEP has determined are in need of clarification. Lastly, there are three federal provisions that EPA wants added to Chapter 109 in order for the Department to obtain primary enforcement responsibility (aka "primacy") of the IESWTR and D/DBPR. These three provisions concern turbidity reporting requirements for alternative filtration technologies, increased monitoring criteria for small groundwater systems, and miscellaneous considerations for determining DBP sampling locations. The EPA considers these provisions to be minor, albeit necessary for primacy.

There is one provision in the amendments that is more stringent than the federal requirements. The amendments in § 109.701(a)(9)(ii) will require that chlorite monitoring results be reported monthly to the Department, as opposed to quarterly in the federal rule. The Department feels that monthly reporting is appropriate since entry point chlorite samples are to

be taken daily and that compliance with the chlorite MCL is based upon monthly distribution sampling. Monthly reporting would also be more appropriate than quarterly reporting due to the acute health concerns associated with the parent chlorine dioxide disinfectant. The remainder of the Microbial & Disinfection Byproducts (M/DBP) Corrective Amendments will be no more stringent than the federal rules.

The Board proposes to incorporate the provisions of the M/DBP Corrective Amendments into the Pennsylvania Safe Drinking Water Regulations (25 Pa. Code Chapter 109). Over 10.5 million Pennsylvanians will benefit from improved drinking water standards as a result of these amendments.

The Board approved the proposed amendments on May 21, 2003. The proposed amendments were published in the *Pennsylvania Bulletin* on August 2, 2003. The 30-day public comment period concluded on September 2, 2003. No comments were received. No public meetings or hearings were held on the proposed amendments.

The Technical Assistance Center Advisory Board (TAC) and the Water Resources Advisory Committee (WRAC) were each briefed on the final rulemaking. The TAC reviewed the final rulemaking in December 2003 by way of a special mailing to individual TAC members. The TAC had no comments and approved the final rulemaking for recommendation to the Board. The WRAC reviewed and discussed the final rulemaking on January 14, 2004. The WRAC commented that the TTHM and HAA5 monitoring requirements for groundwater systems in § 109.301(12)(i) were somewhat confusing. Specifically, WRAC was concerned that a system using groundwater that is under the direct influence of surface water (GUDI) would incorrectly follow the requirements for groundwater systems in § 109.301(12)(i)(A)(II) and § 109.301(12)(i)(B)(II), and not the applicable requirements for GUDI systems in § 109.301(12)(i)(A)(I) and § 109.301(12)(i)(B)(I). In response, § 109.301(12)(i)(A)(II) and § 109.301(12)(i)(B)(II) were revised to make obvious the exclusion of GUDI systems for those two subclauses. With these changes, WRAC approved the final rulemaking for recommendation to the Board.

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

No comments were received on the proposed rulemaking. The Department, however, made minor clarifying changes to six areas of the proposed rulemaking.

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

The Department amended this paragraph to account for the subparagraph on DBP precursor monitoring in § 109.301(12)(iv) and to clarify that only community and nontransient noncommunity water systems are potentially subject to DBP precursor monitoring.

§ 109.301(12)(i)(A)(II) *Routine monitoring.*

The Department amended this subclause to clarify that only systems that use groundwater exclusively are subject to the provisions of this subclause. This amendment reflects the federal requirements found in 40 CFR § 141.132(b)(1)(i).

§ 109.301(12)(i)(B)(II) *Reduced monitoring.*

The Department amended this subclause to clarify that only systems that use groundwater exclusively are subject to the provisions of this subclause. This amendment reflects the federal requirements found in 40 CFR § 141.132(b)(1)(ii).

§ 109.301(12)(iv) *Disinfection byproduct precursors.*

The Department amended this subparagraph to clarify that only community and nontransient noncommunity water systems are potentially subject to DBP precursor monitoring.

§ 109.304(c) *Analytical requirements.*

The Department amended this subsection to more accurately reflect both current and future rules regarding operator certification. The deleted language will be added in the future when Chapter 303 (regarding *Certification of Operators*) is updated to include the language.

§ 109.1003(a)(1)(ii) *General monitoring requirements.*

The Department amended this subparagraph to clarify that groundwater sources that are affected by surface water influence are subject to the provisions of this subparagraph.

F. Benefits, Costs and Compliance

Benefits

The final amendments will affect approximately 2,565 public water systems in Pennsylvania and will be consistent with federal requirements. Approximately 2,141 of these systems are groundwater systems serving less than 10,000 people that will potentially benefit from less stringent monitoring criteria. Eighty-five (85) surface water systems serving less than 500 people also have the potential to benefit from less stringent monitoring criteria. Twenty-one (21) systems using chlorine dioxide will benefit from clearer, more understandable chlorite reporting. Eight (8) transient noncommunity water systems will benefit from the elimination of the enhanced coagulation treatment technique requirement. Several purchasing and consecutive water systems may benefit from the elimination of the monitoring requirements for chlorite, bromate, and chlorine dioxide. All systems that are affected by either the D/DBPR or the IESWTR will benefit from the numerous clarifications of the final amendments. If the Department maintains primacy for both the D/DBPR and the IESWTR, then all systems that are affected by these rules will benefit from the local Department field presence, as well as from the many Department compliance-, technical-, and financial-assistance programs that are already in place. Every system in the state, regardless of D/DBPR or IESWTR applicability, will benefit from the correction of the typographical errors and incorrect cross-references that exist throughout Chapter 109. Lastly, over 10.5 million Pennsylvanians who are served by public water systems will benefit from the mitigation of adverse microbial and DBP health effects.

Compliance Costs

The final amendments will not result in additional compliance costs beyond what is already being borne by the regulated community for the D/DBPR and IESWTR.

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, or both.

In addition to this network of training staff, the Bureau of Water Supply Management has a division dedicated to providing both training and outreach support services to public water system operators. The Department Internet site also contains the *Drinking Water & Wastewater Operator Information Center* Internet site at www.dep.state.pa.us/dep/deputate/waterops/, which provides a bulletin board of timely, useful information for treatment plant operators.

Paperwork Requirements

The final amendments will create no additional paperwork (e.g., reporting forms, record keeping, application forms, letters, public notices, etc.) for public water systems in Pennsylvania.

The proposed chlorite reporting requirements, which will increase chlorite reporting from quarterly to monthly, will nevertheless cause no additional paperwork since the actual number of required reporting forms will not change over a given period of time. The proposed monthly reporting will simply increase the frequency of submitting these forms. That is, affected water systems will be submitting three forms per month rather than nine forms per quarter.

The Department has been actively endorsing electronic data reporting in lieu of conventional paper form reporting to water systems throughout the state. If employed, electronic data reporting would greatly reduce a water system's current paperwork requirements.

G. Sunset Review

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

H. Regulatory Review

Under section 5(a) of the Regulatory Review Act (71 P.S. § 745.5(a)), on July 22, 2003, the Department submitted a copy of the notice of proposed rulemaking, published at 33 Pa.B. 3730, August 2, 2003, 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 33 *Pennsylvania Bulletin* 3730 (August 2, 2003).
- (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:

KATHLEEN A. MCGINTY
Chairperson
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 B. MCLS, MRDLS OR TREATMENT TECHNIQUE REQUIREMENTS

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

(a) Primary MCLS.

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

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

(3) A public water system that is installing granular activated carbon or membrane technology to comply with the MCL for TTHMs, HAA5, chlorite (where applicable) or bromate (where applicable) may apply to the Department for an extension of up to 24 months past the applicable compliance date specified in the Federal regulations, but not beyond December 31, 2003. In granting the extension, the Department will set a schedule for compliance and may specify any

interim measures that the Department deems necessary. Failure to meet the schedule or interim treatment requirements constitutes a violation of National Primary Drinking Water 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. A system that experiences a breakdown in treatment shall, under § 109.701(a)(3) (relating to reporting and recordkeeping), notify the Department within 1 hour after the water system learns of the violation or the situation, and shall provide public notice in accordance with § 109.408 (relating to Tier 1 public notice—form, manner and frequency of notice).

(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 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 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 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) 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).

(f) *MRDLs.*

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

(2) This subchapter incorporates by reference the primary MRDLs in the National Primary Drinking Water Regulations, in 40 CFR Part 141, Subpart G (relating to maximum contaminant levels and maximum residual disinfectant levels) as State MRDLs, under the authority of section 4 of the act (35 P. S. § 721.4), unless other MRDLs are established by regulations of the

Department. The primary MRDLs which are incorporated by reference are effective on the date established by the Federal regulations.

(g) *Treatment technique requirements for disinfection byproduct precursors.* [A public water system that uses either surface water or GUDI sources and that uses] Community water systems and nontransient noncommunity water systems that use either surface water or GUDI sources and that use conventional filtration treatment shall provide adequate treatment to reliably control disinfection byproduct precursors in the source water. Enhanced coagulation and enhanced softening are deemed by the Department to be treatment techniques for the control of disinfection byproduct precursors in drinking water treatment and distribution systems. This subchapter incorporates by reference the treatment technique in 40 CFR 141.135 (relating to treatment technique for control of disinfection byproduct (DBP) precursors). Coagulants approved by the Department are deemed to be acceptable for the purpose of this treatment technique. This treatment technique is effective on the date established by the Federal regulations.

Subchapter C. MONITORING REQUIREMENTS

§ 109.301. General monitoring requirements.

The monitoring requirements established by the EPA under the National Primary Drinking Water Regulations, 40 CFR Part 141 (relating to national primary drinking water regulations), as of December 8, 1984, are incorporated by reference. Public water suppliers shall monitor for compliance with MCLs and MRDLs in accordance with the requirements established in the

National Primary Drinking Water Regulations, except as otherwise established by this chapter unless increased monitoring is required by the Department under § 109.302 (relating to special monitoring requirements). Alternative monitoring requirements may be established by the Department and may be implemented in lieu of monitoring requirements for a particular National Primary Drinking Water Regulation if the alternative monitoring requirements are in conformance with the Federal act and regulations. The monitoring requirements shall be applied as follows:

(1) *Performance monitoring for filtration and disinfection.* A public water supplier providing filtration and disinfection of surface water or GUDI sources shall 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 procedure specified by the 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 § 109.701(a)(3) (relating to reporting and recordkeeping), 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:

<i>System Size (People)</i>	<i>Samples/Day</i>
<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:

<i>System Size (People)</i>	<i>Samples/Day</i>
<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, MRDLs and treatment technique requirements) of the water being supplied to the distribution system and record the lowest value for each day. If a public water system's continuous monitoring equipment fails, the public water supplier may, upon notification of the Department under § 109.701(a)(3), 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:

<i>System Size (People)</i>	<i>Samples/Day</i>
<500	1
500—1,000	2
1,001—2,500	3

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 § 109.701(a)(3), notify the Department within 1 hour after the water system learns of the violation or the situation, and shall provide public notice in accordance with § 109.408 (relating to Tier 1 public notice—form, manner and frequency of notice).

(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:

<i>Population Served</i>	<i>Minimum Number of Samples per Month</i>
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 either a surface water or a GUDI source and does not practice filtration in compliance with Subchapter B (relating to MCLs, MRDLs or treatment technique requirements) shall collect at least one total coliform sample at the entry point, or an equivalent location as determined by the Department, to the distribution

system within 24 hours of each day that the turbidity level in the source water, measured as specified in paragraph (2)(i)(B), exceeds 1.0 NTU. The Department may extend this 24-hour collection limit to a maximum of 72 hours if the system adequately demonstrates a logistical problem outside the system's control in having the sample analyzed within 30 hours of collection. A logistical problem outside the system's control may include a source water turbidity result exceeding 1.0 NTU over a holiday or weekend in which the services of a 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. A water supplier that is unable to comply with the 24-hour sampling requirement shall immediately notify persons served by the public water system in accordance with § 109.408. Systems exercising this option shall take and analyze a confirmation sample within 2 weeks of notification of the analytical results of the first sample.

(VI) 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 TTHMs established under 40 CFR 141.12 (relating to maximum contaminant levels for total trihalomethanes) in accordance with 40 CFR

141.30 (relating to total trimalomethanes sampling, analytical and other requirements) 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 either surface water or GUDI 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.

(vi) Community water systems and nontransient noncommunity water systems that **[provide] obtain finished water [that contains a chemical disinfectant or oxidant] from another permitted public water system** shall comply with the monitoring requirements for disinfection byproducts and disinfectant residuals in paragraphs (12)(i)[~~—(iii)~~] and (13).

(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 or MRDLs 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.

(12) *Monitoring requirements for disinfection byproducts and disinfection byproduct precursors.* Community water systems and nontransient noncommunity water systems that use a chemical disinfectant or oxidant[, or provide finished water that contains a chemical disinfectant or oxidant,] shall monitor for disinfection byproducts **AND DISINFECTION BYPRODUCT PRECURSORS IN ACCORDANCE WITH THIS PARAGRAPH.** **Community water systems and nontransient noncommunity water systems that obtain finished water from another public water system that uses a chemical disinfectant or oxidant to treat the finished water shall monitor for TTHMs and HAA5 in accordance with this paragraph.** Systems that use either surface water or GUDI sources and that serve at least 10,000 persons shall begin monitoring by January 1, 2002. Systems that use either surface water or GUDI sources and that serve fewer than 10,000 persons, or systems that use groundwater sources, shall begin monitoring by January 1, 2004. Systems monitoring for disinfection byproducts and disinfection byproduct precursors shall take all samples during normal operating conditions. Systems monitoring for disinfection byproducts and disinfection byproduct precursors [may] **shall** use only data collected under this chapter to qualify for reduced monitoring. Compliance with the MCLs and monitoring requirements for TTHMs, HAA5, chlorite (where applicable) and bromate (where applicable) shall be determined in accordance

with 40 CFR 141.132 and 141.133 (relating to monitoring requirements; and compliance requirements) which are incorporated herein by reference.

(i) *TTHMs and HAA5.*

(A) *Routine monitoring.*

(I) Systems that use either surface water or GUDI sources shall monitor as follows:

(-a-) Systems serving at least 10,000 persons shall take at least four samples per quarter per treatment plant. At least 25% of all samples collected each quarter shall be collected at locations representing maximum residence time. The remaining samples shall be taken at locations that are representative of **[the entire distribution system and that are representative of]** at least average residence time **and that are representative of the entire distribution system, taking into account the number of persons served, the different sources of water, and the different treatment methods.**

(-b-) Systems serving from 500 to 9,999 persons shall take at least one sample per quarter per treatment plant. The sample shall be taken at a location that represents a maximum residence time.

(-c-) Systems serving fewer than 500 persons shall take at least one sample per year per treatment plant during the month of warmest water temperature. The sample shall be taken at a location that represents a maximum residence time. If the sample, or average of all samples, exceeds either a TTHM or HAA5 MCL, then the system shall take at least one sample per quarter per treatment plant **beginning in the quarter immediately following the quarter in**

which the system exceeds either the TTHM or HAA5 MCL. The sample shall be taken at a location that represents a maximum residence time. **[The system may reduce the sampling frequency]** **If, after at least one year of monitoring, the TTHM running annual average is no greater than 0.060 mg/L and the HAA5 running annual average is no greater than 0.045 mg/L, the required monitoring is reduced** back to one sample per year per treatment plant **[in accordance with the reduced monitoring criteria of clause (B)].**

(-d-) If a system samples more frequently than the minimum required in items (-a)—(-c-), at least 25% of all samples collected each quarter shall be collected at locations representing maximum residence time, with the remainder of the samples representing locations of at least average residence time.

(II) Systems that use **ONLY** groundwater sources **NOT INCLUDED UNDER SUBCLAUSE (I)** shall monitor as follows:

(-a-) Systems serving at least 10,000 persons shall take at least one sample per quarter per treatment plant. Multiple wells drawing water from a single aquifer may be considered as a single treatment plant. The sample shall be taken at a location that represents a maximum residence time.

(-b-) Systems serving fewer than 10,000 persons shall take at least one sample per year per treatment plant during the month of warmest water temperature. Multiple wells drawing water from a single aquifer may be considered as a single treatment plant. The sample shall be taken at a location that represents a maximum residence time. If the sample, or average of all samples, exceeds either a TTHM or HAA5 MCL, **then** the system shall take at least one sample per

quarter per treatment plant **beginning in the quarter immediately following the quarter in which the system exceeds either the TTHM or HAA5 MCL.** The sample shall be taken at a location that represents a maximum residence time. **[The system may reduce the sampling frequency]** **If, after at least one year of monitoring, the TTHM running annual average is no greater than 0.060 mg/L and the HAA5 running annual average is no greater than 0.045 mg/L, the required monitoring is reduced** back to one sample per year per treatment plant **[in accordance with the reduced monitoring criteria of clause (B)].**

(-c-) If a system samples more frequently than the minimum required, at least 25% of all samples collected each quarter shall be collected at locations representing maximum residence time, with the remainder of the samples representing locations of at least average residence time.

(B) *Reduced monitoring.* Systems **[that have monitored] shall monitor** for TTHMs and HAA5 for at least 1 year **[may reduce] prior to qualifying for reduced monitoring [according to this clause].** Systems **serving at least 500 persons and** that use either surface water or GUDI sources shall monitor source water TOC monthly for at least 1 year prior to qualifying for reduced monitoring. The Department retains the right to require a system that meets the requirements of this clause to resume routine monitoring.

(I) **[Systems] For systems serving at least 500 persons** that use either surface water or GUDI sources and that have a source water **[annual] TOC running annual** average that is no greater than 4.0 mg/L **[and an annual], a TTHM running annual** average that is no greater than 0.040 mg/L and an **[annual] HAA5 running annual** average that is no greater than 0.030 mg/L **[may reduce], the required monitoring is reduced** according to

items (-a-)[—(-c-)] and (-b-). Systems [that qualify for reduced monitoring may remain on reduced monitoring provided that] servicing at least 10,000 persons shall resume routine monitoring as prescribed in clause (A) if the [annual] TTHM running annual average [is no greater than] exceeds 0.060 mg/L [and] or the [annual] HAA5 running annual average [is no greater than] exceeds 0.045 mg/L. [Systems that exceed these levels shall resume routine monitoring as prescribed in clause (A) in the quarter immediately following the quarter in which the system exceeds 0.060 mg/L for TTHMs or 0.045 mg/L for HAA5.] Systems servicing from 500 to 9,999 persons shall resume routine monitoring as prescribed in clause (A) if the annual TTHM average exceeds 0.060 mg/L or the annual HAA5 average exceeds 0.045 mg/L. Systems servicing at least 500 persons that must resume routine monitoring shall resume routine monitoring in the quarter immediately following the quarter in which the system exceeded the specified TTHM or HAA5 criteria.

(-a-) [Systems] For systems servicing at least 10,000 persons [may reduce], the required monitoring is reduced to one sample per quarter per treatment plant. The sample shall be taken at a location that represents a maximum residence time.

(-b-) [Systems] For systems servicing from 500 to 9,999 persons [may reduce], the required monitoring is reduced to one sample per year per treatment plant. The sample shall be taken during the month of warmest water temperature and at a location that represents a maximum residence time.

[(-c-) Systems serving fewer than 500 persons and that are on increased monitoring as prescribed by clause (A) may reduce monitoring to one sample per

year per treatment plant. The sample shall be taken during the month of warmest water temperature and at a location that represents a maximum residence time.]

(II) [Systems] For systems that use ONLY groundwater sources [may reduce] NOT INCLUDED UNDER SUBCLAUSE (I), the required monitoring is reduced according to the following:

(-a-) [Systems] For systems serving at least 10,000 persons [may reduce] that have a TTHM running annual average that is no greater than 0.040 mg/L and an HAA5 running annual average that is no greater than 0.030 mg/L, the required monitoring is reduced to one sample per year per treatment plant [if the annual TTHM average is no greater than 0.040 mg/L and the annual HAA5 average is no greater than 0.030 mg/L]. The sample shall be taken during the month of warmest water temperature and at a location that represents a maximum residence time. [Systems that qualify for reduced monitoring may remain on reduced monitoring provided that] If the annual TTHM average [is no greater than] exceeds 0.060 mg/L [and] or the annual HAA5 average [is no greater than] exceeds 0.045 mg/L, Systems that exceed these levels], the system shall resume routine monitoring as prescribed in clause (A) in the quarter immediately following the quarter in which the system exceeds 0.060 mg/L for TTHMs or 0.045 mg/L for HAA5.

(-b-) [Systems] For systems serving fewer than 10,000 persons [may reduce] that have an annual TTHM average that is no greater than 0.040 mg/L and an annual HAA5 average that is no greater than 0.030 mg/L for 2 consecutive years or an annual TTHM average that is no greater than 0.020 mg/L and an annual HAA5 average that is no greater than 0.015 mg/L for 1 year, the required monitoring is

reduced to one sample per 3-year cycle per treatment plant [if the annual TTHM average is no greater than 0.040 mg/L and the annual HAA5 average is no greater than 0.030 mg/L for 2 consecutive years or the annual TTHM average is no greater than 0.020 mg/L and the annual HAA5 average is no greater than 0.015 mg/L for 1 year]. The sample shall be taken at a location that represents a maximum residence time during the month of warmest water temperature [within the]. The 3-year cycle [beginning] shall begin on January 1 following the quarter in which the system qualifies for reduced monitoring. [The sample shall be taken at a location that represents a maximum residence time. Systems that qualify for reduced monitoring may remain on reduced monitoring provided that] If the [annual] TTHM average [is no greater than 0.080] exceeds 0.060 mg/L [and] or the [annual] HAA5 average [is no greater than 0.060] exceeds 0.045 mg/L[. Systems that exceed these levels], the system shall resume routine monitoring as prescribed in clause (A), except that systems that exceed either a TTHM or HAA5 MCL shall increase monitoring to at least one sample per quarter per treatment plant beginning in the quarter immediately following the quarter in which the system exceeds [0.080 mg/L for TTHMs or 0.060 mg/L for HAA5] the TTHM or HAA5 MCL.

(ii) *Chlorite.* Community water systems and nontransient noncommunity water systems that use chlorine dioxide for disinfection or oxidation[, or provide finished water that contains chlorine dioxide,] shall monitor for chlorite.

(A) *Routine monitoring.*

(I) *Daily monitoring.* Systems shall take daily samples at the entrance to the distribution system. Systems that must conduct additional monitoring in accordance with clause **(B)** shall continue to take routine daily samples at the entrance to the distribution system.

(II) *Monthly monitoring.*

(-a-) Systems shall take a three-sample set each month in the distribution system. The system shall take one sample at each of the following locations:

(-1-) As close to the first customer as possible.

(-2-) At a location representing an average residence time.

(-3-) At a location representing a maximum residence time.

(-b-) Systems that must conduct additional monitoring in accordance with subclause **(III)** may use the results of the additional monitoring to meet the monthly monitoring requirements of this subclause.

(III) *Additional monitoring.* If a daily sample at the entrance to the distribution system exceeds the chlorite MCL, the system shall take three samples in the distribution system on the following day. The system shall take one sample at each of the following locations:

(-a-) As close to the first customer as possible.

(-b-) At a location representing an average residence time.

(-c-) At a location representing a maximum residence time.

(B) *Reduced monitoring.* Chlorite monitoring in the distribution system required by clause (A)(II) **[may be] is** reduced to one three-sample set per quarter after 1 year of monitoring where no individual chlorite sample taken in the distribution system under clause (A)(II) has exceeded the chlorite MCL and the system has not been required to conduct additional monitoring under clause (A)(III). **[The system may remain on the reduced monitoring schedule until either] If** any of the three individual chlorite samples taken quarterly in the distribution system exceeds the chlorite MCL or the system is required to conduct additional monitoring under clause (A)(III), **[at which time]** the system shall revert to routine monitoring as prescribed by clause (A).

(iii) *Bromate.* Community water systems and nontransient noncommunity water systems that use ozone for disinfection or oxidation**[, or provide finished water that contains ozone,]** shall monitor for bromate.

(A) *Routine monitoring.* Systems shall take one sample per month for each treatment plant that uses ozone. Systems shall take the monthly sample at the entrance to the distribution system while the ozonation system is operating under normal conditions.

(B) *Reduced monitoring.* **[Systems required to analyze for bromate may reduce] For systems that have an average source water bromide concentration that is less than 0.05 mg/L based upon representative monthly bromide measurements for 1 year, the required monitoring is reduced from monthly to quarterly [provided that the system demonstrates that the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly bromide measurements for 1 year].** Systems on reduced monitoring shall continue to take monthly samples for source water bromide. **[Systems may remain on reduced bromate monitoring until] If** the

running annual average source water bromide concentration, computed quarterly, [is equal to] equals or [greater than] exceeds 0.05 mg/L based upon representative monthly measurements, [at which time] the system shall revert to routine monitoring as prescribed by clause (A).

(iv) *Disinfection byproduct precursors.* [Systems] COMMUNITY WATER SYSTEMS AND NONTRANSIENT NONCOMMUNITY WATER SYSTEMS that use either surface water or GUDI sources and that use conventional filtration shall monitor for disinfection byproduct precursors.

(A) *Routine monitoring.* Systems shall take monthly samples of the source water alkalinity, the source water TOC and postsedimentation TOC for each treatment plant that uses conventional filtration. Postsedimentation TOC can be taken at any point between sedimentation effluent and the entry point to the distribution system. The three samples shall be taken concurrently and at a time that is representative of both normal operating conditions and influent water quality.

(B) *Reduced monitoring.* [Systems] For systems with an average postsedimentation TOC of less than 2.0 mg/L for 2-consecutive years, or less than 1.0 mg/L for 1 year, [may reduce] the required monitoring for source water alkalinity, source water TOC and postsedimentation TOC is reduced from monthly to quarterly for each applicable treatment plant. The system shall revert to routine monitoring as prescribed by clause (A) in the month following the quarter when the annual average postsedimentation TOC is not less than 2.0 mg/L.

(C) *Early monitoring.* Systems may begin monitoring to determine whether the TOC removal requirements of 40 CFR 141.135(b)(1) (relating to enhanced coagulation and enhanced softening performance requirements) can be met 12 months prior to the compliance date for the system. This monitoring is not required and failure to monitor during this period is not a violation. However, any system that does not monitor during this period, and then determines in the first 12 months after the compliance date that it is not able to meet the requirements of 40 CFR 141.135(b)(1) and shall therefore apply for alternate minimum TOC removal requirements under 40 CFR 141.135(b)(4) is not eligible for retroactive approval of the alternate minimum TOC removal requirements and is in violation. Systems may apply for alternate minimum TOC removal requirements any time after the compliance date.

(13) *Monitoring requirements for disinfectant residuals.* Community water systems and nontransient noncommunity water systems that use **[a chemical disinfectant or oxidant, or provide finished water that contains a chemical disinfectant or oxidant,] either chlorine, chloramines or chlorine dioxide** shall monitor for disinfectant residuals **in accordance with this paragraph.** **Community water systems and nontransient noncommunity water systems that obtain finished water from another public water system that uses either chlorine or chlorine dioxide to treat the finished water shall monitor for chlorine residual in accordance with this paragraph.** **Community water systems and nontransient noncommunity water systems that obtain finished water from another public water system that uses chloramines to treat the finished water shall monitor for chloramine residual in accordance with this paragraph.** Transient noncommunity water systems that use chlorine dioxide as either a disinfectant or oxidant shall monitor for chlorine dioxide **[disinfectant] residual in accordance with this paragraph.** Systems that use either surface water or GUDI

sources and that serve at least 10,000 persons shall begin monitoring by January 1, 2002.

Systems that use either surface water or GUDI sources and that serve fewer than 10,000 persons, or systems that use groundwater sources, shall begin monitoring by January 1, 2004. Systems monitoring for disinfectant residuals shall take all samples during normal operating conditions. Compliance with the MRDLs and monitoring requirements for chlorine, chloramines and chlorine dioxide (where applicable) shall be determined in accordance with 40 CFR 141.132 and 141.133 (relating to monitoring requirements; and compliance requirements) which are incorporated herein by reference.

(i) *Chlorine and chloramines.* Systems shall measure the residual disinfectant level at the same points in the distribution system and at the same time that total coliforms are sampled, as specified in paragraph (3). Systems that used either surface water or GUDI sources may use the results of residual disinfectant concentration sampling conducted under paragraph (1) or (2) in lieu of taking separate samples.

(ii) *Chlorine dioxide.*

(A) *Routine monitoring.* Systems shall take one sample per day at the entrance to the distribution system. For any daily sample that exceeds the MRDL, the system shall conduct additional monitoring as specified in clause (B) in addition to the sample required at the entrance to the distribution system. **[Compliance shall be based on consecutive daily samples collected by the system under this clause.]**

(B) *Additional monitoring.* If a daily sample at the entrance to the distribution system exceeds the chlorine dioxide MRDL, the system shall take three samples in the distribution system on the

following day. If chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfectant addition points after the entrance to the distribution system, the system shall take three samples as close to the first customer as possible, at intervals of at least 6 hours. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to the distribution system, the system shall take one sample at each of the following locations:

- (I) As close to the first customer as possible.
- (II) At a location representing an average residence time.
- (III) At a location representing a maximum residence time.

§ 109.303. Sampling requirements.

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

- (1) Samples for determining compliance with the turbidity MCL shall be taken at each entry point associated with a surface water source that the Department has determined shall be filtered.
- (2) Samples for determining compliance with the total coliform MCL shall be taken at regular intervals throughout the monitoring period at sites which are representative of water throughout

the distribution system according to an approved written sample siting plan as specified under § 109.701(a)(5) (relating to reporting and recordkeeping).

(3) Samples for determining compliance with the fluoride MCL shall be taken at each entry point.

(4) Samples for determining compliance with MCLs for organic contaminants listed by the EPA under 40 CFR 141.61 (relating to maximum contaminant levels for organic contaminants) and inorganic contaminants listed by the EPA under 40 CFR 141.62 (relating to maximum contaminant levels (MCLs) for inorganic contaminants) and with the special monitoring requirements for unregulated contaminants under § 109.302(f) shall be taken at each entry point to the distribution system after an application of treatment during periods of normal operating conditions. If a system draws water from more than one source and the sources are combined prior to distribution, the system shall sample at the entry point where the water is representative of combined sources being used during normal operating conditions.

(5) Asbestos sampling points shall be at the distribution tap where asbestos contamination is expected to be the greatest based on the presence of asbestos cement pipe and lack of optimum corrosion control treatment, and at the entry point for each source which the Department has reason to believe may contain asbestos, except that a collected distribution sample which is representative of a source may be substituted for a required entry point sample.

(b) The samples taken to determine a public water system's compliance with treatment technique and performance monitoring requirements shall be taken at a point that is as close as

practicable to each treatment technique process and that is not influenced by subsequent treatment processes or appurtenances.

(c) [For the purpose of determining compliance with the monitoring and analytical requirements established under this subchapter, and Subchapter K (relating to lead and copper), the Department will consider only samples analyzed by a laboratory certified by the Department, except that measurements for turbidity, fluoridation operation, residual disinfectant concentration, temperature, pH, alkalinity, orthophosphates, silica, calcium and conductivity may be performed by a person meeting the requirements of § 109.704 (relating to operator certification).

(d)] Public water suppliers shall assure that samples for laboratory analysis are properly collected and preserved, are collected in proper containers, do not exceed maximum holding times between collection and analysis and are handled in accordance with guidelines governing quality control which may be established by the Department. A public water supplier who utilizes a certified laboratory for sample collection as well as analysis satisfies the requirements of this subsection.

[(e)] (d) Compliance monitoring samples for the VOCs listed under 40 CFR 141.61(a) shall be collected by a person properly trained by a laboratory certified by the Department to conduct VOC or vinyl chloride analysis.

[(f)] (e) Compliance monitoring samples for the contaminants listed under 40 CFR 141.40(n), 141.61(a) and (c) **[and]**, 141.62 **and 141.88** may be composited in accordance with 40 CFR 141.23(a)(4) **[and]**, 141.24(f)(14), (g)(7) and (h)(10) **and 141.88(a)(1)(iv)** (relating to inorganic

chemical sampling and analytical requirements; **[and]** organic chemicals other than total trihalomethanes, sampling and analytical requirements; **and monitoring requirements for lead and copper in source water**) except:

(1) Samples from groundwater entry points may not be composited with samples from surface water entry points.

(2) Samples used in compositing shall be collected in duplicate.

(3) If a contaminant listed under 40 CFR 141.61(a) or (c) is detected at an entry point, samples from that entry point may not be composited for subsequent or repeat monitoring requirements.

(4) Samples obtained from an entry point which contains water treated by a community water supplier or a nontransient noncommunity water supplier to specifically meet an MCL for an organic contaminant listed under 40 CFR 141.61(a) or (c) or an MCL for an inorganic contaminant listed under 40 CFR 141.62 may not be composited with other entry point samples.

[(g)] (f) A compliance sample required under § 109.301(9) shall be taken at a free flowing tap in the house, building or facility where the POE device is located or at a monitoring point approved by the Department on the effluent side of the POE device.

§ 109.304. Analytical requirements.

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

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

(c) For the purpose of determining compliance with the monitoring and analytical requirements established under this subchapter and Subchapter K (relating to lead and copper), the Department will consider only samples analyzed by a laboratory certified by the Department, except that measurements for turbidity, fluoridation operation, residual disinfectant concentration, temperature, pH, alkalinity, orthophosphates, silica, calcium, conductivity, daily chlorite, and magnesium hardness may be performed by[, or under the supervision of,] a person meeting the requirements of § 109.704 (relating to operator certification).

Subchapter E. PERMIT REQUIREMENTS

§ 109.503. Public water system construction permits.

(a) *Permit application requirements.* An application for a public water system construction permit shall be submitted in writing on forms provided by the Department and shall be accompanied by plans, specifications, engineer's report, water quality analyses and other data, information or documentation reasonably necessary to enable the

Department to determine compliance with the act and this chapter. The Department will make available to the applicant the Public Water Supply Manual, available from the Bureau of Water Supply and Community Health, Post Office Box 8467, Harrisburg, Pennsylvania 17105 which contains acceptable design standards and technical guidance. Water quality analyses shall be conducted by a laboratory certified under this chapter.

(1) *General requirements.* An application shall include:

(i) *Permit application signatures.* A Department permit application signed as follows:

(A) In the case of corporations, by a principal executive officer of at least the level of vice president, or an authorized representative, if the representative is responsible for the overall operation of the facility.

(B) In the case of a partnership, by a general partner.

(C) In the case of a sole proprietorship, by the proprietor.

(D) In the case of a municipal, State or other public facility, by either a principal executive officer, ranking elected official or other authorized employee.

(ii) *Plans, specifications and engineer's report.* Plans, specifications and engineer's reports shall comply with the following:

(A) The drawings, specifications and engineer's report shall be prepared by or under the supervision of a professional engineer registered to practice in this Commonwealth or in the state in which the public water system is located.

(B) The front cover or flyleaf of each set of drawings, of each copy of the engineer's report, and of each copy of specifications shall bear the signature and imprint of the seal of the registered engineer. Drawings shall bear an imprint or a legible facsimile of the seal.

(iii) *Information describing new sources.* The Department may accept approval of an out-of-State source by the agency having jurisdiction over drinking water in that state if the supplier submits adequate proof of the approval and the agency's standards are at least as stringent as this chapter. Information describing sources shall include:

(A) A comprehensive sanitary survey of the physical surroundings of each new source of raw water and its proximity to potential sources of contamination. For surface water, this information shall include a description of the watershed topography and land uses within the watershed. For systems using wells, springs or infiltration galleries, this information shall include a hydrogeological report prepared and signed by a professional geologist who has complied with the requirements of the Engineer, Land Surveyor and Geologist Registration Law (63 P. S. § § 148—158.2) describing the geology of the area including the source aquifers, overlying formations, hydrogeologic boundaries, aquifer porosity estimates, water table contour or potentiometric surface maps depicting prepumping conditions and other information deemed necessary to evaluate the hydraulic characteristics of the aquifer and demonstrate the suitability of the proposed source. At the discretion of the Department, these requirements may be altered for a proposed well, wellfield, spring or infiltration gallery that will be pumping less than or yielding less than 100,000 gallons per day.

(B) An evaluation of the quality of the raw water from each new source. This subparagraph does not apply when the new source is finished water obtained from an existing permitted community water system unless the Department provides written notice that an evaluation is required. The evaluation shall include analysis of the following:

(I) For groundwater sources, VOCs for which MCLs have been established by the EPA under the National Primary Drinking Water Regulations in 40 CFR 141.61(a) (relating to maximum contaminant levels for organic contaminants). Vinyl chloride monitoring is required only if one or more of the two-carbon organic compounds specified under § 109.301[(6)](5) (i) (relating to general monitoring requirements) are detected. Samples for VOCs shall be collected in accordance with the provisions of § 109.303[(e)](d) (relating to sampling requirements).

(II) Except for asbestos, IOCs for which MCLs have been established by the EPA under the National Primary Drinking Water Regulations in 40 CFR 141.62 (relating to maximum contaminant levels for inorganic contaminants). The new source shall be monitored for asbestos if the Department has reason to believe the source water is vulnerable to asbestos contamination.

(III) Lead.

(IV) Copper.

(V) Total coliform concentration and, if total coliform-positive, analyze for fecal coliform concentration.

(VI) SOCs.

(-a-) Alachlor, atrazine, chlordane, dibromochloro-propane (DBCP), ethylene dibromide (EDB), heptachlor, heptachlor epoxide, lindane, methoxychlor, toxaphene, endrin, hexachlorobenzene, hexachlorocyclopentadiene, polychlorinated byphenyls (PCBs) and simazine unless the Department determines in writing that monitoring for one or more of the substances specified in this item is not necessary.

(-b-) Other SOCs except for dioxin for which MCLs have been established by the EPA under the National Primary Drinking Water Regulations in 40 CFR 141.61(c) except for those SOCs for which the source is not considered vulnerable based on a vulnerability assessment conducted by the public water supplier and approved by the Department unless the Department determines in writing that monitoring for one or more of the SOCs is not necessary.

(-c-) Dioxin where there is a source of dioxin contamination within 1,000 feet of a groundwater source or within 1 mile upstream of a surface water source.

(VII) Gross Alpha (α) and Gross Beta (β).

(VIII) For surface water sources, total trihalomethanes.

(IX) Aluminum, chloride, color, foaming agents, iron, manganese, pH, silver, sulfate, total dissolved solids and zinc for which MCLs have been established by the EPA under the National Secondary Drinking Water Regulations in 40 CFR 143.3 (relating to secondary MCLs).

(X) Alkalinity.

(XI) Hardness.

(XII) Temperature.

(XIII) Other contaminants that the Department determines necessary to evaluate the potability of the source.

(C) An evaluation of the quantity of the raw water from each new source. Flow data shall be submitted for springs, infiltration galleries or surface water sources. Aquifer test data, including drawdown and recovery data and the derivation of hydraulic conductivity, transmissivity and storage coefficient of the aquifer, shall be submitted for wells. At the discretion of the Department, these requirements may be altered for wells or wellfields pumping less than 100,000 gallons per day. The Department may require that other information be submitted to evaluate the safe yield of the source. The safe yield is the amount of water that can be withdrawn from an aquifer without causing an undesired result, such as adverse dewatering of an aquifer, induced potential health threats or impacts upon stream uses.

(D) A Department approved delineation of the Zone I wellhead protection area for community water system wells, springs or infiltration galleries.

(iv) *Chapter 102 requirements.* An erosion and sedimentation control plan which meets the requirements contained in Chapter 102 (relating to erosion and sediment control) when earth-moving activities are involved.

(2) *Special requirements for public water suppliers proposing to use POE devices.* Permit applications which propose the use of POE devices shall, in addition to the information required in paragraph (1), include the following:

(i) Documentation that each POE device to be used meets the certification requirements of § 109.612 (relating to POE devices).

(ii) Manufacturer's design and engineering information, including blueprints or similar drawings, which provide detailed information about the construction and operation of the treatment device and its components.

(iii) A detailed monitoring plan, subject to the Department's approval, which includes a list of the contaminants to be monitored and the frequency of monitoring.

(iv) An operation and maintenance plan, as outlined in § 109.702 (relating to operation and maintenance plan), which includes a schedule of routine maintenance to be performed and the parameters to be monitored to determine the performance and condition of the devices.

(v) A drawing of the water supply distribution system showing each house, building or facility where POE devices are to be installed.

(vi) Proof of the right-of-access for every house, building or facility to be served by a POE device.

(3) *Business plan requirements for new community water systems.* Permit applications submitted to the Department on or after October 1, 1996, for new community water systems shall, in addition to the information required in paragraph (1), include a business plan. A new

community water system is a proposed community water system or an existing system not otherwise subject to the act which becomes a community water system subject to the act as a result of an increase in the number of year-round residents or residences served. The business plan shall be submitted on forms approved by the Department. To be considered complete, the business plan shall conform to the guidelines contained in the Department's Public Water Supply Manual and shall consist of the following three parts:

(i) *Facilities plan.* The facilities plan shall identify the scope of the water service to be provided. In addition to the requirements of subsection (a)(1)(ii), the facilities plan shall include the following:

(A) An assessment of current and reasonably foreseeable compliance requirements that are applicable under the act based on monitoring data from the proposed sources of supply.

(B) A description of the alternatives considered and the rationale for the approach selected to providing water service. This description shall include the technical, managerial, financial, operational and local decision making rationale for the selected approach. Unless the new system is a consecutive water system, the plan shall include the rationale for creating a separate system.

(C) An engineering description of the facilities to be constructed, including the construction phases and future plans for expansion. This description shall include an estimate of the full cost of any required construction, operation and maintenance.

(ii) *Management plan.* The management plan shall specify the commitments that are needed to provide for effective management and operation of the system and shall include the following:

(A) Documentation that the applicant has the legal right and authority to take the measures necessary for the construction, operation and maintenance of the system. The evidence shall include, but is not limited to, indices of ownership where the applicant is the owner of the system or, where the applicant is not the owner, legally enforceable management contracts or agreements.

(B) An operating plan to define the tasks to be performed in managing and operating the system. The operating plan shall consist of the following:

(I) *Part 1.* A management and administrative plan.

(II) *Part 2.* An operation and maintenance plan which conforms with § 109.702.

(C) Assurances that the commitments needed for proper operation and management of the system will be carried out. These assurances can be given in the form of documentation of the credentials of management and operations personnel, cooperative agreements or service contracts.

(iii) *Financial plan.* The financial plan shall describe the system's revenues and cash flow for meeting the costs of construction and the costs of operation and maintenance for at least 5 full years from the date the applicant anticipates initiating system operation. At a minimum, the financial plan shall include pro forma statements for each of the 5 years including the following:

(A) Balance sheet.

(B) Income statement.

(C) Statement of cash flow.

(b) *Amendments.* A water supplier operating under a public water system permit shall obtain an amended construction permit before making a substantial modification to the public water system.

(1) A water supplier shall submit an application for an amended construction permit under the application requirements in subsection (a), if the proposed modification constitutes a major change to the public water system. Typical modifications which may be considered major changes are proposed new sources, additions or deletions of treatment techniques or processes, pumping stations and storage reservoirs.

(2) A water supplier shall submit a written request to the Department if the proposed modification constitutes a relatively minor change to the public water system. A request for an amended construction permit under this paragraph shall describe the proposed change in sufficient detail to allow the Department to adequately evaluate the proposal. Typical modifications which may be considered minor changes are changes in treatment chemicals; replacement of tank or reservoir linings or similar materials in contact with the water supply; interconnections; covering of reservoirs; construction of covered storage tanks and standpipes designed to standard specifications; transmission mains; and changes in legal status, such as transfers of ownership, incorporation or mergers.

(3) The Department determines whether a particular modification is a substantial modification and requires the construction permit to be amended under paragraph (1) or (2). A substantial modification is a modification which may affect the quality or quantity of water served to the

public or may be prejudicial to the public health or safety. The Department's determination of whether the substantial modification is a major or minor change will include consideration of the expected amount of staff time required to review and process the proposal, the magnitude and complexity of the proposed change and the compliance history of the public water system.

(c) *Permit fees.*

(1) An application for a permit or a major permit amendment under subsection (a)(1), except for an application for construction or modification of corrosion control treatment facilities under § 109.1105 (relating to permit requirements), shall be accompanied by a check in the amount of \$750, payable to the "Commonwealth of Pennsylvania," except a fee is not required for an application submitted by a State regulatory agency, or an application submitted for a public water system serving 100 or fewer individuals. The fees for permitting and related services under § 109.1105 for corrosion control treatment facilities are established under § 109.1108 (relating to fees).

(2) A fee is not required for an application for an emergency permit under § 109.506 (relating to emergency permits) or an amendment under subsection (b)(2).

(d) *Department's review.*

(1) The Department will publish a notice in the *Pennsylvania Bulletin* of the applications submitted under subsection (a) or (b)(1) or § 109.507 (relating to permits for innovative technology), providing at least 30 days for public comment from the date of publication.

(2) The Department will not accept an application for review until the application is determined to be complete. A complete application is one which includes all the information specified in this chapter and other relevant information the Department determines is necessary to enable the Department to undertake a technical review of the application.

(3) If the Department determines the permit application is incomplete, it will request the additional information in writing from the applicant within 90-calendar days of receipt of the application.

(4) The Department will grant or deny a permit within 120 calendar days of receipt of the application, or when an incomplete application was submitted, within 120-calendar days of receipt of the applicant's written response to the Department's request for additional information.

(5) Applications will be reviewed in accordance with accepted engineering and hydrogeological practices. The approval of plans, specifications, hydrogeological reports and engineer's reports is limited to the sanitary features of design and other features of public health significance.

(6) In reviewing a permit application under this chapter, the Department may consider the following:

(i) Adherence to standards in Subchapter F (relating to design and construction standards).

(ii) Compliance by the proposed project with applicable statutes administered by the Commonwealth, river basin commissions created by interstate compact or Federal environmental statutes or regulations.

(iii) Consistency with the environmental rights and values secured by PA. CONST. art. I, § 27 and with the Commonwealth's duties as trustee to conserve and maintain this Commonwealth's public natural resources.

(iv) Present conditions and the effects of reasonably foreseeable future development within the area of the project, including wellhead protection areas.

(e) *Issuance and conditions.*

(1) Issuance of a construction permit authorizes only the construction or modifications included in the permit. The permit's continuing validity is conditioned upon satisfaction of the provisions of the permit.

(2) The plans, specifications, reports and supporting documents submitted as part of the permit application become part of the permit.

(3) A permit authorizing construction or modification of water facilities shall expire within 2 years from the date of issuance unless substantial work is initiated. A permit may be renewed by the Department if the water supplier makes a written request for renewal prior to the expiration date.

§ 109.506. Emergency permits.

(a) In emergency circumstances, the Department may issue permits for construction, operation or modifications to a public water system as the Department determines may be necessary to assure that potable drinking water is available to the public. Emergency permits shall be limited

in duration and at the Department's discretion be conditioned on additional monitoring, reporting and implementation of appropriate emergency response measures. The Department may revoke an emergency permit if it finds the public water system is not complying with drinking water standards or the terms or conditions of the permit. Authorization for construction, operation or modifications obtained under an emergency permit will not extend beyond the expiration of the permit.

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

(c) Water suppliers having to comply with § 109.603[(b)](d) (relating to source quality and quantity) because of chronic water quantity problems shall apply for an amendment to their construction permit in accordance with § 109.503(b) (relating to public water system construction permits) to incorporate additional sources.

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] different reporting** period is specified in this **[section] chapter**, 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 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)] subclauses (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] exceeding** 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, MRDLs and treatment technique requirements)].

(VI) In lieu of subclauses (III) and (IV), beginning January 1, 2002, for public water systems that serve 10,000 or more people and use other filtration technologies:

(-a) The number of filtered water turbidity measurements that are less than or equal to 0.3 NTU or a more stringent turbidity performance level requirement that is based upon onsite studies and is specified by the Department.

(-b) The date, time and values of any filtered water turbidity measurements exceeding 1 NTU or a more stringent turbidity performance level requirement that is based upon onsite studies and is specified by the Department.

(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).

(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)](8) (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.* A public water supplier shall report the circumstances to the Department within 1 hour of discovery for the following violations or situations:

(i) A primary MCL or an MRDL has been exceeded or a treatment technique requirement has been violated under Subchapter B or K (relating to MCLs, MRDLs or treatment technique requirements; and lead and copper).

(ii) A sample result requires the collection of check samples under § 109.301.

(iii) Circumstances exist which may adversely affect the quality or quantity of drinking water including, but not limited to, the occurrence of a waterborne disease outbreak, a failure or significant interruption in key water treatment processes, a natural disaster that disrupts the water supply or distribution system, or a chemical spill or unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination.

(4) *Notice.* The water supplier shall, within 10 days of completion of each public notification required under Subchapter D (relating to public notification) with the exception of a CCR, submit to the Department a certification that it has fully complied with the public notification

requirements. The water supplier shall include with this certification a representative copy of each type of notice distributed, published, posted and made available to persons served by the system and to the media and a description of the 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) (relating to sampling requirements) 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.

(8) *Reporting requirements for disinfectant residuals.* Public water systems shall report MRDL monitoring data as follows:

(i) For systems monitoring for chlorine dioxide under § 109.301(13):

(A) The dates, results and locations of the samples that were taken during the previous month.

(B) Whether the MRDL was exceeded.

(C) Whether the MRDL was exceeded in any 2-consecutive daily samples and whether the resulting violation was acute or nonacute.

(ii) For systems monitoring for either chlorine or chloramines under § 109.301(13):

(A) The number of samples taken during each month of the previous quarter.

(B) The monthly arithmetic average of all samples taken in each month for the last 12 months.

(C) The arithmetic average of all monthly averages for the last 12 months.

(D) Whether the MRDL was exceeded.

(9) *Reporting requirements for disinfection byproducts.*

(i) Systems monitoring for TTHMs and HAA5 under § 109.301(12) shall report the following:

(A) Systems monitoring on a quarterly or more frequent basis shall report the following:

(I) The number of samples taken during the last quarter.

(II) The date, location and result of each sample taken during the last quarter.

(III) The arithmetic average of all samples taken in the last quarter.

(IV) The annual arithmetic average of the quarterly arithmetic averages for the last 4 quarters.

(V) Whether the annual arithmetic average exceeds the MCL for either TTHMs or HAA5.

(B) Systems monitoring less than quarterly but no less than annually shall report the following:

- (I) The number of samples taken during the last year.
- (II) The date, location and result of each sample taken during the last monitoring period.
- (III) The arithmetic average of all samples taken in the last year.
- (IV) Whether the annual arithmetic average exceeds the MCL for either TTHMs or HAA5.

(C) Systems monitoring less than annually shall report the following:

- (I) The date, location and result of the last sample taken.
- (II) Whether the sample exceeds the MCL for either TTHMs or HAA5.

(ii) Systems monitoring for chlorite under § 109.301(12) shall report the following:

- (A) The number of samples taken **[each month for] during the last [3 months] month**.
- (B) The date, location and result of each entry point and distribution sample taken during the last **[quarter] month**.
- (C) The arithmetic average of each three-sample set of distribution samples taken **[in each] during the last month [in the reporting period]**.
- (D) Whether the monthly arithmetic average exceeds the MCL.

(iii) Systems monitoring for bromate under § 109.301(12) shall report the following:

(A) The number of samples taken during the last quarter.

(B) The date, location and result of each sample taken during the last quarter.

(C) The arithmetic average of the monthly arithmetic averages of all samples taken in the last year.

(D) Whether the annual arithmetic average exceeds the MCL.

(10) *Reporting requirements for disinfection byproduct precursors.* Systems monitoring for TOC under § 109.301(12) shall report in accordance with 40 CFR 141.134(d) (relating to reporting and recordkeeping requirements for disinfection byproduct precursors and enhanced coagulation or enhanced softening).

(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 the 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 recordkeeping 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, MRDLs 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).

(8) Copies of public notifications issued under Subchapter D and certifications made to the Department under subsection (a)(4) shall be kept for 3 years after issuance.

(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.

(2) Public water systems 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.

(3) Individual filter turbidity monitoring reported as required under paragraph (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 (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 (2)(iii), the date on which a filter self-assessment was conducted.

(vi) If an individual filter demonstrates a condition under paragraph (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.

(g) *Monitoring plans for disinfectants, disinfection byproducts and disinfection byproduct precursors.* Systems required to monitor for disinfection byproducts or disinfection byproduct precursors under § 109.301(12) or disinfectant residuals under § 109.301(13) shall develop and implement a monitoring plan. The system shall maintain the plan and make it available for inspection by the Department and the general public no later than 30 days following the applicable compliance dates. All systems that use either surface water or GUDI sources shall submit a copy of the monitoring plan to the Department no later than 30 days prior to the date of the first report required under this subchapter. The Department may also require the plan to be

submitted by any other system, regardless of size or source water type. After review, the Department may require changes in any of the plan components.

(1) The plan shall include the following components:

(i) Specific locations and schedules for collecting samples for any parameters included in § 109.301(12) or (13).

(ii) How the system will calculate compliance with the MCLs, MRDLs and treatment techniques.

(iii) If approved for monitoring as a consecutive system, or if providing water to a consecutive system, the sampling plan shall reflect the entire distribution system.

(iv) Systems may consider multiple wells drawing water from a single aquifer as one treatment plant for determining the minimum number of TTHM and HAA5 samples required under § 109.301(12)(i).

(2) The system shall notify the Department of subsequent revisions to a monitoring plan as they occur. Revisions to a monitoring plan shall be submitted in written form to the Department within 30 days of notifying the Department of the revisions.

§ 109.710. Disinfectant residual in the distribution system.

(a) A disinfectant residual acceptable to the Department shall be maintained throughout the distribution system of the community water system sufficient to assure compliance with the microbiological MCLs and the treatment technique requirements

specified in § 109.202 (relating to State MCLs, MRDLs and treatment technique requirements). The Department will determine the acceptable residual of the disinfectant considering factors such as type and form of disinfectant, temperature and pH of the water, and other characteristics of the water system.

(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)](8) (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.

(c) Public water systems may increase residual chlorine or chloramine, but not chlorine dioxide, disinfectant levels in the distribution system to a level that exceeds the MRDL for that disinfectant and for a time necessary to protect public health or to address specific microbiological contamination problems caused by circumstances such as, but not limited to,

distribution line breaks, storm runoff events, source water contamination events or cross-connection events.

Subchapter H. LABORATORY CERTIFICATION

§ 109.810. Reporting and notification requirements.

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

(b) A laboratory certified under this subchapter shall whenever an MCL, MRDL or a treatment technique performance requirement under § 109.202 (relating to State MCLs, MRDLs and treatment technique requirements) is violated, or a sample result requires the collection of check samples under § 109.301 (relating to general monitoring requirements):

(1) Notify the public water supplier by telephone within 1 hour of the laboratory's determination. If the supplier cannot be reached within that time, notify the Department by telephone within 2 hours of the determination. If it is necessary for the laboratory to contact the Department after the Department's routine business hours, the laboratory shall contact the appropriate Department regional office's after-hours emergency response telephone number and

provide information regarding the occurrence, the name of a contact person and the telephone number where that individual may be reached in the event further information is needed. If the Department's appropriate emergency number cannot be reached, the laboratory shall notify the appropriate Department regional office by telephone within 1 hour of the beginning of the next business day. Each certified laboratory shall be responsible for the following:

(i) Obtaining and then maintaining the Department's current after-hours emergency response telephone numbers for each applicable regional office.

(ii) Establishing or updating a standard operating procedure by November 8, 2002, and at least annually thereafter to provide the information needed to report the occurrences to the Department. The information regarding the public water system shall include, but is not limited to, the PWSID number of the system, the system's name, the contaminant involved in the occurrence, the level of the contaminant found, where the sample was collected, the dates and times that the sample was collected and analyzed, the name and identification number of the certified laboratory, the name and telephone number of a contact person at the laboratory and what steps the laboratory took to contact the public water system before calling the Department.

(2) Notify the appropriate Department district office in writing within 24 hours of the determination. For the purpose of determining compliance with this requirement, the postmark, if the notice is mailed, or the date the notice is received by the Department, whichever is earlier, will be used. Upon approval by the Department, the notice may be made electronically to the Department as long as the information is received within the 24-hour deadline.

(c) A laboratory certified under this subchapter shall notify the Department within 48 hours of termination of the laboratory certification from the EPA or another agency with primary enforcement responsibility.

(d) A laboratory shall notify the public water supplier served by the laboratory within 48 hours of the following:

(1) A failure to renew or Department denial of renewal of existing certification for a category of certification.

(2) Revocation of certification by the Department under this subchapter.

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

§ 109.1003. Monitoring requirements.

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

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

(i) Monitor for microbiological contaminants weekly.

(ii) Monitor for turbidity every 4 hours or continuously each day a surface water OR GUDI source is in use.

(iii) Monitor for compliance with the MCLs for VOCs in accordance with § 109.301(5) beginning during the quarter that begins January 1, 1995, except that:

(A) Systems that obtain finished water from another permitted public water system are exempt from conducting monitoring for the VOCs if the public water system supplying the finished water performs the required monitoring at least annually and a copy of the analytical reports are received by the Department.

(B) For systems in existence prior to January 1, 1995, that obtain raw water from only protected groundwater sources, initial monitoring for compliance with the MCLs for VOCs established by the EPA under 40 CFR 141.61(a) (relating to MCLs for organic contaminants) on January 30, 1991, and July 17, 1992, will be reduced to one sample for entry points or systems which meet the following conditions:

(I) The VOC monitoring required by the Department between January 1, 1988, and December 31, 1994, has been conducted and no VOCs were detected.

(II) The first quarter of VOC monitoring required by this subparagraph has been conducted during the first quarter of 1995 with no detection of a VOC.

(C) Initial monitoring of new entry points associated with new sources which are permitted in accordance with § 109.1005 (relating to permit requirements) to begin operation after December 31, 1994, shall be conducted 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 clause (D)(I).

(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.

(D) Repeat monitoring for entry points shall be conducted as follows:

(I) For an entry point at which a VOC is detected during initial monitoring or where a VOC is detected anytime at a level in excess of its MCL, compliance monitoring shall be repeated quarterly for the VOCs for which the EPA has established MCLs under 40 CFR 141.61(a), except for vinyl chloride as provided in § 109.301(5)(i). After analyses of four consecutive quarterly samples at an entry point, including initial quarterly monitoring samples, demonstrate that the VOC levels in each quarterly sample are less than the MCLs, the required compliance monitoring is reduced to one sample per year at that entry point for all 21 VOCs, except for vinyl chloride as provided in § 109.301(5)(i).

(II) For a groundwater or surface water entry point at which VOCs are not detected during the initial and subsequent repeat monitoring, repeat monitoring shall be one sample per year from that entry point.

(iv) Conduct initial and repeat monitoring for compliance with the MCLs for SOCs—pesticides and PCBs—in accordance with § 109.301(6) for four consecutive quarters beginning during the quarter that begins January 1, 1995, except that:

(A) Systems that obtain finished water from another permitted public water system are exempt from conducting compliance monitoring for the SOCs if one of the following applies:

(I) The public water system supplying the finished water performs the required monitoring annually and a copy of the analytical results are received by the Department.

(II) The public water system supplying the water has been granted a waiver from conducting the initial or repeat compliance monitoring, or both, for one or more SOCs under § 109.301(6)(v). This exemption from conducting compliance monitoring applies only to SOCs indicated in the waiver.

(B) Systems which are granted an initial monitoring waiver in accordance with § 109.301(6)(v) are exempt from conducting compliance monitoring for the SOCs indicated in the waiver.

(C) Initial monitoring of new entry points associated with new sources which are permitted in accordance with § 109.1005 to begin operation after December 31, 1994, shall be conducted as follows:

(I) Entry points at which an SOC 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 clause (D)(I).

(II) Entry points at which no SOC is detected during new source monitoring and which begin operation before April 1, 1995, shall conduct initial quarterly monitoring beginning during the quarter beginning January 1, 1995.

(III) Entry points at which no SOC is detected during new source monitoring and which begin operation after March 31, 1995, shall conduct initial quarterly monitoring beginning during the first calendar quarter of the year after the entry point begins serving the public.

(D) Repeat monitoring for entry points shall be conducted as follows:

(I) For entry points at which an SOC is detected during initial monitoring or where an SOC is detected anytime in excess of its MCL, compliance monitoring shall be repeated quarterly for the detected SOC for which the EPA has an established MCL under 40 CFR 141.61(c). After analyses of four consecutive quarterly samples at an entry point, including initial quarterly monitoring samples, demonstrate that the SOC level in each quarterly sample is less than the MCL, the required compliance monitoring is reduced for each SOC below the MCL to one sample per year at that entry point.

(II) For a groundwater or surface water entry point at which SOCs are not detected during the initial and any subsequent repeat monitoring, repeat monitoring shall be one sample per year from that entry point.

(v) Beginning in 1995, monitor for the primary IOCs, including lead and copper annually, except that:

(A) Systems are granted a waiver from asbestos monitoring unless the Department determines that the system's finished water is vulnerable to asbestos contamination by means of an asbestos cement pipe or the system's source water is vulnerable to asbestos contamination.

(B) Systems that obtain finished water from another permitted public water system are exempt from conducting compliance monitoring for the IOCs, except lead, copper and asbestos if the supplying system has not optimized corrosion control, if the public water system supplying the finished water performs the required monitoring annually and a copy of the analytical results is received by the Department.

(C) Monitoring for compliance with the MCLs for nitrate and nitrite shall be conducted quarterly following a monitoring result which is equal to or greater than 50% of the MCL. After four consecutive quarterly samples, indicate nitrate and nitrite in each sample are less than 50% of the MCLs, required monitoring is reduced to one sample per year.

(vi) Conduct operational monitoring for fluoride at least once each day, if the system fluoridates its water.

(vii) Monitor for compliance with radiological MCLs once every 4 years.

(viii) Beginning January 1, 2004, monitor annually for TTHMs and HAA5 if the system uses a chemical disinfectant or oxidant, or **[uses a source that has been treated with] obtains finished water from another public water system that uses** a chemical

disinfectant or oxidant to treat the finished water. Bottled water systems are not required to monitor for TTHMs and HAA5 if the system does not use a chlorine-based disinfectant or oxidant and does not **[use a source that has been treated with] obtain finished water from another public water system that uses** a chlorine-based disinfectant or oxidant to treat the finished water.

(A) *Routine monitoring*. Systems shall take at least one sample per year per entry point during the month of warmest water temperature. If the sample, or average of all samples, exceeds either a TTHM or HAA5 MCL, the system shall take at least one sample per quarter per entry point. The system **[may reduce] shall return to** the sampling frequency **[back to] of** one sample per year per entry point **[in accordance with the reduced monitoring criteria of clause (B)] if, after at least 1 year of monitoring, the TTHM running annual average is no greater than 0.060 mg/L and the HAA5 running annual average is no greater than 0.045 mg/L.**

(B) *Reduced monitoring*. Systems that **[have monitored] use groundwater sources shall monitor** for TTHMs and HAA5 for at least 1 year **[may reduce monitoring according to this clause] prior to qualifying for reduced monitoring.** **[Systems that use either a surface water or GUDI source shall monitor source water TOC monthly for at least 1 year prior to qualifying for reduced monitoring.]** The Department retains the right to require a system that meets the requirements of this clause to resume routine monitoring.

(I) **[Systems that are on increased monitoring as prescribed by clause (A) and that use either a surface water or GUDI source and that have a source water annual**

TOC that is no greater than 4.0 mg/L and an annual TTHM average that is no greater than 0.040 mg/L and an annual HAA5 average that is no greater than 0.030 mg/L may reduce monitoring to one sample per year per entry point. The sample shall be taken during the month of warmest water temperature. Systems that qualify for reduced monitoring may remain on reduced monitoring provided that the annual TTHM average is no greater than 0.060 mg/L and the annual HAA5 average is no greater than 0.045 mg/L. Systems that exceed these levels shall resume routine monitoring as prescribed in clause (A) in the quarter immediately following the quarter in which the system exceeds 0.060 mg/L for TTHMs or 0.045 mg/L for HAA5.

(II) Systems that use groundwater sources may reduce monitoring to one sample per 3-year cycle per entry point if the annual TTHM average is no greater than 0.040 mg/L and the annual HAA5 average is no greater than 0.030 mg/L for 2-consecutive years or the annual TTHM average is no greater than 0.020 mg/L and the annual HAA5 average is no greater than 0.015 mg/L for 1 year. The sample shall be taken during the month of warmest water temperature within the 3-year cycle beginning on January 1 following the quarter in which the system qualifies for reduced monitoring. Systems that qualify for reduced monitoring may remain on reduced monitoring provided that the annual TTHM average is no greater than 0.080 mg/L and the annual HAA5 average is no greater than 0.060 mg/L. Systems that exceed these levels shall resume routine monitoring as prescribed in clause (A) in the quarter immediately following the quarter in which the system exceeds 0.080 mg/L for TTHMs or 0.060 mg/L for HAA5.]

Systems that use groundwater sources shall reduce monitoring to 1 sample per 3-year cycle per entry point if the annual TTHM average is no greater 0.040 mg/L and the annual HAA5 average is no greater than 0.030 mg/L for 2 consecutive years or the annual TTHM average is no greater than 0.020 mg/L and the annual HAA5 average is no greater than 0.015 mg/L for 1 year. The sample shall be taken during the month of warmest water temperature. The 3-year cycle shall begin on January 1 following the quarter in which the system qualifies for reduced monitoring.

(II) Systems that use groundwater sources that qualify for reduced monitoring shall remain on reduced monitoring if the TTHM average is no greater than 0.060 mg/L and the HAA5 average is no greater than 0.045 mg/L. Systems that exceed these levels shall resume routine monitoring as prescribed in clause (A), except that systems that exceed either a TTHM or HAA5 MCL shall increase monitoring to at least 1 sample per quarter per entry point beginning in the quarter immediately following the quarter in which the system exceeds the TTHM or HAA5 MCL.

(ix) Beginning January 1, 2004, monitor daily for chlorite if the system uses chlorine dioxide for disinfection or oxidation[, or uses a source that has been treated with chlorine dioxide]. Systems shall take at least one daily sample at the entry point. If a daily sample exceeds the chlorite MCL, the system shall take [3] **three** additional samples within 24 hours from the same lot, batch, machine, carrier vehicle or point of delivery. The chlorite MCL is based on the average of the required daily sample plus any additional samples.

(x) Beginning January 1, 2004, monitor monthly for bromate if the system uses ozone for disinfection or oxidation[, or uses a source that has been treated with ozone].

(A) *Routine monitoring.* Systems shall take one sample per month for each entry point that uses ozone while the ozonation system is operating under normal conditions.

(B) *Reduced monitoring.* Systems **[may] shall** reduce monitoring for bromate from monthly to quarterly if the **[system demonstrates that the]** average source water bromide concentration is less than 0.05 mg/L based upon representative monthly bromide measurements for 1 year. Systems on reduced monitoring shall continue monthly source water bromide monitoring. If the running annual average source water bromide concentration, computed quarterly, is equal to or exceeds 0.05 mg/L, the system shall revert to routine monitoring as prescribed by clause (A).

(2) Vended water systems shall monitor in accordance with paragraph (1) except that vended water systems qualifying for permit by rule under § 109.1005(b), for each entry point shall:

- (i) Monitor monthly for microbiological contaminants.
- (ii) Monitor annually for total dissolved solids, lead and cadmium.
- (iii) Conduct special monitoring as required by the Department.

(b) *Sampling requirements.*

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

(i) For bottled water systems, each entry point means each finished bottled water product. If multiple sources are used for a product and are not blended prior to bottling, the bottled water product for each source shall be considered a different product for monitoring purposes.

(ii) For bulk water hauling systems, retail water facilities and vended water systems, each entry point shall mean a point of delivery to the consumer from each carrier vehicle, machine or dispenser representative of each source.

(2) For the purpose of determining compliance with the monitoring and analytical requirements established under this subchapter, the Department will consider only those samples analyzed by a laboratory certified by the Department, except that measurements of turbidity, fluoridation operation, residual disinfection concentration, temperature and pH may be performed by a person meeting the requirements of § 109.1008(c) (relating to system management responsibilities).

(3) Public water suppliers shall assure that samples for laboratory analysis are properly collected and preserved, are collected in proper containers, do not exceed maximum holding times between collection and analysis and are handled in accordance with guidelines governing quality control which may be established by the Department. A public water supplier who utilizes a certified laboratory for sample collection as well as analysis satisfies the requirements of this subsection.

(4) Compliance monitoring samples for VOCs, as required under subsection (a)(1)(iii), shall be collected by a person properly trained by a laboratory certified by the Department to conduct VOC or vinyl chloride analysis.

(5) Compliance monitoring samples required under subsection (a)(1)(iii) may be composited in accordance with 40 CFR 141.24(g)(7) (relating to organic chemicals other than total trihalomethanes, sampling and analytical requirements) except:

(i) Samples from groundwater entry points may not be composited with samples from surface water entry points.

(ii) Samples from one type of bottled water product or vended water product may not be composited with samples from another type of bottled water product or vended water product.

(iii) Samples used in compositing shall be collected in duplicate.

(iv) If a VOC listed under 40 CFR 141.61(a) is detected at an entry point, samples from that entry point may not be composited for subsequent compliance or repeat monitoring requirements.

(v) Samples obtained from an entry point which contains water treated by a community water supplier or nontransient noncommunity water supplier to specifically meet an MCL for a VOC listed under 40 CFR 141.61(a) may not be composited with other entry point samples.

(c) *Repeat monitoring for microbiological contaminants.*

(1) If a sample collected in accordance with subsection (a)(1)(i) is found to be total coliform-positive:

(i) The bottled water system shall collect a set of three additional samples (check) from the same lot or batch of the type of product.

(ii) The vended water, retail water facility or bulk water hauling systems shall collect a set of four additional samples (check) from the same entry point (machine, point of delivery or carrier vehicle).

(2) Samples shall be collected for analysis within 24 hours of being notified of the total coliform-positive 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 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.

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

Subchapter K. LEAD AND COPPER

§ 109.1103. Monitoring requirements.

(a) *Initial monitoring.*

(1) *Initial lead and copper tap monitoring.* The initial lead and copper tap monitoring for community and nontransient noncommunity water systems consists of two consecutive 6-month periods. Monitoring periods begin in January and July and end in June and December.

(i) In accordance with 40 CFR 141.86(d)(1) (relating to monitoring requirements for lead and copper in tap water), the first 6-month monitoring period for large, medium and small water systems shall begin on the following dates:

<i>1st monitoring</i>	
<i>System size</i>	<i>period begins on</i>
Large . . .	January 1, 1992
Medium . . .	July 1, 1992
Small . . .	July 1, 1993

(ii) The first 6-month monitoring period for a new water system created after June 26, 1995, shall begin with the next 6-month monitoring period following the issuance of an operations permit or following the system's provision of water to a sufficient number of sampling sites for the water supplier to comply with sample site requirements under subsection (g), whichever period is later.

(iii) A large water system shall monitor during two consecutive 6-month periods and shall comply with the corrosion control treatment compliance schedule under § 109.1102(b)(2)

(relating to action levels and treatment technique requirements) or achieve optimal corrosion control treatment under § 109.1102(b)(1)(ii).

(iv) A small or medium water system shall monitor during each 6-month monitoring period until one of the following occurs:

(A) The system exceeds either the lead or copper action level and is therefore required to comply with the corrosion control treatment compliance schedule under § 109.1102(b)(2).

(B) The system meets both the lead and copper action levels during two consecutive 6-month monitoring periods, in which case the system qualifies for reduced monitoring in accordance with subsection (e)(1).

(v) A system shall collect at least one sample during each monitoring period from the number of sample sites listed in the following chart. The sample sites shall be selected in accordance with subsection (g).

<i>System size</i> (# of people served)	<i># of Sample Sites</i>
> 100,000 . . .	100
10,001 to 100,000 . . .	60
3,301 to 10,000 . . .	40
501 to 3,300 . . .	20

101 to 500 . . .	10
100 or fewer . . .	5

(2) *Initial water quality parameter monitoring.* A system shall measure the applicable water quality parameters in the distribution system and at each entry point. A large water system shall conduct initial water quality parameter monitoring during each initial monitoring period specified in paragraph (1). A small or medium water system shall conduct initial water quality parameter monitoring during the first monitoring period in which the system exceeds the lead or copper action level.

(i) The following water quality parameters shall be measured as applicable:

(A) pH.

(B) Alkalinity.

(C) Orthophosphate, when an inhibitor containing a phosphate compound is used.

(D) Silica, when an inhibitor containing a silicate compound is used.

(E) Calcium.

(F) Conductivity.

(G) Water temperature.

(ii) A system shall collect two sets of water quality parameter distribution samples from the following number of sample sites. The sets of samples shall be collected from the same sample sites on different days and analyzed for the applicable water quality parameters.

<i>System size (# of people served)</i>	<i># of Sample Sites</i>
> 100,000 . . .	25
10,001 to 100,000 . . .	10
3,301 to 10,000 . . .	3
501 to 3,300 . . .	2
500 or fewer . . .	1

(iii) A system shall also collect two sets of water quality parameter samples at each entry point. The sets of samples shall be collected on different days and analyzed for the applicable water quality parameters.

(3) *Initial source water monitoring.* A system which exceeds either the lead or copper action level shall collect one source water sample from each entry point within 6 months after the exceedance. Monitoring is required only for the parameter for which the action level was exceeded.

(b) *Special lead and copper tap monitoring.*

(1) After completing initial monitoring and prior to initiation of construction or modification of corrosion control treatment facilities, a system may collect special lead and copper tap samples at its option.

(2) Special lead and copper tap monitoring shall be conducted in accordance with subsection (a), including compliance with the requirements resulting from an action level exceedance.

(3) If a medium or small water system meets the lead and copper action levels during two consecutive 6-month special monitoring periods, the system is deemed to have optimized corrosion control and may discontinue the compliance activities under § 109.1102(b)(2) and proceed directly to reduced monitoring in accordance with subsection (e).

(4) If a medium or small water system exceeds an action level during a monitoring period after discontinuing compliance activities under paragraph (3), the system shall recommence completion of the applicable compliance activities under § 109.1102(b)(2). The Department may require a system to repeat compliance activities previously completed or undertake additional activities when the Department determines that the action is necessary to properly comply with corrosion control treatment requirements.

(5) If a system meets the lead action level during a special monitoring period, the system may discontinue public education in accordance with § 109.1104(a)(3) (relating to public education and notification).

(c) *Follow-up monitoring after construction or modification of corrosion control treatment facilities.* A system which completes construction or modification of corrosion control treatment facilities in accordance with § 109.1102(b)(2) shall conduct the applicable monitoring specified

in this subsection. A system which exceeds the lead action level after construction or modification of corrosion control treatment facilities shall begin lead service line replacement in accordance with § 109.1107(d) (relating to system management responsibilities).

(1) *Lead and copper tap monitoring.* A system shall monitor for lead and copper at the tap during each specified monitoring period at the number of sample sites specified in subsection (a)(1)(v).

(i) A large water system shall monitor during each of two consecutive 6-month monitoring periods beginning no later than January 1, 1997. Following completion of this monitoring, but no later than January 31, 1998, the water supplier shall submit a request for the Department to designate optimal corrosion control treatment performance requirements for the system. Upon approval of the request, the Department will designate water quality parameter performance requirements in accordance with § 109.1102(b)(5) or source water treatment performance requirements in accordance with § 109.1102(b)(4), or both. The water supplier may request, and the Department may designate, performance requirements before the system completes the monitoring for both monitoring periods if the system has never exceeded an action level and the system demonstrates in its request that optimal corrosion control treatment has been achieved. After the Department has designated performance requirements, the system shall monitor in accordance with subsection (d)(1).

(ii) A small or medium water system shall monitor during each of two consecutive 6-month monitoring periods beginning no later than 60 months from the date an action level was exceeded. The water supplier shall submit within 30 days of the end of the second monitoring period a request for the Department to designate optimal corrosion control treatment

performance requirements for the system. Upon approval of the request, the Department will designate water quality parameter performance requirements in accordance with § 109.1102(b)(5) or source water treatment performance requirements in accordance with § 109.1102(b)(4). A small or medium water system that does not exceed the lead and copper action levels during each of two consecutive 6-month monitoring periods may reduce the number of sample sites and reduce the frequency of sampling to once per year in accordance with subsection (e)(1)(i). Systems not eligible for reduced monitoring under subsection (e)(1) shall monitor in accordance with subsection (d)(1).

(2) Water quality parameter monitoring. A system shall monitor for the applicable water quality parameters specified in subparagraph (iii) in the distribution system during each specified monitoring period at the number of sites specified in subsection (a)(2)(ii) and at each entry point at least once every 2 weeks.

(i) A large water system shall measure the water quality parameters during each of the two consecutive 6-month monitoring periods in which the system conducts lead and copper tap monitoring under paragraph (1)(i).

(ii) A small or medium water system which is conducting lead and copper tap monitoring in accordance with paragraph (1)(ii) shall measure the water quality parameters during each 6-month monitoring period in which the system exceeds either the lead or copper action level. Distribution system monitoring shall be conducted once during the monitoring period and biweekly entry point monitoring shall continue as long as the system exceeds the action level.

(iii) The water quality parameters shall be measured as follows:

(A) At sites within the distribution system, two sets of samples taken on different days from the same sample sites for:

(I) pH.

(II) Alkalinity.

(III) Orthophosphate, when an inhibitor containing a phosphate compound is used.

(IV) Silica, when an inhibitor containing a silicate compound is used.

(V) Calcium, when calcium carbonate stabilization is used as part of corrosion control.

(B) At each entry point, one set of samples every 2 weeks for:

(I) pH.

(II) When alkalinity is adjusted as part of corrosion control treatment, a reading of the dosage rate of the chemical used to adjust the alkalinity, and the alkalinity concentration.

(III) When a corrosion inhibitor is used as part of corrosion control treatment, a reading of the dosage rate of the inhibitor used, and the concentration of orthophosphate or silica, whichever is applicable.

(3) *Source water monitoring.* A system which installs source water treatment under § 109.1102(b)(4) shall monitor the source water at source water treatment entry points for the parameters for which the source water treatment was installed. The system shall monitor source water during the two consecutive 6-month monitoring periods specified in paragraph (1). Other

systems which exceed either the lead or copper action level while conducting lead and copper tap monitoring in accordance with paragraph (1) shall collect one source water sample from each entry point within 6 months after the exceedance for the parameters exceeding the action level.

(d) Monitoring after performance requirements are established. A system shall conduct the applicable monitoring under this subsection beginning no later than the next 6-month monitoring period following the Department's designation of optimal corrosion control treatment water quality parameter performance requirements under § 109.1102(b)(5) or source water performance requirements under § 109.1102(b)(4).

(1) Lead and copper tap monitoring. A system shall monitor for lead and copper at the tap during each monitoring period at the number of sample sites specified in subsection (a)(1)(v) until the system qualifies for reduced monitoring under subsection (e)(1).

(2) Water quality parameter performance monitoring. A system shall measure the applicable water quality parameters specified in subsection (c)(2)(iii) in the distribution system during each monitoring period at the number of sites specified in subsection (a)(2)(ii) and at each entry point at least once every 2 weeks. The results of this monitoring will be used by the Department in determining compliance with the water quality parameter performance requirements established under § 109.1102(b)(5). A system that is not in compliance with the water quality parameter performance requirements established under § 109.1102(b)(5) shall provide public notification in accordance with § 109.1104(b)(2).

(i) A large water system shall conduct the monitoring during each monitoring period until the system qualifies for reduced monitoring under subsection (e)(2).

(ii) A small or medium water system which is conducting lead and copper tap monitoring in accordance with paragraph (1), shall measure the water quality parameters during each 6-month monitoring period in which the system exceeds either the lead or copper action level.

Distribution system monitoring shall be conducted at least once during the monitoring period and biweekly entry point monitoring shall continue as long as the system exceeds the action level.

(iii) A system is out of compliance with the requirements of § 109.1102(b)(5) for a 6-month period if it has excursions for any Department specified water quality parameter on more than any 9 days during the 6-month monitoring period. An excursion occurs whenever the daily value for one or more of the water quality parameters is below the minimum value or outside the range of values designated by the Department. The Department has the discretion to delete results of sampling errors from this calculation. Daily values are calculated as follows:

(A) On days when more than one sample for the water quality parameter is collected at a sampling location, the daily value shall be the average of all results collected during the day including continuous monitoring or grab samples, or both.

(B) On days when only one sample for the water quality parameter is collected at a sampling location, the daily value shall be the result of that sample.

(C) On days when no sample is collected for the water quality parameter at a sampling location, the daily value shall be the most recent calculated daily value for which a water quality parameter was sampled at a sample location.

(3) *Source water monitoring.* A system which is conducting lead and copper tap monitoring in accordance with paragraph (1) shall monitor for the parameters exceeding the action level at each

entry point within 6 months of the action level exceedance. For systems which have installed source water treatment, the results of this monitoring will be used by the Department in determining compliance with source water treatment performance requirements established under § 109.1102(b)(4). The Department may require additional source water monitoring if the Department determines that the additional monitoring is necessary to assure compliance with the source water treatment performance requirements. A system that is not in compliance with the source water treatment performance requirements established under § 109.1102(b)(4) shall provide public notification in accordance with § 109.1104(b)(2).

(e) *Reduced monitoring.*

(1) *Reduced lead and copper tap monitoring.* A community water system conducting reduced lead and copper tap monitoring shall collect one sample from the number of sample sites listed in the following column. A nontransient noncommunity water system may reduce the number of sample sites to five, regardless of population served.

<i>System size (# of people served)</i>	<i># of Sample Sites (reduced monitoring)</i>
> 100,000 . . .	50
10,001 to 100,000 . . .	30
3,301 to 10,000 . . .	20
501 to 3,300 . . .	10

(i) *Annual lead and copper tap monitoring.*

(A) A small or medium water system that does not exceed the lead and copper action levels during each of two consecutive 6-month monitoring periods or a system which has optimized corrosion control treatment under § 109.1102(b)(1)(ii) may reduce the number of sample sites and reduce the frequency of sampling to once per year.

(B) A system that maintains the range of values for the optimal corrosion control treatment water quality parameter performance requirements specified by the Department under § 109.1102(b)(5) during each of two consecutive 6-month monitoring periods in accordance with subsection (d)(2) may request that the Department allow the system to reduce the frequency of monitoring to once per year and reduce the number of lead and copper sample sites.

(ii) *Triennial lead and copper tap monitoring.*

(A) A small or medium water system that does not exceed the lead and copper action levels during 3 consecutive years of monitoring, including initial monitoring, may reduce the frequency of monitoring for lead and copper to once every 3 years.

(B) A system that maintains the range of values for optimal corrosion control treatment water quality parameter performance requirements specified by the Department under § 109.1102(b)(5) during 3 consecutive years of monitoring may request that the Department allow the system to reduce the frequency of lead and copper tap monitoring from annually to once every 3 years.

(C) Triennial monitoring shall be conducted during the last year of each 3-year compliance period—for example 1998, 2001, 2004 and so forth.

(D) A system that demonstrates for two consecutive 6-month monitoring periods that the tap water lead level as determined under § 109.1102(a)(3) is less than or equal to 0.005 mg/L and the tap water copper level as determined under § 109.1102(a)(3) is less than 0.65 mg/L may reduce the number of samples in accordance with § 109.1103(e)(1) and reduce the frequency of sampling to once every 3 years.

(iii) *Request for reduced monitoring.* A system requesting reduced lead and copper tap monitoring under subparagraph (i)(B) or (ii)(B) shall submit that request on forms acceptable to the Department. The request shall include a summary of lead and copper tap and water quality parameter monitoring results and the results shall demonstrate that the system qualifies for reduced monitoring. The Department will review the information submitted and notify the water supplier of its decision and the basis for that decision.

(iv) *Sample sites and timing.* A system that reduces the number of sample sites and frequency of sampling shall collect samples from sample sites included in the pool of targeted sampling sites identified in subsection (g)(2). Systems sampling annually or less frequently shall conduct the lead and copper tap sampling between June 1 and September 30. The Department may approve a different period for conducting lead and copper tap monitoring sampling for systems collecting a reduced number of samples. The period may be no longer than 4 consecutive months and shall represent a time of normal operation when the highest levels of lead are most likely to occur.

(v) *Reduced lead and copper tap monitoring revocation.*

(A) A large water system authorized to conduct reduced lead and copper tap monitoring that fails to operate within the range of performance requirements for the water quality parameters specified by the Department under § 109.1102(b)(5) on more than any 9 days in a 6-month period shall resume lead and copper tap sampling in accordance with subsection (d)(1).

(B) A small or medium water system authorized to conduct reduced lead and copper tap monitoring that exceeds either the lead or copper action level shall comply with the following:

(I) The water supplier shall conduct water quality parameter monitoring during the monitoring period in which the action level is exceeded.

(-a-) If the system has installed corrosion control treatment in compliance with § 109.1102(b)(2), water quality parameter monitoring shall be conducted in accordance with subsection (c)(2). If the results of this monitoring indicate that the system failed to operate within the range of performance requirements for the water quality parameters specified by the Department under § 109.1102(b)(5) on more than any 9 days in a 6-month period, the water supplier shall resume lead and copper tap sampling in accordance with subsection (d)(1).

(-b-) If the system has not installed corrosion control treatment, water quality parameter monitoring shall be conducted in accordance with subsection (a)(2) and the system shall conduct corrosion control treatment activities in accordance with § 109.1102(b)(1)(i).

(II) The water supplier shall conduct source water monitoring in accordance with subsection (a)(3).

(III) If the lead action level is exceeded, the water supplier shall conduct a public education program in accordance with § 109.1104(a).

(2) *Reduced water quality parameter monitoring for large water systems.* A large water system conducting reduced water quality parameter monitoring shall collect two sets of distribution samples from the following reduced number of sample sites. The sets of samples shall be collected from the same sample sites on different days and analyzed for the applicable water quality parameters.

System size

<i>(# of people served)</i>	<i># of Sample sites</i>
> 100,000 . . .	10
50,001 to 100,000 . . .	7

(i) *Reduced sites.* A large water system that maintains the range of values for water quality parameter performance requirements reflecting optimal corrosion control treatment specified by the Department under § 109.1102(b)(5) during each of two consecutive 6-month monitoring periods conducted in accordance with subsection (d)(2) may collect distribution samples from the reduced number of sites during subsequent 6-month monitoring periods until the system qualifies for reduced frequency under subparagraph (ii). The system shall continue monitoring at each entry point as specified in subsection (c)(2)(iii)(B).

(ii) *Reduced water quality parameter monitoring.*

(A) A large water system that maintains the range of values for water quality parameter performance requirements reflecting optimal corrosion control treatment specified by the Department under § 109.1102(b)(5) during 3 consecutive years of monitoring at the reduced number of sites under subparagraph (i) may reduce the frequency with which it collects sets of water quality parameter distribution samples from every 6 months to annually. A system conducting annual sampling shall collect these sets of samples evenly throughout the year to reflect seasonal variability. The system shall continue monitoring at each entry point as specified in subsection (c)(2)(iii)(B).

(B) A large water system may reduce the frequency with which it collects tap water samples for applicable water quality parameters specified in § 109.1102(b)(5) to every 3 years if it demonstrates during two consecutive monitoring periods that its tap water lead level at the 90th percentile is less than or equal to the PQL for lead of 0.005 mg/L, that its tap water copper level at the 90th percentile is less than or equal to 0.65 mg/L, and that it also has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the Department under § 109.1102(b)(5).

(iii) *Reduced water quality parameter monitoring revocation.* A large water system subject to reduced water quality parameter monitoring that fails to operate within the range of performance requirements for the water quality parameters specified by the Department under § 109.1102(b)(5) on more than any 9 days in any 6-month period shall resume water quality parameter distribution sampling in accordance with the number and frequency requirements specified in subsection (d)(2).

(iv) A large system may resume annual monitoring for water quality parameters at the tap at the reduced number of sites specified in subsection (e)(2) after it has completed two subsequent consecutive 6-month rounds of monitoring that meet the criteria of subsection (e)(2)(i).

(v) A large system may resume triennial monitoring for water quality parameters at the tap at the reduced number of sites specified in subsection (e)(2) after it demonstrates through subsequent rounds of monitoring that it meets the criteria of subsection (e)(2)(ii).

(f) *Additional monitoring by systems.* The results of monitoring conducted at specified sites during specified monitoring periods in addition to the minimum requirements of this section shall be considered by the system and the Department in making determinations—such as calculating the 90th percentile lead or copper action level or determining concentrations of water quality parameters—under this subchapter.

(g) *Sample site location plan.* The water supplier shall complete a sample site location plan which includes a materials evaluation of the distribution system, lead and copper tap sample site locations, water quality parameter sample site locations, and certification that proper sampling procedures are used. The water supplier shall complete the steps in paragraphs (1)—(3) by the applicable date for commencement of lead and copper tap monitoring under subsection (a)(1) and the step in paragraph (4) following completion of the monitoring. The water supplier shall keep the sample site location plan on record in accordance with § 109.1107(a)(1). If the system is required to prepare a corrosion control treatment feasibility study in accordance with § 109.1102(b)(3)(i), the system shall include the sample site location plan as part of the study.

(1) *Materials evaluation.* A system shall review the following sources of information in order to identify a sufficient number of lead and copper tap sampling sites.

(i) Plumbing codes, permits and records in the files of the building departments of each municipality served by the system which indicate the plumbing materials that are installed within structures connected to the distribution system.

(ii) Inspections and records of the distribution system that indicate the material composition of the service connections that connect a structure to the distribution system.

(iii) Existing water quality information, which includes the results of prior analyses of the system or individual structures connected to the system, indicating locations that may be particularly susceptible to high lead or copper concentrations.

(2) *Lead and copper tap sample site selection.* Lead and copper tap sampling sites are classified as tier 1, tier 2 or tier 3. Tier 1 sites are the highest priority sample sites.

(i) *Site selection for community water systems.* The water supplier shall select all tier 1 sample site locations, if possible. A community water system with an insufficient number of tier 1 sampling sites shall complete its sampling pool with tier 2 sites. Tier 3 sites shall be used to complete the sampling pool if the number of tier 1 and tier 2 sites is insufficient. If the system has an insufficient number of tier 1, tier 2 and tier 3 sites, the water supplier shall sample from other representative sites throughout the distribution system in which the plumbing materials used at the site would be commonly found at other sites served by the system.

(A) Tier 1 sampling sites shall consist of single family structures that have one or more of the following:

(I) Copper pipes with lead solder installed after 1982.

(II) Lead pipes.

(III) Lead service line.

(B) When multiple-family residences comprise at least 20% of the structures served by a water system, the system may consider a representative number of these types of structures as tier 1 sites in its sampling pool, if they meet the other criteria in clause (A).

(C) Tier 2 sampling sites shall consist of buildings, including multifamily residences, that have one or more of the following:

(I) Copper pipes with lead solder installed after 1982.

(II) Lead pipes.

(III) Lead service line.

(D) Tier 3 sampling sites shall consist of single family structures, constructed as a single family residence and currently used as either a residence or business, that contain copper pipes with lead solder installed before 1983.

(ii) *Site selection for nontransient noncommunity water systems.* The water supplier shall select all tier 1 sample site locations, if possible. A nontransient noncommunity water system

with an insufficient number of tier 1 sampling sites shall complete its sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983. If additional sites are needed to complete the sampling pool, the system shall use representative sites throughout the distribution system in which the plumbing materials used at the site would be commonly found at other sites served by the system.

(A) Tier 1 sampling sites shall consist of buildings that have one or more of the following:

(I) Copper pipes with lead solder installed after 1982.

(II) Lead pipes.

(III) Lead service line.

(B) If a nontransient noncommunity water system or a community water system that meets the criteria of § 109.1104(a)(2)(i)(E) contains a fewer number of buildings than the required number of sampling sites, the water supplier shall sample from different taps within a representative number of buildings. The taps shall be those most commonly used for drinking and the samples shall be taken on different days. If the system has an insufficient number of these taps to take each sample from a different tap, the water supplier may apply to the Department, in writing, to substitute non-first-draw samples. Those systems shall collect as many first-draw samples from appropriate taps as possible and identify sampling times and locations that would likely result in the longest standing time for the remaining sites. Non-first-draw samples must be 1-liter in volume and collected from an interior tap that is typically used to provide drinking water.

(iii) *Sample sites with lead service lines.* A system that has a distribution system containing lead service lines shall draw 50% of the samples it collects during each monitoring period from sites that contain lead pipes or copper pipes with lead solder, and 50% of those samples from sites served by a lead service line. If a water system cannot identify a sufficient number of sampling sites served by a lead service line, the system shall collect first draw samples from each site identified as being served by a lead service line.

(iv) *Sample sites with point-of-use or point-of-entry devices.* Samples may not be taken from taps that have point-of-use or sites that have point-of-entry treatment devices designed to remove inorganic contaminants.

(3) *Water quality parameter sample site selection.*

(i) *Water quality parameter distribution samples.* Water quality parameter distribution samples shall be representative of water quality throughout the distribution system taking into account the number of persons served, the different sources of water, the different treatment methods employed by the system and seasonal variability. Distribution sampling is not required to be conducted at sites targeted for lead and copper tap sampling under subsection (a)(1). Systems may find it convenient to conduct distribution sampling for water quality parameters at sites used for coliform sampling under § 109.303(a) (relating to sampling requirements).

(ii) *Water quality parameter entry point samples.* Samples collected at entry points shall be from locations representative of each source after treatment. If a system draws water from more than one source and the sources are combined before distribution, the system shall sample at an

entry point during periods of normal operating conditions—that is, when water is representative of all sources being used.

(4) *Sample procedure certification.* A water supplier shall certify that sample collection methods identified in subsection (h)(1) were used to collect lead and copper tap samples. This certification shall be included in the sample site location plan. When a water supplier allows the residents to collect the samples, a copy of the material distributed to residents explaining the proper collection methods, and a list of the residents who performed sampling shall be included in the sample site location plan.

(h) *Sample collection methods.*

(1) *Lead and copper tap samples.* Tap samples for lead and copper collected in accordance with this subchapter, with the exception of lead service line samples collected under § 109.1107(d)(3) and tap monitoring samples collected under § 109.1103(g)(2)(ii)(B), shall be first-draw samples and the following sample collection methods shall be used:

(i) Each first-draw tap sample for lead and copper shall be 1 liter in volume and have stood motionless in the plumbing system of each sampling site for at least 6 hours.

(ii) First-draw samples from residential housing shall be collected from the cold water kitchen tap or bathroom sink tap. First-draw samples from a nonresidential building shall be collected at an interior tap from which water is typically drawn for consumption.

(iii) First-draw samples may be collected by the water supplier or the water supplier may allow residents to collect first-draw samples after instructing the residents of the sampling procedures specified in this paragraph.

(iv) If a water supplier allows residents to perform sampling, the system may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

(v) Acidification of first-draw samples may be done up to 14 days after the sample is collected. After acidification, the sample shall stand in the original container for the time specified according to the approved EPA method before analyzing the sample.

(vi) For subsequent monitoring, the water supplier shall make every reasonable effort to collect each first-draw tap sample from the same sampling site from which it collected a previous sample. If the water supplier is unable to use an original sampling site, the system may collect the tap sample from another sampling site in its sampling pool as long as the new site meets the same targeting criteria, and is within reasonable proximity to the original site.

(2) *Water quality parameter distribution samples.* Water quality parameter distribution samples shall be collected using the following methods:

(i) Samples shall be fully flushed.

(ii) If a water supplier collects the water quality parameter distribution samples from the same location as coliform and disinfectant residual samples, the water quality parameter samples shall be collected in the following manner:

(A) Fully flush the tap and collect the coliform sample.

(B) Collect a sample to measure disinfectant residual.

(C) Collect and analyze the sample for temperature and pH.

(D) Collect the samples for the other water quality parameters.

(iii) Water quality parameter samples require two 500-ml samples to be collected. Two sample containers are required because calcium analysis shall be performed using a separate sample container in order to acidify the sample prior to measurement.

(iv) Temperature analyses shall be conducted in the field to insure accuracy.

(v) pH measurements shall be conducted in the field and made with a pH electrode and meter within 15 minutes of sample collection. The meter shall be capable of measuring to 1/10 of a unit.

(vi) If silica analyses are required, the sample shall be collected in a plastic container.

(3) *Water quality parameter entry point samples.* Water quality parameter entry point samples shall be collected using the methods identified in paragraph (2), except subparagraphs (ii) and (iii).

(4) *Source water samples.* Lead and copper source water samples shall be collected in accordance with the requirements regarding sample location, number of samples and collection methods specified in 40 CFR 141.[23] **88** (a)(1) (relating to **[inorganic chemical sampling and analytical] monitoring requirements for lead and copper in source water**).

(5) *Lead service line samples.* Each lead service line sample shall be 1 liter in volume and have stood motionless in the lead service line for at least 6 hours. Lead service line samples shall be collected in one of the following ways:

(i) At the tap after flushing the volume of water between the tap and the lead service line. The volume of water shall be calculated based on the interior diameter and length of the pipe between the tap and the lead service line.

(ii) Tapping directly into the lead service line.

(iii) If the sampling site is a building constructed as a single-family residence, allowing the water to run until there is a significant change in temperature which would be indicative of water that has been standing in the lead service line.

(i) *Analytical methods.* Analyses for lead, copper, pH, conductivity, calcium, alkalinity, orthophosphate, silica and temperature shall be conducted in accordance with 40 CFR 141.89 (relating to analytical methods) which is incorporated by reference. The Department will only consider lead and copper samples analyzed by a laboratory certified by the Department. Measurements for water quality parameters may be performed by a person meeting the operator certification requirements of § 109.1107(c).

(j) *Invalidation of lead or copper tap water samples.* A sample invalidated under this paragraph does not count toward determining lead or copper 90th percentile levels under § 109.1102(a) or toward meeting the minimum monitoring requirements of this section. The Department's decision and rationale for invalidating a sample must be documented in writing.

(1) The Department may invalidate a lead or copper tap water sample if at least one of the following conditions is met:

(i) The laboratory establishes that improper sample analysis caused erroneous results.

(ii) The Department determines that the sample was taken from a site that did not meet the site selection criteria of this section.

(iii) The sample container was damaged in transit.

(iv) There is substantial reason to believe that the sample was subject to tampering.

(2) The system shall report to the Department the results of all samples, along with supporting documentation for samples the system believes should be invalidated.

(3) A system shall collect replacement samples for any samples invalidated under this subsection if, after the invalidation of one or more samples, the system has too few samples to meet the minimum monitoring requirements of this section.

(i) Replacement samples shall be taken as soon as possible but no later than 20 days after the Department invalidates the sample or by the end of the applicable monitoring period, whichever occurs later.

(ii) Replacement samples taken after the end of the applicable monitoring period shall not be used to meet the monitoring requirements of a subsequent monitoring period.

(iii) Replacement samples shall be taken at the same locations as the invalidated samples or, if that is not possible, at locations other than those already used for sampling during the monitoring period.

(k) *Monitoring waivers for small systems.* Any small system that meets the criteria of this subsection may apply to the Department to reduce the frequency of monitoring for lead and copper under this section to once every 9 years if it meets all of the materials criteria specified in subsection (k)(1) and all of the monitoring criteria specified in subsection (k)(2). A system that meets the criteria in subsection (k)(1) and (2) only for lead, or only for copper, may apply to the Department for a waiver to reduce the frequency of tap water monitoring to once every 9 years for that contaminant only.

(1) *Materials criteria.* The system shall demonstrate that its distribution system, service lines and all drinking water plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, are free of lead-containing materials or copper-containing materials or both as follows:

(i) *Lead.* To qualify for a waiver of tap monitoring requirements for lead, the system shall provide certification and supporting documentation to the Department that the system is free of all lead-containing materials as follows:

(A) It contains no plastic pipes which contain lead plasticizers, or plastic service lines which contain lead plasticizers.

(B) It is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures, unless the fittings and fixtures meet the specifications of any standard established under 42 U.S.C.A. 300g-6(e) (relating to plumbing fittings and fixtures).

(ii) *Copper.* To qualify for a waiver of the tap water monitoring requirements for copper, the system shall provide certification and supporting documentation to the Department that the system contains no copper pipes or copper service lines.

(2) *Monitoring criteria for waiver issuance.* The system shall have completed at least one 6-month round of routine tap water monitoring for lead and copper at sites approved by the Department and from the number of sites as required under subsection (a)(1)(v). The system shall demonstrate that the 90th percentile levels for all rounds of monitoring conducted since the system became free of all lead-containing or copper-containing materials, as appropriate, meet the following criteria:

(i) *Lead levels.* To qualify for a waiver of the lead tap monitoring, the system shall demonstrate that the 90th percentile lead level does not exceed 0.005 mg/L.

(ii) *Copper levels.* To qualify for a waiver of the copper tap monitoring, the system shall demonstrate that the 90th percentile copper level does not exceed 0.65 mg/L.

(3) *Department approval of waiver application.* The Department will notify the system of its waiver determination, in writing, setting forth the basis of the decision and any condition of the waiver. A system shall continue monitoring for lead and copper at the tap as required by this section until it receives written notification from the Department that the waiver has been approved.

(4) *Monitoring frequency for systems with waivers.*

(i) A system shall conduct tap water monitoring for the contaminant waived in accordance with subsection (e)(1)(iv) at the reduced number of sites identified in subsection (e) at least once every 9 years and provide the materials certification specified in paragraph (1) for the contaminants waived along with the monitoring results.

(ii) A system shall continue to monitor for any nonwaived contaminants in accordance with subsection (a)(1), as appropriate.

(iii) A system with a waiver shall notify the Department, in writing, within 60 days after becoming aware that it is no longer free of lead-containing or copper-containing materials, as appropriate, as a result of new construction or repair.

(5) *Continued eligibility.* If the system continues to satisfy the requirements of paragraph (4), the waiver will be renewed automatically unless any of the conditions listed in subparagraph (i)—(iii) occurs. A system whose waiver has been revoked may reapply for a waiver when it again meets the appropriate materials and monitoring criteria of paragraphs (1) and (2).

(i) A system with a lead waiver no longer satisfies the materials criteria of paragraph (1)(i) or has a 90th percentile lead level greater than 0.005 mg/L.

(ii) A system with a copper waiver no longer satisfies the materials criteria of subsection (k)(1)(ii) or has a 90th percentile copper level greater than 0.65 mg/L.

(iii) The Department notifies the system, in writing, that the waiver has been revoked.

(6) *Requirements following waiver revocation.* A water system whose waiver has been revoked is subject to the corrosion control treatment, and lead and copper tap water monitoring requirements as follows:

(i) If the system exceeds the lead or copper, or both, action level, the system shall implement corrosion control treatment in accordance with § 109.1102(b), and any other applicable requirements of this subchapter.

(ii) If the system meets both the lead and copper action levels, the system shall monitor for lead and copper at the tap no less frequently than once every 3 years using the reduced number of sample sites specified in subsection (e).



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May 6, 2004

Policy Office

717-783-8727

Mr. Robert E. Nyce, Executive Director
Independent Regulatory Review Commission
14th Floor, Harrisstown #2
333 Market Street
Harrisburg, PA 17120

RE: Final Rulemaking: Microbial & Disinfection Byproducts Corrective Amendments (#7-383)

Dear Mr. Nyce:

Enclosed is a copy of a final-form regulation for review and comment by the Independent Regulatory Review Commission pursuant to Section 5.1(a) of the Regulatory Review Act. The Environmental Quality Board (EQB) approved this final-form regulation on April 20, 2004.

This final rulemaking updates and clarifies several requirements concerning disinfectants, disinfection byproducts, and surface water treatment. It was developed in response to recent Federal corrective amendments to two 1998 Federal rules—the Interim Enhanced Surface Water Treatment Rule (IESWTR) and the Disinfectants/Disinfection Byproducts Rule (D/DBP). The Federal corrective amendments resulted in several Chapter 109 provisions being unnecessarily more stringent than Federal requirements. The rulemaking also adds three requirements needed for Pennsylvania to obtain primacy for the Safe Drinking Water Program. These requirements relate to disinfection byproduct monitoring, increased monitoring criteria, and surface water turbidity reporting. Lastly, several existing provisions were clarified.

One provision more stringent than the Federal requirements is monthly reporting of chlorite monitoring. The Federal rule requires chlorite reporting on a quarterly basis. Entry point chlorite samples are taken daily, and compliance with the chlorite MCL is based upon monthly distribution sampling. The Department believes that monthly reporting is appropriate given the acute health concerns associated with the parent chlorine dioxide disinfectant.

The amendments will affect approximately 2,565 water systems in Pennsylvania. There will be no additional compliance costs associated with these amendments. Both the Water Resources Advisory Committee (WRAC) and the Technical Assistance Center (TAC) for Small Water Systems endorsed the rule. The EQB adopted the proposed rulemaking on May 21, 2003. No comments were received during the 30-day public comment period. EPA has granted primacy to DEP on the basis that these final amendments will be adopted and published in 2004.

Mr. Robert E. Nyce

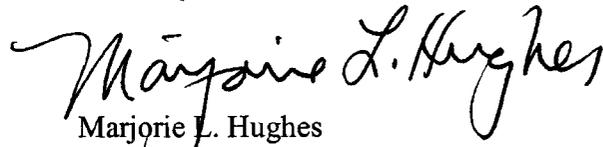
- 2 -

May 6, 2004

The Department will provide the Commission with the assistance required to facilitate the Commission's review of this final-form regulation under Section 5.1(e) of the Regulatory Review Act.

Please contact me if you would like additional information.

Sincerely,



Marjorie L. Hughes
Regulatory Coordinator

Enclosures

**TRANSMITTAL SHEET FOR REGULATIONS SUBJECT TO THE
REGULATORY REVIEW ACT**

I.D. NUMBER: 7-383
SUBJECT: Microbial & Disinfection Byproducts Amendments
AGENCY: DEPARTMENT OF ENVIRONMENTAL PROTECTION

#2345

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

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 REGULATORY REVIEW COMMISSION
 MAY -7 PM 2:05

FILING OF REGULATION

DATE	SIGNATURE	DESIGNATION
5/7/04	<i>Vicki Hoffman</i>	HOUSE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
5/7/04	<i>Patricia A. Carnathan</i>	SENATE COMMITTEE ON ENVIRONMENTAL RESOURCES & ENERGY
5/7/04	<i>Steph. F. Hoffman</i>	INDEPENDENT REGULATORY REVIEW COMMISSION
		ATTORNEY GENERAL (for Final Omitted only)
		LEGISLATIVE REFERENCE BUREAU (for Proposed only)

