Public Health and Health Planning Council

Codes, Regulations and Legislation Committee Meeting
Agenda and Informational Announcements

Thursday, December 7, 2017
9:30 AM

Location: New York State Department of Health offices at 90 Church Street, 4th Floor, Rooms 4A and 4B, New York City

A. Agenda

For Adoption	**Program Area**	**Unit Representative**
Amendment to Title 10 NYCRR Parts 405 and 708 – Trauma Centers	Bureau of Emergency Medical Services and Trauma Systems	Lee Burns
Amendments to Title 10 NYCRR Subpart 5-1 – Public Water Systems	Center for Environmental Health	Dr. Roger Sokol

For Discussion/Information	**Program Area**	**Unit Representative**
Amendments to Title 10 NYCRR Subpart 5-1 – Revisions to Incorporate the Federal Revised Total Coliform Rule	Center for Environmental Health	Dr. Roger Sokol
Amendments to Title 10 NYCRR Part 405 – Hospital Policies for Individuals with Substance Use Disorders	Center for Health Care Policy and Resource Development	Lisa Ullman

B. Information Announcements

1. Anyone wishing to make oral comments at this meeting should contact the Bureau of Policy and Standards Development by 11:00 A.M. on Wednesday, December 6, at (518) 402-5914 to arrange for placement on the speakers list. Please give your name, affiliation, if any and the agenda item(s) you wish to address. To ensure that all commenters have an opportunity to address the Committee, speakers should limit their comments to 3-4 minutes maximum.

2. All meeting attendees including Committee members are requested to sign the Attendance Sheet, which will be circulated in the meeting room.

SUMMARY OF EXPRESS TERMS

These regulations establish a new regulatory framework for the operation of trauma centers at hospitals in New York State, by adding a new 10 NYCRR section 405.45. Subdivision (a) defines terms relating to trauma centers, including but not limited to trauma patient, trauma care, Levels I-IV trauma centers, pediatric trauma center, and Regional Trauma Center. Subdivision (a) also defines the transfer agreements that must exist between hospitals, and the trauma affiliation agreement that each hospital must have with the Regional Trauma Center.

Subdivision (b) establishes certain general provisions relating to trauma care. More specifically, the regulation states that the Department has authority to determine whether a hospital meets the legal requirements for designation by the Department as a trauma center. Only trauma centers designated by the Department may admit and provide care to trauma patients, except in certain emergency situations. Any hospital not designated as a trauma center must transfer a trauma patient to the most appropriate trauma center pursuant to a transfer agreement. A hospital may not state that it has trauma center status unless it is designated by the Department.

Subdivision (c) establishes the process for obtaining trauma center designation. A hospital seeking designation as a trauma center must receive verification by the American College of Surgeons, Committee on Trauma (ACS-COT), or other entity determined by the Department. To receive verification, the hospital must undergo a consultation site visit and verification site visit. The regulation provides details on what must occur during consultation and verification site visits.

Subdivision (d) establishes certain requirements for operating a trauma center, including but not limited to complying with ACS-COT's publication entitled *Resources for Optimal Care of the Injured Patient* (2014), maintaining appropriate equipment, maintaining transfer agreements, participating in a performance improvement process, submitting notices of noncompliance to the Department, and notifying the Department immediately of any inability to meet trauma care capabilities.

Subdivision (e) sets forth the conditions under which the Department may withdraw trauma center designation. Subdivision (f) requires trauma centers to submit information to the New York State Trauma Registry. Subdivision (g) requires trauma centers to participate with the coordinating Regional Trauma Center and other hospitals and healthcare facilities, EMS agencies and governmental disaster preparedness programs in regional trauma performance improvement activities. The regulation provides additional details concerning the trauma performance improvement program.

Two provisions in existing regulation relating to trauma centers are repealed as no longer needed, in light of the proposed regulations.

Pursuant to the authority vested in the Public Health and Health Planning Council and subject to the approval of the Commissioner of Health by sections 2800, 2803, 3063, 3064, 3066, 3074 and 3075 of the Public Health Law, Part 405 and Part 708 of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York, are hereby amended, to be effective upon publication of a Notice of Adoption in the New York State Register, as follows:

Paragraph (8) of subdivision (b) of section 708.2 is hereby repealed.

Subdivision (i) of section 708.5 is hereby repealed.

A new section 405.45 is proposed to read as follows:

405.45 Trauma Centers

(a) *Definitions*. The following terms when used in this section shall have the following meanings:

(1) "Trauma patient" means a patient at high risk of death or disability from multiple and severe injuries.

(2) "Trauma care" means health care provided to a trauma patient.

(3) "Level I trauma center" means a facility verified by the American College of Surgeons Committee on Trauma (ACS-COT), or other entity determined by the Department, and designated by the Department as a facility that is capable of providing the full range of services required of trauma patients; conducts trauma research; and provides training to surgical residents that comports with the ACS-COT's publication entitled *Resources for Optimal Care of the Injured Patient* (2014). The standards set forth in the ACS-COT's publication entitled *Resources*

for Optimal Care of the Injured Patient (2014) are hereby incorporated by reference with the same force and effect as if fully set forth herein. A copy of *Resources for Optimal Care of the Injured Patient* (2014) is available for inspection and copying at the Regulatory Affairs Unit, New York State Department of Health, Corning Tower, Empire State Plaza, Albany, New York 12237. Copies are also available from the American College of Surgeons Committee on Trauma, 633 North Saint Clair Street, Chicago, Illinois 60611. A Level I trauma center shall have a transfer agreement with at least one pediatric trauma center for trauma patients whose needs exceed the clinical capabilities of the facility.

(4) "Level II trauma center" means a facility verified by the ACS-COT, or other entity determined by the Department, and designated by the Department as a facility that is capable of providing comprehensive trauma care. A Level II trauma center shall have a transfer agreement with at least one Level I trauma center and, unless otherwise designated, at least one pediatric trauma center for trauma patients whose needs exceed the clinical capabilities of the facility.

(5) "Level III trauma center" means a facility verified by the ACS-COT, or other entity determined by the Department, and designated by the Department to serve communities that do not have immediate access to a Level I or II trauma center that is capable of providing prompt assessment, resuscitation, emergency operations and stabilization of trauma patients. A Level III trauma center shall have a transfer agreement with at least one Level I or Level II trauma center, whichever is the most appropriate trauma center, and at least one pediatric trauma center for trauma patients whose needs exceed the clinical capabilities of the facility.

(6) "Level IV trauma center" means a facility located in a rural area verified by the ACS-COT, or other entity determined by the Department, and designated by the Department as a

facility that is capable of providing initial evaluation and stabilization of trauma patients prior to transfer to a higher level trauma center. A Level IV trauma center shall have a transfer agreement with at least one Level I, Level II, or Level III trauma center, whichever is the most appropriate trauma center, and at least one pediatric trauma center for trauma patients whose needs exceed the clinical capabilities of the facility.

(7) “Pediatric trauma center” means a facility verified by the ACS-COT, or other entity determined by the Department, and designated by the Department as a level I or level II trauma center and as a facility that is capable of providing comprehensive pediatric trauma care to pediatric trauma patients. A pediatric trauma center shall have a transfer agreement with at least one Level I or Level II trauma center, whichever is the most appropriate trauma center.

(8) “Region” means a defined geographic area of the state where a regional trauma advisory committee has been established pursuant to PHL § 3065.

(9) “Regional Trauma Center” means a Level I or Level II trauma center selected by the Department to coordinate regional trauma performance improvement activities in its region. The Regional Trauma Center will be selected from facilities in a region that have been successfully verified by ACS-COT, or other entity determined by the Department, and designated as a trauma center by the Department, with a history of leadership and commitment to the region.

(10) “Transfer agreement” means a written and fully executed agreement between a hospital that has limited capability to receive and treat trauma patients in need of specialized emergency care and a designated trauma center that is capable of providing such care, for the transfer of such patients, that is consistent with the criteria, policies and procedures set forth in the hospitals’ trauma affiliation agreement with the Regional Trauma Center.

(11) “Trauma affiliation agreement” means a written and fully executed agreement between the Regional Trauma Center and each of the Level I, Level II, Level III, and Level IV trauma centers and non-designated hospitals in the Regional Trauma Center’s region. A trauma affiliation agreement shall include provisions for:

(i) criteria, policies and procedures for the transfer of trauma patients to trauma centers and between levels of trauma center;

(ii) participation in the New York State Trauma Registry including the maintenance of confidentiality and protection of all data provided to the Registry;

(iii) cooperation in outreach, education, training and data collection activities; and

(iv) authority for a representative or representatives of the Regional Trauma Center to participate in and receive information from the affiliate hospital’s quality assurance committee, participate in other reviews of the quality of trauma care provided by the affiliate, and provide recommendations for quality improvement of trauma care.

(b) *General Provisions*.

(1) The Department may designate a hospital as a designated trauma center if the hospital demonstrates that it has met the requirements of section 3066 of the Public Health Law and this Part, to the Department’s satisfaction.

(2) Only those hospitals designated as trauma centers by the Department shall admit and provide trauma care to trauma patients; provided, however, that if the existing designated trauma centers have exceeded their capacity during a state-declared disaster or an emergency surge, an

undesignated hospital, upon approval by the commissioner, may temporarily provide trauma care.

(3) Any hospital not designated as a trauma center that receives a trauma patient shall transfer such patient to the most appropriate trauma center pursuant to a transfer agreement as required under section 405.19 of this Part. Trauma centers shall be consulted prior to transfer. Trauma patients requiring trauma care shall be transported to the most appropriate trauma centers in accordance with State Emergency Medical Advisory Committee (SEMAC) approved Emergency Medical Services (EMS) protocols developed and adopted pursuant to subdivision two of section 3002-a of the Public Health Law.

(4) No hospital shall state that it has trauma center status unless so designated by the Department.

(c) *Trauma Center Designation*

(1) A hospital seeking designation as a trauma center must receive verification by the American College of Surgeons, Committee on Trauma (ACS-COT), or other entity determined by the Department. To receive verification, the hospital must undergo a consultation site visit and verification site visit by the ACS-COT, or other entity determined by the Department. During the verification site visit, the hospital must exhibit that it is capable of providing Level I, Level II, Level III, Level IV or pediatric trauma care in accordance with the trauma care standards set forth in ACS-COT's publication entitled *Resources for Optimal Care of the Injured Patient* (2014).

(i) Consultation site visits.

A hospital seeking designation as a trauma center shall request a consultation site visit by the ACS-COT, or other entity determined by the Department, for the purpose of providing recommendations and assistance in preparation for verification.

(a) The cost of the consultation site visit shall be at the facility's own expense.

(b) A hospital shall provide 30 days' notice to the Department prior to any and all consultation site visits.

(c) The Department may participate in any consultation site visits.

(ii) Verification site visit.

A hospital seeking designation as a trauma center shall request an official verification site visit by the ACS-COT, or other entity determined by the Department, no later than two years following a hospital's receipt of its consultation site visit report. The hospital must receive confirmation from the ACS-COT, or other entity determined by the Department, that the hospital meets the criteria for trauma center verification in accordance with the criteria outlined in the ACS-COT's publication entitled *Resources for Optimal Care of the Injured Patient* (2014).

(a) The cost of any verification site visit shall be at the hospital's own expense.

(b) A hospital shall provide 30 days' notice to the Department prior to any and all verification site visits.

(c) The Department may participate in any verification site visits.

(d) A hospital seeking Level I, Level II, or Level III trauma center designation shall require that any verification review team, as provided by ACS-COT, or other entity determined by the Department, include a nurse reviewer. The hospital shall submit to the

Department documentation confirming that a nurse reviewer was a member of the verification review team.

(e) A hospital shall submit to the Department a copy of all verification site visit reports and verification certificates issued by the ACS-COT, or other entity determined by the Department, within ten business days of receipt.

(f) A hospital shall submit to the Department immediately upon receipt any statement of deficiencies found or interim reports of focused surveys issued by the ACS-COT, or other entity determined by the Department, during a verification review.

(g) A hospital shall notify the Department immediately upon receipt of notice of failure to be verified by the ACS-COT, or other entity determined by the Department. Such notification must be made in writing to the Department by the hospital's chief administrative official.

(2) A hospital seeking designation as a trauma center must provide to the Department any additional materials received by the hospital from the ACS-COT, or other entity determined by the Department, upon the Department's request.

(3) A verified trauma center must be re-verified every three years by the ACS-COT, or other entity determined by the Department, and in accordance with subparagraph (ii) of paragraph (1) of subdivision (c) this section.

(d) *Requirements for Operating a Trauma Center.*

(1) Upon designation, a hospital operating a trauma center shall:

(i) remain subject to the provisions of this Part and all other applicable requirements of this Title and of the Public Health Law related to general hospitals;

(ii) comply with the trauma care standards set forth in ACS-COT's publication entitled *Resources for Optimal Care of the Injured Patient* (2014);

(iii) have age and size appropriate resuscitation equipment consistent with section 405.19(b) and this Part;

(iv) participate and submit information to the New York State Trauma Registry as set forth in subdivision (f) of this section;

(v) maintain transfer agreements with non-designated hospitals and the nearest designated Level I, Level II, Level III and pediatric trauma center, as appropriate for the region, to assure the timely transfer of trauma patients to the appropriate level of trauma care;

(vi) participate in the performance improvement process as set forth in subdivision (g) of this section;

(vii) submit to the Department any notices of noncompliance issued by the ACS-COT, or other entity determined by the Department, within one business day of receipt;

(viii) provide to the Department any additional materials received by the hospital from the ACS-COT, or other entity determine by the Department, upon the Department's request; and

(ix) notify the Department immediately of any inability to meet the capabilities required by its current designation. Such notification must be made in writing to the Department by the hospital's chief administrative official.

(e) *Withdrawal of Designation*

(1) The Department may withdraw designation from a hospital if:

(i) the hospital's trauma center verification certificate lapses;

(ii) the hospital is not issued a certificate of trauma center verification after a reverification site visit; or

(iii) the hospital fails to comply with paragraph (1) of subdivision (d) of this section.

(2) Upon withdrawal of a trauma care designation, the hospital shall immediately take measures to notify affected parties and divert trauma patients to designated trauma centers, and within 30 days, provide to the Department a written plan describing the specific measures it has taken to notify affected parties and its process for diversion of trauma patients to designated trauma centers. In addition, the hospital shall ensure that it has a transfer agreement with at least one designated Level I, Level II or Level III trauma center, whichever is the most appropriate trauma center available, and at least one pediatric trauma center to assure the timely transfer of trauma patients in need of specialized emergency care, consistent with section 405.19 of this Part.

(f) *New York State Trauma Registry*.

Each designated trauma center, and every hospital that treats trauma patients prior to transferring them to a designated trauma center, shall submit information to the New York State Trauma Registry. The data elements that are required to be reported to the New York State Trauma Registry are set forth in the New York State Trauma Registry's data dictionary. Hospitals must submit data to the New York State Trauma Registry at least quarterly and at such other times as the Department may require. The hospital shall have in place appropriate measures to ensure the confidentiality of all information provided to the Registry.

(g) *Performance improvement.*

(1) Each designated trauma center shall participate with the coordinating Regional Trauma Center and other hospitals and healthcare facilities, EMS agencies and governmental disaster preparedness programs in regional trauma performance improvement activities that shall include:

(i) evaluation of the quality and appropriateness of care provided, including providing referring hospitals with information on trauma patient outcome;

(ii) analysis of data from the New York State Trauma Registry, Patient Care Report database and other sources to identify opportunities for improvement. The Regional Trauma Center shall have in place appropriate measures to ensure the confidentiality of all data utilized to conduct this analysis;

(iii) development of trauma protocols, procedures, guidelines and policies;

(iv) assessment of the regional trauma system;

(v) utilization of trauma and EMS data sources to guide public education and injury prevention efforts;

(vi) provision of trauma-related/injury prevention education to allied healthcare providers; and

(vii) participation in emergency and disaster planning including incorporation of resources and capabilities into plans to address mass casualty and other disaster events.

(2) The Regional Trauma Center in each region will coordinate with each hospital within its region to participate in regional trauma performance improvement activities.

(i) Each Regional Trauma Center shall enter into and comply with a trauma affiliation agreement with each hospital in its region. A representative of the Regional Trauma Center may participate in and receive information from the affiliate hospital's quality assurance committee, and may review other reviews of the quality of trauma care provided by the affiliate hospital, in order to make informed recommendations about improving trauma care and about the performance improvement process. Each Regional Trauma Center and each affiliate hospital shall take actions necessary, including but not limited to, incorporating necessary provisions in the trauma affiliation agreement, to authorize such participation. For purposes of such participation, the Regional Trauma Center's representative(s) shall be deemed a member(s) of the affiliate hospital's quality assurance committee. The Regional Trauma Center's representative(s) shall only access confidential patient information for purposes of quality improvement of trauma care. Members of an affiliate hospital's quality assurance committee shall maintain the confidentiality of patient information and are subject to all applicable

confidentiality laws and regulations, including subdivision three of section 3006 of the Public Health Law.

(ii) The Regional Trauma Center shall participate in the review of information and data for quality improvement purposes as described in the affiliation agreement, which shall include:

(*a*) a quarterly review of all pediatric trauma deaths, delays of three hours or more in transferring trauma patients to a higher level of trauma care, and any transport and/or admission of trauma patients to a non-trauma center;

(*b*) making quality improvement recommendations for trauma care for the hospitals in its region; and

(*c*) periodic review, at the Department's request, of potential issues with trauma care in its region identified by the Department during routine analysis of regional data in the New York State Trauma Registry; and

(d) any other activities required by the Department for quality improvement purposes.

(iii) The Regional Trauma Center shall submit to the Department on a quarterly basis a report, in a format determined by the Department, describing its quality improvement reviews of all pediatric trauma deaths, delays of three hours or more in transferring trauma patients to a higher level of trauma care, any transport and/or admission of trauma patients to a non-trauma center and any additional information requested by the Department, and a report, in a

format determined by the Department, describing any quality improvement recommendations made to the hospitals in its region.

(iv) The Regional Trauma Center shall cooperate with the Department in regular reviews by the Department of the Regional Trauma Center's quality improvement activities, including providing medical records and other relevant documents and information on a timely basis when requested.

REGULATORY IMPACT STATEMENT

Statutory Authority:

The authority for the promulgation of these regulations is contained in Public Health Law (PHL) Sections 2800, 2803(2), 3063, 3064, 3066, 3074 and 3075. Section 2800 provides that "the Department of Health shall have the central, comprehensive responsibility for the development and administration of the state's policy with respect to hospital and related services." PHL § 2803(2) authorizes the Public Health and Health Planning Council (PHHPC) to adopt and amend rules and regulations, subject to the approval of the Commissioner, to implement the purposes and provisions of PHL Article 28 and to establish minimum standards governing the operation of health care facilities.

PHL §§ 3063 and 3064 establish the State Emergency Medical Advisory Committee (SEMAC) and the State Trauma Advisory Committee (STAC), respectively, to advise the Commissioner and the Department on emergency medical care and trauma care within the state. PHL § 3066 authorizes the Department to develop standards for trauma care and to categorize hospitals as trauma centers appropriate for providing trauma care. PHL § 3074 establishes the State Emergency Medical Services for Children Advisory Committee to advise the Commissioner and the Department on all aspects of emergency medical services for children, including trauma care. PHL § 3075 authorizes the Department to develop and maintain, with the advice of the State Emergency Medical Services for Children Advisory Committee, the State Emergency Medical Advisory Committee and the State Trauma Advisory Committee, a statewide system for recognition of facilities able to provide pediatric trauma care.

Legislative Objectives:

The legislative objective of PHL Article 28 includes the protection of the health of the residents of the State by assuring the efficient provision and proper utilization of health services, of the highest quality at a reasonable cost. The legislative objective of PHL Articles 30-B and 30-C includes the protection of public health and safety through the development of systems for adult and pediatric trauma care.

Needs and Benefits:

After a traumatic event, the complexity of injuries sustained, the health of the patient at the time of the event, and the trauma care available to that patient will determine the risk of death, loss of limb, disability and/or other permanent harm. Because hospitals vary in the scope of resources they can provide to treat trauma patients, the state's network of healthcare providers works to ensure that trauma patients receive high quality care at those hospitals that have the resources to maximize chances for good outcomes. Since 1984, several research studies, including more than 15 published articles, have concluded that a patient's chances of survival following significant trauma improve when he or she is cared for in a specialized trauma center.

These proposed regulations repeal certain provisions of Part 708 that define trauma care and trauma centers. These provisions were originally promulgated in 1990 and were modeled after the national trauma care standards at that time. The proposed regulations update and modernize these standards.

The State Trauma Advisory Committee (STAC), as established by PHL Article 30-B, advises the Department and Commissioner regarding trauma and disaster care. In collaboration with STAC, the Department determined that, to strengthen the provision of trauma care in New

York State, and to improve access to trauma care and improve patient care, the Department should require hospitals seeking trauma center designation to comply with the current national trauma care standards published by the American College of Surgeons Committee on Trauma (ACS-COT) in *Resources for Optimal Care of the Injured Patient* (2014).

Consistent with STAC's recommendation, the Department advised the 40 hospitals designated as trauma centers that the Department intended to make compliance with ACS-COT standards a requirement of designation, and the Department advised those hospitals to contact the ACS-COT to schedule a consultation site visit. To date, twenty-nine (29) hospitals have received verification from the American College of Surgeons, and the remaining hospitals are in the process of scheduling their verification survey visits. While completing the ACS-COT verification site visit process, all currently designated trauma centers retain their designation and continue to receive trauma patients.

In March 2013, the Department advised that those hospitals seeking trauma center designation for the *first* time should contact the ACS-COT by May 2015 to schedule a consultation site visit, and that within two years of a final consultation site visit, request a verification site visit. This initial timeline was established to facilitate advance compliance with the regulations now being proposed. The Department advised those facilities seeking trauma care designation for the first time that, prior to their consultation site visit, the facility must have in place: a trauma service, a trauma medical director, a trauma program manager, a hospital-based trauma registry, 9-12 months of trauma data, and a performance improvement process of some kind. To date, four (4) hospitals have been provisionally designated in anticipation of receiving verification. One of the provisional hospitals completed the verification survey and has been verified as a Level III trauma center and has received its designation from the

Commissioner. Trauma care requires significant resources and highly trained staff with expertise in caring for severely injured patients. The ACS-COT has set the standard for caring for trauma patients since 1922 when the ACS-COT was created. The ACS-COT standards are national standards which are updated regularly to reflect current trends and evidence-based practice. The current ACS-COT publication entitled *Resources for the Optimal Care of the Injured Patient* was published in 2014 and is the edition which is being incorporated by reference in these regulations. The ACS-COT conducts surveillance of trauma centers in three-year cycles to verify that a facility is still capable of providing its verified level of trauma care.

The Department's current regulations allow for only two levels of trauma center: Regional and Area trauma centers. In keeping with the ACS-COT standards, the proposed regulations would allow the Department to designate four levels of trauma centers. The addition of two more levels of trauma centers will strengthen the state's trauma system and include facilities in underserved area of the state.

These regulations will not preclude non-designated hospitals from caring for patients with minor trauma. It is expected, however, that those hospitals will transfer all seriously injured trauma patients – those patients at high risk of death or disability from multiple and severe injuries – to designated trauma centers. Emergency Medical Services (EMS) protocols already dictate that trauma patients be transported to the highest level of care within a region's trauma system.

Costs for the Implementation of and Continuing Compliance with these Regulations to the Regulated Entity:

Costs incurred by those hospitals voluntarily seeking trauma center designation would include the cost of a consultation site visit and verification site visit. The cost for a consultation site visit is approximately $15,000, while the cost for a verification site visit, including a nurse reviewer, is approximately $16,000. Verification must be completed every three years. Hospitals may also incur costs associated with the hiring of additional trauma surgeons, trauma registrars and an injury prevention coordinator. The average salary of a board-certified trauma surgeon is approximately $304,500. The average salary of a nurse manager is $62,840. The average salary for an injury prevention coordinator (or "health educator") is $47,812.

The total costs per institution will vary depending on the resources already at hand. For current trauma hospitals, review and update of a hospital's trauma policies and procedures could be accomplished with existing staff, imposing little or no additional cost. Those hospitals seeking trauma designation for the first time may need to create a full-time position for a trauma program manager. For those facilities seeking a new Level II designation, this new trauma program manager may also co-ordinate injury prevention activities. This position may be filled by someone currently employed by the hospital, or the hospital could choose to hire a new employee. Level I facilities must also have an injury prevention coordinator.

Designated trauma centers are already required to maintain a hospital-based trauma registry which captures information pertaining to the patient's injury, pre-hospital care, Emergency Department care, hospital care and outcome information so that the hospital can submit information to the New York State Trauma Registry. ACS-COT standards require trauma data submission to the National Trauma Data Bank (NTDB) (a minimum of 80% of cases

entered within 60 days of discharge) and the periodic monitoring of data validity. The New York State Trauma Registry "data dictionary" already incorporates the ACS-COT National Trauma Data Bank (NTDB) data elements along with 22 data elements specific to New York. At the state level, each record receives a unique identifier to protect patient confidentiality. Registry information is stored on a protected server with highly limited access.

The ACS-COT currently recommends one registrar for every 750-1,000 patients entered into the registry. Currently designated trauma centers, which already maintain a hospital-based trauma registry, may need to hire an additional registrar to meet these registry standards. The "average" salary for a "registrar" is $37,828. According to one of the vendors currently supporting the New York State Trauma Registry, for those facilities pursuing designation as a trauma center for the first time, the average cost of purchasing the software necessary to begin a hospital-based trauma registry is approximately $5,000 - 10,000, and the annual cost for maintaining such registry is approximately $2,000 - 3,000.

The goal of the New York State Trauma Registry is to capture all data for trauma patients cared for in the state. For those non-designated hospitals that occasionally receive trauma patients, there will be a mechanism for capturing an abbreviated set of data elements. The mechanism for submitting an abbreviated subset of trauma data is expected to be offered free of charge. For the small numbers of trauma patients expected at these facilities, entry of trauma data can be accomplished by existing staff and should not require additional hiring.

Those hospitals that will be caring for pediatric trauma patients must also ensure that their equipment is age and size appropriate.

Cost to State and Local Government:

There are no additional costs to State and local governments to implement this regulation. Existing staff will be utilized to conduct surveillance of the regulated parties and monitor compliance with these provisions.

Cost to the Department of Health:

There are no additional costs to the Department of Health to implement this regulation. Existing staff will be utilized to conduct surveillance of the regulated parties and monitor compliance with these provisions.

Local Government Mandates:

There are no additional programs, services, duties or responsibilities imposed by this rule upon any county, city, town, village, school district, fire district or any other special district.

Paperwork:

Hospitals may need to develop or revise written trauma policies and procedures, including trauma activation criteria and procedures, a massive transfusion protocol, a difficult airway management policy, trauma diversion policy, performance improvement processes and activities, transfer agreements and trauma data analysis. Hospitals seeking trauma center designation will need to complete an application for their consultation and verification site visits, along with a pre-review questionnaire.

Duplication:

This regulation will not duplicate any state or federal rules.

Alternative Approaches:

ACS-COT sets the national standard of care for trauma patients. Adopting any other standards would be contrary to good medical practice. Moreover, leaving the regulations unchanged would subject trauma centers, and their patients, to outdated standards that would also be contrary to good medical practice. These regulatory changes ensure that trauma centers are subject to the most up-to-date standards.

Federal Requirements:

This regulation will not conflict with any federal rules.

Compliance Schedule:

This proposal will go into effect upon a Notice of Adoption in the New York *State Register*.

Contact Person: Ms. Katherine E. Ceroalo
NYS Department of Health
Bureau of House Counsel, Regulatory Affairs Unit
Corning Tower Building, Room 2438
Empire State Plaza
Albany, NY 12237
(518) 473-7488
(518) 473-2019 –FAX
REGSQNA@health.ny.gov

REGULATORY FLEXIBILITY ANALYSIS

FOR SMALL BUSINESS AND LOCAL GOVERNMENTS

Effect of Rule:

This regulation will apply to the 228 general hospitals in New York State that either have or would seek trauma center designation. Currently, there are 40 designated trauma centers in New York State, four of which are operated by local government.

Compliance Requirements:

There are no additional programs, services, duties or responsibilities imposed by this rule upon any county, city, town, village, school district, fire district or any other special district. Hospitals would only need to comply with these regulations if they choose to become trauma centers.

Professional Services:

Most currently designated trauma centers already employ an adequate number of trauma surgeons, a trauma program manager and a registrar, and several hospitals already employ an injury prevention coordinator. Some currently designated trauma centers may need to hire additional trauma registrars to comply with the ACS-COT standards regarding data submission. Some facilities may need to hire additional surgeons. Newly designated trauma centers will likely need to hire a trauma program manager and trauma registrar.

Compliance Costs:

Costs incurred by those hospitals voluntarily seeking trauma center designation would include the cost of a consultation site visit and verification site visit. The cost for a consultation site visit is approximately $15,000, while the cost for a verification site visit, including a nurse reviewer, is approximately $16,000. Verification must be completed every three years. Hospitals may also incur costs associated with the hiring of additional trauma surgeons, trauma registrars and an injury prevention coordinator.

The total costs per institution will vary depending on the resources already at hand. For current trauma hospitals, review and update of a hospital's trauma policies and procedures could be accomplished with existing staff, imposing little or no additional cost. Those hospitals seeking trauma designation for the first time may need to create a full-time position for a trauma program manager. For those facilities seeking a new Level II designation, this new trauma program manager may also co-ordinate injury prevention activities. This position may be filled by someone currently employed by the hospital, or the hospital could choose to hire a new employee. Level I facilities must also have an injury prevention coordinator.

Designated trauma centers are already required to maintain a hospital-based trauma registry which captures information pertaining to the patient's injury, pre-hospital care, Emergency Department care, hospital care and outcome information so that the hospital can submit information to the New York State Trauma Registry. ACS-COT standards require trauma data submission to the National Trauma Data Bank (NTDB) (a minimum of 80% of cases entered within 60 days of discharge) and the periodic monitoring of data validity. The New York State Trauma Registry "data dictionary" already incorporates the ACS-COT National Trauma Data Bank (NTDB) data elements along with 22 data elements specific to New York.

At the state level, each record receives a unique identifier to protect patient confidentiality. Registry information is stored on a protected server with highly limited access.

The ACS-COT currently recommends one registrar for every 750-1,000 patients entered into the registry. Currently designated trauma centers, which already maintain a hospital-based trauma registry, may need to hire an additional registrar to meet these registry standards. According to one of the vendors currently supporting the New York State Trauma Registry, for those facilities pursuing designation as a trauma center for the first time, the average cost of purchasing the software necessary to begin a hospital-based trauma registry is approximately $5,000 - 10,000, and the annual cost for maintaining such registry is approximately $2,000 - 3,000.

The goal of the New York State Trauma Registry is to capture all data for trauma patients cared for in the state. For those non-designated hospitals that occasionally receive trauma patients, there will be a mechanism for capturing an abbreviated set of data elements. The mechanism for submitting an abbreviated subset of trauma data is expected to be offered free of charge. For the small numbers of trauma patients expected at these facilities, entry of trauma data can be accomplished by existing staff and should not require additional hiring.

Those hospitals that will be caring for pediatric trauma patients must also ensure that their equipment is age and size appropriate.

Economic and Technological Feasibility:

This proposal is economically and technically feasible.

Minimizing Adverse Impact:

Trauma center designation is voluntary. Those hospitals that do not wish to care for trauma patients will not need to comply with this regulation.

In May 2012, the Department advised currently designated trauma centers that it intended to make compliance with ACS-COT standards a requirement of designation and advised those hospitals to contact the ACS-COT to schedule a consultation site visit by May 2013. Following receipt of their final consultation site visit report, those centers have two years in which to schedule a verification site visit. In March 2013, the Department advised those hospitals seeking trauma center designation for the first time that they should contact the ACS-COT by May 2015 to schedule a consultation site visit and within two years following receipt of their final consultation site visit report to request a verification site visit. The Department has also advised these hospitals that, prior to having a consultation site visit, they should have in place: a trauma service, a trauma medical director, a trauma program manager, a hospital-based trauma registry, 9-12 months of trauma data and a performance improvement process of some kind. In this way, the Department has sought to facilitate compliance with these regulations in advance of their proposal.

Small Business and Local Government Participation:

The Department has conducted outreach to the affected parties. The State Trauma Advisory Committee (STAC) has discussed and reviewed this proposal during open, webcast meetings, and the Department has shared this proposal with the Greater New York Hospital

Association (GNYHA) and the Healthcare Association of New York State (HANYS). Organizations that represent the affected parties are also given notice of this proposal by its inclusion on the agenda of the Codes and Regulations Committee of the Public Health and Health Planning Council (PHHPC). This agenda and the proposal will be posted on the Department's website. The public, including any affected party, is invited to comment during the Codes and Regulations Committee meeting.

Cure Period:

Chapter 524 of the Laws of 2011 requires agencies to include a "cure period" or other opportunity for ameliorative action to prevent the imposition of penalties on the party or parties subject to enforcement when developing a regulation or explain in the Regulatory Flexibility Analysis why one was not included. This regulation creates no new penalty or sanction. Hence, a cure period is not necessary.

RURAL AREA FLEXIBILITY ANALYSIS

No Rural Area Flexibility Analysis is required pursuant to section 202-bb(4)(a) of the State Administrative Procedure Act (SAPA). It is apparent, from the nature of the proposed amendment that it will not impose any adverse impact on rural areas, and the rule does not impose any reporting, recordkeeping or other compliance requirements on public or private entities specific to rural areas as participation in the trauma system is voluntary

JOB IMPACT STATEMENT

These provisions will not have a significant impact on jobs. Currently designated trauma centers have been required to have a trauma program director, trauma program manager, trauma registrar and an injury prevention coordinator. Many may be required to hire an additional trauma registrar to maintain ACS-COT standards regarding data abstraction and submission, and some will need to hire additional trauma surgeons to manage their current trauma census and performance improvement responsibilities.

SUMMARY OF EXPRESS TERMS

These amendments are necessary for the Department to maintain full primacy for delivery, oversight and management of New York's public drinking water supply supervision program and to ensure consistency with federally enacted drinking water regulations promulgated by the United States Environmental Protection Agency (EPA), including: amendments to the Lead and Copper Rule (LCR), including the LCR Minor Revisions (LCRMR) and LCR Short-Term Revisions (LCRSTR); the Long Term 2 Enhanced Surface Water Treatment Rule (LT2); the Stage 2 Disinfectant and Disinfection Byproducts Rule (Stage 2 DBPR); and the Variances and Exemptions (V&E) Rule. Several revisions incorporate requirements related to recent amendments to the New York State Public Health Law (PHL), while other amendments update and clarify references to approved analytical methods, update tables for consistency with federal and State law, update outdated references, and correct typographical errors.

The amendments that conform to the revised federal regulations include:

- Minor and Short-Term Revisions to the Lead and Copper Rule (LCRMR and LCRSTR)
    - The EPA promulgated the LCRMR to eliminate unnecessary requirements in the LCR, reduce the reporting burden, and promote consistent national implementation of the LCR. In addition, language was added to clarify requirements and correct oversights in the original rule. The revisions are called "minor" because they do not affect the lead and copper maximum contaminant level goals, action levels, or other basic regulatory requirements to monitor for lead and copper at the tap and to optimize corrosion control. The lead action level remains at 0.015 milligrams per liter (mg/L) and the copper action level remains at 1.3 mg/L.

- The LCRSTR enhances the implementation of the LCR in the areas of monitoring, treatment, customer awareness, lead service line replacement, and public education requirements, to ensure that drinking water consumers receive meaningful, timely, and useful information needed to help them limit their exposure to lead in drinking water.

- Stage 2 Disinfectant and Disinfection Byproducts Rule (Stage 2 DBPR)

  - The EPA promulgated the Stage 2 DBPR to increase public health protection by reducing the potential risk of adverse health effects associated with disinfection byproducts (DBPs) in drinking water distribution systems. The Stage 2 DBPR builds on the Stage 1 Disinfectant and Disinfection Byproducts Rule (Stage 1 DBPR) by focusing on monitoring for and reducing concentrations of two classes of DBPs: Total
    Trihalomethanes (TTHM) and Haloacetic Acids (HAA5) in drinking water.

  - The Stage 2 DBPR required some public water systems to complete an Initial Distribution System Evaluation (IDSE) to characterize DBP levels in their distribution systems and identify locations to monitor DBPs for Stage 2 DBPR compliance. The Stage 2 DBPR bases TTHM and HAA5 compliance on locational running annual average (LRAA) calculated at each monitoring location.

  - All Community Water Systems (CWSs) and Non-Transient Non-Community Water Systems (NTNCWSs) that either add a primary or residual disinfectant, other than

ultraviolet light, or deliver water that has been treated with a primary or residual disinfectant, other than ultraviolet light, must meet the requirements of this rule.

- Long Term 2 Enhanced Surface Water Treatment Rule (LT2)

  - The EPA promulgated the Long Term 2 Enhanced Surface Water Treatment Rule (LT2) to reduce disease incidence associated with *Cryptosporidium* and other disease causing microorganisms in drinking water. LT2 builds upon earlier drinking water regulations to address public water systems (PWS) at a higher risk for *Cryptosporidium*, which is very resistant to treatment by chlorine and other common disinfectants.

  - The rule bolsters existing federal regulations to provide a higher level of drinking water protection by targeting treatment requirements to higher risk systems, reducing risks associated with uncovered finished water storage facilities, ensuring that systems maintain microbial protection as they reduce the formation of disinfection byproducts; and requiring unfiltered water systems to provide at least 99 or 99.9 percent (2- or 3-log) inactivation of *Cryptosporidium*.

- Variances and Exemptions (V&E) Rule

  - The EPA promulgated the V&E Rule to provide eligible systems with options for achieving compliance with regulations. Variances allow eligible systems to provide

drinking water that does not comply with a National Primary Drinking Water Regulation (NPDWR), premised on the condition that the PWS installs appropriate treatment technology to achieve regulatory compliance and the quality of the drinking water delivered is still protective of public health. Exemptions allow eligible systems additional time to build capacity in order to achieve and maintain regulatory compliance with newly promulgated NPDWRs, while continuing to provide acceptable levels of public health protection.

- The amendments allow for two types of variances: a general variance for PWSs that are not able to comply with a drinking water standard due to their source water quality; and variances for small PWSs serving populations of 3,300 or fewer that cannot afford to comply with a drinking water standard (these variances may be allowed for systems serving up to 10,000 persons).

Two categories of revisions are required to make regulations consistent with Public Health Law, those pertaining to cross-connection control and to water supply emergency plans:

Cross-Connection Control

Pursuant to amendments to section 225 of the PHL, the Department discontinued the issuance of backflow tester certifications. In order to make the regulation consistent with the amended PHL, the following changes to the cross-connection control regulations are being proposed:

- A Department-approved entity will issue backflow tester certifications.
- Backflow testers will be required to take initial training courses if certification has lapsed for more than one year.

- Enforcement provisions are clarified.

Water Supply Emergency Plans

Pursuant to amendments to section 1125 of the PHL, the Department is proposing the following amendments:

- Base the requirement for submittal of a water supply emergency plan on the population served rather than a minimum operational revenue. All PWSs serving a population of more than 3,300 will be required to submit a water supply emergency plan.
- Specify the statutory penalty for disclosing confidential information about a water system emergency plan.
- Clarify that resistance to cyber attack must be included in the vulnerability analysis of the water supply emergency plan.

The final category of changes addresses updates to portions of Subpart 5-1. The listing of approved laboratory analytical methods for drinking water have been removed from Appendix 5-C and replaced with a statement that requires the use of analytical methods approved by the EPA or the New York State Environmental Laboratory Approval Program (ELAP). Additional revisions to Appendix 5-C include incorporating provisions to allow for the limited use of test strips to test for chlorine residual in drinking water, correction of typographical errors, and minor editorial revisions for consistency throughout the regulation. The tables in Subpart 5-1 have also been updated for consistency with federal and State law.

Pursuant to the authority vested in the Public Health and Health Planning Council and the Commissioner of Health by section 225 of the Public Health Law, Subpart 5-1 of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York is amended, to be effective upon publication of a Notice of Adoption in the New York State Register, as follows:

Subdivision (a) of section 5-1.1 is amended as follows:

(a) [*Log*] *-log treatment* means the reduction of a specified proportion of viruses, bacteria, protozoa or other organisms present in drinking water expressed as factors of ten, through disinfection (inactivation) and/or removal. For example, 3-log treatment removes or inactivates 999 out of 1000 organisms or 99.9 percent.

Existing section 5-1.1, Definitions, is being relettered and amended to be in alphabetical and sequential order, as noted below.

Existing subdivision (c) of section 5-1.1 is relettered to be subdivision (d). A new subdivision (c) is added to section 5-1.1 to read as follows:

(c) *Approved method* means an analytical method, including sample preparation, of proven reliability which has been approved, or given similar recognition by the United States Environmental Protection Agency (EPA) or a New York State regulatory program in environmental or public health protection, for the specific purpose for which the method is to be used. Methods approved by the department pursuant to section 10 NYCRR 55-2.5 shall be deemed approved methods.

Existing subdivision (d) of section 5-1.1 is relettered to be subdivision (j). New subdivisions (e)-(i) are added to section 5-1.1 to read as follows:

(e) *Backflow* means a flow condition, induced by a pressure differential, which causes the reversal of flow of water or other liquids, solids, and/or gases into the distribution pipes of a potable water supply from any source other than the intended potable water source.

(f) *Backflow prevention device tester (or "tester")* means a person who has met the certification requirements and been issued a certification as specified in section 5-1.31.

(g) *Bag filter* means a pressure-driven separation device that removes particulate matter larger than 1 micrometer using an engineered porous filtration media.

(h) *Bank filtration* means a water treatment process that uses a well to recover surface water that has naturally infiltrated into ground water through a river bed or bank(s). Infiltration is typically enhanced by the hydraulic gradient imposed by a nearby pumping water supply or other well(s).

(i) *Cartridge filter* means a pressure-driven separation device that removes particulate matter larger than one micrometer using an engineered porous filtration media.

Existing subdivision (e) of section 5-1.1 is relettered to be subdivision (l). A new subdivision (k) is added to section 5-1.1 to read as follows:

(k) *Combined distribution system* means the interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.

Existing subdivisions (f)-(l) of section 5-1.1 are relettered to be subdivisions (m)-(s), and existing subdivision (m) of section 5-1.1 is relettered to be subdivision (u). Existing subdivisions (n)-(p) of section 5-1.1 are relettered to be subdivisions (x)-(z). Subdivision (q) of section 5-1.1 is relettered to be subdivision (w). New subdivisions (t) and (v) are added to section 5-1.1 to read as follows:

(t) *Cross-connection* means an actual or potential connection between a potable water system and any other source or system through which a water supply could be contaminated.

(v) *Cyber attack* means deliberate actions to target computer information systems, infrastructures, computer networks, computer controlled mechanical devices and/or personal computers by various means of malicious acts that either steal, alter, disrupt or damage a target by gaining access into a susceptible electronic or electromechanical device.

Existing subdivisions (r)-(t) of section 5-1.1 are relettered to be subdivisions (aa)-(ac). A new subdivision (ad) is added to section 5-1.1 to read as follows:

(ad) *Dual sample set* means a set of two samples collected at the same time and same location, with one sample analyzed for total trihalomethanes (TTHM) and the other sample analyzed for haloacetic acids (five) (HAA5).

Existing subdivisions (u)-(ab) of section 5-1.1 are relettered to be subdivisions (ae)-(al). A new subdivision (am) is added to section 5-1.1 to read as follows:

(am) *Finished water* means water that is introduced into the distribution system of a public water system and is intended for distribution and consumption without further treatment, except as necessary to maintain water quality in the distribution system (e.g., booster disinfection, addition of corrosion control chemicals).

Existing subdivisions (ac)-(ad) of section 5-1.1 are relettered to be subdivisions (an)-(ao). Existing subdivision (ao) of section 5-1.1 is relettered (ap) and amended to read as follows:

[(ae)](ap) *GAC10* means granular activated carbon filter beds with an empty-bed contact time of 10 minutes based on average daily flow and a carbon reactivation or replacement frequency of every 180 days, [and is the] except that the reactivation frequency for GAC10 used as a best available technology for compliance with total trihalomethanes (TTHM) and haloacetic acids (five) (HAA5) maximum contaminant levels (MCLs) shall be 120 days.

A new subdivision (aq) is added to section 5-1.1 to read as follows:

(aq) *GAC20* means granular activated carbon filter beds with an empty-bed contact time of 20 minutes based on average daily flow and a carbon reactivation frequency of every 240 days.

Existing subdivisions (af)-(ak) of section 5-1.1 are relettered to be subdivisions (ar)-(aw). A new subdivision (ax) is added to section 5-1.1 to read as follows:

(ax) *Internal protection* means isolation of a fixture, area or zone which requires backflow prevention at the source of the cross-connection or potential hazard, in accordance with the New York State Uniform Fire Prevention and Building Code and/or the local plumbing and building codes.

Existing subdivisions (al)-(an) of section 5-1.1 are relettered to be subdivisions (ay)-(ba). A new subdivision (bb) is added to section 5-1.1 to read as follows:

(bb) *Locational running annual average or LRAA* means the average of sample analytical results during the previous four calendar quarters for samples taken at a particular monitoring location.

Existing subdivisions (ao)-(as) of section 5-1.1 are relettered to be subdivisions (bc)-(bg). New subdivisions (bh) and (bi) are added to section 5-1.1 to read as follows:

(bh) *Membrane filtration* means a pressure- or vacuum-driven separation process in which particulate matter larger than 1 micrometer is rejected by an engineered barrier, primarily through a size-exclusion mechanism, and which has a measurable removal efficiency of a target organism that can be verified through the application of a direct integrity test. This definition

includes the common membrane technologies of microfiltration, ultrafiltration, nanofiltration, and reverse osmosis.

(bi) *Method Detection Limit (MDL)* means the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte.

Existing subdivisions (at)-(ax) of section 5-1.1 are relettered to be subdivisions (bj)-(bn). A new subdivision (bo) is added to section 5-1.1 to read as follows:

(bo) *Plant intake* means the works or structures at the head of a conduit through which water is diverted from a source, such as a river or lake, into the treatment plant.

Existing subdivisions (ay) and (az) of section 5-1.1 are relettered to be subdivisions (bp) and (bq). New subdivisions (br) and (bs) are added to section 5-1.1 to read as follows:

(br) *Practical Quantitation Limit (PQL)* means the practical and routinely achievable method-specific measurable concentration limit achieved by a laboratory with a high degree of certainty (>99.9 per cent confidence) in the results.

(bs) *Presedimentation* means a preliminary treatment process used to remove gravel, sand, and other particulate material from the source water through settling before the water enters the primary clarification and filtration processes in a treatment plant.

Existing subdivisions (ba) and (bb) of section 5-1.1 are relettered to be subdivisions (bt) and (bu). A new subdivision (bv) is added to section 5-1.1 to read as follows:

(bv) *Protective device* means an approved double check valve assembly, reduced pressure zone assembly, air gap or other type or method of backflow protection accepted by the department.

Existing subdivisions (bc)-(bm) of section 5-1.1 are relettered to be subdivisions (bw)-(cg). A new subdivision (ch) is added to section 5-1.1 to read as follows:

(ch) *Service protection* means the installation of a protective device or method of backflow protection at the service connection, commensurate with the degree of hazard of the consumer's potable water system. Service protection is also known as containment.

Existing subdivisions (bn)-(cd) of section 5-1.1 are relettered to be subdivisions (ci)-(cy). New subdivisions (cz) and (da) are added to section 5-1.1 to read as follows:

(cz) *Two-stage lime softening* means a process in which chemical addition and hardness precipitation occur in each of two distinct unit clarification processes in series prior to filtration.
(da) *Uncovered finished water storage facility* means a tank, reservoir, or other facility used to store water that will undergo no further treatment to reduce microbial pathogens except residual disinfection and is directly open to the atmosphere.

Existing subdivisions (ce)-(cl) of section 5-1.1 are relettered to be subdivisions (db)-(di).

Section 5-1.13 is amended to read as follows:

5-1.13 Sampling and analytical requirements.

The supplier of water shall collect raw water samples at a frequency prescribed by the State and analyze such samples for contaminants [in accordance with requirements set forth in "Acceptable Methods for the Analyses of Contaminants in Water"[1] and] using an approved method, with method exceptions as listed in the Tables in section 5-1.52 of this Subpart, and by an approved laboratory as described in section 5-1.74 of this Subpart.

[_____

[1]See Appendix 5-C, infra.]

Subdivision 5-1.22 (a) is amended to read as follows:

5-1.22 Approval of plans and completed works.

(a) No supplier of water shall make, install or construct, or allow to be made, installed or constructed, a public water system or any addition or deletion to or modification of a public water system until the plans and specifications have been submitted to and approved by the State. Materials used in the design, construction and repair of a public water system shall be lead-free. For this Subpart, lead-free shall mean:

(1) [solder] Solder or flux which contains no more than 0.2 percent lead [and pipes,].

(2) Pipes, pipe fittings, [or any appurtenances]plumbing fittings and fixtures which contain no more than [eight percent]a weighted average of 0.25 percent lead with respect to the wetted surfaces.

The weighted average lead content of a pipe, pipe fitting, plumbing fitting, or fixture shall be calculated by using the following formula: For each wetted component, the percentage of lead is multiplied by the ratio of the wetted surface area of that component to the total wetted surface area of the entire product to arrive at the weighted percentage of lead of the component. The weighted percentage of lead of each wetted component is added together, and the sum of these weighted percentages constitutes the weighted average lead content of the product. The lead content of the material used to produce wetted components is used to determine compliance with subdivision (a)(2) of this section. For lead content of materials that are provided as a range, the maximum content of the range must be used for calculating the weighted average lead content.

The opening paragraph of section 5-1.30 is amended to read as follows:

5-1.30 Providing treatment for public water systems.

The supplier of water shall provide such treatment as necessary to deliver to the consumer a water conforming to the requirements of this section and determined [in accordance with the analytical methods contained in Appendix 5-C and] using an approved method, with method modifications as listed in the Tables in section 5-1.52 of this Subpart, and by an approved laboratory as described in section 5-1.74 of this Subpart.

* * *

Subdivision (b) of Section 5-1.30 is amended to read as follows:

(b) Minimum treatment for surface water sources or [groundwater] ground water sources directly influenced by surface water shall be filtration and disinfection techniques, approved by the State in accordance with section 5-l.22 of this Subpart, capable of at least 99 percent removal of *Cryptosporidium* oocysts, 99.9 percent removal and/or inactivation of Giardia lamblia cysts, and 99.99 percent removal and/or inactivation of viruses, between a point where the raw water is no longer subject to recontamination by surface water runoff and a point downstream before or at the first consumer. Compliance with this treatment technique [requirement shall be no later than June 29, 1993] is required for surface water sources or within 18 months [for groundwater] after ground water sources are determined to be directly influenced by surface water [sources], unless the department determines that the supplier of water can meet specific avoidance criteria as defined in subdivision (c) of this section. Required performance monitoring shall be conducted in accordance with section 5-1.52 [table]Table 10A of this Subpart. Compliance with these treatment technique requirements shall also include:

* * *

Paragraph (3) of subdivision (c) of section 5-1.30 is amended to read as follows:

(3) Disinfection must be sufficient to ensure at least 99.9 percent inactivation of *Giardia lamblia* cysts [and], 99.99 percent inactivation of viruses, and 99 or 99.9 percent inactivation of *Cryptosporidium* (per section 5-1.83(c)(2) of this Subpart), between a point where the raw water is no longer subject to recontamination by surface water runoff and a point downstream before or at the first consumer. Actual CT values must be equal to or greater than the required values found in section 5-1.52 [tables]Tables 14A through [14G] 14I of this Subpart, except for one day in each month that the system served water to the public, or except where the State determines

that an additional failure in one month in the previous 12 months was caused by circumstances that were unusual and unpredictable. The supplier of water must calculate the CT values of the system for each day the system is in operation to document satisfactory disinfection. The necessary parameters and related monitoring frequencies to conduct this evaluation include:

Paragraph (9) of subdivision (c) of section 5-1.30 is amended to read as follows:

(9) The public water system [must] shall comply with the trihalomethane, haloacetic acid, bromate, and chlorite maximum contaminant levels and the maximum residual disinfectant levels in accordance with section 5-1.52 of this Subpart.

Subdivision (d) of section 5-1.30 is amended to read as follows:

(d) Notwithstanding anything to the contrary in sections 5-1.12, 5-1.23, 5-1.51 or 5-1.77 of this Subpart, if the public water system fails to comply with the treatment technique and/or the monitoring requirements of subdivision (a), (b), (c) or (g) of this section, fails to install the filtration and/or disinfection treatment required by this section or fails to comply with the avoidance criteria requirements contained in subdivision (c) of this section, the system violates this Subpart and shall make State and public notification, including mandatory health effects language. Pursuant to subdivision (c) of this section, if at any time the raw water turbidity exceeds five nephelometric turbidity units, the system shall consult with the State within 24 hours of learning of the exceedance. Based on this consultation, the State may determine that the

exceedance constitutes a public health hazard, as found in section [5-1.1(bc)(4)] 5-1.1(bw)(4) of this Subpart, which requires a Tier 1 notification.

* * *

Section 5-1.31 is repealed and new section 5-1.31 is added to read as follows:

5-1.31 Cross-Connection Control.

(a) The supplier of water shall implement a service protection program (also known as containment) which includes the following:

(1) requiring a protective device commensurate with the degree of hazard posed by any service connection;

(2) requiring the user of such connections to submit plans for the installation of protective devices to the supplier of water and/or the State for approval; and

(3) assuring all protective devices are inspected and tested by a certified backflow prevention device tester, as prescribed in subdivision (b) of this section, at the time of initial installation, after each repair, and annually thereafter. Records of such tests shall be made available to, reviewed by, and maintained by the supplier of water. All protective device tests and inspections shall be conducted by a certified backflow prevention device tester ("tester").

(b) A certified backflow prevention device tester shall meet the following requirements:

(1) Initial certification and renewal requirements. Initial and/or renewal certifications for a certified backflow prevention device tester will be issued by a department-approved entity,

when the applicant provides proof of satisfactory completion of a department-approved certified backflow prevention training course. The certification shall be valid for a period of three years.

(2) Conditions of certification.

(i) Upon issuance of a certification by a department-approved entity, the tester shall inform the department and the department-approved entity, within 30 days, of any changes in address or employment.

(ii) The department has the authority to require any individual applying for certification or renewal certification as a certified backflow prevention device tester or any certified backflow prevention device tester to take a written, oral and/or practical skills validated examination, if the department deems such examination to be reasonably necessary to determine the applicant's qualifications or to determine the certified tester's knowledge, skills, ability and judgment. The results of the examination may be the sole basis for approval, disapproval or suspension of such certification or the basis for additional requirements, deemed appropriate by the department, before certification will be issued or reinstated.

(3) Recertification requirements.

(i) An individual that allows his or her certification renewal to lapse after the expiration date is no longer certified to test applicable protective devices as outlined in this Subpart. If the individual meets the requirements outlined in this subdivision, within one year of the expiration date, the certification will be reinstated with a renewal period starting upon the date of expiration of the original certification and ending three years later.

(ii) An individual that allows his or her certification renewal to lapse for more than one year after the expiration date will be required to repeat the initial certification requirements set forth in subdivision (b)(1) of this section.

(c) Enforcement

Upon notice and opportunity for a hearing, a tester's certification may be suspended or revoked. Revocation or suspension may be based on, but not limited to, fraud or misrepresentation by the certified tester; gross incompetence or gross negligence on a particular occasion; or negligence or incompetence on more than one occasion. Examples of such conduct include, but are not limited to:

(1) making false statements or notations on legal or official records required by the department; or

(2) providing misleading statements to government officials or agents of the government regarding protective device testing/certification.

(d) The supplier of water may not allow a user to establish a separate source of water. However, if a user justifies the need for a separate source of water, the supplier of water shall protect the public water system from such separate source of water by ensuring that such source does not pose a hazard in the following manner:

(1) by requiring the user to regularly examine the quality of the separate water source;

(2) by approving the use of only those separate water sources which are properly developed, constructed, protected and found to meet the requirements of sections 5-1.51 and 5-1.52 of this Subpart; and

(3) by filing such approvals with the State annually.

(e) All users of a public water system shall prevent cross-connections between the potable water piping system and any other piping system within the premises by installing internal protection in accordance with the New York State Uniform Fire Prevention and Building Code and/or the local plumbing and building codes.

(f) Any installation, service, maintenance, testing, repair or modification of a protective device shall be performed in accordance with the provisions of any relevant county, city, town or village plumbing code. All individuals who perform testing of protective devices shall be certified in accordance with subdivision (b) of this section.

Section 5-1.32 is amended to read as follows:

5-1.32: Protection of [equalizing and distribution reservoirs] finished water storage facilities.

[Equalizing and distribution reservoirs] Finished water storage facilities which deliver water to the user without later treatment shall be covered, or the water from an uncovered [reservoir must] finished water storage facility shall be continuously [disinfected] treated to achieve inactivation or removal of at least 99.99 percent virus, 99.9 percent *Giardia lamblia*, and 99 percent *Cryptosporidium* in a manner approved by the State, in accordance with section 5-1.22(b) of this Subpart, before being discharged to the distribution system.

Section 5-1.33 is repealed and a new section 5-1.33 is added to read as follows:

5-1.33 Water supply emergency plans.

(a) All community water systems that supply drinking water to more than 3,300 people shall submit a water supply emergency plan to the State. The plan shall identify and outline the steps necessary to ensure that potable water is available during all phases of a water supply emergency.

(b) The water supply emergency plan shall include:

(1) Procedures to notify consumers during all phases of a water supply emergency.

(2) Criteria and procedures for determining, and the subsequent reporting of, critical water levels or safe yield of the source or sources of water.

(3) The identification of existing and future sources of water available during normal nonemergency and water supply emergency conditions.

(4) The identification of all available water storage. Available water storage includes source, transmission and distribution system storage.

(5) The identification, capacity and location of existing inter-connections. Identification of additional inter-connections needed to provide potable water during a water supply emergency.

(6) A specific action plan outlining all the steps to be carried out, taken or followed during a water supply emergency. The plan shall include a process for State notification, emergency notification rosters of key water supply personnel with current telephone numbers both business and home, and details of the follow-up corrective action process to minimize the reoccurrence of an emergency.

(7) The identification and implementation of procedures for water conservation and water use restrictions to be put in place during a water supply emergency.

(8) The identification of and the procedures for prioritization of potable water users during a water supply emergency.

(9) The identification and availability of emergency equipment needed during a water supply emergency.

(10) The system's capacity and ability to meet peak water demands and fire-flow conditions concurrently during a water supply emergency.

(c) An all-hazard vulnerability analysis, including an analysis of vulnerability to terrorist attack and cyber attack, shall be performed on all components of the water system. System components include but are not limited to: the source or sources of water supply; water treatment plants; disinfection stations; pipes and valves; storage tanks; and system operations and

management. The system shall take whatever steps are necessary to ensure that potable water can be and is available during a water supply emergency.

(d) Before the final submission of the water supply emergency plan to the State, the system shall publish a notice in a newspaper of general circulation in the area served by the community water system stating that the proposed water supply emergency plan is available for review and comment. The notice shall be printed at least once in each of two successive weeks. Public comment shall be accepted for at least fourteen days following the date of first publication. All public comment shall be submitted with the water supply emergency plan to the State.

(e) The water supply emergency plan shall be submitted to the State for review at least once every five years and within thirty days after major water facility infrastructure changes have been made. The system shall keep the emergency plan up to date, and shall provide updated communication and notification information to the State by December thirty-first of each year.

(f) Community water systems that supply drinking water to 3,300 or fewer people, non-transient noncommunity water systems, and noncommunity water systems may be required to prepare, update and submit to the State, a written water supply emergency plan for providing potable water during a water supply emergency.

(g) If more than one system is responsible for providing potable water to a community water system, the water supply emergency plan shall be prepared and submitted jointly by the systems.

(h) Information shall be exempt from public disclosure for public review and comment if it is determined by the water supplier that the information will pose a security risk to the operation of the water system. Upon the Commissioner's request, the system shall provide a copy of the exempt information and justification for why said information should not be subject to public review and comment. A person who, without authorization, discloses any such assessment or information to another person who has not been authorized to receive such assessment or information shall be subject to criminal penalties pursuant to section 1125 of the Public Health Law.

Sections 5-1.40 through 5-1.49 are repealed and new sections 5-1.40 through 5-1.48 are added to read as follows:

Control of Copper and Lead in Drinking Water

5-1.40 General Requirements and Action Levels.

(a) Applicability. The requirements of sections 5-1.40 through 5-1.48 of this Subpart shall apply to all community water systems and nontransient, noncommunity water systems serving 15 or more service connections or serving 25 or more persons.

(b) Lead and copper action levels.
(1)

Analyte	Action Level [1, 2]
Lead	0.015 mg/L

Copper	1.3 mg/L

Notes:

[1] Analysis of lead and copper samples must be done by an approved laboratory as prescribed in section 5-1.74(a), that demonstrates the ability to achieve a Practical Quantitation Level (PQL) for lead equal to 0.0005 milligrams/Liter (mg/L) and a PQL for copper equal to 0.050 mg/L.

[2] All lead and copper levels measured between the PQL and Method Detection Level (MDL) must be either reported as measured or one-half the PQL specified in note 1. All levels below the lead and copper MDLs must be reported as zero.

(2) The lead action level is exceeded if the concentration of lead in more than ten percent (90th percentile) of the tap water samples collected in accordance with section 5-1.42 during any monitoring period exceeds 0.015 mg/L.

(3) The copper action level is exceeded if the concentration of copper in more than ten percent (90th percentile) of the tap water samples collected in accordance with section 5-1.42 during any monitoring period exceeds 1.3 mg/L.

(4) The 90th percentile lead and copper levels shall be computed as follows:

(i) Place the results of all lead and copper samples taken during a monitoring period in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sampling result will be assigned a number, ascending by single integers beginning with the number one for the sample with the lowest contaminant level. The number

assigned to the sample with the highest contaminant level will be equal to the total number of samples taken.

(ii) Multiply the number of samples taken during the monitoring period by 0.9.

(iii) The contaminant concentration of the numbered sample obtained by the calculation in subdivision (b)(4)(ii) of this section is the 90th percentile contaminant level.

(iv) For water systems serving fewer than 100 people that collect 5 samples per monitoring period, the 90th percentile is computed by taking the average of the highest and second highest concentration.

(v) For a public water system that has been allowed by the State to collect fewer than five samples under section 5-1.42(a)(3), the sample result with the highest concentration is considered the 90th percentile value.

5-1.41 Corrosion Control Treatment Steps and Requirements.

(a) Each system shall complete the applicable corrosion control treatment requirements found in subdivision (c) of this section unless it is deemed to have optimized corrosion control as provided under subdivision (b) of this section.

(b) Optimized corrosion control. A system is deemed to have optimized corrosion control and is not required to complete the applicable corrosion control treatment steps identified in this section if the water system satisfies the criteria specified in one of the paragraphs (1) through (3) of this subdivision. Any such system deemed to have optimized corrosion control under this subdivision, and which has treatment in place, shall continue to operate and maintain optimal

corrosion control treatment and meet any requirements that the State determines appropriate to ensure optimal corrosion control treatment is maintained.

(1) Any water system that serves 50,000 or fewer people is considered to have optimal corrosion control treatment if the water system meets the lead and copper action levels during each of two consecutive six-month monitoring periods conducted in accordance with section 5-1.42.

(2) Any water system may be deemed by the State to have optimized corrosion control treatment if the system demonstrates to the satisfaction of the State that it has conducted activities equivalent to applicable corrosion control steps. Water systems deemed to have optimized corrosion control under this paragraph shall operate in compliance with State-designated optimal water quality parameters and continue to conduct lead and copper tap and water quality parameter sampling in accordance with sections 5-1.42(b)(3) and 5-1.43(b)(3). A system shall provide information to the State to support a determination under this subdivision which includes, but is not limited to:

(i) the results of all samples collected for each of the water quality parameters in section 5-1.43;

(ii) a report explaining the test methods used by the water system to evaluate the corrosion control treatments listed in subdivision (c)(3)(ii) of this section, the results of all tests conducted, and the basis for the system's selection of optimal corrosion control treatment;

(iii) a report explaining how corrosion control has been installed and how it is being maintained to insure minimal lead and copper concentrations at consumers' taps; and

(iv) the results of first draw lead and copper tap water samples collected in accordance with section 5-1.42 for two consecutive six-month monitoring periods after corrosion control has been installed.

(3) A water system is deemed to have optimized corrosion control if it meets the copper action level and can demonstrate:

(i) the difference between the results of the 90th percentile tap water lead level and the highest source water lead level is less than 0.005 mg/L for two consecutive six-month monitoring periods. The 90th percentile tap water lead level shall be sampled in accordance with section 5-1.42 and source water lead level shall be sampled in accordance with section 5-1.44; and

(ii) a system’s highest source water lead level is below the Method Detection Limit, and the 90th percentile tap water lead level is less than or equal to 0.005 mg/L for two consecutive 6-month monitoring periods.

(4) Any water system deemed to have optimized corrosion control in accordance with this section shall continue monitoring for lead and copper in tap water no less frequently than once every three calendar years using the reduced number of sites specified in section 5-1.42(a)(3)

and collecting the samples at times and locations specified in section 5-1.42(c), unless it meets the requirements for a nine year waiver as specified in section 5-1.42(f).

(5) Any system triggered into corrosion control because it is no longer deemed to have optimized corrosion control under this section shall implement corrosion control treatment in accordance with the deadlines in subdivision (c)(2) of this section. Any such system serving more than 50,000 persons shall adhere to the schedule specified in subdivision (c)(2) of this section for systems serving 50,000 or fewer persons, with the time periods for completing each step being triggered by the date the system is no longer deemed to have optimized corrosion control under this section.

(6) Any water system deemed to have optimized corrosion control shall notify the State in writing, pursuant of section 5-1.48(i), of any upcoming long-term change in treatment or addition of a new source. The water system shall obtain approval from the State before implementing the addition of a new source or long-term change in water treatment. The State may require any such system to conduct additional monitoring or to take other action the State deems appropriate to ensure that such systems maintain minimal levels of corrosion in the distribution system.

(c) Corrosion control treatment steps and deadlines.

(1) A system serving more than 50,000 persons shall complete the following corrosion control treatment steps, unless it is deemed to have optimized corrosion control as provided in subdivisions (b)(2) and (b)(3) of this section:

(i) Step 1: The water system shall conduct initial first draw lead and copper tap sampling and water quality parameter sampling in accordance with sections 5-1.42 and 5-1.43. If the lead or copper action level exceeds the 90th percentile, the water system shall conduct source water sampling in accordance with section 5-1.44 within a schedule specified by the State.

(ii) Step 2: The water system shall complete corrosion control studies as specified by the State within 18 months after the end of the monitoring period during which the system exceeds one of the action levels.

(iii) Step 3: The water system shall install optimal corrosion control treatment within 24 months after the State designates such treatment.

(iv) Step 4: After installation of optimal corrosion control treatment, the water system shall complete first draw lead and copper tap sampling and water quality parameter follow-up sampling in accordance with sections 5-1.42(b)(2) and 5-1.43(b)(2) during the two consecutive six-month monitoring periods immediately following installation of treatment.

(v) Step 5: After State designation of water quality parameters for optimal corrosion control treatment, the water system shall operate in compliance with State-designated optimal water quality parameter values in accordance with subdivision (g) of this section; and continue to conduct first draw lead and copper tap sampling and water quality parameter sampling in accordance with sections 5-1.42(b)(3) and 5-1.43(b)(3).

(2) Systems serving 50,000 or fewer persons. Except as provided in subdivision (b) of this section, a system that serves 50,000 or fewer persons shall complete the following corrosion control treatment steps:

(i) Step 1: The water system shall conduct initial first draw lead and copper tap sampling in accordance with section 5-1.42 within a schedule specified by the State. If the lead or copper action level is exceeded at the 90th percentile the water system shall conduct water quality parameter sampling and source water sampling in accordance with sections 5-1.43 and 5-1.44.

(ii) Step 2: The water system shall recommend optimal corrosion control treatment within six months after the end of the monitoring period during which the system exceeds one of the action levels. Within 12 months after the end of the monitoring period during which a system exceeds the lead or copper action level, the State may designate optimal corrosion control treatment or require the system to perform corrosion control studies. If the State requires corrosion control studies to be conducted, the water system shall complete corrosion control studies as specified in subdivision (c)(3) of this section.

(a) Systems serving populations greater than 3,300 but less than 50,000 shall perform such studies within 18 months after the end of the monitoring period during which the system exceeds the lead or copper action level.

(b) Systems serving 3,300 or fewer persons shall perform such studies within 24 months after the end of the monitoring period during which the system exceeds the lead or copper action level.

(iii) Step 3: The water system shall install optimal corrosion control treatment within 24 months after the State designates such treatment.

(iv) Step 4: After installation of optimal corrosion control treatment, the water system shall complete first draw lead and copper tap sampling and water quality parameter follow-up sampling in accordance with sections 5-1.42(b)(2) and 5-1.43(b)(2) during the two consecutive six-month monitoring periods immediately following installation of treatment.

(v) Step 5: After State designation of water quality parameters for optimal corrosion control treatment, the water system shall operate in compliance with State-designated optimal water quality parameter values in accordance with subdivision (g) of this section; and continue to conduct first draw lead and copper tap sampling and water quality parameter sampling in accordance with sections 5-1.42(b)(3) and 5-1.43(b)(3).

(3) Content of corrosion control studies. Corrosion control studies shall follow methods that include but are not limited to the following:

(i) an evaluation of the effectiveness of each of the following treatments, and, if appropriate, combinations of the following treatments using standard engineering tests on other systems of similar size, water chemistry and distribution system configuration:

(a) alkalinity and pH adjustment;

(b) calcium hardness adjustment; and

(c) the addition of a phosphate or silicate based corrosion inhibitor at a concentration sufficient to maintain an effective residual concentration in all test tap samples;

(ii) measurements of appropriate water quality parameters to assess performance of corrosion control including: lead; copper; pH; alkalinity; calcium; conductivity; temperature; silica or orthophosphate;

(iii) an assessment of effectiveness of treatment including the potential for adverse effects on other water quality treatment processes; and

(iv) identification of the optimal corrosion control treatment(s) for the system, including a rationale of the treatment steps for consideration by the State.

(4) Conditions for ceasing treatment steps. Any water system that serves 50,000 or fewer people. and that is required to complete the corrosion control steps due to its exceedance of the lead or copper action level, may cease completing the treatment steps whenever the water system meets both action levels during each of two consecutive six-month monitoring periods. The lead and copper results from both monitoring periods shall be submitted to the State for approval for ceasing treatment steps. If an action level is exceeded in a later monitoring period the water system shall complete the remaining applicable treatment steps.

(d) Designation of optimal corrosion control treatment. Based upon consideration of available information including, where applicable, corrosion control studies performed under subdivision (c) of this section and a system's proposed treatment alternative, the State will either:

(1) approve the corrosion control treatment option recommended by the system; or

(2) require alternative corrosion control treatment(s) as specified by the State. The State may also ask for additional information or modifications.

(e) Installation of optimal corrosion control. Each system shall properly install and operate throughout its distribution system the optimal corrosion control treatment(s) approved by the State under subdivision (d) of this section.

(f) State review of treatment and designation of optimal water quality control parameters. Based upon a review of the results of lead and copper tap water samples and water quality parameter samples submitted to the State by the water system from both before and after the installation of optimal corrosion control treatment, the State shall determine whether the system has properly installed and operated the optimal corrosion control treatment, and designate water quality parameter values, or a range of values, within which the system must operate. Such water parameters shall include:

(1) A minimum value or a range of values for pH measured at each entry point to the distribution system;

(2) A minimum pH value, measured in all tap samples. Such value shall be equal to or greater than 7.0, unless the State determines that meeting a pH level of 7.0 is not technologically feasible or is not necessary for the system to optimize corrosion control;

(3) If a corrosion inhibitor is used, a minimum concentration or a range of concentrations for the inhibitor, measured at each entry point to the distribution system and in all tap samples, that

the State determines is necessary to form a passivating film on the interior walls of the pipes of the distribution system;

(4) If alkalinity is adjusted as part of optimal corrosion control treatment, a minimum concentration or a range of concentrations for alkalinity, measured at each entry point to the distribution system and in all tap samples; and

(5) If calcium carbonate stabilization is used as part of corrosion control, a minimum concentration or a range of concentrations for calcium, measured in all tap samples.

The values for the applicable water quality control parameters listed above shall be those that the State determines to reflect optimal corrosion control treatment for the system. The State may designate values for additional water quality control parameters determined by the State to reflect optimal corrosion control for the system. The State shall notify the system in writing of these determinations and explain the basis for its decisions.

(g) Continued operation and maintenance.

(1) All systems optimizing corrosion control shall continue to operate and maintain optimal corrosion control treatment, including maintaining water quality parameters at or above minimum values or within ranges designated by the State under subdivision (f) of this section for all samples collected in accordance with section 5-1.43(b)(3) and section 5-1.43(c). Compliance with the requirements of this paragraph shall be determined every six months, as specified in section 5-1.42(b)(3). A water system is out of compliance with the requirements of this

paragraph if it has excursions for any State-designated parameter on more than nine (9) days during any six-month period. An excursion occurs whenever the daily value for one or more of the water quality parameters measured at a sampling location is below the minimum value or outside the range designated by the State**.** The State has the discretion to delete results of obvious sampling errors from this calculation. Daily values are calculated as follows:

(i) On days when more than one measurement for the water quality parameter is collected at the sampling location, the daily value shall be the average of all results collected during the day regardless of whether they are collected through continuous monitoring, grab sampling, or a combination of both.

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

(iii) On days when no measurement is collected for the water quality parameter at the sampling location, the daily value shall be the daily value calculated on the most recent day on which the water quality parameter was measured at the sample site.

(2) Modification of State treatment decisions. A water system may request a modification of its State designated optimal corrosion control treatment. The request shall be submitted in writing and include the reason for the modification along with supporting data.

5-1.42 Monitoring Requirements for Lead and Copper in Tap Water.

(a) Sample Requirements.

(1) Sample site location.

(i) Each water system shall complete a materials evaluation of its distribution system in order to identify a pool of targeted sampling sites that meets the requirements of this section, and which is sufficiently large to ensure that the water system can collect the number of lead and copper tap samples required in subdivision (a)(3) of this section. All sites from which first draw samples are collected shall be selected from this pool of targeted sampling sites. Sampling sites may not include faucets that have point-of-use or point-of-entry treatment devices designed to remove inorganic contaminants.

(ii) The public water system shall review sources of information listed below in order to identify a sufficient number of sampling sites. In addition, the system shall seek to collect such information, where possible, in the course of its normal operations (e.g., checking service line material when reading water meters or performing maintenance activities):

(*a)* All plumbing codes, permits, and records in the files of the building department(s) which indicate the plumbing materials that are installed within publicly and privately owned structures connected to the distribution system;

(*b*) All inspections and records of the distribution system that indicate the material composition of the service connections that connect a structure to the distribution system; and

(*c*) All existing water quality information which includes the results of all 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.

(iii) The pool of targeted sampling sites for community water systems shall consist of:

(a) Structures containing lead pipes, copper pipes with lead solder installed after 1982; and/or served by a lead service line. Sampling sites shall be selected from the following building types, in this order, until each building type is exhausted before moving to the next building type:

(1) residential single family (Tier 1 sample sites);

(2) multiple-family residence where at least 20 percent of the structures served by the water system are multiple-family residences (Tier 1 sample sites);

(3) any community water system with insufficient tier 1 sampling sites shall complete its sampling pool with "Tier 2 sampling sites", consisting of buildings, including multiple-family residences that contain copper pipes with lead solder installed after 1982 or lead pipes; and/or served by a lead service line: (Tier 2 sample sites).

(b) Where insufficient sites are available meeting the criteria of clause *(a)*, the sampling pool shall be completed using single family residences that contain copper pipes with lead solder installed before 1983 (Tier 3 samples sites).

(c) Where insufficient sampling sites are available meeting the criteria of clauses *(a)* and *(b)*, the sampling pool shall be completed using representative sites that contain plumbing materials commonly found throughout the water system's distribution system.

(d) Any water system whose distribution system contains lead service lines shall draw 50 percent of the samples it collects during each monitoring period from sites that contain lead pipes, or copper pipes with lead solder, and 50 percent of the samples from sites served by a lead service line. A water system that cannot identify a sufficient number of sampling sites served by a lead service line shall collect first-draw samples from all of the sites identified as being served by such lines.

(iv) The pool of targeted sampling sites for a nontransient noncommunity water system shall consist of structures that:

(*a*) contain copper pipes and leaded solder joints installed after 1982 or contain lead pipes; and/or (*b*) are served by a lead service line.

(v) A nontransient noncommunity water system with insufficient Tier 1 sampling sites shall complete its sampling pool with sampling sites having copper pipes with lead solder joints installed before 1983. If additional sites are needed to complete the sampling pool, the nontransient non-community water system shall use representative sites throughout the distribution system.

(2) Sample collection methods.

Samples shall be collected in a manner that will reasonably reflect potential lead levels delivered to user taps in accordance with 40 CFR 141.86(b)(2).

(i) All samples for lead and copper shall be collected from user taps and shall be first draw samples with the following exceptions: lead service line samples collected under section 5-1.45(b)(2); or, if a system meets the criteria in section 5-1.47(g) (e.g., prisons and hospitals).

(ii) Each first-draw tap sample for lead and copper shall be one liter in volume and have stood motionless in the plumbing system of each sampling site for at least six hours. 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 one liter in volume and shall be collected at an interior tap from which water is typically drawn for consumption. Non-first-draw samples collected in lieu of first-draw samples pursuant to subdivision (a)(2)(iii) of this section shall be one liter in volume and shall be collected at an interior tap from which water is

typically drawn for consumption. First-draw samples may be collected by the system or the system may allow residents to collect first-draw samples after instructing the residents of the sampling procedures specified in this paragraph. To avoid problems of residents handling nitric acid, acidification of first-draw samples may be done up to 14 days after the sample is collected. After acidification to resolubilize the metals, the sample must stand in the original container for the time specified in the approved EPA method before the sample can be analyzed. If a system allows residents to perform sampling, the system may not challenge, based on alleged errors in sample collection, the accuracy of sampling results.

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

(a) 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;

(b) Tapping directly into the lead service line; or

(c) 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.

(iv) A water system shall collect each first draw tap sample from the same sampling site from which it collected a previous sample. If, for any reason, the water system cannot gain entry to a sampling site to collect a follow-up tap sample, the system may collect the follow-up 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 of the original site.

(v) A non-transient non-community water system, or a community water system that meets the criteria of 40 CFR 141.85(b)(7), that does not have enough taps that can supply first draw samples, as defined in 40 CFR 141.2, may apply to the State in writing to substitute non-first-draw samples. Such systems must 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. The State has the discretion to waive the requirement for prior State approval of non-first-draw sample sites selected by the system, either through State regulation or written notification to the system.

(3) Number of samples. A water system conducting standard monitoring shall collect at least one lead and copper tap sample during each monitoring period specified in subdivision (b) of this section from the number of sampling sites listed in the table below under "Standard Monitoring." A water system conducting reduced monitoring shall collect at least one lead and copper tap sample during each monitoring period specified in subdivision (c) of this section from the number of sampling sites listed in the table below under "Reduced Monitoring." Such reduced monitoring sites shall be representative of the sites required for standard monitoring.

If a public water system has fewer than five drinking water taps that can be used for human consumption and that meet the sample site criteria of subdivision (a)(1)(iii) of this section to reach the required number of sample sites listed in the following table, the system may collect at least one sample from each tap and then collect additional samples from those taps on different days during the monitoring period to meet the required number of sites; or, with written State approval, collect fewer samples provided that all taps that can be used for human consumption are sampled. The State must approve this reduction of the minimum number of samples in

writing based on a request from the system or onsite verification by the State. The State must specify sampling locations when a system is conducting reduced monitoring. A public water system may also apply to the State in writing to substitute non-first-draw samples. Such systems must 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.

Population Served	Standard Monitoring	Reduced Monitoring
	Number of Sites	Number of Sites
>100,000	100	50
10,001 to 100,000	60	30
3,301 to 10,000	40	20
501 to 3,300	20	10
101 to 500	10	5
≤100	5	5

(b) Standard Monitoring. Required samples shall be collected during six-month monitoring periods, beginning January 1 or July 1 of each calendar year.

(1) All systems shall monitor during each six-month monitoring period until:

(i) the system exceeds the lead or copper action level and is therefore required to implement the corrosion control treatment requirements under section 5-1.41, in which case the system shall continue standard monitoring; or

(ii) the system is deemed to have optimized corrosion control in accordance with section 5-1.41(b) in which case the system may reduce monitoring in accordance with subdivision (c) of this section.

(2) Monitoring after installation of corrosion control and/or source water treatment. Any system which installs corrosion control treatment or source water treatment shall monitor during each six-month monitoring period following the installation of treatment with the first monitoring period to begin either January 1 or July 1, whichever comes first.

(i) Any system which installs source water treatment pursuant to section 5-1.45(a)(2)(i) shall monitor during two consecutive six-month monitoring periods by the date specified in section 5-1.45(a)(2)(ii).

(3) Monitoring after State designates water quality parameter values for optimal corrosion control. After the State designates the values for water quality parameters under section 5-1.41(f), the system shall monitor during each six-month monitoring period following designation of water quality parameter values with the first monitoring period to begin either January 1 or July 1, whichever comes first.

(c) Reduced monitoring.

(1) A system serving 50,000 or fewer persons that meets the lead and copper action levels during each of two consecutive six-month monitoring periods may reduce the number of samples in accordance with subdivision (a)(3) of this section, and reduce the frequency of

sampling to once per year. A system serving 50,000 or fewer persons that meets the lead and copper action levels during three consecutive years under reduced monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three years. Samples collected during the initial two six-month monitoring periods may be accepted as monitoring for the first year of a three-year reduced monitoring frequency. A system serving 50,000 or fewer persons collecting fewer than five samples as specified in subdivision (a)(3) of this section that meets the lead and copper action levels during each of two consecutive six-month monitoring periods may reduce the frequency of sampling to once per year. The system may not reduce the number of samples required to below the minimum of one sample per available tap. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.

(2) Any water system that has optimal corrosion control treatment installed that meets the lead action level and maintains the range of values for optimal corrosion control treatment during each of two consecutive six-month monitoring periods may reduce the frequency of monitoring to once per year and reduce the number of lead and copper samples in accordance with subdivision (a)(3) of this section if it receives written approval from the State. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period. Samples collected during the initial two six-month monitoring periods can be applied to the first year of a three-year reduced monitoring frequency.

Upon written approval from the State, any water system that has optimal corrosion control treatment installed that meets the lead action level and maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment during three

consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three years. Samples collected once every three years shall be collected no later than every third calendar year.

(3) A water system on a reduced monitoring schedule shall collect these samples from representative sites included in the pool of targeted sampling sites identified in subdivision (a) of this section. Systems sampling annually or less frequently shall conduct the lead and copper tap sampling during the months of June, July, August, or September unless the State has approved a different sampling period in accordance with subdivision (c)(3)(i) of this section.

(i) The State, upon request by a water system, may approve a different period for conducting the lead and copper tap sampling for systems on a reduced monitoring schedule. Such a period shall be no longer than four consecutive months and shall represent a time of normal operation where the highest levels of lead are most likely to occur. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period for systems initiating annual monitoring and during the three-year period following the end of the third consecutive calendar year of annual monitoring for systems initiating triennial monitoring.

(ii) Systems monitoring annually, that have been collecting samples during the months of June through September and that receive State approval to alter their sample monitoring period under subdivision (c)(3)(i) of this section, shall collect their next round of samples during a time period that ends no later than 21 months after the previous round of sampling. Systems monitoring triennially that have been collecting samples during the months of June through

September, and receive State approval to alter the sampling collection period as per subdivision (c)(3)(i) of this section, shall collect their next round of samples during a time period that ends no later than 45 months after the previous round of sampling. Subsequent rounds of sampling shall be collected annually or triennially, as required by this section. Water systems with waivers that serve 50,000 or fewer persons that have been collecting samples during the months of June through September and choose to alter their sample collection period under subdivision (c)(3)(i) of this section shall collect their next round of samples before the end of the 9 year period.

(4) Any water system that demonstrates for two consecutive 6-month monitoring periods that the tap water lead level is less than or equal to 0.005 mg/L and the tap water copper level is less than or equal to 0.65 mg/L, at the 90th percentile calculated in accordance with section 5-1.41(c), may reduce the number of samples in accordance with subdivision (a)(3) of this section and reduce the frequency of sampling to once every three calendar years.

(5) Conditions requiring a return to standard monitoring.

(i) A system serving 50,000 or fewer persons subject to reduced monitoring that does not have corrosion control treatment installed and that exceeds the lead or copper action level shall resume standard monitoring at the standard number of sampling sites every six months in accordance with subdivision (b) of this section. Such a system shall also conduct water quality parameter monitoring in accordance with section 5-1.43(b). This monitoring shall begin during the six-month monitoring period immediately following the lead or copper action level exceedance with the first monitoring period to begin either January 1 or July 1, whichever comes

first. Any such system may resume reduced monitoring if it meets the reduced monitoring criteria as specified in subdivision (c)(1) of this section.

(ii) Any water system that has optimal corrosion control treatment installed that fails to meet the lead action level during any four-month monitoring period, or that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the State under section 5-1.41(f) for more than nine days in any six-month monitoring period specified in section 5-1.43(b)(3) shall resume standard monitoring at the standard number of sampling sites every six months in accordance with subdivision (b) of this section, and resume standard monitoring for water quality parameters in accordance with section 5-1.43(b). This standard monitoring shall begin during the six-month monitoring period immediately following the water quality parameter excursion or lead action level exceedance with the first monitoring period to begin either January 1 or July 1, whichever comes first. Any such system may resume reduced monitoring if it meets the reduced monitoring criteria as specified in subdivision (c)(1) of this section.

(6) Any water system subject to reduced monitoring that either adds a new source of water or changes any water treatment shall notify the State in writing within 60 days of any proposed changes. The State may require any system that makes treatment or source changes to resume standard monitoring in accordance with subdivision (b) of this section or take other appropriate steps such as increased water quality parameter monitoring or re-evaluation of its corrosion control treatment given the potentially different water quality considerations. Any proposed changes to add a new source or long-term change in treatment must be consistent with section 5-1.22(a) and approved by the State prior to implementation.

(d) Additional monitoring by systems. The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the system and the State in making any determinations (i.e., calculating the 90th percentile lead or copper level) under sections 5-1.40 through 5-1.48.

(e) Invalidation of lead or copper tap water samples. The State may invalidate a lead or copper tap water sample if one of the following conditions is met. (1) The laboratory establishes that improper sample analysis caused erroneous results.

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

(3) The sample container was damaged in transit.

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

If a sample is invalidated, it does not count toward determining lead or copper 90th percentile levels or toward meeting the minimum monitoring requirements for that system. To invalidate a sample, the decision and the rationale for the decision must be documented in writing.

The system shall submit to the State, for invalidation determination, the results it believes should be invalidated along with supporting documentation and the rationale for supporting invalidation of the samples. If after invalidation of sample results, the system has too few samples to meet minimum sampling requirements, replacement samples shall be taken as soon as possible, but no

later than 20 days after invalidation or by the end of the applicable monitoring period, whichever is later. Replacement samples apply only to the monitoring period associated with the original sample, and shall be taken from the same location. If resampling from the same location is not possible or the sample site was invalidated, the resample may be taken from other sites in the sampling pool not already used for sampling during that monitoring period.

(f) Monitoring waivers for systems serving 3,300 or fewer persons. Any water system that serves 3,300 or fewer persons and meets the criteria in this subdivision may be eligible for a waiver to reduce monitoring of lead and copper to once every nine years ("full waiver"), or only for lead, or only for copper ("partial waiver"). The system must demonstrate that its distribution system and service lines and all drinking water supply plumbing, including plumbing conveying drinking water within all residences and buildings connected to the system, are free of lead-containing materials and/or copper-containing materials as those terms are defined as follows:
(1) Lead. To qualify for a full waiver or a waiver of the tap water monitoring requirements of lead (i.e. a "lead waiver"), the water system must provide certification and supporting documentation to the State that the system is free of all lead-containing materials, as follows:
(i) It contains no plastic pipes which contain lead plasticizers, or plastic service lines which contain lead plasticizers; and
(ii) It is free of lead service lines, lead pipes, lead soldered pipe joints, and leaded brass or bronze alloy fittings and fixtures, unless such fittings and fixtures meet the specifications of any standard established pursuant to section 5-1.22(a) (Approval of Plans and Completed Works).

(2) Copper. To qualify for a full waiver or a waiver of the tap water monitoring requirements of copper (i.e. a "copper waiver"), the water system must provide certification and supporting documentation to the State that the system contains no copper pipes or copper service lines.

(3) Approval of waiver application. The system will be notified of the State's determination in writing, setting forth the basis for its decision and any condition of the waiver. The System may be required to perform specific activities (e.g., limited monitoring, periodic outreach to customers to remind them to avoid installation of materials that might void reduced monitoring) to avoid the risk of lead or copper concentration of concern in tap water. A system serving fewer than 3,300 persons must continue monitoring for lead and copper at the tap as required in subdivision (f)(1)-(4) of this section, as appropriate, until it receives written notification that the reduced monitoring has been approved.

(4) Monitoring frequency for systems with waivers. (i) A system with a full waiver must conduct tap water monitoring for lead and copper in accordance with subdivision (c)(4) of this section at the reduced number of sampling sites identified in subdivision (a)(3) of this section at least once every nine years and provide the materials certification specified in subdivision (f) of this section for both lead and copper to the State along with the monitoring results. Samples collected every nine years must be collected no later than every ninth calendar year.

(ii) A system with a partial waiver monitoring for a single contaminant must conduct tap water monitoring for that contaminant in accordance with subdivision (c)(4) of this section at the reduced number of sampling sites specified in subdivision (a)(3) of this section at least once every nine years and provide the materials certification specified in subdivision (f) of this section

pertaining to the contaminant along with the monitoring results. Such systems must also continue to monitor for the contaminant not on reduced monitoring in accordance with requirements of subdivisions (b)(1) through (b)(3) and (c) of this section, as appropriate.

(iii) Any water system with a full or partial wavier must notify the State in writing in accordance with section 5-1.48(a)(3) of any upcoming long-term change in treatment or addition of a new source. The State must review and approve the addition of a new source or change in water treatment before it is implemented by the water system. The State has the authority to require the system to add or modify waiver conditions (e.g., require recertification that the system is free of lead-containing and/or copper-containing materials require additional round(s) of monitoring), if it deems such modifications are necessary to address treatment or source water changes at the system.

(iv) If a system with a full or partial waiver becomes aware that it is no longer free of lead-containing or copper-containing materials, as appropriate, (e.g., as a result of new construction or repairs), the system must notify the State in writing no later than 60 days after becoming aware of such a change.

(5) Continued eligibility. Systems may continue to be eligible for a waiver, and such waiver will renew automatically, unless any of the conditions listed in subparagraphs (i)-(iii) of this paragraph occurs. If a waiver is not renewed, the system shall meet the requirements for action level exceedances or for the three-year reduced monitoring cycle, as appropriate. A system whose waiver has been revoked may re-apply for a waiver at such time as it again meets the appropriate materials and monitoring criteria of subdivisions (f)(1) and (f)(2) of this section.
(i) A system with a full waiver or a lead waiver no longer satisfies the materials criteria of subdivision (f)(1)(i) of this section or has a 90th percentile lead level greater than 0.005 mg/L.

(ii) A system with a full waiver or a copper waiver no longer satisfies the materials criteria of subdivision (f)(2) of this section or has a 90th percentile copper level greater than 0.65 mg/L.
(iii) The State notifies the system, in writing, that the waiver has been revoked, setting forth the basis of its decision.

(6) Requirements following waiver revocation. A system whose full or partial waiver has been revoked by the State is subject to the corrosion control treatment and lead and copper tap water monitoring requirements, as follows:
(i) If the system exceeds the lead and/or copper action level, the system must implement corrosion control treatment as specified in section 5-1.41(c)(2), and any other applicable requirements.
(ii) If the system meets both the lead and the copper action level, the system must monitor for lead and copper at the tap no less frequently than once every three years using the reduced number of sample sites specified in section 5-1.43(a)(2).

(7) Any water system with a full or partial waiver shall notify the State in writing of any upcoming long-term change in treatment or addition of a new source, consistent with section 5-1.22(a) and approved by the State prior to implementation. The State must review and approve the addition of a new source or long-term change in water treatment before it is implemented by the water system. The State may require the system to add or modify waiver conditions (e.g., require recertification that the system is free of lead-containing and/or copper-containing materials, require additional round(s) of monitoring), if it deems such modifications are necessary to address treatment or source water changes at the system.

5-1.43 Monitoring requirements for water quality parameters.

All systems serving over 50,000 persons and systems that exceed the lead or copper action level shall monitor water quality parameters in addition to lead and copper in tap water in accordance with this section.

(a) Sample requirements.

(1) Sample collection method.

(i) Distribution system (tap) 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 system sampling under this section is not required to be conducted at taps targeted for lead and copper sampling under section 5-1.42(a).

(ii) Entry point samples to the distribution system 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 entry point(s) representative of normal operating conditions.

(2) Number of samples.

(i) A water system conducting standard monitoring shall collect two samples for applicable water quality parameters during each monitoring period specified in subdivision (b) of this section from the number of distribution system sampling sites listed in the table below under "Standard Monitoring." A water system conducting reduced monitoring shall collect two samples for applicable water quality parameters during each monitoring period specified in subdivision (c) of this section from the number of distribution system sampling sites listed in the table below under "Reduced Monitoring." Such reduced monitoring sites shall be representative of the sites required for standard monitoring.

Population Served	Standard Monitoring (Sample Sites)	Reduced Monitoring (Sample Sites)
>100,000	25	10
10,001 to 100,000	10	7
3,301 to 10,000	3	3
501 to 3,300	2	2
101 to 500	1	1
<101	1	1

(ii) A water system conducting monitoring in accordance with subdivision (b)(1) of this section shall collect two entry point samples for each applicable water quality parameter at each entry point to the distribution system during each six-month monitoring period. A water system conducting monitoring in accordance with subdivisions (b)(2), (b)(3), and (c) of this section shall collect one entry point sample for each applicable water quality parameter at each entry point to the distribution system, or each applicable entry point in accordance with subdivision (b)(2)(iii), at the frequency specified in subdivision (b)(2)(ii).

(b) Standard Monitoring. Required samples shall be collected during six-month monitoring periods, beginning January 1 or July 1 of each calendar year.

(1) Initial sampling. All systems serving more than 50,000 persons shall measure the applicable water quality parameters during each six-month monitoring period specified in section 5-1.42(b)(1). All systems serving 50,000 or fewer persons shall measure the applicable water quality parameters during each six-month monitoring period during which the system exceeds the lead or copper action level. Applicable water quality parameters at taps and entry points include: pH; alkalinity; conductivity; water temperature; calcium; and orthophosphate or silica, as appropriate to the corrosion control treatment used.

(2) Monitoring after installation of corrosion control. Any system which installs optimal corrosion control treatment shall measure the water quality parameters at the locations and frequencies specified below during each six-month monitoring period specified in section 5-1.42(b)(2).

(i) two samples shall be collected at taps in the distribution system for the following parameters: pH; alkalinity; calcium; and orthophosphate or silica, as appropriate to the corrosion control treatment used.

(ii) one sample shall be collected at each entry point: Except as provided in subdivision (b)(2)(iii) of this section, at least one sample no less frequently than every two weeks (biweekly) for pH; alkalinity (and a reading of the dosage rate of the chemical used to adjust alkalinity, when alkalinity is adjusted); calcium; orthophosphate or silica, as appropriate to the corrosion control treatment used; and a reading of the dosage rate of the corrosion control treatment chemical used.

(iii) A ground water system may limit entry point sampling described in subdivision (b)(2)(ii) of this section to those entry points that are representative of water quality and treatment conditions throughout the system. If water from untreated ground water sources mixes with water from treated ground water sources, the system shall monitor for water quality parameters both at representative entry points receiving treatment and representative entry points receiving no treatment. Prior to the start of any monitoring under this paragraph, the system shall provide to the State written information identifying the selected entry points and documentation, including information on seasonal variability, sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

(3) Monitoring after State specifies water quality parameter values for optimal corrosion control. After the State specifies the values for applicable water quality control parameters reflecting optimal corrosion control treatment, all systems serving more than 50,000 persons and any

system serving 50,000 or fewer persons that has optimal corrosion control treatment installed shall measure the applicable water quality parameters during each six-month monitoring period specified in section 5-1.42(b)(3), in accordance with subdivisions (b)(2)(i)-(iii) of this section, and determine compliance with the requirements of section 5-1.41(g) during each six-month monitoring period specified in section 5-1.42(b)(3).

(c) Reduced monitoring.

(1) Reducing the number of sampling sites. Any water system that maintains the range of State specified values for the water quality parameters reflecting optimal corrosion control treatment during each of two consecutive six-month monitoring periods under subdivision (b)(3) of this section shall continue monitoring at the entry point(s) to the distribution system as specified in subdivision (b)(2)(ii)-(iii) of this section. Such system may collect two distribution system samples for applicable water quality parameters from the reduced number of sites in accordance with subdivision (a)(2)(i) of this section during each six-month monitoring period.

(2) Reducing sampling frequency.

(i) Any water system that maintains the range of State-specified values for the water quality parameters reflecting optimal corrosion control treatment during three consecutive years of monitoring in accordance with subdivision (c)(1) of this section may reduce the frequency with which it collects the number of distribution system samples for applicable water quality parameters specified in subdivision (c)(1) of this section from every six months to annually. This

sampling shall begin during the calendar year immediately following the end of the monitoring period in which the third consecutive year of six-month monitoring occurs. Any water system that maintains the range of State-specified values for the water quality parameters reflecting optimal corrosion control treatment during three consecutive years of annual monitoring under this paragraph may reduce the frequency with which it collects the number of distribution system samples for applicable water quality parameters specified in subdivision (c)(1) of this section from annually to every three years.

(ii) A water system may reduce the frequency with which it collects the number of distribution system samples for applicable water quality parameters specified in subdivision (c)(1) of this section to every three 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 specified in section 5-1.40(b)(1), that its tap water copper level at the 90th percentile is less than or equal to 0.65 mg/L for copper, and that it also has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the State under section 5-
1.41(f).

(iii) Monitoring conducted every three years shall be done no later than every third calendar year.

(3) A water system that conducts reduced sampling frequency shall collect these samples evenly throughout monitoring period in which samples are taken so as to reflect seasonal variability.

(4) Any water system subject to the reduced monitoring frequency that fails to operate at or above the minimum value or within the range of values for the water quality parameters specified by the State under section 5-1.41(f) for more than nine days in any six-month period shall resume distribution system tap water sampling in accordance with the number and frequency requirements in subdivision (b)(3) of this section. The water system may resume annual monitoring for water quality parameters at the tap at the reduced number of sites specified in subdivision (a)(2)(i) of this section after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of that subdivision and/or may resume triennial monitoring for water quality parameters at taps in the distribution system at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either subdivision (c)(2)(i) or (c)(2)(ii) of this section.

(d) Additional monitoring by systems. The results of any monitoring conducted in addition to the minimum requirements of this section shall be considered by the system and the State in making any compliance determinations (i.e., determining concentrations of water quality parameters).

5-1.44 Monitoring Requirements for Lead and Copper in Source Water.

A water system that exceeds the lead or copper action level based on first draw tap water samples collected in accordance with section 5-1.42 shall collect lead and copper source water samples in accordance with the following requirements:

(a) Sample Requirements.

(1) Water systems shall take a minimum of one sample at every entry point to the distribution system which is representative of each source after treatment. The system shall collect each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant. If a system draws water from more than one source and the sources are combined before distribution, the system shall sample at entry point(s) to be representative of normal operating conditions, when water is representative of all sources being used.

(2) The State may reduce the total number of samples which shall be analyzed by allowing the use of compositing. Compositing of samples shall be done by certified laboratory personnel. Composite samples from a maximum of five samples are allowed, provided that the method detection limit (MDL) for lead of 0.001 mg/L is achieved. If the lead concentration in the composite sample is greater than or equal to 0.001 mg/L, or the copper concentration is greater than or equal to 0.160 mg/L, then either:

(i) A follow-up sample shall be taken and analyzed within 14 days at each sampling point included in the composite; or

(ii) If duplicates of or sufficient quantities from the original samples from each sampling point used in the composite are available, the system may use these instead of resampling.

(3) Where the results of sampling indicate an exceedance of State-specified maximum permissible source water levels established under section 5-1.45(a)(4), the State may require that one follow-up sample be collected as soon as possible after the initial sample was taken (but not

to exceed two weeks) at the same sampling point. If a State-required follow-up sample is taken for lead or copper, then the results of the initial and follow-up samples shall be averaged to determine compliance with the State-specified maximum permissible levels. Any sample value below the detection limit shall be considered to be zero. Any value above the detection limit but below the practical quantitation limit (PQL) shall either be considered as the measured value or be considered one-half the PQL.

(b) Standard Monitoring.

(1) Monitoring frequency after system exceeds tap water action level. Any system which exceeds the lead or copper action level shall collect one source water sample from each entry point to the distribution system no later than six months after the end of the monitoring period during which the lead or copper action level was exceeded. For monitoring periods that are annual or less frequent, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs, or if the State has established an alternate monitoring period, the last day of that period.

(2) Monitoring frequency after installation of source water treatment. Any system which installs source water treatment pursuant to section 5-1.45 shall collect an additional source water sample from each entry point to the distribution system during the two consecutive six-month monitoring periods immediately following the installation of treatment with the first monitoring period to begin either January 1 or July 1, whichever comes first.

(3) Monitoring frequency after State specifies maximum permissible source water levels or determines that source water treatment is not needed.

(i) A system shall monitor at the frequency specified below in cases where the State specifies maximum permissible source water levels or determines that the system is not required to install source water treatment under section 5-1.45.

(a) A water system using only ground water shall collect samples once every three years with the first three year monitoring period to begin January 1 of the year in which the State determination is made under subdivision (b)(3)(i) of this section. Such systems shall collect samples once during each subsequent compliance period. Triennial samples shall be collected in the third calendar year.

(b) A water system using surface water (or a combination of surface and ground water) shall collect samples once during each calendar year with the first annual monitoring period to begin January 1 of the year in which the applicable State determination is made under subdivision (b)(3)(i) of this section.

(ii) A system is not required to conduct source water sampling for lead and/or copper if the system meets the action level for the specific contaminant in tap water samples during the entire source water sampling period applicable to the system under subdivision (b)(3)(i)(*a*) or (*b*) of this section.

(c) Reduced monitoring.

(1) A water system using only ground water may reduce the monitoring frequency for lead and copper in source water to once every nine-years provided that the samples are collected no later than every ninth calendar year and the system meets one of the following criteria:

(i) The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the State under section 5-1.45(a) during at least three consecutive years in which sampling was conducted under subdivision (b)(3)(i) of this section; or

(ii) The State has determined that source water treatment is not needed and the system demonstrates that the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L during at least three consecutive applicable monitoring periods in which sampling was conducted under subdivision (b)(3)(i) of this section.

(2) A water system using surface water (or a combination of surface water and ground water) may reduce the monitoring frequency for lead and copper in source water to once during each nine-year compliance cycle provided that the samples are collected no later than every ninth calendar year and if the system meets one of the following criteria:

(i) The system demonstrates that finished drinking water entering the distribution system has been maintained below the maximum permissible lead and copper concentrations specified by the State for at least three consecutive years; or

(ii) The State has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive years, the concentration of lead in source water was less than or equal to 0.005 mg/L and the concentration of copper in source water was less than or equal to 0.65 mg/L.

(3) A water system that uses a new source of water is not eligible for reduced monitoring for lead and/or copper until concentrations in samples collected from the new source during three consecutive monitoring periods in accordance with subdivision (b)(2) or (3) of this section are below the maximum permissible lead and copper concentrations specified by the State.

5-1.45 Source Water Treatment Requirements

A water system that exceeds the lead or copper action level based on first draw tap water samples collected in accordance with section 5-1.42 shall complete the applicable source water monitoring and treatment requirements and operate appropriate treatment to maintain lead and copper below levels specified by the State in accordance with the following requirements.

(a) Source water treatment requirements.

(1) A water system exceeding the lead or copper action level shall complete required lead and copper source water monitoring in accordance with section 5-1.44(b)(1) and make an appropriate treatment recommendation to the State no later than 180 days after the end of the monitoring period during which the system exceeds the lead or copper action level. A system

may recommend that no treatment be installed based upon a demonstration that source water treatment is not necessary to minimize lead and copper levels at users' taps.

(2) Based on an evaluation of the results of all required source water sampling, the State shall make a determination if source water treatment is necessary and may require:

(i) source water treatment as recommended by the system; or

(ii) alternative source water treatment that would minimize lead and copper levels at user's taps. Completion of proper installation and operation of the State specified source water treatment shall occur within 24 months of State determination and notification of the specified treatment to the water system.

(3) The water system shall complete standard monitoring for tap water in accordance with section 5-1.42(b) and source water in accordance with subdivision (b)(2) of this section following installation of source water treatment.

(4) Based on a review of the source water samples taken by the water system both before and after the system installs source water treatment, the State shall:

(i) determine whether the system has properly installed and operated the source water treatment designated by the State; and

(ii) specify maximum permissible source water concentrations for water entering the distribution system. Such levels shall reflect the contaminant removal capability of the treatment when properly operated and maintained.

(b) Operation and maintenance requirements.

(1) Each water system shall operate in a manner that minimizes lead and copper levels at user's taps by maintaining lead and copper levels below State-specified maximum permissible concentrations at each of the required source water sampling locations in accordance with section 5-1.44. The system is out of compliance with this paragraph if the level of lead or copper at any sampling point is greater than the State-specified maximum permissible concentration.

(2) The State may modify its determination of the source water treatment under subdivision (a)(2) of this section, or maximum permissible lead and copper concentrations for finished water entering the distribution system under subdivision (a)(4) of this section where it concludes that such change is necessary to ensure that the system continues to minimize lead and copper concentrations in source water.

5-1.46 Lead Service Line Replacement.

(a) Water systems that fail to meet the lead action level in tap samples collected after installing corrosion control treatment and/or source water treatment (whichever occurs later) shall replace lead service lines in accordance with the requirements of this section. Water systems that fail to install optimal corrosion control treatment in accordance with section 5-1.41(c) or

source water treatment in accordance with section 5-1.45(a)(2) by the date(s) specified by the State may be required to begin replacement of lead service lines.

(b) Determining number of lead service lines for replacement.

(1) A water system shall replace annually at least 7 percent of the initial number of lead service lines in its distribution system. The initial number of lead service lines is the number of lead lines in place at the time the replacement program begins. The system shall identify the initial number of lead service lines in its distribution system, including an identification of the portion(s) owned by the system, based on materials evaluation, including the evaluation required under section 5-1.42(a) and relevant legal authorities (e.g. contracts, local ordinances) regarding the portion owned by the system. The first year of lead service line replacement shall begin on the first day following the end of the monitoring period in which the action level was exceeded in tap sampling referenced in subdivision (a) of this section. If monitoring is required annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs. If an alternate monitoring period applies, then the end of the monitoring period will be the last day of that period.

(2) A water system is not required to replace an individual lead service line if the results of all samples representative of water in the lead service line, collected in accordance with section 5-1.42(a)(2)(iii) of this Subpart, are less than or equal to 0.015 mg/L.

(3) The total number of lines replaced, either entirely or partially per subdivision (c) of this section, shall equal at least 7 percent of the initial number of lead lines identified under

subdivision (b)(1) of this section or the percentage specified by the State as per subdivision (d) of this section.

(4) Any water system resuming a lead service line replacement program after the cessation of its lead service line replacement program as allowed by subdivision (f) of this section shall update its inventory of lead service lines to include those sites that were previously determined not to require replacement through the sampling provision under subdivision (c) of this section. The system will then divide the updated number of remaining lead service lines by the number of remaining years in the program to determine the number of lines that shall be replaced per year (7-percent lead service line replacement is based on a 15-year replacement program). For those systems that have completed a 15-year lead service line replacement program, the State will determine a schedule for replacing or re-testing lines that were previously tested under the replacement program if the system re-exceeds the action level.

(c) A water system shall replace the portion of the lead service line that it owns. In cases where the system does not own the entire lead service line, the system shall notify the owner of the line, or the owner's authorized agent, that the system will replace the portion of the service line that it owns and shall offer to replace the owner's portion of the line. A system is not required to bear the cost of replacing the privately-owned portion of the line, where the owner chooses not to pay the cost of replacing the privately-owned portion of the line, or where replacing the privately-owned portion would be precluded by State, local or common law. A water system that does not replace the entire length of the service line also shall complete the following tasks:

(1) At least 45 days prior to commencing with partial replacement of a lead service line, the water system shall provide notice to the resident(s) of all buildings served by the line explaining that they may experience a temporary increase of lead levels in their drinking water, along with guidance on measures consumers can take to minimize their exposure to lead. The State may allow the water system to provide notice of less than 45 days prior to commencing partial lead service line replacement, if such replacement is done in conjunction with emergency repairs. In addition, the water system shall inform the resident(s) served by the line that the system will, at the system's expense, collect a sample from each partially-replaced lead service line that is representative of the water in the service line for analysis of lead content, as prescribed in section 5-1.42(a)(2)(iii) of this Subpart, within 72 hours after the completion of the partial replacement of the service line. The system shall collect the sample and report the results of the analysis to the owner and the resident(s) served by the line within three business days of receiving the results. Mailed notices post-marked within three business days of receiving the results shall be considered "on time."

(2) The water system shall provide the information required by subdivision (c)(1) of this section to the residents of individual dwellings by mail or by other methods approved by the State. In instances where multi-family dwellings are served by the service line, the water system shall have the option to post the information at a conspicuous location.

(d) The State shall require a system to replace lead service lines on a shorter schedule than that required by this section, taking into account the number of lead service lines in the system, where a shorter replacement schedule is feasible. The State shall make this determination in writing and notify the system of its finding within 6 months after the system is triggered into

lead service line replacement based on monitoring results referenced in subdivision (a) of this section.

(e) Any water system may cease replacing lead service lines whenever first draw tap water samples meet the lead action level during each of two consecutive six-month monitoring periods. If subsequent rounds of first draw tap water sampling exceed the lead action level the water system shall recommence replacing lead service lines in accordance with subdivision (b) of this section.

(f) To demonstrate compliance with subdivisions (a) through (d) of this section, a system shall report to the State the information specified and no later than the schedule described in 40 CFR 141.90(e).

5-1.47 Notification and Public Education Requirements.

(a) Notification of results to consumers. All water systems shall provide notice of the individual tap results from lead tap water monitoring carried out under the requirements of section 5-1.42 to the persons served by the water system at the specific sampling site from which the sample was taken (i.e., the occupants of the residence where the tap was tested). Water systems that exceed the lead action level shall sample the tap water of any customer who requests it in accordance with subdivision (i) of this section.

(1) Notice shall be provided as soon as practical, but no later than 30 days after the system learns of the tap monitoring results.

(2) Notice shall be provided either by mail or by another method approved by the State.

(3) Notice shall include the lead levels for the tap that was tested, an explanation of the health effects of lead, a list of steps consumers can take to reduce exposure to lead in drinking water, and contact information for the water utility. The notice shall also provide the maximum contaminant level goal and the action level for lead and the definitions for these two terms from section 5-
1.72(f).

(b) Public education material content and delivery. A water system that exceeds the lead action level based on tap water samples collected in accordance with section 5-1.42 shall deliver public education materials in accordance with paragraphs (1) and (2) of this subdivision.

(1) Content of public education materials.

(i) Community water systems and nontransient noncommunity water systems. Water systems shall include the following elements in printed materials (e.g., brochures and pamphlets) in the same order as listed below. In addition, language in subdivision (b)(1)(i)(*a*) through (*b*) and (b)(1)(i)(*f*) of this section shall be included in the materials, exactly as written, except for the text in brackets in these clauses for which the water system shall include system-specific information.

Any additional information presented by a water system shall be consistent with the information below and be in plain language that can be understood by the general public. Water systems shall submit all written public education materials to the State for approval prior to delivery.

(a) IMPORTANT INFORMATION ABOUT LEAD IN YOUR DRINKING WATER. [Insert Name of Water System] found elevated levels of lead in drinking water in some homes/buildings. Lead can cause serious health problems, especially for pregnant women and young children. Please read this information closely to see what you can do to reduce lead in your drinking water.

(b) Health effects of lead. Lead can cause serious health problems if too much enters your body from drinking water or other sources. It can cause damage to the brain and kidneys, and can interfere with the production of red blood cells that carry oxygen to all parts of your body. The greatest risk of lead exposure is to infants, young children, and pregnant women. Scientists have linked the effects of lead on the brain with lowered IQ in children. Adults with kidney problems and high blood pressure can be affected by low levels of lead more than healthy adults. Lead is stored in the bones, and it can be released later in life. During pregnancy, the child receives lead from the mother's bones, which may affect brain development.

(c) Provide information on sources of lead.

(1) Explain what lead is.

(2) Explain possible sources of lead in drinking water and how lead enters drinking water.

Include information on home/building plumbing materials and service lines that may contain lead.

(3) Discuss other important sources of lead exposure in addition to drinking water (e.g., lead-based paint).

(d) Discuss the steps consumers can take to reduce their exposure to lead in drinking water.

(1) Encourage running the water to flush out lead.

(2) Explain concerns with using hot water from the tap and specifically caution against the use of hot water for preparing baby formula.

(3) Explain that boiling water does not reduce lead levels.

(4) Discuss other options consumers can take to reduce exposure to lead in drinking water, such as alternative sources or treatment of water.

(5) Suggest that parents have their child's blood tested for lead.

(e) Explain why there are elevated levels of lead in the system's drinking water (if known) and what the water system is doing to reduce the lead levels in homes/buildings in this area.

(f) For more information call us at [Insert Your Number] [(If Applicable), or visit our website at [Insert Your website Here]]. For more information on reducing lead exposure around your home/building and the health effects of lead, visit EPA's website at http://www.epa.gov/lead or contact your health care provider.

(ii) Community water systems. In addition to including the elements specified in subdivision (b)(1) of this section, community water systems shall:

(a) Tell consumers how to get their water tested.

(b) Discuss lead in plumbing components, the difference between low lead and lead free, the requirement to use lead-free materials, and the standards that materials shall meet in order to be considered lead free.

(iii) Each water system required to deliver public education materials through additional means specified in subdivision (b)(2)(i) through (ii) of this section shall include additional content as determined in consultation with the State.

(2) Delivery of public education materials.

(i) For public water systems serving a large proportion of non-English speaking consumers, as determined by the State, the public education materials shall contain information in the appropriate language(s) regarding the importance of the notice or contain a telephone number or

address where persons served may contact the water system to obtain a translated copy of the public education materials or to request assistance in the appropriate language.

(ii) A community water system that exceeds the lead action level and that is not already conducting public education tasks under this section, shall conduct the following public education tasks within 60 days after the end of the monitoring period in which the exceedance occurred. For systems that are required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs or, if the State has established an alternate monitoring period, the last day of that period:

(a) Deliver printed materials meeting the content requirements of subdivision (a) of this section to all bill paying customers.

(b) Contact consumers who are most at risk by delivering education materials that meet the content requirements of subdivision (a) of this section as follows:

(1) Contact the State for information regarding community based organizations serving target populations and deliver education materials to all appropriate organizations along with an informational notice that encourages distribution to all the organization's potentially affected customers or community water system's users as determined in consultation with the State.

(2) Contact customers who are most at risk by delivering materials to the following organizations that are located within the water system's service area, along with an informational

notice that encourages distribution to all the organization's potentially affected customers or community water system's users:

(i) Public and private schools or school boards.

(ii) Women, Infants and Children (WIC) and Head Start programs.

(iii) Public and private hospitals and medical clinics.

(iv) Pediatricians.

(v) Family planning clinics.

(vi) Local welfare agencies.

(3) Make a good faith effort to locate the following organizations within the service area and deliver materials, along with an informational notice that encourages distribution to all potentially affected customers or users. The good faith effort to contact at-risk customers may include requesting a specific contact list of these organizations from the State:

(i) Licensed childcare centers.

(ii) Public and private preschools.

(iii) Obstetricians-Gynecologists and Midwives.

(c) No less often than quarterly, provide information on or in each water bill as long as the system exceeds the action level for lead. The message on the water bill shall include the following statement exactly as written except for the text in brackets for which the water system shall include system-specific information: [Insert Name of Water System] found high levels of lead in drinking water in some homes. Lead can cause serious health problems. For more information please call [Insert Name of Water System] [or visit (Insert Your website Here)]. The message or delivery mechanism can be modified in consultation with the State; specifically, the State may allow a separate mailing of public education materials to customers if the water system cannot place the information on water bills.

(d) Post material meeting the content requirements of subdivision (a) of this section on the water system's website if the system serves a population greater than 100,000 or if the water system maintains a publicly accessible website.

(e) Submit a press release to newspaper, television and radio stations.

(f) In addition to the other requirements of this section, systems shall implement at least three activities from one or more categories listed below. The educational content and selection of these activities must be determined in consultation with the State.

(1) Public service announcements.

(2) Paid advertisements.

(3) Public area informational displays.

(4) E-mails to customers.

(5) Public meetings.

(6) Household deliveries.

(7) Targeted individual customer contact.

(8) Direct material distribution to all multi-family homes and institutions.

(9) Other methods approved by the State.

(c) As long as a community water system exceeds the action level, it shall repeat the activities pursuant to subdivision (c)(1) through (4) of this section.

(1) A community water system shall repeat the tasks contained in subdivisions (a), (b) and (f) of this section every 12 months.

(2) A community water system shall repeat tasks contained in subdivision (c) of this section with each billing cycle.

(3) A community water system serving a population greater than 100,000 shall post and retain material on a publicly accessible website pursuant to subdivision (d) of this section.

(4) The community water system shall repeat the tasks in subdivision (b)(2)(ii)*(a),(b)* and *(d)* of this section twice every 12 months on a schedule agreed upon with the State. The State may allow activities in subdivision (b)(2)(ii)(*b*) of this section to extend beyond the 60-day requirement if needed for implementation purposes on a case-by-case basis; however, this extension must be approved in writing by the State in advance of the 60-day deadline.

(d) A nontransient noncommunity water system that exceeds the lead action level and that is not already conducting public education tasks under this section shall conduct the following public education tasks within 60 days after the end of the monitoring period in which the exceedance occurred. For systems that are required to conduct monitoring annually or less frequently, the end of the monitoring period is September 30 of the calendar year in which the sampling occurs or, if the State has established an alternate monitoring period, the last day of that period:

(1) post informational posters on lead in drinking water in a public place or common area in each of the buildings served by the system; and

(2) distribute informational pamphlets and/or brochures on lead in drinking water to each person served by the nontransient noncommunity water system. The State may allow the system to utilize electronic transmission in lieu of or combined with printed materials as long as it achieves at least the same coverage.

(e) A nontransient noncommunity water system shall repeat the tasks contained in subdivision (d) of this section at least once during each calendar year in which the system exceeds the lead action level. The State may allow activities in this section to extend beyond the 60-day requirement if needed for implementation purposes on a case-by-case basis; however, this extension must be approved in writing by the State in advance of the 60-day deadline.

(f) A water system may discontinue delivery of public education materials if the system has met the lead action level during the most recent six-month monitoring period. Such a system shall recommence public education in accordance with this section if it exceeds the lead action level during any subsequent monitoring period.

(g) A community water system may use only the text specified in subdivisions (b)(1)(i) and (b)(1)(ii) of this section in lieu of the text in subdivisions (b)(1)(i) through (b)(1)(iii) of this section, and to perform the tasks listed in subdivisions (d) and (e) of this section in lieu of the tasks in subdivisions (b)(2)(ii) and (b)(3) of this section if:

(1) the system is a facility, such as a prison or a hospital, where the population served is not capable of or is prevented from making improvements to plumbing or installing point of use treatment devices;

(2) the system provides water as part of the cost of services provided and does not separately charge for water consumption; and

(3) the State has not directed the water system to conduct broader distribution of education material as needed if in its judgment education materials are not reaching the system's consumers.

(h) A community water system serving 3,300 or fewer people may limit certain aspects of their public education programs as follows:

(1) With respect to the requirements of subdivision (b)(2)(ii)(*f)* of this section, a system serving 3,300 or fewer shall implement at least one of the activities listed in that clause.

(2) With respect to the requirements of subdivision (b)(2)(ii)(*b*) of this section, a system serving 3,300 or fewer people may limit the distribution of the public education materials required under that clause to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children.

(3) With respect to the requirements of subdivision (b)(2)(ii)(*e*) of this section, the State may waive this requirement for systems serving 3,300 or fewer persons as long as system distributes notices to every household served by the system.

(i) Consumer requests for lead sampling. A water system that fails to meet the lead action level on the basis of tap samples collected in accordance with section 5-1.42 shall provide assistance in determining lead levels at the tap of any customer who requests it. Systems may collect and analyze the samples, but are not obligated to incur expenses. Systems are also not obligated to

collect and analyze samples itself, but shall provide information about laboratories providing this service.

5-1.48 Reporting and Record Keeping Requirements.

(a) Reporting requirements for tap water monitoring for lead and copper and for water quality parameter monitoring.

(1) Unless the State has specified a more frequent reporting requirement, a water system shall report the following information for all tap water samples specified in section 5-1.42 and for all water quality parameter samples specified in section 5-1.43 to the State within the first ten days following the end of each applicable monitoring period; for monitoring periods with a duration of less than six months, the end of the monitoring period is the last date samples can be collected during that period as specified in sections 5-1.42 and 5-1.43:

(i) results of all first draw lead and copper tap samples collected in accordance with section 5-1.42, including site locations and the criteria used in selecting the site in accordance with section 5-1.42(a)(1);

(ii) documentation for each tap water lead or copper sample for which the water system requests invalidation in accordance with section 5-1.42(e);

(iii) the 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period and calculated in accordance

with section 5-1.41(c), unless the State calculates the system's 90th percentile under subdivision (h) of this section;

(iv) with the exception of initial tap sampling conducted pursuant to section 5-1.42(b)(1)-(3), the system shall identify any site which was not sampled during previous monitoring periods, and include an explanation of changes in sampling sites if any; and

(v) the results of all tap samples for applicable water quality parameters collected in accordance with section 5-1.43(b)-(d).

(vi) The results of all samples collected at the entry point(s) to the distribution system for applicable water quality parameters under section 5-1.43(b)-(d).

(2) For a nontransient noncommunity water system, or a community water system meeting the criteria of section 5-1.47(b)(2)(g) that does not have enough taps that can provide first-draw samples, the system shall provide written documentation to the State identifying standing times and locations for enough first-draw samples to make up its sampling pool by the start of the first applicable monitoring period in accordance with section 5-1.42(a)(3) or, identify in writing, each site that did not meet the six-hour minimum standing time and the length of time for that particular substitute sample collected, and include this information with the lead and copper tap sample results that are required to be submitted pursuant to subdivision (a)(1)(i) of this section.

(3) At a time specified by the State, or if no specific time is designated by the State, then as early as possible prior to the addition of a new source or any long-term change in water

treatment, a water system deemed to have optimized corrosion control, a water system subject to reduced monitoring pursuant, or a water system subject to a monitoring waiver pursuant, shall submit written documentation to the State describing the change or addition as required under section 5-1.22(a). A water system shall obtain approval from the State before implementing the addition of a new source or long-term change in water treatment. Examples of long-term treatment changes include the addition of a new treatment process or modification of an existing treatment process. Examples of modifications include switching secondary disinfectants, switching coagulants (e.g., alum to ferric chloride), and switching corrosion inhibitor products (e.g., orthophosphate to blended phosphate). Long-term changes can include dose changes to existing chemicals if the system is planning long-term changes to its finished water pH or residual inhibitor concentration. Long-term treatment changes would not include chemical dose fluctuations associated with daily raw water quality changes.

(4) Any system serving 3,300 or fewer persons applying for a monitoring waiver pursuant to section 5-1.42(f), shall provide the following information to the State in writing by the specified deadline:

(i) By the start of the first applicable monitoring period, any system serving 3,300 or fewer persons applying for a monitoring waiver shall provide the documentation required to demonstrate that it meets the requirements of section 5-1.42(f).

(ii) No later than nine years after the monitoring previously conducted pursuant to section 5-1.42(b) or (c), each system serving 3,300 or fewer persons desiring to maintain its monitoring waiver shall provide the information required by section 5-1.42(f)(1)-(3).

(iii) No later than 60 days after it becomes aware that it is no longer free of lead-containing and/or copper containing material, as appropriate, each system serving 3,300 or fewer persons with a monitoring waiver shall provide written notification to the State, stating the circumstances resulting in the lead-containing and/or copper-containing materials being introduced into the system and what corrective action, if any, the system plans to remove these materials.

(4) Each ground water system that limits water quality parameter monitoring to a subset of entry points under section 5-1.43(b)(2)(iii) shall provide by the commencement of such monitoring, written correspondence to the State that identifies the selected entry points and includes information sufficient to demonstrate that the sites are representative of water quality and treatment conditions throughout the system.

(b) Source water monitoring reporting requirements.

(1) A water system shall report the sampling results for all source water samples collected in accordance with section 5-1.44 within the first 10 days following the end of each source water monitoring period.

(2) With the exception of the first round of source water sampling conducted, the system shall specify any site which was not sampled during previous monitoring periods, and include an explanation of why the sampling point has changed.

(c) Corrosion control treatment reporting requirements. By the applicable dates under section 5-

1.41(c) or a date specified by the State, systems shall report the following:

(1) For systems demonstrating that they have already optimized corrosion control, information required in section 5-1.41(b).

(2) For systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment in accordance with section 5-1.41(c)(3).

(3) For systems required to evaluate the effectiveness of corrosion control treatments, the information required for corrosion control studies in accordance with section 5-1.41(c)(3).

(4) For systems required to install optimal corrosion control designated by the State, a letter certifying that the system has completed installing that treatment in accordance with section 5-1.41(e).

(d) Source water treatment reporting requirements. In accordance with section 5-1.45, systems shall report the following:

(1) For systems required to make a source water treatment recommendation in accordance with section 5-1.45(a)(1), the information required by that section.

(2) For systems required to install source water treatment in accordance with section 5-1.45(a)(2), a letter certifying that the system has completed installing the treatment designated by the State within 24 months after the State designated the treatment.

(e) Lead service line replacement reporting requirements. Water systems subject to the requirements of section 5-1.46 shall report the following to demonstrate compliance with that section:

(1) No later than 12 months after the end of a monitoring period in which a system exceeds the lead action level in sampling referred to in section 5-1.46(a), the system shall submit written documentation to the State of the material evaluation conducted as required in section 5-1.42(a), identify the initial number of lead service lines in its distribution system at the time the system exceeds the lead action level, and provide the system's schedule for annually replacing at least 7 percent of the initial number of lead service lines in its distribution system.

(2) No later than 12 months after the end of a monitoring period in which a system exceeds the lead action level in sampling referred to in section 5-1.46(a), and every 12 months thereafter, the system shall demonstrate to the State in writing that the system has either:
(i) replaced in the previous 12 months at least 7 percent of the initial lead service lines in its distribution system; or
(ii) conducted sampling which demonstrates that the lead concentration in all service line samples from an individual line(s), meeting the requirements of section 5-1.46(b)(2), is less than or equal to 0.015 mg/L. In such cases, the total number of lines replaced and/or which meet the criteria in section 5-1.46(b)(2) shall equal at least 7 percent of the initial number of lead lines identified under subdivision (e)(1) of this section or the percentage specified by the State under section 5-1.46(d).

(3) The annual letter submitted to the State under subdivision (e)(2) of this section shall contain the following information:

(i) the number of lead service lines replaced during the previous year of the system's replacement schedule;

(ii) the number and location of each lead service line replaced during the previous year of the system's replacement schedule; and

(iii) if measured, the lead concentration in the water and the location of each lead service line sampled, the sampling method, and the date of sampling.

(4) Any system which collects lead service line samples following partial lead service line replacement in accordance with section 5-1.46(c)(1) shall report the results to the State within the first ten days of the month following the month in which the system receives the laboratory results, or as specified by the State. Systems shall also report any additional information as specified by the State, and in a time and manner prescribed by the State, to verify that all partial lead service line replacement activities have taken place.

(f) Public education reporting requirements. Water systems shall report the following to demonstrate compliance with requirements of section 5-1.47:

(1) Each system shall mail a sample copy of the consumer notification of tap results to the State along with a certification that the notification has been provided no later than 3 months following the end of the monitoring period.

(2) Any water system that is subject to the public education requirements under section 5-1.47 shall, within ten days after the end of each period in which the system is required to perform public education, send written documentation to the State that contains:

(i) a demonstration that the system has delivered the public education materials that meet the content requirements in section 5-1.47(b)(1) and the delivery requirements in section 5-1.47(b)(2); and

(ii) a list of all newspapers, radio stations, television stations, and facilities and organizations to which the system delivered public education materials during the period in which the system was required to perform public education tasks.

(3) Unless required by the State, a system that previously has submitted the information required by subdivision (f)(2)(ii) of this section need not resubmit the information required, as long as there have been no changes in the distribution list and the system certifies that the public education materials were distributed to the same list submitted previously.

(g) Reporting of additional monitoring data. Any system which collects sampling data in addition to that required by this sections 5-1.40 through 5-1.48, including data collected in accordance with section 5-1.41(b)(6), and sections 5-1.42(d), and 5-1.43(d), shall report the results to the State within the first ten days following the end of the applicable monitoring period during which the samples were collected.

(h) Reporting the 90th percentile lead and copper concentration where the State calculates a system's 90th percentile concentrations. A water system is not required to report the 90th

percentile lead and copper concentration measured from among all lead and copper tap water samples collected during each monitoring period, as required by subdivision (a)(1)(iii) of this section if:

(1) The State has previously notified the water system that it will calculate the water system's 90th percentile lead and copper concentrations, based on the lead and copper tap results submitted pursuant to subdivision (h)(2)(i) of this section, and has specified a date before the end of the applicable monitoring period by which the system shall provide the results of lead and copper tap water samples; and

(2) The system has provided the following information to the State by the date specified in subdivision (h)(1) of this section:

(i) the results of all tap samples for lead and copper including the location of each site and the criteria under section 5-1.42(a)(1)(iii)-(iv) under which the site was selected for the system's sampling pool, pursuant to subdivision (a)(1)(i) of this section; and

(ii) an identification of sampling sites utilized during the current monitoring period that were not sampled during previous monitoring periods, and an explanation why sampling sites have changed; and

(3) The State has provided the results of the 90th percentile lead and copper calculations, in writing, to the water system before the end of the monitoring period.

(i) Prior to the addition of a new source or any long-term change in water treatment, a water system deemed to have optimized corrosion control under section 5-1.41(b), a water system subject to reduced monitoring under section 5-1.42(c), or a water system subject to a monitoring waiver under section 5-1.42(f) shall submit written documentation to the State describing the proposed change or addition within a timeframe specified by the State, or if no specific time is designated by the State, then as early as possible.

(j) Recordkeeping requirements. Any system subject to the requirements of sections 5-1.40 through 5-1.48 shall retain on its premises original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, State approvals and determinations, and any other information required by section 5-1.41 through 5-1.48. Each water system shall retain the records required by this section for no fewer than 12 years.

Subdivision (c) of section 5-1.51 of this section is amended to read as follows:

(c) Each system [must] shall develop and implement a monitoring plan that includes all monitoring requirements specified in this Subpart. [This plan must be completed by January 31, 2012.] The system [must] shall maintain the plan and make it available for inspection by the State and the general public. After review, the State may require changes in any plan elements. Failure to monitor in accordance with the monitoring plan is a monitoring violation. Systems may only use data collected in accordance with the monitoring plan to qualify for reduced monitoring. The monitoring plan [must] shall include at least the following elements, as applicable:

Paragraph (1) of subdivision (c) of section 5-1.51 is amended to read as follows:

(1) specific locations and schedules for collecting samples for all applicable parameters listed in [sections] section 5-1.42, section 5-1.43, [5-1.52 tables] Tables 8A-12, 15 and 15A of section 5-1.52, section 5-1.61, and section 5-1.81 of this Subpart;

A new paragraph (5) of subdivision (c) of section 5-1.51 is added to read as follows:

(5) Disinfection Byproduct Monitoring.

(i) The following requirements of this subdivision apply to community and nontransient noncommunity water systems that use or deliver water that has been treated with a primary or residual disinfectant other than ultraviolet light, provided they serve 15 or more service connections or serve 25 or more persons:

(a) if a new community or nontransient noncommunity water system begins operation, or an existing community or nontransient noncommunity water system begins using a disinfectant other than ultraviolet light, the system shall consult with the State to identify compliance monitoring locations for disinfection byproducts to include in the system's monitoring plan, consistent with the requirements in 40 CFR 141.601 and 141.602, and for new systems that need an Initial Distribution System Evaluation (IDSE), consistent with 40 CFR 141.605; and

(b) if a community or nontransient noncommunity water system adds or removes compliance monitoring locations, the system shall identify additional locations by alternating selection of

locations representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified, as specified in section 5-1.52 Table 9A. Systems shall also provide the rationale for identifying the locations as having high levels of TTHM or HAA5.

(ii) Systems shall revise monitoring plans to reflect changes in treatment, distribution system operations and layout (including new service areas), other factors that may affect TTHM or HAA5 formation or upon consultation with the State.

(a) If a system changes monitoring locations, it shall replace existing compliance monitoring locations with the lowest LRAA with new locations that reflect the current distribution system locations with expected high TTHM or HAA5 levels.

(b) The State may require modifications in the monitoring plan.

(c) Surface water or GWUDI systems serving more than 3,300 people shall submit a copy of their modified monitoring plan to the State prior to the date they are required to comply with the revised monitoring plan.

(iii) A system is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating a LRAA if the system fails to monitor.

Subdivision (e) of section 5-1.51 is amended to read as follows:

(e) The CT values for inactivation of *Giardia lamblia* cysts by free chlorine at various pH and temperature levels are listed in section 5-1.52 [tables] Tables 14A through 14F of this Subpart.

The CT values for inactivation of *Giardia lamblia* cysts by chlorine dioxide and ozone at various temperature levels are listed in section 5-1.52 [table] Table 14G of this Subpart. The CT values for inactivation of *Giardia lamblia* cysts by chloramines at various temperature levels are listed in section 5-1.52 Table 14H of this Subpart. The CT values for inactivation of *Cryptosporidium* by chlorine dioxide at various temperature levels are listed in section 5-1.52 Table 14I. The CT values for inactivation of *Cryptosporidium* by ozone at various temperature levels are listed in section 5-1.52 Table 14J. The UV doses for *Cryptosporidium*, *Giardia lamblia*, and virus inactivation credit are listed in section 5-1.52 Table 14K.

New subdivision (o) is added to section 5-1.51 to read as follows:

(o) Disinfection Byproduct Monitoring. The requirements of this subdivision apply to community and nontransient noncommunity water systems that use a primary or residual disinfectant other than ultraviolet light, or deliver water that has been treated with a primary or residual disinfectant other than ultraviolet light in accordance with monitoring requirements in Table 9A of section 5-1.52.

(1) Systems required to conduct quarterly monitoring shall calculate compliance at the end of each quarter or earlier if the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters in accordance with Table 3 of section 5-1.52.

(2) Systems required to conduct monitoring at a frequency that is less than quarterly shall monitor in the calendar month identified in the monitoring plan developed under subdivision (c)

of this section. Compliance calculations shall be made beginning with the first compliance sample taken after the compliance date.

Tables 1, 2, 3, 3A, 4, 4A, 6, 7, 8B, 9A, 9B, 9C, 10 and 13 of section 5-1.52 are repealed. Footnote 6 for Table 8C of section 5-1.52 is amended and new Tables 1, 2, 3, 3A, 4, 4A, 6, 7, 8B, 9A, 9B, 9C, 10, 13, 14H, 14I,14J, and 14K are added to section 5-1.52 to read as follows:

5-1.52 Tables.

Table 1. Inorganic Chemicals and Physical Characteristics Maximum Contaminant Level Determination

Contaminants[1,2]	MCL (mg/l) [3]	Determination of MCL violations
Asbestos	7.0 million fibers/liter (MFL) (longer than 10 microns)	If the results of a monitoring sample analysis exceed the MCL, the supplier of water shall collect one more sample from the same sampling point within 2 weeks or as soon as practical. An MCL violation for all contaminants listed in this table, except for Arsenic, occurs when the average[4] of the initial sample and any confirmation sample exceeds the MCL. MCL violations for Arsenic will be determined as follows: Compliance with the Arsenic MCL shall be determined based on the analytical result(s) obtained at each sampling point. For systems which are conducting monitoring at a frequency greater than annual, an Arsenic MCL violation occurs when the running annual average[8,9,10] at any sampling point is greater than the MCL. If any one sample would cause the annual average to exceed the MCL at any sampling point, the system is out of compliance with the MCL immediately. Systems monitoring annually or less frequently whose sample result exceeds the Arsenic MCL[8] must begin quarterly sampling[11]. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling and the running annual average[8,9,10] at that sampling point is greater than the Arsenic MCL. If any one sample would cause the annual average to exceed the MCL at any sampling point, the system is out of compliance with the MCL immediately.
Antimony	0.006	
Arsenic	0.010	
Barium	2.00	
Beryllium	0.004	
Cadmium	0.005	
Chromium	0.10	
Cyanide(as free cyanide)[5,6]	0.2	
Mercury	0.002	
Selenium	0.05	
Silver	0.1	
Thallium	0.002	
Fluoride	2.2	
Chloride	250.0	
Iron	0.3[5]	
Manganese	0.3[5]	
Sodium	No designated limits[7]	
Sulfate	250.0	
Zinc	5.0	
Color	15 Units	
Odor	3 Units	

Contaminants[1,2]	MCL (mg/l) [3]	Determination of MCL violations
Bromate[8]	0.010	Compliance is based on a running annual average of monthly samples, computed quarterly. If the average of samples covering any consecutive four-quarter period exceeds the MCL, the system is in violation of the MCL and must notify the public.
Chlorite[9]	1.0	Compliance is based on an average of each three-sample set taken in the distribution system in accordance with Table 8B. If the average exceeds the MCL, the system is in violation of the MCL and must notify the public.

[1] If EPA Methods 200.7 or 200.9 are used, the MDLs determined when samples are analyzed by direct analysis (i.e., no sample digestion) will be higher, because they were determined using a 2x preconcentration step during sample digestion. Consider the need to preconcentrate, or the use of multiple in-furnace depositions to achieve required MDLs. For direct analysis of cadmium by Method 200.7, sample preconcentration using pneumatic nebulization may be required to achieve lower detection limits. Preconcentration may also be required for direct analysis of antimony, lead, and thallium by Method 200.9; antimony and lead by Standard Methods 3113 B; and lead by ASTM Method D3559–90D, unless multiple in-furnace depositions are made.

[2]When metals or nitrate samples are collected, they may be acidified with a concentrated acid or a dilute (50% by volume) solution of the applicable concentrated acid. This acidification may be done at the laboratory rather than at the time of sampling, provided the shipping time and other instructions in Section 8.3 of EPA Methods 200.7, 200.8, or 200.9 are followed.

[3]mg/L = milligrams per liter

[4]If iron and manganese are present, the total concentration of both should not exceed 0.5 mg/L. Higher levels may be allowed by the State when justified by the supplier of water.

[5]If Ligand Exchange and Amperometry is used for cyanide analysis; either ASTM Method D6888-04 or Method OIA–1677, DW, "Available Cyanide by Flow Injection, Ligand Exchange, and Amperometry," January 2004 are approved. EPA–821–R–04–001, is available from ALPKEM, A Division of OI Analytical, P.O. Box 9010, College Station, TX 77842–9010; sulfide levels below those detected using lead acetate paper may produce positive method interferences. Samples should be tested using a more sensitive sulfide method to determine if a sulfide interference is present, and samples shall be treated accordingly.

[5]Cyanide samples must be adjusted with sodium hydroxide to pH 12 at the time of collection. The sample must be shipped and stored at 4 °C or less. [6]Rounded to the same number of significant figures as the MCL for the contaminant in question.

[7]Water containing more than 20 mg/L of sodium should not be used for drinking by people on severely restricted sodium diets. Water containing more than 270 mg/L of sodium should not be used for drinking by people on moderately restricted sodium diets.

[8]Community and nontransient noncommunity water systems using ozone for disinfection or oxidation must comply with the bromate standard.

[9]Community and nontransient noncommunity water systems using chlorine dioxide as a disinfectant or oxidant must comply with the chlorite standard.

[10]Arsenic sampling results shall be reported to the nearest 0.001 mg/L.

[11]Any sample below the method detection limit shall be calculated at zero for the purpose of determining the annual average. If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected.

[12]If confirmation samples are collected, the average of the initial sample and any confirmation samples will be used for the determination of compliance and future monitoring requirements.

[13]Systems are only required to conduct the increased monitoring frequency at the sampling point where the MCL was exceeded and for only the specific contaminant(s) that triggered the system into the increased monitoring frequency.

Table 2 - Nitrate, Nitrite, Total Nitrate/Nitrite Maximum Contaminant Level Determination

Contaminants	MCL (mg/L)	Determination of MCL violation
Nitrate[1]	10 (as Nitrogen)[2]	If the results of a monitoring sample analysis exceed the MCL, the supplier of water shall collect another sample from the same sampling point, within 24 hours of the receipt of results or as soon as practical.[3] An MCL violation occurs when the average of the two results exceeds the MCL.
Nitrite	1 (as Nitrogen)	
Total Nitrate and Nitrite	10 (as Nitrogen)	

[1]Nitrate samples are to be shipped and stored at 4 °C or less and analyzed within 48 hours of collection. If the sample is chlorinated, the holding time for an unacidified sample kept at 4 °C is extended to 14 days.

[2]An MCL of 20 mg/L may be permitted at a noncommunity water system if the supplier of water demonstrates that:
(a) the water will not be available to children under six months of age;
(b) a notice that nitrate levels exceed 10 mg/L and the potential health effects of exposure will be continuously posted according to the requirements of a Tier 1 notification;
(c) the State will be notified annually of nitrate levels that exceed 10 mg/L; and
(d) no adverse health effects shall result.

[3]Systems unable to collect an additional sample within 24 hours must issue a Tier 1 notification and must collect the additional sample within two weeks of receiving the initial sample results.

Table 3. Organic Chemicals Maximum Contaminant Level Determination

Contaminants	MCL (mg/L)	Type of water system	Determination of MCL violation
General organic chemicals		Community, NTNC and Noncommunity	If the results of a monitoring sample analysis exceed the MCL, the supplier of water shall collect one to three more samples from the same sampling point, as soon as practical, but within 30 days. An MCL violation occurs when at least one of the confirming samples is positive[1] and the average of the initial sample and all confirming samples exceeds the MCL.
Principal organic contaminant (POC)	0.005		
Unspecified organic contaminant (UOC)	0.05		
Total POCs and UOCs	0.1		
Disinfection byproducts[2,3]		Community and NTNC	For systems required to monitor quarterly, the results of all analyses at each monitoring location per quarter shall be arithmetically averaged and shall be reported to the State within 30 days of the public water system's receipt of the analyses. A violation occurs if the average of the four most recent sets of quarterly samples at a particular monitoring location (12-month locational running annual average (LRAA)) exceeds the MCL. If a system collects more than one sample per quarter at a monitoring location, the system shall average all samples taken in the quarter at that location to determine a quarterly average to be used in the LRAA calculation. If a system fails to complete four consecutive quarters of monitoring, compliance with the MCL will be based on an average of the available data from the most recent four quarters. An MCL violation for systems on annual or less frequent monitoring that have been increased to quarterly monitoring as outlined in Table 9A, is determined after four quarterly samples are taken.
Total trihalomethanes	0.080		
Haloacetic acids	0.060		
		Transient noncommunity	Not applicable

Table 3. Organic Chemicals Maximum Contaminant Level Determination (continued)

Contaminants	MCL (mg/L)	Type of Water System	Determination of MCL violation
Specific Organic Chemicals		Community, NTNC and Noncommunity	If the results of a monitoring sample analysis exceed the MCL, the supplier of water shall collect one to three more samples from the same sampling point, as soon as practical, but within 30 days. An MCL violation occurs when at least one of the confirming samples is positive[1] and the average of the initial sample and all confirming samples exceeds the MCL.
Alachlor	0.002 0.003		
Aldicarb	0.002 0.004		
Aldicarb sulfone	0.003		
Aldicarb sulfoxide	0.0002		
Atrazine[4]	0.04		
Benzo(a)pyrene	0.002		
Carbofuran	0.006		
Chlordane	0.0002		
Di(2-ethylhexyl)phthalate	0.05		
Dibromochloropropane(DBCP)	0.007		
2,4-D	0.02		
Dinoseb	0.002		
Diquat	0.00005		
Endrin	0.0004		
Ethylene dibromide(EDB)	0.0002		
Heptachlor	0.001		
Heptachlor epoxide	0.0002		
Hexachlorobenzene	0.04		
Lindane	0.010		
Methoxychlor	0.001		
Methyl-tertiary-butyl-ether(MTBE)	0.0005		
Pentachlorophenol	1.0		
Polychlorinated biphenyls(PCBs)[5]	0.004		
Propylene glycol	0.003		
Simazine	0.01		
Toxaphene	0.00000003		
2,4,5-TP (Silvex)	0.002		
2,3,7,8-TCDD (dioxin)			
Vinyl chloride			

[1]A sample is considered positive when the quantity reported by the State approved laboratory is greater than or equal to the method detection limit.

[2]For systems monitoring yearly or less frequently, the sample results for each monitoring location is considered the LRAA for that monitoring location. Systems required to conduct monitoring at a frequency that is less than quarterly shall monitor in the calendar month identified in the monitoring plan developed under section 5-1.51(c). Compliance calculations shall be made beginning with the first compliance sample taken after the compliance date.

[3] Systems that are demonstrating compliance with the avoidance criteria in section 5-1.30(c), shall comply with the TTHM and HAA5 LRAA MCLs; however the LRAA MCLs are not considered for avoidance purposes. For avoidance purposes, TTHMs and HAA5s are based on a running annual average of analyses from all monitoring locations.

[4]Syngenta Method AG–625, "Atrazine in Drinking Water by Immunoassay," February 2001, available from Syngenta Crop Protection, Inc., 410 Swing Road, P.O. Box 18300, Greensboro, NC 27419. Telephone: 336–632–6000, may not be used for the analysis of atrazine in any system where chlorine dioxide is used for drinking water treatment. In samples from all other systems, any result for atrazine generated by Method AG–625 that is greater than one-half the maximum contaminant level (MCL) (in other words, greater than 0.0015mg/L or 1.5 µg/L) must be confirmed using another approved method for this contaminant and should use additional volume of the original sample collected for compliance monitoring. In instances where a result from Method AG–625 triggers such confirmatory testing, the confirmatory result is to be used to determine compliance.

[5]If PCBs (as one of seven Aroclors) are detected in any sample analyzed using EPA Method 505 or 508, the system shall reanalyze the sample using EPA Method 508A to quantitate PCBs (as decachlorobiphenyl). Compliance with the PCB MCL shall be determined based upon the quantitative results of analyses using Method 508A.

Table 3A. Maximum Residual Disinfectant Level (MRDL) Determination

Disinfectant	MRDL (mg/L)	Type of water system[1]	Determination of MRDL violation
Chlorine	4.0 (as Cl_2)	Community and NTNC using chlorine or chloramines as disinfectant or oxidant	Compliance is based on a running annual arithmetic average, computed quarterly, of monthly averages of all samples collected by the system. If the running annual average exceeds the MRDL, the system is in violation and must notify the public.
Chloramines[2]	4.0 (as Cl_2)		
Chlorine Dioxide	0.8 (as ClO_2)	Community, NTNC, and Transient Noncommunity using chlorine dioxide as disinfectant or oxidant	Public Health Hazard (Acute Violation) Compliance is based on daily samples collected by the system. If any daily sample taken at the entrance to the distribution system exceeds the MRDL, and on the following day one (or more) of the three samples taken in the distribution system exceeds the MRDL, the system is in violation.
			Nonacute Violation Compliance is based on daily samples collected by the system. If any two consecutive daily samples taken at the entrance to the distribution system exceed the MRDL, and all distribution system samples taken are below the MRDL, the system is in violation.

[1] The monitoring and MRDL requirements for chlorine and chloramines in this column apply to community or nontransient noncommunity water systems that are consecutive systems that do not add a disinfectant, but deliver water that has been treated with primary or residual disinfection other than ultraviolet light.

[2] In cases where systems switch between the use of chlorine and chloramines for residual disinfection during the year, compliance must be determined by including together all Cl2 monitoring results of both chlorine and chloramines.

Table 4. Entry Point Turbidity Maximum Contaminant Level Determination for Unfiltered Systems[1, 2]

Contaminant	MCL	Determination of MCL violation
Entry point turbidity (surface water and ground water directly influenced by surface water)	1 NTU [3,5] (Monthly Average) 5 NTU [4,5]	A violation occurs when the average of all daily entry point analyses for the month exceeds the MCL rounded off to the nearest whole number. A violation occurs when the average of two consecutive daily entry point analyses exceeds the MCL rounded off to the nearest whole number.

[1]The requirements of this table apply to unfiltered systems that the State had determined, in writing pursuant to section 5-1.30 of this Subpart, must install filtration, until filtration is installed.

[2]If formazin is used for turbidity testing, styrene divinyl benzene beads (e.g., AMCO-AEPA–1 or equivalent) and stabilized formazin (e.g., Hach StablCalTMor equivalent) may be substituted for formazin.

[3]If the daily entry point analysis exceeds one NTU, a repeat sample must be taken as soon as practicable and preferably within one hour. If the repeat sample exceeds one NTU, the supplier of water must make State notification. The repeat sample must be used for the monthly average and the two consecutive day average.

[4]If the two consecutive day average exceeds the MCL, the supplier of water shall analyze for microbiological contamination at a point downstream of the first consumer, but as close to the first consumer as is feasible. The additional microbiological sample should be taken within one hour as soon as feasible after determining the two consecutive day average. The supplier of water shall report the result of this microbiological analysis to the State within 48 hours of obtaining the result. The result of this analysis shall not be used for monitoring purposes.

[5]NTU = Nephelometric Turbidity Units

Table 4A. Surface Water Turbidity Performance Standards [1]

Contaminant	Filtration type	Performance standard[1]	Determination of treatment technique violation	
Filtered water turbidity[2]	Conventional filtration and Direct filtration	0.3 NTU[3,5]	A treatment technique violation occurs if more than five percent of the composite filter effluent measurements taken each month exceed the performance standard values.	The turbidity level of representative samples of the filtered water must at no time exceed 1 NTU.[4,5]
	Slow sand filtration	1.0 NTU[3]	A treatment technique violation occurs if more than five percent of the composite filter effluent measurements taken each month exceed the performance standard values.	The turbidity level of representative samples of the filtered water must at no time exceed 5 NTU.
	Diatomaceous earth filtration	1.0 NTU[3]		
	Alternative filtration	1.0 NTU[3, 4]		

[1]The standards apply to systems with surface water sources or ground water sources directly influenced by surface water.

[2]If formazin is used for turbidity testing, styrene divinyl benzene beads (e.g., AMCO-AEPA–1 or equivalent) and stabilized formazin (e.g., Hach StablCalTMor equivalent) may be substituted for formazin.

[3]NTU= Nephelometric Turbidity Unit

[4]The performance standard applies to alternative filtration technologies capable of complying with requirement of section 5-1.30(b) of this Subpart as demonstrated to the department by pilot studies, unless the department sets a turbidity performance standard for a specific system.

[5]If the combined filter effluent turbidity exceeds 1 NTU, the system must consult with the State in accordance with section 5-1.78(d)(3) of this Subpart.

Table 6. Microbiological Contaminants Maximum Contaminant Level (MCL)/Treatment Technique (TT) Violation Determination

Contaminant	Sample Location	MCL or TT	Performance Standard[1,2]	Determination of MCL/TT violation[3]
Total coliform[4]	Distribution Sample Sites	MCL	No positive sample[5]	An MCL violation occurs at systems collecting 40 or more samples per month when more than 5.0 percent of the total coliform samples are positive.
		MCL		An MCL violation occurs at systems collecting less than 40 samples per month when two or more samples are total coliform positive.
Escherichia coli (E. coli)		MCL	No positive sample[5]	An MCL violation occurs when a total coliform positive sample is positive *for E. coli* and a repeat total coliform sample is positive or when a total coliform positive sample is negative for *E. coli* but a repeat total coliform sample is positive and the sample is also positive for *E. coli*.[6]
Fecal indicator: *E. coli*, and/or enterococci, and/or coliphage[7]	Untreated Water from a Ground Water Source	TT	No fecal indicator in samples collected from raw source water from a ground water source.[8]	A TT violation occurs when a raw water sample is positive for the fecal indicator contaminant and system does not provide and document, through process compliance monitoring, 4-log virus treatment during peak flow at first customer. If repeat sampling of the raw water is directed by the State and all additional samples are negative for fecal indicator, there is no TT violation.[8]

[1]A public water system must comply with the MCL for total coliform each month the system is required to monitor for total coliform.

[2]All samples collected in accordance with Table 11 footnotes 1, and 2 and Table 11B of this section, and samples collected in accordance with section 5-1.51(g) of this Subpart shall be included in determining compliance with the MCL unless any of the samples have been invalidated by the State.

[3]For notification purpose, an *E. coli* MCL violation in the distribution system is a public health hazard requiring Tier 1 notification.

[4]Total coliform method additions or modifications to approved methods:

- For total coliform (TC) samples collected from untreated surface water or GWUDI sources, the time from sample collection to initiation of analysis may not exceed 8 hours and the samples must be held below 10 degrees C during transit to the laboratory. For other TC samples, the time from collection to initiation of analysis may not exceed 30 hours. Systems are encouraged, but not required, to hold TC samples below 10 degrees C during transit.
- If the Total Coliform Fermentation Technique using standard methods 9221A or B is used, and if inverted tubes are used to detect gas production, the media should cover these tubes at least one half to two-thirds after the sample is added. Also, no requirement exists to run the completed phase on 10 percent of all TC-positive confirmed tubes. Additionally, lactose broth, as commercially available, may be used in lieu of lauryl tryptose broth, if the system conducts at least 25 parallel tests between this medium and lauryl tryptose broth using the water normally tested, and this comparison demonstrates that the false-positive rate and false-negative rate for TC , using lactose broth, is less than 10 percent.
- If Membrane Filter Technique Standard Methods 9222A, B, and optionally C are used, MI agar also may be used. Verification of colonies is not required.
- If the Standard Methods Presence-Absence (P-A) Coliform Test, 9221D is used, six-times formulation strength may be used if the medium is filter-sterilized rather than autoclaved.
- If the Total Coliform Membrane Filter Technique, Standard Methods 9222 A, B, C is used, MI agar also may be used. Verification of colonies is not required.
- For any TC testing it is strongly recommended that laboratories evaluate the false-positive and negative rates for the method(s) they use for monitoring TC. Laboratories are also encouraged to establish false-positive and false-negative rates within their own laboratory and sample matrix (drinking water or source water) with the intent that if the method they choose has an unacceptable false-positive or negative rate, another method can be used. It is suggested that laboratories perform these studies on a minimum of 5% of all TC-positive samples, except for those methods where verification/ confirmation is already required. Methods for establishing false-positive and negative-rates may be based on lactose fermentation, the rapid test for β-galactosidase and cytochrome oxidase, multi-test identification systems, or equivalent confirmation tests. False-positive and false-negative information is often available in published studies and/or from the manufacturer(s).

[5]See Table 13 for public notification requirements.

[6]If any total coliform or *E. Coli* sample is positive, repeat samples must be collected in accordance with Table 11B of this section.

[7]For any fecal indicator sample collected as described in section 5-1.52, Table 6, the time from sample collection to initiation of analysis may not exceed 30 hours. The system is encouraged but is not required to hold samples below 10 °C during transit.

[8]If raw water source sample is fecal indicator positive, the water system, in consultation with the State, may collect an additional 5 samples within 24 hours at each source that tested fecal indicator positive. If none of the additional samples are fecal indicator positive, then there is no TT violation. Note that Tier 1 notification must be made after the initial raw water fecal indicator positive sample, even if it is not confirmed.

Table 7. Radiological Maximum Contaminant Level Determination[1]

Contaminant	MCL	Type of water system	Determination of MCL violation[2]
Combined radium-226 and radium-228	5 picocuries per liter	Community	A violation occurs when a sample or the annual average of samples at any sampling point exceeds the MCL[3,4,5,6,7]
Gross alpha activity (including radium-226 but excluding radon and uranium)	15 picocuries per liter	Community	
Uranium[8]	30 micrograms per liter	Community	
Beta particle and photon radioactivity from manmade radionuclides	Four millirems (mrem) per year as the annual dose equivalent to the total body or any internal organ[9].	Community Water Systems designated by the State as vulnerable	A violation occurs when a sample or the annual average of samples at any sampling point exceeds the MCL[3,4,5,7,10,11]
		Community systems designated by the State as utilizing waters contaminated by effluents from nuclear facilities	A violation occurs when a sample or the annual average of samples at any sampling point exceeds the MCL[3,4,5,7,10,11]

[1]The Radionuclides Rule including the MCLs and minimum monitoring requirements applies to only community water systems.
[2]To judge compliance with the maximum contaminant levels, averages of data shall be used and shall be rounded to the same number of significant figures as the maximum contaminant level for the substance in question.
[3]For systems monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point. If the average of any sampling point is greater than the MCL, then the system is out of compliance with the MCL.
[4]For systems monitoring more than once a year, if any sample result will cause the running average to exceed the MCL at any sample point, e.g., a single sample result is greater than four times of the MCL, the system is out of compliance with the MCL immediately.
[5]If a system does not collect all required samples when compliance is based on a running annual average of quarterly samples, compliance will be based on the running average of the samples collected.
[6]If a sample result is less than the detection limit, zero will be used to calculate the annual average, unless a gross alpha particle activity is being used in lieu of radium-226 and/or uranium. If the gross alpha particle activity result is less than detection and is substituted for radium-226 and/or uranium, ½ the detection limit will be used to calculate the annual average.
[7]If the MCL for radionuclides in this Table is exceeded, the community water system must give notice to the State.
[8]If uranium (U) is determined by mass-type methods (i.e., fluorometric or laser phosphorimetry), a 0.67 pCi/µg of uranium conversion factor must be used.
[9]A system must determine compliance with the MCL for beta particle and photon radioactivity by using the calculation described below:
[pCi/L found in sample (from laboratory results) / pCi/L equivalent of 4 mrem of exposure] = fraction of the maximum 4 mrem/year exposure limit [10]To determine compliance with the MCL, a system must monitor at a frequency as described in Table 12.
[11]If the results show an MCL violation for any of the constituents, the system must conduct monthly monitoring for all species at any sampling point that exceeds the MCL. Monitoring must be conducted in accordance with Table 12 in this section. A system can resume quarterly monitoring if the rolling average of three months of samples is at or below the MCL.

Table 8B. Inorganic Chemicals and Physical Characteristics Minimum Monitoring Requirements

Contaminant	Type of water system	Initial frequency by source type[1]		Accelerated sampling[2]
		Ground water only	Surface only or surface and ground water	
Antimony Arsenic Barium Beryllium Cadmium Chromium Cyanide Mercury Nickel Selenium Thallium Fluoride	Community and NTNC[3,4,5]	One sample per entry point every 3 years	One sample per entry point per year	If GT MCL, one sample quarterly. [6, 7] If LT MCL, maintain initial frequency.
	Transient noncommunity	State discretion[8]	State discretion[8]	State discretion[8]
Bromate[9]	Community and NTNC using ozone for disinfection or oxidation	One sample per month at each entry point[10, 11]	One sample per month at each entry point[10, 11]	State discretion[8]
Chlorite[12]	Community and NTNC using chlorine dioxide for disinfection or oxidation	Daily samples at each entry point. Additional three-sample set monthly in the distribution system[11, 13, 14, 15]	Daily samples at each entry point. Additional three-sample set monthly in the distribution system[11, 13, 14, 15]	State discretion[8]

GT = Greater Than; LT = Less Than

[1]For all types of water sources the system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant. If a system draws water from more than one source and the sources are combined before distribution, the system must sample at an entry point to the distribution system during periods of normal operating conditions when water is representative of all sources, or separately at the individual sources. The State may allow systems to composite samples in accordance with the conditions in Appendix 5-C. All samples taken and analyzed in accordance with the monitoring plan must be included in determining compliance, even if the number is greater than the minimum required.

[2]The average of the initial and confirmation sample contaminant concentration at each sampling point shall be used to determine compliance with the MCL.

[3]A waiver from the required initial monitoring frequencies may be granted by the State, based upon the following conditions:

a. A minimum of one sample shall be collected while the waiver is effective;
b. Surface water systems must have monitored annually for at least three years and ground water systems must have conducted a minimum of three rounds of monitoring with at least one sample taken since January 1, 1990;
c. All results must be less than the MCL;
d. New sources are not eligible for a waiver until completion of three rounds of sampling; and
e. Waivers issued by the State shall be made in writing, shall cite the basis for determination and shall not exceed a maximum of nine years.

[4]To determine the appropriate reduced monitoring frequency, the State shall consider:

a. Reported concentrations from all previous monitoring;
b. Variations in reported concentrations; and

c. Other factors which may affect contaminant concentrations such as changes in ground water pumping rates, changes in the system's configuration, operating procedures, stream flows or other characteristics.

[5]The State may require or the water system may request more frequent monitoring frequencies than is minimally required. The State, at its discretion, may require confirmation samples.

[6]The State may decrease the quarterly monitoring requirement to the initial sampling requirement provided that it is determined that the system is reliably and consistently below the MCL on the basis of a minimum of two quarterly ground water samples and a minimum of four quarterly samples for surface water.

[7]If concentrations of a listed contaminant exceed the MCL, the department requires the collection of an additional sample as soon as possible but not to exceed two weeks.

[8]State discretion shall mean requiring monitoring when the State has reason to believe the MCL has been violated, the potential exists for an MCL violation or the contaminant may present a risk to public health.

[9]Community and nontransient noncommunity water systems using ozone for disinfection or oxidation must comply with the bromate monitoring requirement.

[10]Systems required to analyze for bromate may reduce monitoring from monthly to once per quarter, if the system's running annual average bromate concentration is ≤0.0025 mg/l based on monthly bromate measurements for the most recent four quarters. A system may remain on reduced bromate monitoring until the running annual average source water bromide concentration, computed quarterly, is equal to or greater than 0.025 mg/L. If the average bromide concentration is equal to or greater than 0.025 mg/L, the system must resume routine monthly bromate monitoring.

[11]Failure to monitor will be treated as a monitoring violation for the entire period covered by an annual average where compliance is based on an annual average of monthly or quarterly samples or averages and a system's failure to monitor makes it impossible to determine MCL compliance.

[12]Community and nontransient noncommunity water systems using chlorine dioxide as a disinfectant or oxidant must comply with the chlorite monitoring requirement.

[13]On each day following a sample result that exceeds the chlorite MCL at the entrance to the distribution system, the system must take three chlorite distribution system samples at the following locations: as close to the first customer as possible, in a location representative of average residence time, and in a location representative of maximum residence time. The samples comprising the three-sample set required for routine monitoring must be collected at the same three locations in the distribution system that are used when following up on a daily MCL exceedance at the entry point. The system may use results of additional monitoring, conducted as the result of an entry point MCL exceedance, to meet the requirement for routine monthly monitoring.

[14]Daily chlorite monitoring at the entrance to the distribution system may not be reduced. Monthly chlorite monitoring in the distribution system may be reduced to one three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system has exceeded the chlorite MCL. If the system has had to conduct distribution system monitoring as a result of an MCL exceedance at the entry point, the system cannot reduce monitoring. The system may remain on a reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system exceeds the chlorite MCL or the system is required to conduct distribution system monitoring because of an entry point chlorite MCL exceedance.

[15]A system must monitor according to its monitoring plan as described in section 5-1.51(c) of this Subpart. Failure to monitor in accordance with the monitoring plan is a monitoring violation.

Footnote 6 of Table 8C of section 5-1.52 is amended as follows:

[6] For both types of water sources the system shall take each sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant. If a system draws water from more than one source and the sources are combined before distribution the system must sample at an entry point to the distribution systems during periods of normal operating conditions when water is representative of all sources. <u>The average of the initial and confirmation sample contaminant concentration at each sampling point shall be used to determine compliance with the MCL.</u>

Table 9A. Organic Chemicals – Disinfection Byproducts Minimum Monitoring Requirements[1]

			Routine Monitoring		Reduced Monitoring[2]	
	Source Water Type	**Population Size**	**Distribution System monitoring location per monitoring period[3]**	**Frequency[4]**	**Distribution System monitoring locations per monitoring period**	**Frequency**
Total Trihalomethanes (TTHM) Haloacetic Acids (HAA5)	Surface water and GWUDI	<500	2 [5]	per year [6]	not allowed	not allowed
		500 – 3,300	2 [5]	per quarter	2 [5]	per year [6]
		3,301 – 9,999	2	per quarter	2 [7]	per year [6]
		10,000 – 49,999	4	per quarter	2 [8]	per quarter
		50,000 – 249,999	8	per quarter	4 [9]	per quarter
		250,000 – 999,999	12	per quarter	6 [10]	per quarter
		1,000,000 – 4,999,999	16	per quarter	8 [11]	per quarter
		≥5,000,000	20	per quarter	10 [12]	per quarter
	Ground water	<500	2 [5]	per year [6]	2 [5]	every third year [6]
		500 – 9,999	2	per year [6]	2 [5]	per year [6]
		10,000 – 99,999	4	per quarter	2 [7]	per year [6]
		100,000 – 499,999	6	per quarter	2 [8]	per quarter
		≥500,000	8	per quarter	4 [9]	per quarter

Table 9A (continued)

[1]To comply with monitoring requirements, certain conditions must be applied to test methods. The following apply to any samples collected for compliance with section 5-1.50(o) of this Subpart:

- Total Organic Carbon (TOC) samples. Inorganic carbon must be removed from TOC samples prior to analysis. TOC samples may not be filtered prior to analysis. TOC samples must be acidified at the time of sample collection to achieve pH less than or equal to 2 with minimal addition of the acid specified in the method or by the instrument manufacturer. Acidified TOC samples must be analyzed within 28 days.
- SUVA Samples:

  For Specific Ultraviolet Absorbance (SUVA) samples, SUVA must be determined on water prior to the addition of disinfectants/oxidants by the system. Dissolved Organic Carbon (DOC) and Ultraviolet Absorption at 254 nm (UV254) samples used to determine a SUVA value must be taken at the same time and at the same location.

  DOC samples must be filtered through the 0.45 μm pore-diameter filter as soon as practical after sampling, not to exceed 48 hours. After filtration, DOC samples must be acidified to achieve pH less than or equal to 2 with minimal addition of the acid specified in the method or by the instrument manufacturer. Acidified DOC samples must be analyzed within 28 days of sample collection. Inorganic carbon must be removed from the samples prior to analysis. Water passed through the filter prior to filtration of the sample must serve as the filtered blank. This filtered blank must be analyzed using procedures identical to those used for analysis of the samples and must meet the following criteria: DOC < 0.5 mg/L.

  For UV254 samples, UV absorption must be measured at 253.7 nm (may be rounded off to 254 nm). Prior to analysis, UV254samples must be filtered through a 0.45 μm pore-diameter filter. The pH of UV254samples may not be adjusted. Samples must be analyzed as soon as practical after sampling, not to exceed 48 hours.

[2] Systems may reduce monitoring if, at all monitoring locations, the TTHM LRAA is ≤0.040 mg/L and the HAA5 LRAA is ≤0.030 mg/L. In addition, the source water annual average TOC level, before any treatment, shall be ≤4.0 mg/L at each treatment plant treating surface water or GWUDI. A system with quarterly reduced monitoring may remain on reduced monitoring as long as the TTHM LRAA is ≤0.040 mg/L and the HAA5 LRAA is ≤0.030 mg/L at each monitoring location. For systems with annual or less frequent monitoring, each TTHM sample shall be ≤0.060 mg/L and each HAA5 sample shall be ≤0.045 mg/L. In addition, the source water annual average TOC level, before any treatment, shall be ≤4.0 mg/L at each treatment plant treating surface water or GWUDI. If these conditions are not met, or at the State's discretion, the system shall resume routine monitoring in the quarter immediately following the exceedance (for quarterly systems) or in the year immediately following the exceedance (for systems that monitor annually or less frequently).

[3]A system shall monitor according to its monitoring plan as described in section 5-1.51(c) of this Subpart. Failure to monitor in accordance with the monitoring plan is a monitoring violation. All systems shall monitor during the month of highest Disinfection Byproducts concentrations. Monitoring shall be increased to quarterly at all locations if a TTHM sample is > 0.080 mg/L or a HAA5 sample is >0.060 mg/L.

[4]Systems on quarterly monitoring shall take dual sample sets every 90 days at each monitoring location, except for surface water and GWUDI systems serving a population of 500 -3,300. Ground water systems serving a population of 500 – 9,999 on annual monitoring shall take dual sample sets at each monitoring location. All other systems on annual monitoring and surface water and GWUDI systems serving a population of 500 – 3,300 are required to take individual TTHM and HAA5 samples (instead of dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. For systems serving fewer than 500 people, only one location with a dual sample set per monitoring period is needed if the highest TTHM and HAA5 concentrations occur at the same location and month.

Table 9A (continued)

[5]Collect one TTHM sample at the location and during the quarter with the highest TTHM single measurement, and one HAA5 sample at the location and during the quarter with the highest HAA5 single measurement; alternatively, collect one dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.

[6]If a system is required to monitor a particular location annually or less frequently, and a TTHM sample is >0.080 mg/L or a HAA5 sample is >0.060 mg/L at any location, the system shall increase monitoring to dual sample sets once per quarter (taken every 90 days) at all locations. The system may return to routine monitoring if at least four consecutive quarters of increased monitoring have been conducted and for every monitoring location the TTHM LRAA ≤0.060 mg/L and the HAA5 LRAA is ≤0.045 mg/L.

[7]Collect one dual sample set at the location and during the quarter of the highest TTHM single measurement, and one dual sample set at the location and during the quarter of the highest HAA5 single measurement.

[8]Collect dual sample sets at the locations with the highest TTHM and HAA5 LRAAs.

[9]Collect dual sample sets at the locations with the two highest TTHM and two highest HAA5 LRAAs.

[10]Collect dual sample sets at the locations with the three highest TTHM and three highest HAA5 LRAAs.

[11] Collect dual sample sets at the locations with the four highest TTHM and four highest HAA5 LRAAs.

[12] Collect dual sample sets at the locations with the five highest TTHM and five highest HAA5 LRAAs.

Table 9B. Organic Chemicals - POCs, Vinyl Chloride, Methyl-tertiary-butyl-ether (MTBE), UOCs, Propylene Glycol Minimum Monitoring Requirements

Contaminant	Type of water system	Initial requirement[1]	Continuing requirement where detected[1]	Continuing requirement where not detected and vulnerable to contamination[1]	Continuing requirement where not detected and invulnerable to contamination[1]
Principal Organic Contaminants listed on Table 9D and Vinyl chloride and Methyl-tertiary-butyl-ether (MTBE)[2]	Community and Nontransient Noncommunity serving 3,300 or more persons	Quarterly sample per source for one year.[3]	Quarterly[4]	Annually[5]	Once every six years[6]for ground water sources. State discretion[7] for surface water sources.
	Community and Nontransient Noncommunity serving fewer than 3,300 persons	Quarterly sample per source for one year.[3]	Quarterly[4]	Annually[5]	Once every six years[6]for ground water sources. State discretion[7] for surface water sources.
	Noncommunity excluding NTNC	State discretion[7]	State discretion[7]	State discretion[7]	State discretion[7]
Unspecified Organic Contaminants and other POCs not listed on Table 9C or 9D and Propylene glycol	Community and Noncommunity	State discretion[7]	State discretion[7]	State discretion[7]	State discretion[7]

[1]The location for sampling of each ground water source of supply shall be between the individual well and at or before the first service connection and before mixing with other sources, unless otherwise specified by the State to be at the entry point representative of the individual well. Public water systems which rely on a surface water shall sample at points in the distribution system representative of each source or at an entry point or points to the distribution system after any water treatment plant.

[2]The initial requirement does not apply to MTBE monitoring

[3]The State may reduce the initial monitoring requirement to one sample if the State determines that the system is invulnerable in accordance with footnote 4.

[4]The State may decrease the quarterly monitoring requirement to annually provided that the system is reliably and consistently below the MCL based on a minimum of two quarterly samples from a ground water source and four quarterly samples from a surface water source. Systems which monitor annually must monitor during the quarter which previously yielded the highest analytical result.

[5]The State may reduce the frequency of monitoring of a ground water source to once every three years for a public water system which has three consecutive annual samples with no detection of a contaminant.

[6]The State may determine that a public water system is invulnerable to a contaminant or contaminants after evaluating every three years the following factors:

a. Knowledge of previous use (including transport, storage, or disposal) of the contaminant within the watershed or zone of influence of the system. If a determination by the State reveals no previous use of the contaminant within the watershed or zone of influence, a waiver can be granted.
b. If previous use of the contaminant is unknown or it has been used previously, then the following factors shall be used to determine whether a waiver can be granted.
    1. Previous analytical results.
    2. The proximity of the system to a potential point or nonpoint source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities.
    3. The environmental persistence and transport of the contaminants.
    4. The number of persons served by the public water system and the proximity of a smaller system to a larger system.
    5. How well the water source is protected against contamination, such as whether it is a surface or ground water system. Ground water systems must consider factors such as depth of the well, the type of soil, and wellhead protection. Surface water systems must consider watershed protection.

[7]State discretion shall mean requiring monitoring when the State has reason to believe the MCL has been violated, the potential exists for an MCL violation or the contaminant may present a risk to public health.

Table 9C. Organic Chemicals - Pesticides, Dioxin, PCBs Minimum Monitoring Requirements

Contaminant		Type of water system	Initial requirement[1]	Continuing requirement where detected[1,2,3,4]	Continuing requirement where not detected[1]
Group 1 Chemicals Alachlor Aldicarb Aldicarb sulfoxide Aldicarb sulfone Atrazine Carbofuran Chlordane Dibromochloropropane 2,4- D Endrin Ethylene Dibromide Heptachlor Heptachlor epoxide Lindane Methoxychlor Polychlorinated biphenyls Pentachlorophenol Toxaphene 2,4,5-TP (Silvex)	Group 2 Chemicals Aldrin Benzo(a)pyrene Butachlor Carbaryl Dalapon Di(2-ethylhexyl)adipate Di(2-ethylhexyl)phthalate Dicamba Dieldrin Dinoseb Diquat Endothall Glyphosate Hexachlorobenzene Hexachlorocyclopentadiene 3-Hydroxycarbofuran Methomyl Metolachlor Metribuzin Oxamyl (vydate) Picloram Propachlor Simazine 2,3,7,8-TCDD (Dioxin)	Community and Nontransient Noncommunity serving 3,300 or more persons[3]	Quarterly sample per source, for one year [5]	Quarterly	One sample every eighteen months per source[6,7,8]
		Community and Nontransient Noncommunity serving fewer than 3,300 persons and more than 149 service connections	Quarterly samples per entry point, for one year[6,7,8]	Quarterly	Once per entry point every three years[6,7,8]
		Community and Nontransient Noncommunity serving fewer than 3,300 persons and fewer than 150 service connections	Quarterly samples per entry point for one year[6,7,8]	Quarterly	Once per entry point every three years[6,7,8]
		Noncommunity excluding NTNC	State discretion[9]	State discretion[9]	State discretion[9]

Table 9C (continued)

[1]The location for sampling of each ground water source of supply shall be between the individual well and at or before the first service connection and before mixing with other sources, unless otherwise specified by the State to be at the entry point representative of the individual well. Public water systems which take water from a surface water body or watercourse shall sample at points in the distribution system representative of each source or at entry point or points to the distribution system after any water treatment plant.

[2]The State may decrease the quarterly monitoring requirement to annually provided that system is reliably and consistently below the MCL based on a minimum of two quarterly samples from a ground water source and four quarterly samples from a surface water source. Systems which monitor annually must monitor during the quarter that previously yielded the highest analytical result. Systems serving fewer than 3,300 persons and which have three consecutive annual samples without detection may apply to the State for a waiver in accordance with footnote 6.

[3]If a contaminant is detected, repeat analysis must include all analytes contained in the approved analytical method for the detected contaminant.

[4]Detected as used in the table shall be defined as reported by the State approved laboratory to be greater than or equal to the method detection levels. [5]The State may allow a system to postpone monitoring for a maximum of two years, if an approved laboratory is not reasonably available to do a required analysis within the scheduled monitoring period.

[6]The State may waive the monitoring requirement for a public water system that submits information every three years to demonstrate that a contaminant or contaminants was not used, transported, stored or disposed within the watershed or zone of influence of the system.

[7]The State may reduce the monitoring requirement for a public water system that submits information every three years to demonstrate that the public water system is invulnerable to contamination. If previous use of the contaminant is unknown or it has been used previously, then the following factors shall be used to determine whether a waiver is granted. a. Previous analytical results.

b. The proximity of the system to a potential point or nonpoint source of contamination. Point sources include spills and leaks of chemicals at or near a water treatment facility or at manufacturing, distribution, or storage facilities, or from hazardous and municipal waste landfills and other waste handling or treatment facilities. Nonpoint sources include the use of pesticides to control insect and weed pests on agricultural areas, forest lands, home and gardens, and other land application uses.

c. The environmental persistence and transport of the pesticide or PCBs.

d. How well the water source is protected against contamination due to such factors as depth of the well and the type of soil and the integrity of the well casing. e. Elevated nitrate levels at the water supply source.

f. Use of PCBs in equipment used in production, storage or distribution of water.

[8]The State may allow systems to composite samples in accordance with the conditions in Appendix 5-C of this Title.

[9]State discretion shall mean requiring monitoring when the State has reason to believe the MCL has been violated, the potential exists for an MCL violation or the contaminant may present a risk to public health.

Table 10. Turbidity Minimum Monitoring Requirements for Unfiltered Systems Pending Filtration[1]

Contaminant	Type of water system	Source Type	
		Ground water only	Surface only, surface and ground water, or ground water directly influenced by surface water
Entry point turbidity	Community	State discretion[2]	Collect and analyze one sample per day from each entry point. All results must be recorded to two significant figures.
	Noncommunity	State discretion[2]	Collect and analyze one sample annually. Monitoring requirement may be increased at State discretion.[2]
Distribution point turbidity	Community	State discretion[2]	Five distribution samples each week unless otherwise determined by the State. No two samples may be obtained on the same day and no two samples are to be collected from the same distribution point during the week.
	Noncommunity	State discretion[2]	State discretion[2]

[1]The requirements of this table apply to unfiltered systems that the State has determined, in writing pursuant to section 5-1.30 of this Subpart, must install filtration. These requirements only apply until filtration is installed.

[2]State discretion shall mean requiring monitoring when the State has reason to believe the MCL has been violated, the potential exists for an MCL violation or the contaminant may present a risk to public health.

Table 13 - REQUIRED NOTIFICATIONS

Contaminant/Situation (Subpart 5-1 citations)	**Single sample exceeds MCL/MRDL[1]**	**MCL/MRDL/TT[1] violation**	**Failure to meet monitoring requirements and/or failure to use applicable testing procedure**
Public Health Hazard (section 5-1.1(bw))[2]	Not applicable	State Tier 1	State Tier 1
Escherichia coli (E. coli) in distribution system (section 5-1.52, Tables 6, 11 and 11B)	[3]State Not applicable, or [4]Tier 1	State Tier 1	State[5] Tier 3, or Tier 1
E. coli or other fecal indicator detected in ground water source at system not providing both 4-log virus treatment and process compliance monitoring (section 5-1.52, Tables 6, 11 and 11B)	[2, 3, 5, 6]Tier 1	[6]Tier 1	State [2, 5, 7] Tier 3, or Tier 1
Total coliform in distribution system (section 5-1.52, Tables 6, 11 and 11B)	Not applicable	[8]State [9] Tier 2, or Tier 1	State Tier 3, or Tier 2 as directed by State
Entry Point Turbidity monthly average (section 5-1.52, Tables 4 and 10)	[10] State	State Tier 2	State Tier 3
Entry Point Turbidity two day average (section 5-1.52, Tables 4 and 10)	State	State [11]Tier 2, or Tier 1	State Tier 3
Raw Water Turbidity (section 5-1.30(d) and section 5-1.52, Table 10A)	State	State [11] Tier 2, or Tier 1	State Tier 3
Filtered Water Turbidity Single exceedance of the maximum allowable Turbidity level (section 5-1.52, Tables 4A and 10A)	State	State [11] Tier 2, or Tier 1	State Tier 3
Filtered Water Turbidity Treatment Technique violation (section 5-1.52, Tables 4A and 10A)	Not applicable	State Tier 2	State Tier 3

Table 13 (cont.)

Contaminant/Situation (Subpart 5-1 citations)	**Single sample exceeds MCL/MRDL[1]**	**MCL/MRDL/TT[1] violation**	**Failure to meet monitoring requirements and/or failure to use applicable testing procedure**
Distribution Point Turbidity (section 5-1.52, Tables 5, 10 and 10A)	Not applicable	State Tier 2	State Tier 3
[12, 13] Treatment Technique violations other than turbidity (sections 5-1.12, 5-1.30, 5-1.32, 51.81, and 5-1.83 and section 5-1.71(d))	Not applicable	State [2, 13]Tier 2, or Tier 1	State [12, 13]Tier 3, or Tier 2
[14] Free chlorine residual less than 0.2 mg/L at the entry point (section 5-1.30(d))	Not applicable	State	Not applicable
[15] Free chlorine residual less than required minimum for a ground water system or ground water source required to provide 4-log virus treatment (section 5-1.30(a))	Not applicable	State [9] Tier 2, or Tier 1	Tier 2
Inorganic chemicals and physical characteristics listed in Tables 8A and 8B (section 5-1.52, Tables 1, 8A, and 8B)	State	State Tier 2	State Tier 3
Chloride, iron, manganese, silver, sulfate, and zinc (section 5-1.52, Tables 1 and 8D)	Not applicable	State Tier 3	State Tier 3
Sodium (section 5-1.52, Tables 1 and 8D)	State if the level exceeds 20 mg/L	Tier 2 if the level exceeds 270 mg/L	Tier 3
Nitrate, Nitrite, Total Nitrate and Nitrite (section 5-1.52, Tables 2 and 8C)	State	State Tier 1	State [16] Tier 1, or Tier 3
Lead and Copper (sections 5-1.40 to 1.48)	Not applicable	State Tier 2	State Tier 3
Organic Chemicals Group 1 and 2 (section 5-1.52, Table 9C)	State	State Tier 2	State Tier 3

Table 13 (cont.)

Contaminant/Situation (Subpart 5-1 citations)	**Single sample exceeds MCL/MRDL1**	**MCL/MRDL/TT[1] violation**	**Failure to meet monitoring requirements and/or failure to use applicable testing procedure**
Principal Organic Contaminants Unspecified Organic Contaminants Total POCs and UOCs (section 5-1.52, Tables 3, 9B and 9D)	State	State Tier 2	State Tier 3
Radiological Contaminants (section 5-1.52, Tables 7 and 12)	State	State Tier 2	State Tier 3
Monitoring and Control of Disinfection Byproduct Precursors (sections 5-1.60 to 5-1.64)	Not applicable	State Tier 2	State Tier 3
Disinfectant residuals Chlorine and Chloramine (section 5-1.52, Tables 3A and 15A)	State	State Tier 2	State Tier 3
Disinfectant residual Chlorine dioxide at entry point (section 5-1.52, Tables 3A, 15 and 15A)	State	State Tier 2	State [17]Tier 3, or Tier 2
Disinfectant residual Chlorine dioxide in distribution system (section 5-1.52, Tables 3A, 15 and 15A)	State	State [18] Tier 1	State [18] Tier 1
Disinfection byproducts Trihalomethanes Haloacetic acids (section 5-1.52, Tables 3 and 9A) and Bromate and Chlorite (section 5-1.52, Tables 1 and 8B)	Not applicable	State Tier 2	State Tier 3

Table 13 (cont.)

Contaminant/Situation (Subpart 5-1 citations)	**Single sample exceeds MCL/MRDL[1]**	**MCL/MRDL/TT[1] violation**	**Failure to meet monitoring requirements and/or failure to use applicable testing procedure**
Acrylamide and Epichlorohydrin (section 5-1.51(m))	Not applicable	State Tier 2	Not applicable
Operation under a variance or exemption (sections 5-1.90 to 5-1.96)	Not applicable	Tier 3	Not applicable
Violation of conditions of a variance or exemption (sections 5-1.90 to 5-1.96)	Not applicable	State Tier 2	Not applicable
Disruption of water service of four hours or more (section 5-1.23(b))	Not applicable	[19] State	Not applicable

[1]MCL-maximum contaminant level, MRDL-maximum residual disinfectant level, TT-treatment technique

[2]Community systems must describe in their annual water supply statement (section 5-1.72(e)), prepared in accordance with section 5-1.72(f), any Public Health Hazard that is determined to be a violation, or any uncorrected significant deficiency, and indicate whether corrective action is completed. This notice must be repeated every year until the annual report documents that corrective action is completed in accordance with section 5-1.22 of this Subpart.

[3]State notification must be made by the supplier of water within 24 hours of learning of an *E. coli* positive sample.

[4]Public notification normally does not have to be issued for an *E. coli* positive sample prior to the results of the repeat samples. However, there may be situations where the State determines that a Tier 1 notification is necessary to protect the public health. The supplier of water must provide the Tier 1 notification no later than 24 hours after learning of the State's determination.

[5]Failure to test for *E. coli* requires a Tier 1 notification if testing is not done after any repeat sample tests positive for coliform. All other *E. coli* monitoring and testing procedure violations require Tier 3 notification.

[6]At a ground water system, Tier 1 notification is required after initial detection of *E. coli* or other fecal indicator in raw source water, if system does not provide 4-log virus treatment and process compliance monitoring. Confirmation of *E. coli* or other fecal indicator in the source water requires Tier 1 notification. Failure to take confirmatory samples may be a public health hazard requiring Tier 1 notification.

[7]Notice of the fecal indicator positive raw water sample must be made in the annual water supply statement (section 5-1.72(e)), until the annual report documents that corrective action is completed.

[8]State notification must be made by the supplier of water within 24 hours of learning of the violation.

Table 13 (cont.)

[9]Tier 2 notification is normally required, however, there may be situations where the State determines that a Tier 1 notification is necessary to protect the public health. The supplier of water must provide the Tier 1 notification no later than 24 hours after learning of the State's determination.

[10]If the daily entry point analysis exceeds one NTU, a repeat sample must be taken as soon as practicable and preferably within one hour. If the repeat sample exceeds one NTU, the supplier of water must make state notification.

[11]Systems must consult with the State within 24 hours after learning of the violation. Based on this consultation, the State may subsequently decide to elevate the violation from a Tier 2 to a Tier 1 notification. If consultation does not take place within the 24-hour period, the water system must distribute a Tier 1 notification no later than 48 hours after the system learns of the violation.

[12]These violations include the following: failure to comply with the treatment technique or monitoring requirements in section 5-1.30(a), (b), (c), and (g) of this Subpart; failure to comply with the avoidance criteria in section 5-1.30(c) of this Subpart; failure to cover a finished water storage facility or treat its discharge required in section 5-1.32 of this Subpart; failure to report to the state information required in section 5-1.72(c)(3) of this Subpart; failure to maintain records required in section 5-1.72(c)(7) of this Subpart; failure to meet the bin classification requirements for filtered systems associated with Cryptosporidium in section 5-1.83(a); failure to meet the treatment technique requirements for filtered systems associated with Cryptosporidium in section 5-1.83(b); and failure to meet the treatment technique requirements for unfiltered systems associated with Cryptosporidium in section 5-1.83(c). Failure to collect three or more samples for Cryptosporidium analysis as required in section 5-1.81 of this Subpart is a Tier 2 violation requiring public notification; failure to perform all other monitoring and testing procedures as required in section 5-1.81 of this Subpart are Tier 3 violations.

[13]Any significant deficiency that is not corrected or where correction has not begun according to a State-approved corrective action plan within 120 days, or as directed by the State, is a treatment technique violation and must be addressed in accordance with the requirements in section 5-1.12. If the deficiency is a public health hazard, the deficiency must be addressed as directed by the State and Tier 1 notification is required.

[14]Applies to systems that have surface water or ground water directly influenced by surface water as a source and use chlorine. The system must make State notification whether the residual was restored to at least 0.2 mg/L within four hours.

[15]Required minimum chlorine residual at point that demonstrates adequate CT for disinfected water from ground water sources at first customer.

[16]Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL requires a Tier 1 notification. Other monitoring violations for nitrate or nitrite require a Tier 3 notification.

[17]Failure to monitor for chlorine dioxide at the entrance to the distribution system the day after exceeding the MRDL at the entrance to the distribution system requires a Tier 2 notification. Other monitoring violations for chlorine dioxide at the entrance to the distribution system require a Tier 3 notification.

[18]If any daily sample taken at the entrance to the distribution system exceeds the MRDL for chlorine dioxide and one or more samples taken in the distribution system the next day exceed the MRDL, Tier 1 notification is required. Failure to take the required samples in the distribution system the day after the MRDL is exceeded at the entry point also triggers Tier 1 notification.

[19]Tier 1 notification is required if the situation meets the definition of a public health hazard.

Table 14H. CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of *Giardia Lamblia* Cysts by Chloramines[1]

Water Temperature, in Degrees Celsius					
<1	5	10	15	20	25
3,800	2,200	1,850	1,500	1,100	750

[1]These values are for pH values of 6 to 9. These CT values may be assumed to achieve greater than 99.99 percent inactivation of viruses only if chlorine is added and mixed in the water prior to the addition of ammonia. If this condition is not met, the system must demonstrate, based on on-site studies or other information, as approved by the State, that the system is achieving at least 99.99 percent inactivation of viruses. CT values between the indicated temperatures may be determined by linear interpolation. If no interpolation is used, use the $CT_{99.9}$ value at the lower temperature for determining $CT_{99.9}$ values between indicated temperatures.

Table 14I. CT Values (mg·min/L) for *Cryptosporidium* Inactivation by Chlorine Dioxide[1]

Log Credit	Water Temperature, in Degrees Celsius										
	<=0.5	1	2	3	5	7	10	15	20	25	30
0.25	159	153	140	128	107	90	69	45	29	19	12
0.5	319	305	279	256	214	180	138	89	58	38	24
1.0	637	610	558	511	429	360	277	179	116	75	49
1.5	956	915	838	767	643	539	415	268	174	113	73
2.0	1275	1220	1117	1023	858	719	553	357	232	150	98
2.5	1594	1525	1396	1278	1072	899	691	447	289	188	122
3.0	1912	1830	1675	1534	1286	1079	830	536	347	226	147

[1] Systems may use this equation to determine log credit between the indicated values:

Log credit = $(0.001506 \times (1.09116)^{Temp}) \times CT$.

Table 14J. CT Values (mg·min/L) for *Cryptosporidium* Inactivation by Ozone[1]

Log Credit	Water Temperature, in Degrees Celsius										
	<=0.5	1	2	3	5	7	10	15	20	25	30
0.25	6.0	5.8	5.2	4.8	4.0	3.3	2.5	1.6	1.0	0.6	0.39
0.5	12	12	10	9.5	7.9	6.5	4.9	3.1	2.0	1.2	0.78
1.0	24	23	21	19	16	13	9.9	6.2	3.9	2.5	1.6
1.5	36	35	31	29	24	20	15	9.3	5.9	3.7	2.4
2.0	48	46	42	38	32	26	20	12	7.8	4.9	3.1
2.5	60	58	52	48	40	33	25	16	9.8	6.2	3.9
3.0	72	69	63	57	47	39	30	19	12	7.4	4.7

[1] Systems may use this equation to determine log credit between the indicated values:

Log credit = $(0.0397 \times (1.09757)^{Temp}) \times CT$.

Table 14K. UV Dose Table for *Cryptosporidium*, *Giardia lamblia*, and Virus Inactivation Credit[1,2,3,4]

Log Credit	*Cryptosporidium* UV dose (mJ/cm^2)	*Giardia lamblia* UV dose (mJ/cm^2)	Virus UV dose (mJ/cm^2)
0.5	1.6	1.5	39
1.0	2.5	2.1	58
1.5	3.9	3.0	79
2.0	5.8	5.2	100
2.5	8.5	7.7	121
3.0	12	11	143
3.5	15	15	163
4.0	22	22	186

[1] Ultraviolet light. Systems receive *Cryptosporidium, Giardia lamblia,* and virus treatment credits for ultraviolet (UV) light reactors by achieving the corresponding UV dose values shown in this table. Systems must use validated UV reactors and monitor UV reactors as described in footnotes 3 and 4 of this table to demonstrate that they are achieving a particular UV dose value for treatment credit.

[2]UV dose table. The treatment credits listed in this table are for UV light at a wavelength of 254 nm as produced by a low pressure mercury vapor lamp. To receive treatment credit for other lamp types, systems must demonstrate an equivalent germicidal dose through reactor validation testing, as described in footnote 3 of this table. The UV dose values in this table are applicable only to unfiltered systems (either by filtration waiver or those that do not require filtration) and to post-filter applications of UV in filtered systems.

[3]Reactor validation testing. Systems must use UV reactors that have undergone validation testing to determine the operating conditions under which the reactor delivers the UV dose required in footnote 2 of this table (*i.e.*, validated operating conditions). These operating conditions must include flow rate, UV intensity as measured by a UV sensor, and UV lamp status.

- When determining validated operating conditions, systems must account for the following factors: UV absorbance of the water; lamp fouling and aging; measurement uncertainty of on-line sensors; UV dose distributions arising from the velocity profiles through the reactor; failure of UV lamps or other critical system components; and inlet and outlet piping or channel configurations of the UV reactor.
- Validation testing must include full scale testing of a reactor that conforms uniformly to the UV reactors used by the system and inactivation of a test microorganism whose dose response characteristics have been quantified with a low pressure mercury vapor lamp. The State may approve an alternative approach to validation testing.

[4]Reactor monitoring.

- To receive treatment credit for UV light, systems must treat at least 95 percent of the water delivered to the public during each month by UV reactors operating within validated conditions for the required UV dose, as described in footnotes 2 and 3 of this table. Systems must demonstrate compliance with this condition by monitoring UV intensity as measured by a UV sensor, flow rate, lamp status, and other parameters designated by the State.

The Title for sections 5-1.60 through 5-1.65 is amended to read as follows:

Monitoring and Control of Disinfection Byproducts and Disinfection Byproduct Precursors

Section 5-1.60 is amended to read as follows:

5-1.60 Applicability.

Surface water systems or systems using [groundwater] ground water under the direct influence of surface water that are community or nontransient noncommunity water systems, serve 15 or more service connections or serve 25 or more persons, and use conventional filtration treatment [must] shall operate with enhanced coagulation to achieve the total organic carbon (TOC) percent removal levels specified in section 5-1.63 of this Subpart, unless the system meets the alternative compliance criteria described in section 5-1.62 of this Subpart. [Systems serving 10,000 or more people must comply with this requirement beginning January 1, 2002. Systems serving fewer than 10,000 people must comply with this requirement beginning January 1, 2004.]

Section 5-1.61 is repealed and a new section is adopted to read as follows:

5-1.61 Monitoring requirements for disinfection byproduct precursors.

Monitoring for Disinfection byproduct precursors shall be in accordance with the following table.

Monitoring Requirements for Disinfection Byproduct Precursors

Source Type	System Type	Filtration Type	Sampling location at each plant	Routine		Reduced[1]	
				Monitoring requirements	Frequency[2]	Running annual average TOC results	Frequency
Surface water and GWUDI	Community and NTNC	Conventional	Combined Filter effluent[3]	TOC[4]	Monthly	<2.0 mg/L for two consecutive years or <1.0 mg/L for one year	1 TOC (paired) per plant/quarter
			Raw	TOC[4]	Monthly		
				Alkalinity	Monthly		
		All other types	Raw	TOC	Monthly	≤4.0 mg/L	1 TOC quarterly

[1]Routine monitoring shall begin in the month following the quarter when the running annual average TOC is ≥2.0 mg/L for systems using conventional filtration and >4.0 mg/L for systems using all other types of filtration

[2] TOC monitoring for disinfection precursors for both treated and source water shall be collected at the same time. These samples (source water and treated water) are referred to as paired samples

[3]Samples collected for TOC shall be collected no further downstream than point of combined filter effluent turbidity monitoring and representative of treated water.

[4]Systems shall take one paired TOC sample and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality. The alkalinity sample shall be collected at the same time as the source water TOC sample.

Section 5-1.62 is repealed and a new section is adopted to read as follows:

5-1.62 Alternative compliance criteria for enhanced coagulation.

Systems may use one of the following alternative compliance criteria instead of enhanced coagulation. Systems using the alternative compliance criteria shall still comply with the monitoring requirements stated in section 5-1.61 of this Subpart.

Water Type	**Parameter**	**Concentration**	**Calculation Frequency**
Source water	TOC	≤2.0 mg/L	Quarterly RAA
Treated water	TOC	≤2.0 mg/L	Quarterly RAA
Source water[1,2]	SUVA	≤2.0 L/mg-m	Quarterly RAA
Treated water[2]	SUVA	≤2.0 L/mg-m	Quarterly RAA
Source water	TOC	<4.0 mg/L	Quarterly RAA
	Alkalinity (as $CaCO_3$)	>60 mg/L	Quarterly RAA
	TTHM	≤0.040 mg/L	LRAA of all sites
	HAA5	≤0.030 mg/L	LRAA of all sites
Treated water in the distribution system[3]	TTHM	≤0.040 mg/L	LRAA of all sites
	HAA5	≤0.030 mg/L	LRAA of all sites

[1]Prior to any treatment
[2]Measured monthly
[3]System uses only chlorine for primary disinfection and maintains a residual in the distribution system.

A new section 5-1.64 is added to read as follows:

5-1.64 Operational Evaluation Levels.

(a) If a system exceeds the operational evaluation level at any monitoring location when the sum of the two previous quarters' TTHM results plus twice the current quarter's TTHM result, divided by 4 to determine the average, exceeds 0.080 mg/L, or when the sum of the two previous quarters' HAA5 results plus twice the current quarter's HAA5 result, divided by 4 to determine the average, exceeds 0.060 mg/L.

(b) If a system exceeds the operational evaluation level, it shall conduct an operational evaluation and submit a written report of the evaluation to the State no later than 90 days after being notified of the analytical result that caused the exceedance of the operational evaluation level. The written report shall be made available to the public upon request.

(c) The operational evaluation shall include an examination of the operational practices for system treatment(s) and the distribution system, including storage tank operations, excess storage capacity, distribution system flushing, changes in sources or source water quality, and treatment changes or problems that may contribute to TTHM and HAA5 formation and what steps could be considered to minimize future exceedances.

(1) A system may request, and the State may allow, limiting the scope of the evaluation if the system is able to identify the cause of the operational evaluation level exceedance.

(2) The request to limit the scope of the evaluation does not extend the schedule in subdivision (b) of this section for submitting the written report. The State shall approve this

limited scope of evaluation in writing, and the system shall keep that approval with the completed report.

A new section 5-1.65 is added to read as follows:

5-1.65 Best Available Technologies (BATs) for Disinfection Byproduct Control

The following is a table of the best available technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for Bromate, Chlorite, TTHM and HAA5, for public water systems that disinfect their source water.

Water system type	**Source type**	**Disinfection byproduct**	**Best available technology[1]**
All systems that disinfect their source water	GW; SW; GWUDI	Bromate	Control of ozone treatment process to reduce production of bromate
		Chlorite	Control of treatment processes to reduce disinfectant demand and control of disinfection treatment processes to reduce disinfectant levels
All systems that disinfect their source water	GW; SW; GWUDI	Total trihalomethanes (TTHM); Haloacetic acids (five) (HAA5)	Enhanced coagulation or enhanced softening, plus GAC10; or nanofiltration with a molecular weight cutoff ≤1000 Daltons; or GAC20
Consecutive systems: applies only to the disinfected water that consecutive	GW; SW; GWUDI	Total trihalomethanes (TTHM); Haloacetic acids (five) (HAA5)	Systems serving ≥10,000: Improved distribution system and storage tank management to reduce residence time, plus the use of chloramines for disinfectant residual maintenance

systems buy or otherwise receive			Systems serving <10,000: Improved distribution system and storage tank management to reduce residence time

[1] Softening that results in removing at least 10 mg/L of magnesium hardness (as CaCO3), measured monthly and calculated quarterly as a running annual average can be the best available technology for controlling disinfection byproduct precursors.

New paragraphs (5) and (6) are added to subdivision (c) of section 5-1.72 to read as follows:

(5) Surface water systems and ground water systems under the direct influence of surface water that are required to provide enhanced filtration and disinfection for *Cryptosporidium*, shall report to the State in accordance with the treatment and/or management options used to comply with the treatment requirements under section 5-1.83(b) or (c) of this Subpart, as applicable. Alternatively, the State may approve a system to certify operation within required parameters for treatment credit, rather than reporting monthly operational data. The applicable treatment compliance dates are found in section 5-1.83(d) of this Subpart.

(i) For systems using the watershed control program option, notice of intention to develop a new or continue an existing watershed control program shall be submitted no later than two years before the treatment compliance date. The watershed control plan shall be submitted no later than one year before the treatment compliance date. The annual watershed control program status report shall be submitted every 12 months. For community water systems, the watershed sanitary survey report shall be submitted every

three years. For noncommunity water systems, the watershed sanitary survey report shall be submitted every five years.

(ii) For systems using the alternative source/intake management option, verification that the system has relocated the intake or adopted the intake withdrawal procedure, reflected in monitoring results, shall be submitted.

(iii)For systems using the presedimentation option, monthly verification of the following shall be submitted within 10 days after the month in which the monitoring was conducted: continuous basin operation; treatment of 100 percent of the flow; continuous addition of coagulant; and at least 0.5-log mean reduction of influent turbidity or compliance with alternative State-approved compliance criteria.

(iv)For systems using the two-stage lime softening option, monthly verification of the following shall be submitted within 10 days after the month in which the monitoring was conducted: chemical addition and hardness precipitation occurred in two separate and sequential softening stages prior to filtration; and both stages treated 100 percent of the plant flow.

(v) For systems using the bank filtration option, initial demonstration of the following shall be submitted no later than treatment compliance date: aquifer shall be unconsolidated sand containing at least 10 percent fines; and setback distance of at least 25 feet (0.5-log credit) or 50 feet (1.0-log credit). If the monthly average of daily maximum turbidity is greater than 1 NTU, then the system shall report the result and

submit an assessment of the cause within 30 days after the month in which the monitoring was conducted, beginning on the applicable treatment compliance date.

(vi)For systems using the combined filter performance option, monthly verification of the following shall be submitted within 10 days following the month in which the monitoring was conducted: combined filter effluent (CFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of the four-hour CFE measurements taken each month.

(vii) For systems using the individual filter performance option, monthly verification of the following shall be submitted within 10 days following the month in which the monitoring was conducted: individual filter effluent (IFE) turbidity levels less than or equal to 0.15 NTU in at least 95 percent of sample each month in each filter; and no individual filter greater than 0.3 NTU in two consecutive readings 15 minutes apart.

(viii) For systems using the demonstration of performance option, the results from testing following a State-approved protocol shall be submitted no later than the treatment compliance date. Monthly verification of operation within the conditions of State approval for demonstration of performance credit, may be required to be submitted within 10 days after the month in which the monitoring was conducted, beginning on the applicable treatment compliance date.

(ix)For systems using the bag filter and cartridge filter option, demonstration that the following criteria are met shall be submitted no later than the treatment compliance date: the process meets the definition of bag or cartridge filtration; and the removal efficiency

established through challenge testing that meets criteria approved by the State. Monthly verification that 100 percent of the plant flow was filtered shall be submitted within 10 days after the month in which monitoring was conducted, beginning on the applicable treatment compliance date.

(x) For systems using the membrane filtration option, results of verification testing demonstrating the following shall be submitted no later than the treatment compliance date: removal efficiency established through challenge testing that meets criteria approved by the State; and integrity test method and parameters, including resolution, sensitivity, test frequency, control limits, and associated baseline. A monthly report summarizing the following shall be submitted within 10 days after the month in which monitoring was conducted: all direct integrity tests above the control limit; and, if applicable, any turbidity or alternative State-approved indirect integrity monitoring results triggering direct integrity testing and the corrective action that was taken.

(xi)For systems using the second stage filtration option, monthly verification that 100 percent of flow was filtered through both stages, and that the first stage was preceded by a coagulation step, shall be submitted within 10 days after the month in which monitoring was conducted.

(xii) For systems using the slow sand filtration (as secondary filter) option, monthly verification that both a slow sand filter and a preceding separate stage of filtration treated 100 percent of surface water flow shall be submitted within 10 days after the month in which monitoring was conducted.

(xiii) For systems using the chlorine dioxide option, a summary of CT values for each day shall be submitted within 10 days after the month in which monitoring was conducted.

(xiv) For systems using the ozone option, a summary of CT values for each day shall be submitted within 10 days after the month in which monitoring was conducted.

(xv) For systems using the UV option, validation test results demonstrating operating conditions that achieve the required UV dose shall be submitted no later than the treatment compliance date. A monthly report, summarizing the percentage of water entering the distribution system that was not treated by UV reactors operating within validated conditions for the required dose shall be submitted within 10 days after the month in which monitoring was conducted.

(6) Within 10 days of the end of any quarter in which monitoring of disinfection byproducts (DBP) and/or disinfection byproduct precursors (DBPP) is required under section 5-1.52 Table 9A and/or sections 5-1.60 and 5-1.61, the following must be reported to the State:

(i) Number of DBP and DBPP samples taken during the quarter.

(ii) Date and results of each DBP and DBPP sample taken during the last quarter.

(iii) The arithmetic average of DBP quarterly results for the last four quarters for each monitoring location (LRAA). If the LRAA calculated based on fewer than four quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters, the system must report this information to the State as part of the first report due following the end of the quarter or anytime thereafter that this determination is made. If the system is required to conduct monitoring at a frequency that is less than quarterly, the system

must make compliance calculations beginning with the first compliance sample unless the system is required to conduct increased monitoring under section 5-1.52 Table 9A or 5-1.51.

(iv) Whether the MCL for Total Trihalomethanes (TTHM) and/or Halo Acetic Acids (5) (HAA5) was violated at any monitoring location.

(v) Any operational evaluation levels that were exceeded during the quarter and, if so, the location and date, and the calculated TTHM and HAA5 levels.

(vi) If the system is a surface water system or a system using a source of ground water under the direct influence of surface water, and seeking to qualify for or remain on reduced TTHM/HAA5 monitoring, source water Total Organic Carbon (TOC) information must be reported for each treatment plant that treats surface water or ground water under the direct influence of surface water, as follows:

(a) The number of source water TOC samples taken each month during last quarter.

(b) The date and result of each TOC sample taken during last quarter.

(c) The quarterly average of monthly TOC samples taken during the last quarter.

(d) The running annual average (RAA) of quarterly TOC averages from the past four quarters.

(e) Whether the TOC RAA exceeded 4.0 mg/L.

A new paragraph (8) of subdivision (d) of section 5-1.72 is added to read as follows:

(8) For surface water systems and ground water systems under the direct influence of surface water, the following records shall be maintained:

(i) Systems shall keep results from the initial round of source water monitoring under section 5-1.81(a)(1) of this Subpart and the second round of source water monitoring

under section 5-1.81(a)(2) of this Subpart until three years after bin classification under section 5-1.83(a) of this Subpart for filtered systems, or determination of the mean *Cryptosporidium* level under section 5-1.83(c) of this Subpart for unfiltered systems for the particular round of monitoring.

(ii) Systems shall keep any notification to the State that they will not conduct source water monitoring due to meeting the criteria of section 5-1.81(a)(4) of this Subpart for three years.

(iii) Systems shall keep the results of treatment monitoring associated with *Cryptosporidium* and with uncovered finished water storage facilities under section 5-1.32 of this Subpart for three years.

Paragraph (5) of subdivision (f) of section 5-1.72 is amended to read as follows:

(5) Information on detected contaminants from sampling used to determine compliance. For the purpose of this subdivision (except *Cryptosporidium*, *Giardia*, and radon monitoring), *detected* means: at or above the contaminant's [minimum] method detection limit (MDL), as [specified in Appendix 5-C of this Subpart] defined in section 5-1.1(bi), or as prescribed by the State. Any contaminants specified in sections 5-1.41 (lead and copper) and 5-1.51 of this Subpart and section 5-1.52 Tables 8A, 8B, 8C, 8D, 9A, 9B, 9C, 9D, 10, 10A, 11, 11A, 11B, 12, 16 and 17 of this Subpart that are detected during compliance monitoring [must] shall be displayed in one table or in several adjacent tables. Additionally, the report shall include detected monitoring results for samples collected and analyzed by the State and/or detected monitoring results of additional

samples required by the State. If a system is allowed to monitor for specific contaminants less often than once a year, the table [must] shall include the date and results of the most recent sampling and the report [must] shall include a brief statement indicating that the data presented in the report are from the most recent testing done in accordance with the regulations. No data older than five years need be included. For the contaminants listed in section 5-1.52 Tables 8A, 8B, 8C, 8D, 9A, 9B, 9C, 9D, 10, 10A, 11, 11B, 12, 16 and 17 of this Subpart the table(s) [must] shall contain:

* * *

Clause (*c*) of subparagraph (iv) of paragraph (5) of subdivision (f) of section 5-1.72 is amended to read as follows:

(c) when compliance with the MCL is determined by calculating a running annual average of all samples taken at a [sampling point] monitoring location: the highest average of any of the [sampling points] monitoring locations used to determine compliance and the range of all sampling points expressed in the same units as the MCL[; and]. For the MCLs for TTHM and HAA5, systems shall include the highest locational running annual average for TTHM and HAA5 and the range of individual sample results for all monitoring locations expressed in the same units as the MCL. If more than one location exceeds the TTHM or HAA5 MCL, the system shall include the locational running annual averages for all locations that exceed the MCL; and

* * *

Subparagraph (iii) of paragraph (9) of subdivision (f) of section 5-1.72 is amended to read as follows:

(iii) lead and copper control requirements. The report [must] shall include health effects language [prescribed by the state] specified in 40 CFR 141.54(d) for lead, copper, or both, for systems which fail to take one or more actions prescribed by sections 5-1.40[-5-1.49] through 5-1.48 of this Subpart;

Section 5-1.73 is amended to read as follows:

5-1.73 Water treatment plant laboratory.

Every supplier of water shall provide, or have available environmental laboratory facilities approved by [ELAP] the New York State Environmental Laboratory Approval Program (ELAP). Tests for the control of the operation of such public water system shall be made daily or more frequently as required by the State. The results of such tests shall be recorded on forms pursuant to section 5-1.72(d) of this Subpart.

Section 5-1.74 is repealed and new section 5-1.74 is added to read as follows:

5-1.74 Approved laboratories.

(a) For determining compliance with this Subpart, results of analyses, except for parameters listed in section 5-1.74(b), may be considered only if they have been performed by an environmental laboratory approved in accordance with Subpart 55-2 of this Title (10 NYCRR Part 55, Subpart 55-2).

(b) Measurements for pH, temperature, conductivity, turbidity, disinfectant residual, alkalinity, calcium, orthophosphate, bromide, chlorite, total organic carbon (TOC) concentration, dissolved organic carbon concentration, ultraviolet (UV) absorption, and silica may be performed by any person with a demonstrated ability to perform these analyses. These analyses shall be conducted in accordance with 40 CFR Part 141. All necessary documentation required by the approved methods shall be retained by the water system conducting the analyses for a period of ten years.

(c) The owner of a water system shall ensure the approved environmental laboratory performing the analyses sends laboratory results to the department in a manner prescribed by the department.

New subparagraphs (iv) and (v) are added to paragraph (4) of subdivision (b) of section 5-1.78 to read as follows:

(iv) Standard language for repeated failure to conduct *Cryptosporidium* monitoring: We are required to monitor the source of your drinking water for *Cryptosporidium*. Results of the monitoring are to be used to determine whether water treatment at the (treatment plant name) is sufficient to adequately remove *Cryptosporidium* from your drinking water. We are required to complete this monitoring and make this determination by (required bin determination date). We "did not monitor or test" or "did not complete all monitoring or testing" on schedule, and therefore, we may not be able to determine by the required date what treatment modifications, if

any, shall be made to ensure adequate *Cryptosporidium* removal. Missing this deadline may, in turn, jeopardize our ability to have the required treatment modifications, if any, completed by the deadline required, (date). For more information, please call (name of water system contact) of (name of water system) at (phone number).

(v) Standard language for failure to determine bin classification or mean *Cryptosporidium* level: We are required to monitor the source of your drinking water for *Cryptosporidium* in order to determine by (date) whether water treatment at the (treatment plant name) is sufficient to adequately remove *Cryptosporidium* from your drinking water. We have not made this determination by the required date. Our failure to do this may jeopardize our ability to have the required treatment modifications, if any, completed by the required deadline of (date). For more information, please call (name of water system contact) of (name of water system) at (phone number).

Subdivision (c) of section 5-1.78 is amended to read as follows:

(c) Tier 1 notification requirements (public health hazards, as defined in section 5-1.1 [(bc)] (bw) of this Subpart, require Tier 1 notification). The supplier of water [must] shall:

* * *

Paragraphs (3), (4), and (5) of subdivision (d) of section 5-1.78 are renumbered to be paragraphs (4), (5), and (3) and a new paragraph (6) is added to read as follows:

(6) For repeated failure to conduct *Cryptosporidium* monitoring, failure to determine bin classification, or failure to calculate mean *Cryptosporidium*, each notification shall also include a description of what the system is doing to correct the violation and when the system expects to return to compliance or resolve the situation.

A new section 5-1.80 is added to read as follows:

ENHANCED TREATMENT FOR *CRYPTOSPORIDIUM*

5-1.80: Applicability.

(a) The provisions of this section, and sections 5-1.81 through 5-1.83 apply to all public water systems supplied by a surface water source(s) or ground water source(s) directly influenced by surface water, provided the system serves 15 or more service connections or serves 25 or more persons. The requirements in this section for filtered systems apply to any system with a surface water or GWUDI source that is required to provide filtration, regardless of whether the system is currently operating a filtration system. All treatment must comply with the requirements of the Microbial Toolbox Components as described in 40 CFR 141.715 through 40 CFR 141.720. Any unfiltered systems that are in compliance with the filtration avoidance criteria in section 5-1.30(c) of this Subpart, are subject to the requirements in sections 5-1.80 through 5-1.83 pertaining to unfiltered systems. Wholesale system compliance with sections 5-1.81 through 5-1.83 is based on the population of the largest system in the combined distribution system. The above systems shall comply with the following requirements: (a) Systems shall conduct an initial and a second round of source water monitoring for each plant that treats water from a surface water source or ground water source directly influenced by surface water. This monitoring may include *Cryptosporidium*, *E. coli*, and turbidity, as described in

section 5-1.81(a) through (d) of this Subpart, to determine what level, if any, of additional *Cryptosporidium* treatment shall be provided. *Cryptosporidium* monitoring shall be done using an approved method. The following method modifications must also be followed:

(1) Samples must be at least 10 liters (L) or a packed pellet volume of at least 2 milliliters (mL) must be used. If a 10 L sample cannot be processed, as much sample volume as can be filtered by two filters, as described in 40 CFR 141.704(a)(1), must be processed, up to a packed pellet volume of at least 2 mL.

(2) The method-required matrix spike (MS) samples must be spiked and filtered by a laboratory certified for the method.

(3) If the volume of the MS is greater than 10 L, the volume greater than 10 L may be filtered in the field, and the filtered sample may be shipped with the 10 L sample to the laboratory where the 10 L sample is spiked and filtered through the filter that was used to collect the balance of the sample in the field.

(4) Flow cytometer-counted spiking suspensions must be used for MS samples and ongoing precision and recovery samples.

(b) Systems that plan to make a significant change to their disinfection practice shall develop disinfection profiles and calculate disinfection benchmarks, as described in section 5-1.82 of this Subpart.

(c) Filtered systems shall determine their *Cryptosporidium* treatment bin classification, as described in section 5-1.83(a) of this Subpart, and provide additional treatment for *Cryptosporidium*, if required, as described in section 5-1.83(b) of this Subpart. All unfiltered systems shall determine their mean *Cryptosporidium* level and provide

treatment for *Cryptosporidium* as described in section 5-1.83(c) of this Subpart. Systems shall implement *Cryptosporidium* treatment according to the schedule in section 5-1.83(d) of this Subpart.

A new section 5-1.81 is added to read as follows:

5-1.81: Source Water Monitoring Requirements at Systems using Surface Water and Ground Water under the Direct Influence of Surface Water (GWUDI) Sources.

(a) Source Water Monitoring.

(1) Initial round of source water monitoring. Systems shall conduct the following monitoring, based on the monitoring schedule prescribed in paragraph (3) of this subdivision, unless they meet the monitoring exemption criteria in paragraph (4) of this subdivision:

(i) Filtered systems serving at least 10,000 people shall sample their source water for *Cryptosporidium*, *E. coli*, and turbidity at least monthly for 24 months.

(ii) Unfiltered systems serving at least 10,000 people shall sample their source water for *Cryptosporidium* at least monthly for 24 months.

(iii) Filtered systems serving fewer than 10,000 people:

(a) shall sample their source water for *E. coli* and use an approved method to enumerate the presence of *E. coli* at least once every two weeks for 12 months;

(b) may avoid *E. coli* monitoring if the system notifies the State that it will monitor for *Cryptosporidium* as described in subparagraph (iv) of this paragraph. The system shall notify the state no later than three months prior to the date the system is otherwise required to start *E. coli* monitoring under paragraph (3) of this subdivision; and

(c) shall sample their source water for *Cryptosporidium* at least twice per month for 12 months, or at least monthly for 24 months, if, based on monitoring conducted under subparagraph (iii) of this paragraph, they meet one of the following criteria:

(1) the annual mean *E. coli* concentration is greater than 10 *E. coli*/ 100 mL; or

(2) the system does not conduct *E. coli* monitoring at least once every two weeks for 12 months.

(3) The State may approve an alternative to the *E. coli* concentration specified in subdivision (a)(1)(iii)(*c*)(*1*) of this section to trigger *Cryptosporidium* monitoring. This approval by the State will be provided to the system in writing and will include the basis for the State's determination that the alternative trigger concentration will provide a more accurate identification of whether a system will exceed the Bin 1 *Cryptosporidium* level specified in section 5-1.83(a)(2) of this Subpart.

(iv) Unfiltered systems serving fewer than 10,000 people shall sample their source water for *Cryptosporidium* at least twice per month for 12 months or at least monthly for 24 months.

(v) Systems may sample more frequently than required under this section if the sampling frequency is evenly spaced throughout the monitoring period.

(2) Second round of source water monitoring. Systems shall conduct a second round of source water monitoring that meets the requirements for monitoring parameters, frequency, and duration described in paragraph (1) of this subdivision, unless they meet the monitoring exemption criteria in paragraph (4) of this subdivision. Systems shall conduct this monitoring on the schedule in paragraph (3) of this subdivision.

(3) Monitoring schedule. Systems shall comply with the monitoring schedule prescribed in 40 CFR 141.701(c).

(4) Monitoring avoidance.

(i) Filtered systems are not required to conduct source water monitoring under this section if the system will provide a total of at least 5.5-log of treatment for *Cryptosporidium*, equivalent to meeting the treatment requirements of Bin 4 in section 5-1.83(b) of this Subpart.

(ii) Unfiltered systems are not required to conduct source water monitoring under this section if the system will provide a total of at least 3-log *Cryptosporidium* inactivation, equivalent to meeting the treatment requirements for unfiltered systems with a mean *Cryptosporidium* concentration of greater than 0.01 oocysts/L in section 5-1.83(c) of this Subpart.

(iii)If a system chooses to provide the level of treatment in subparagraph (i) or (ii) of this paragraph, as applicable, rather than start source water monitoring, the system shall notify the State in writing no later than the date the system is otherwise required to submit a sampling schedule for monitoring under subdivision (b) of this section. Alternatively, a

system may choose to stop sampling at any point after it has initiated monitoring if it notifies the State in writing that it will provide this level of treatment. Systems shall install and operate technologies to provide this level of treatment by the applicable treatment compliance date in section 5-1.83(d) of this Subpart.

(5) Plants operating only part of the year. Systems with surface water sources or ground water sources directly influenced by surface water and with plants that operate for only part of the year shall conduct source water monitoring in accordance with this section and section 5-1.80 of this Subpart, but with the following modifications:

(i) Systems shall sample their source water only during the months that the plant operates unless the State specifies another monitoring period based on plant operating practices.

(ii) Systems with plants that operate less than six months per year and that monitor for *Cryptosporidium* shall collect at least six *Cryptosporidium* samples per year during each of two years of monitoring. Samples shall be evenly spaced throughout the period the plant operates.

(6) New sources.

(i) A system that begins using a new source of surface water or ground water directly influenced by surface water after the system is required to begin monitoring under paragraph (3) of this subdivision shall monitor the new source on a schedule approved by the State. Source water monitoring shall meet the requirements of this section. The system also shall meet the bin classification of section 5-1.83(a) and *Cryptosporidium* treatment requirements of section 5-1.83(b) or 5-1.83(c) of this Subpart, as applicable, for the new source on a schedule approved by the State.

(ii) The requirements of this paragraph also apply to new systems that use surface water or ground water directly influenced by surface water, that begin operation after the monitoring start date applicable to the system's size under paragraph (3) of this subdivision.

(iii)The system shall begin a second round of source water monitoring no later than six years following initial bin classification or determination of the mean *Cryptosporidium* level, as applicable.

(b) Sampling Schedules.

(1) Systems required to conduct source water monitoring under this section shall submit a sampling schedule that specifies the calendar dates when the system will collect each required sample. Systems shall submit sampling schedules to the State no later than three months prior to any applicable date referenced in subdivision (a)(3) of this section. If the State does not respond to a system regarding its sampling schedule, the system shall sample at the reported schedule.

(2) Systems shall collect samples within two days before or two days after the dates indicated in their sampling schedule, unless one of the following conditions applies:

(i) If an extreme condition or situation exists that may pose danger to the sample collector, or that cannot be avoided and causes the system to be unable to sample in the scheduled five-day period, the system shall sample as close to the scheduled date as is feasible, unless the State approves an alternate sampling date. The system shall submit an

explanation for the delayed sampling date to the State concurrent with the shipment of the sample to the laboratory.

(ii) If a system is unable to report a valid analytical result for a scheduled sampling date due to equipment failure, loss of or damage to the sample, failure to comply with the analytical method requirements, including the quality control requirements in subdivision (d) of this section, or the failure of an approved laboratory to analyze the sample, then the system shall collect a replacement sample. The replacement sample shall be collected no later than 21 days after receiving information that an analytical result cannot be reported for the scheduled date, unless the system demonstrates that collecting a replacement sample within this time frame is not feasible, or the State approves an alternative resampling date. The system shall submit an explanation for the delayed sampling date to the State concurrent with the shipment of the replacement sample to the laboratory.

(3) Systems that fail to meet the criteria of paragraph (2) of this subdivision for any source water sample required under subdivision (a) of this section shall revise their sampling schedules to add dates for collecting all missed samples. Systems shall submit the revised schedule to the State for approval prior to when the system begins collecting the missed samples.

(c) Sampling Locations.

(1) Systems required to conduct source water monitoring under subdivision (a) of this section shall collect samples for each plant that treats a surface water or GWUDI source.

Where multiple plants draw water from the same influent, such as the same pipe or intake, the State may approve one set of monitoring results to be used to satisfy the requirements for all plants.

(2) Systems shall collect source water samples prior to chemical treatment, such as coagulants, oxidants, and disinfectants, unless the State determines that collecting a sample prior to chemical treatment is not feasible for the system and that the chemical treatment is unlikely to have a significant adverse effect on the analysis of the sample.

(3) Systems that recycle filter backwash water shall collect source water samples prior to the point of filter backwash water addition.

(4) Bank filtration.

(i) Systems that receive *Cryptosporidium* treatment credit for bank filtration, as applicable, shall collect source water samples in the surface water prior to bank filtration.

(ii) Systems that use bank filtration as pretreatment to a filtration plant shall collect source water samples from the well (i.e., after bank filtration). Use of bank filtration during monitoring shall be consistent with routine operational practice. Systems collecting samples after a bank filtration process may not receive treatment credit for the bank filtration.

(5) Multiple sources. Systems with plants that use multiple water sources, including multiple surface water sources and blended surface water and ground water sources, shall

collect samples as specified in subparagraph (i) or (ii) of this paragraph. The use of multiple sources during monitoring shall be consistent with routine operational practice.

(i) If a sampling tap is available where the sources are combined prior to treatment, systems shall collect samples from that tap.

(ii) If a sampling tap where the sources are combined prior to treatment is not available, systems shall collect samples at each source near the intake on the same day and select one of the following options for sample analysis;

(a) Systems may composite samples from each source into one sample prior to analysis. The volume of sample from each source shall be weighted according to the proportion of the source in the total plant flow at the time the sample is collected; or

(b) Systems may analyze samples from each source separately and calculate a weighted average of the analysis results for each sampling date. The weighted average shall be calculated by multiplying the analysis result for each source by the fraction the source contributed to total plant flow at the time the sample was collected and then summing these values.

(6) Additional Requirements. Systems shall submit a description of their sampling location(s) to the State at the same time as the sampling schedule. This description shall address the position of the sampling location in relation to the system's water source(s) and treatment processes, including pretreatment, points of chemical treatment, and filter

backwash recycle. If the State does not respond to a system regarding sampling location(s), the system shall sample at the reported location(s).

(d) Reporting source water monitoring results.

(1) Systems shall report results from the source water monitoring no later than 10 days after the end of the first month following the month when the sample is collected.

(2) Systems shall report the following information, as applicable, for the source water monitoring samples required under subdivision (a) of this section.

(i) Systems shall report the following data elements for each *Cryptosporidium* analysis: PWS ID; facility ID sample collection date sample type (field or matrix spike); sample volume filtered (in liters, to the nearest 0.25 liter); confirmation that 100 percent of filtered volume was examined; and the number of oocysts counted.
(*a*) For matrix spike samples, systems shall also report the sample volume spiked and estimated number of oocysts spiked. These data are not required for field samples. (*b*) For samples in which less than 10 liters are filtered or less than 100 percent of the sample volume is examined, systems shall also report the number of filters used and the packed pellet volume.

(*c*) For samples in which less than 100 percent of sample volume is examined, systems shall also report the volume of resuspended concentrate and volume of this resuspension processed through immunomagnetic separation.

(ii) Systems shall report the following data elements for each *E. coli* analysis: PWS ID; facility ID; sample collection date; analytical method number; method type; source type; *E. coli*/100 mL; and turbidity. Systems serving fewer than 10,000 people that are not required to monitor for turbidity are not required to report turbidity with their *E. coli* results.

A new section 5-1.82 is added to read as follows:

5-1.82: Requirements when making a significant change in disinfection practice.

(a) Following the completion of initial source water monitoring under section 5-1.81(a)(1) of this Subpart, a system that plans to make a significant change to its disinfection practice, as defined in subdivision (b) of this section, shall develop disinfection profiles and calculate disinfection benchmarks for *Giardia lamblia* and viruses, in accordance with 40 CFR 141.709. Prior to changing the disinfection practice, the system shall notify the State and shall include in this notice the following information:

(1) A completed disinfection profile and disinfection benchmark for *Giardia lamblia* and viruses prepared as described in 40 CFR 141.709.

(2) A description of the proposed change in disinfection practice.

(3) An analysis of how the proposed change will affect the current level of disinfection.

(b) Significant changes to disinfection practice are defined as follows:

(1) Changes to the point of disinfection;

(2) Changes to the disinfectant(s) used in the treatment;

(3) Changes to the disinfection process; or

(4) Any other modification identified by the State as a significant change to disinfection practice.

A new section 5-1.83 is added to read as follows:

5-1.83: Treatment Technique Requirements

(a) Bin classification for filtered systems.

(1) Following completion of the initial round of source water monitoring under section 5-1.81(a)(1) of this Subpart, filtered systems shall calculate an initial *Cryptosporidium* bin concentration for each plant for which monitoring was required, such calculation shall be done in accordance with 40 CFR 141.710(b)(1) through 40 CFR 141.710(b)(5). Calculation of the bin concentration shall use the *Cryptosporidium* results reported under section 5-1.81 of this Subpart.

(2) Filtered systems shall determine their initial bin classification from the following table and using the *Cryptosporidium* bin concentration calculated under paragraph (1) of this subdivision:

BIN CLASSIFICATION TABLE FOR FILTERED SYSTEMS

System Characteristic	*Cryptosporidium* Concentration[1]	Bin Classification
Required to monitor for *Cryptosporidium*	*Cryptosporidium* <0.075 oocyst/L	Bin 1
	0.075 oocysts/L ≤ *Cryptosporidium* <1.0 oocyst/L	Bin 2
	1.0 oocyst/L ≤ *Cryptosporidium* <3.0 oocysts/L	Bin 3
	Cryptosporidium ≥3.0 oocysts/L	Bin 4
Serving fewer than 10,000 people and NOT required to monitor for *Cryptosporidium*	Not Applicable	Bin 1

[1] Based on calculations in paragraph (1) or (4) of this subdivision, as applicable.

(3) Following completion of the second round of source water monitoring required under section 5-1.81(a)(2) of this Subpart, filtered systems shall recalculate their *Cryptosporidium* bin concentration using the *Cryptosporidium* results reported under section 5-1.81(a)(2) of this Subpart, and following the procedures in 40 CFR 141.710(b)(1) through 40 CFR 141.710(b)(4). Systems shall then reevaluate their bin classification using the bin concentration from the second round of monitoring and the table in paragraph (2) of this subdivision.

(4) (i) Filtered systems shall report their initial bin classification under paragraph (2) of this subdivision to the State for approval no later than six months after the system is required to complete initial source water monitoring based on the schedule referenced in section 5-1.81(a)(3) of this Subpart.

(ii) Systems shall report their bin classification under paragraph (3) of this subdivision to the State for approval no later than six months after the system is required to complete the second round of source water monitoring based on the schedule referenced in section 5-1.81(a)(3) of this Subpart.

(iii) The bin classification report to the State shall include a summary of source water monitoring data and the calculation procedure used to determine bin classification.

(b) Filtered system additional *Cryptosporidium* treatment requirements.

(1) Filtered systems shall provide the level of additional treatment for *Cryptosporidium* specified in this paragraph based on their bin classification as determined under subdivision (a) of this section and according to the schedule in subdivision (d) of this section.

System Classification	If the system uses the following filtration treatment in full compliance with section 5-1.30(b) of this Subpart (as applicable), then the additional *Cryptosporidium* treatment requirements are:			
	Conventional Filtration Treatment (including softening)	Direct Filtration	Slow Sand or Diatomaceous Earth Filtration	Alternative Filtration Technologies
Bin 1	No additional	No additional	No additional	No additional

Bin 2	1-log	1.5-log	1-log	([1])
Bin 3	2-log	2.5-log	2-log	([2])
Bin 4	2.5-log	3-log	2.5-log	([3])

[1] As determined by the State such that the total *Cryptosporidium* removal and inactivation is at least 4.0-log.

[2] As determined by the State such that the total *Cryptosporidium* removal and inactivation is at least 5.0-log.

[3] As determined by the State such that the total *Cryptosporidium* removal and inactivation is at least 5.5-log.

(2) (i) Filtered systems shall use one or more of the treatment and management options, as approved by the State, to comply with the additional *Cryptosporidium* treatment required in paragraph (1) of this subdivision.

(ii) Systems classified in Bin 3 and Bin 4 shall achieve at least 1-log of the additional *Cryptosporidium* treatment required under paragraph (1) of this subdivision using either one or a combination of the following, as approved by the State: bag filters, bank filtration, cartridge filters, chlorine dioxide, membranes, ozone, or UV.

(3) Failure by a system in any month to achieve treatment credit at least equal to the level of treatment required in paragraph (1) of this subdivision is a violation of the treatment technique requirement.

(4) If the State determines during a sanitary survey or an equivalent source water assessment that, after a system completed the monitoring conducted under section 5-1.81(a)(1) or (2) of this Subpart, significant changes occurred in the system's watershed that could lead to increased contamination of the source water by *Cryptosporidium*, the system shall take actions specified by the State to address the contamination.

(c) Unfiltered system *Cryptosporidium* treatment requirements.

(1) Determination of mean *Cryptosporidium* level.

(i) Following completion of the initial source water monitoring required under section 5-1.81(a)(1) of this Subpart, unfiltered systems shall calculate the arithmetic mean of all *Cryptosporidium* sample concentrations reported for such monitoring. Systems shall report this value to the State for approval no later than six months after the month the system is required to complete initial source water monitoring based on the schedule referenced in section 5-1.81(a)(3) of this Subpart.

(ii) Following completion of the second round of source water monitoring required under section 5-1.81(a)(2) of this Subpart, unfiltered systems shall calculate the arithmetic mean of all *Cryptosporidium* sample concentrations reported under that monitoring.
Systems shall report this value to the State for approval no later than six months after the month the system is required to complete the second round of source water monitoring based on the schedule referenced in section 5-1.81(a)(3) of this Subpart.

(iii)If the monthly *Cryptosporidium* sampling frequency varies, systems shall first calculate a monthly average for each month of monitoring. Systems shall then use these monthly average concentrations, rather than individual sample concentrations, in the calculation of the mean *Cryptosporidium* level in subparagraphs (i) or (ii) of this paragraph.

(iv)The report to the State of the mean *Cryptosporidium* levels calculated under subparagraphs (i) and (ii) of this paragraph shall include a summary of the source water monitoring data used for the calculation.

(2) *Cryptosporidium* inactivation requirements. Unfiltered systems shall provide the level of inactivation for *Cryptosporidium* specified in this paragraph, based on their mean *Cryptosporidium* levels as determined under paragraph (1) of this subdivision and according to the schedule in subdivision (d) of this section.

(i) Unfiltered systems with a mean *Cryptosporidium* level of 0.01 oocysts/L or less shall provide at least 2-log *Cryptosporidium* inactivation.

(ii) Unfiltered systems with a mean *Cryptosporidium* level of greater than 0.01 oocysts/L shall provide at least 3-log *Cryptosporidium* inactivation.

(3) Inactivation treatment technology requirements. Unfiltered systems shall use chlorine dioxide, ozone, or UV to meet the *Cryptosporidium* inactivation requirements of this section.

(4) Use of two disinfectants. Unfiltered systems shall meet the combined *Cryptosporidium* inactivation requirements of this section and *Giardia lamblia* and virus inactivation requirements of section 5-1.30(c)(3) of this Subpart using a minimum of two disinfectants, and each of two disinfectants must separately achieve the total inactivation required for either *Cryptosporidium*, *Giardia lamblia*, or viruses. Systems that fail to

install a second disinfectant to treat for *Cryptosporidium* are in violation of the treatment technique requirement.

(d) Schedule for compliance with *Cryptosporidium* treatment requirements.

(1) Following initial bin classification under subdivision (a) of this section, filtered systems shall provide the level of treatment for *Cryptosporidium* required under subdivision (b) of this section, on a schedule approved by the State.

(2) Following initial determination of the mean *Cryptosporidium* level under subdivision (c)(1)(i) of this section, unfiltered systems shall provide the level of treatment for *Cryptosporidium* required under subdivision (c).

(3) If the bin classification for a filtered system changes following the second round of source water monitoring, as determined under subdivision (a)(3) of this section, the system shall provide the level of treatment for *Cryptosporidium* required under subdivision (b) of this section on a schedule approved by the State.

(4) If the mean *Cryptosporidium* level for an unfiltered system changes following the second round of monitoring, as determined under subdivision (c)(1)(ii) of this section, and if the system shall provide a different level of *Cryptosporidium* treatment under subdivision (c) of this section due to this change, the system shall meet this treatment requirement on a schedule approved by the State.

Subdivision 5-1.91 (b) is amended to read as follows:

(b) As a condition to the [grant] granting of a variance under subdivision (a) of this section, the supplier of water shall perform monitoring and other requirements as prescribed by the [department] Department.

The table Best Available Technologies (BATs) in subdivision (d) of section 5-1.91 is amended to read as follows:

BEST AVAILABLE TECHNOLOGIES (BATs)

Contaminant	Best Available Technologies		
	PTA[1]	GAC[2]	OX[3]
Benzene	X	X	
Carbon tetrachloride	X	X	
1,2-Dichloroethane	X	X	
Trichloroethylene	X	X	
para-Dichlorobenzene	X	X	
1,1-Dichloroethylene	X	X	
1,1,1-Trichloroethane	X	X	
Vinyl chloride	X		
cis-1,2-Dichloroethylene	X	X	
1,2-Dichloropropane	X	X	
Ethylbenzene	X	X	
Monochlorobenzene	X	X	
o-Dichlorobenzene	X	X	
Styrene	X	X	
Tetrachloroethylene	X	X	
Toluene	X	X	
trans-1,2-Dichloroethylene	X	X	
Xylenes (total)	X	X	
Alachlor		X	
Aldicarb		X	

Aldicarb sulfoxide		X	
Aldicarb sulfone		X	
Atrazine		X	
Carbofuran		X	
Chlordane		X	
Dibromochloropropane	X	X	
2,4-D		X	
Ethylene dibromide	X	X	
Heptachlor		X	
Heptachlor epoxide		X	
Lindane		X	
Methoxychlor		X	
PCBs		X	
Pentachlorophenol		X	
Toxaphene		X	
2,4,5-TPBenzo(a)pyrene		X	
Dalapon		X	
Dichloromethane	X		
Di(2-ethylhexyl)adipate	X	X	
Di(2-ethylhexyl)phthalate		X	
Dinsoeb		X	
Endothal		X	
Endrin		X	
Glyphosate			X
Hexachlorobenzene		X	
Hexachlorocyclopentadiene	X	X	
Oxamyl (Vydate)		X	
Picloram		X	
Simazine		X	
1,2,4-Trichlorobenzene	X	X	
1,1,2-Trichloroethane	X	X	
2,3,7,8-TCDD (Dioxin)		X	
[TTHMs]		[X[4]]	
[HAA5s]		[X[4]]	
TTHM, HAA5, Bromate, Chlorite[4]			

[1] Packed Tower Aeration [2] Granular Activated Carbon [3] Oxidation (Chlorination or Ozonation) [4] [GAC10, as defined in section 5-1.1 of this Subpart. The other best available technology for TTHM and HAA MCL compliance is enhanced coagulation for TTHM and HAA precursor removal, as described in section 5-1.60 of this Subpart.] For surface water systems or ground water systems influenced by surface water, GAC10, as defined in section 5-1.1 of this Subpart, is the BAT for compliance with the TTHM and HAA5 MCL as a Running Annual Average (RAA). The other BAT for RAA compliance is enhanced coagulation for TTHM and HAA5 precursor removal, as described in section 5-1.60 of this Subpart. For compliance with the MCLs for TTHM and HAA5 as LRAAs, the following are the BATs: enhanced coagulation or enhanced softening, plus GAC10; GAC20, as defined in section 5-1.1 of this Subpart; or nanofiltration with a molecular weight cutoff less than or equal to 100 Daltons. Refer to section 5-1.65 of this Subpart for BATs for TTHM, HAA5, Bromate, and Chlorite.

Subdivisions (e) and (f) of section 5-1.91 are repealed and replaced with the new subdivisions (e) and (f) to read as follows:

(e) The following are the best technologies, treatment techniques, or other means available for achieving compliance with the maximum contaminant levels for the inorganic chemicals and radionuclides listed in section 5-1.52, Tables 1 and 7 of this Subpart:

Technologies for Achieving MCL Compliance	
Chemical Name	**Best Available Technologies**
Antimony	2,7
Arsenic[5]	1,2,5,6,7,9,13[6]
Asbestos	2,3,8
Barium	5,6,7,9
Beryllium	1,2,5,6,7
Cadmium	2,5,6,7
Chromium	2,5,6[2],7
Cyanide	5,7,10
Fluoride	1,7
Mercury (Hg)	2[1],4,6[1],7[1]
Nickel	5,6,7
Nitrate	5,7
Nitrite	5,7, 9
Selenium	1,2[3],6,7,9
Thallium	1,5
Gross alpha (excluding radon and uranium)	7
Combined radium (226 and 228)	5,6,7
Uranium	5,6,7,12[4]
Beta particle and photon radioactivity	5,7

[1]BAT only if influent Hg concentrations $\leq$10 µg/L.

[2]BAT for Chromium III only.

[3]BAT for Selenium IV only.

[4]Assumes that the system already has coagulation/filtration in place.

[5]BATs for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.

[6]To obtain high removals, iron to arsenic ratio must be at least 20:1.

Key to Best Available Technologies (BATs) in Table

1 = Activated Alumina

2 = Coagulation/Filtration (not BAT for systems < 500 service connections)

3 = Direct and Diatomite Filtration

4 = Granular Activated Carbon

5 = Ion Exchange

6 = Lime Softening (not BAT for systems < 500 service connections)

7 = Reverse Osmosis

8 = Corrosion Control

9 = Electrodialysis

10 = Chlorine

11 = Ultraviolet

12 = Enhanced coagulation/filtration

13 = Oxidation/Filtration

(f) The following are the affordable technologies, treatment techniques, or other means available to systems serving 10,000 persons or fewer for achieving compliance with the MCL for arsenic as listed in section 5-1.52 Table 1 of this Subpart:

Technology for Arsenic MCL Compliance at Systems Serving ≤10,000	
Small system compliance technology[1]	**Affordable for listed small system categories**
Activated Alumina (centralized)	All Systems Serving 25-10,000
Activated Alumina (Point-of-Use)[2]	All Systems Serving 25-10,000
Coagulation/Filtration[3]	Systems Serving 501-10,000
Coagulation-assisted Microfiltration	Systems Serving 501-10,000
Electrodialysis reversal[4]	Systems Serving 501-10,000
Enhanced coagulation/filtration	All Systems Serving 25-10,000
Enhanced lime softening (pH > 10.5)	All Systems Serving 25-10,000
Ion Exchange	All Systems Serving 25-10,000
Lime Softening[3]	Systems Serving 501-10,000
Oxidation/Filtration[5]	All Systems Serving 25-10,000
Reverse Osmosis (centralized)[4]	Systems Serving 501-10,000
Reverse Osmosis (Point-of-Use)[2]	All Systems Serving 25-10,000

[1]Small System Compliance Technologies for Arsenic V. Pre-oxidation may be required to convert Arsenic III to Arsenic V.

[2]When point-of-use or point-of-entry devices are used for compliance, programs to ensure proper longterm operation, maintenance, and monitoring must be provided by the water system to ensure adequate performance.

[3]Unlikely to be installed solely for arsenic removal. May require pH adjustment to optimal range if high removals are needed.

[4]May not be appropriate for areas where water quantity may be an issue.

[5]To obtain high removals, iron to arsenic ratio must be at least 20:1.

Subdivision (e) of section 5-1.92 is amended to read as follows:

(e) In the case of a system which [does not serve] serves a population of no more than [500 service connections] 3,300 and which needs financial assistance for the necessary improvements, an exemption granted under [paragraph] subdivision (a)(1) or (2) of this section may be renewed for one or more additional two-year periods, not to exceed six years, if the system establishes that it is taking all practical steps to meet the requirements of subdivision (a) of this section.

Subdivision (c) of section 5-1.94 is amended to read as follows:

(c) Public notice of an opportunity for hearing pursuant to subdivision (a) or (b) of this section shall be circulated in a manner designated to inform potentially interested persons of the proposed action. Requests for hearing [must] shall be submitted to the [department] Department within [15] 30 days after issuance of such public notice.

Appendix 5-A is repealed and a new Appendix 5-A is added to read as follows:

APPENDIX 5-A

RECOMMENDED STANDARDS FOR WATER WORKS, 2012 EDITION

"Recommended Standards for Water Works, 2012 edition" reported by the Water Supply Committee of the Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers. Available online at http://10statesstandards.com/ and is available for viewing at the Department of State, One Commerce Plaza, 99 Washington Avenue, Albany, NY 12231 and the Bureau of Water Supply Protection, Department of Health, Corning Tower, Empire State Plaza, Albany, NY 12237.

Appendix 5-C of Subpart 5-1 is repealed and replaced with the new Appendix 5-C to read as follows:

APPENDIX 5-C

ACCEPTABLE METHODS FOR THE ANALYSIS OF CONTAMINANTS IN DRINKING WATER

Table of Contents

I. Approved methods for analysis of water samples to determine compliance with this Subpart

II. Sample Compositing Requirements

A. Inorganic Chemical Compositing Requirements

B. Water Sample Compositing Requirements for Pesticides, Dioxin, and PCBs

I. Approved methods for analysis of water samples to determine compliance with this Subpart

All samples shall be analyzed using approved methods as recognized by the United States Environmental Protection Agency (EPA) and/or the New York State Environmental Laboratory Approval Program (ELAP). A list of approved methods is available from ELAP on The Wadsworth Center's website at https://www.wadsworth.org/sites/default/files/WebDoc/I180_0_07.pdf or by request from the Records Access Officer, Department of Health, Corning Tower, Room 2364, Albany, New York

12237-0044. Method references are cited in 41 CFR 141 at 141.21(f), 141.24(e), 141,40(c), 141.131(a)(2), 141.704(a), 141.707(c) and 141.852(c).

Test strips for free chlorine, Method D99–003, may be used for compliance monitoring only when approval of the State has been provided in writing. Method D99–003, Revision 3.0, "Free Chlorine Species (HOCl− and OCl−) by Test Strip," November 21, 2003, is available from Industrial Test Systems, Inc., 1875 Langston St., Rock Hill, SC 29730 or from the Records Access Officer, Department of Health, Corning Tower, Room 2364, Albany, New York 12237-0044.

II. Sample Compositing Requirements

A. Inorganic Chemical Sample Compositing Requirements

The State may reduce the total number of samples which must be analyzed in accordance with Tables 8A-8D of section 5-1.52 of this Subpart by allowing the use of compositing. Composite samples from a maximum of five samples are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Compositing of samples shall be done in an ELAP certified laboratory.

If the concentration in the composite sample is greater than or equal to one-fifth of the MCL of any inorganic chemical, then a follow-up sample shall be taken within 14 days at each sampling point included in the composite. Each of the follow-up samples shall be analyzed for the contaminant(s) that exceeded one-fifth of the MCL in the composite sample.

B. Water Sample Compositing Requirements for Pesticides, Dioxin and PCBs

The State may reduce the total number of samples collected and analyzed in accordance with Table 9C of section 5-1.52 of this Subpart by allowing the use of compositing. Composite samples from a maximum of five samples are allowed, provided that the detection limit of the method used for analysis is less than one-fifth of the MCL. Compositing of samples shall be done in an ELAP certified laboratory.

(a) If the concentration in the composite sample is greater than or equal to the detection limit of any organic chemicals listed in section 5-1.52 Table 9C, then a separate follow-up sample shall be taken within 14 days at each sampling point included in the composite. Each of the follow-up samples shall be analyzed for the contaminant(s) which were detected in the composite sample.

(b) If duplicates or residual portions of the original sample taken from each sampling point used in the composites are available, the system may use such samples if additional sampling is necessary. Additional samples shall be analyzed and the results reported to the State within 14 days of collection.

(c) In systems serving fewer than 3,300 persons, the State may permit compositing among different systems provided the five-sample limit is maintained. In systems serving 3,300 or more persons, the State may permit compositing of samples from up to five sampling locations within the system, provided the reporting limit is maintained.

REGULATORY IMPACT STATEMENT

Statutory Authority:

The statutory authority for the proposed revisions is set forth in Public Health Law (PHL) sections 201 and 225. Section 201(1)(l) of the PHL establishes the powers and duties of the Department of Health (Department), which include the supervision and regulation of the sanitary aspects of public water supplies. Section 225 of the PHL sets forth the powers and duties of the Public Health and Health Planning Council (PHHPC), which include the authority to establish, amend and repeal sanitary regulations to be known as the State Sanitary Code (SSC), subject to the approval of the Commissioner of Health. Further, section 225(5)(a) of the PHL allows the SSC to deal with any matter affecting the security of life or health, or the preservation or improvement of public health, in New York State.

The revisions are in accord with the requirements of the United States Environmental Protection Agency (EPA) for: the Lead and Copper Rule (LCR), 56 FR 26460 - 26564, June 7, 1991, as amended 56 FR 32112, July 15, 1991; 57 FR 28785, June 29, 1992; and 59 FR 33860, June 30, 1994; the LCR Minor Revisions (LCRMR), 65 FR 1950, January 12, 2000; the LCR Short-Term Revisions (LCRSTR), 72 FR 57782, October 10, 2007; the Long Term 2 Enhanced Surface Water Treatment Rule (LT2 ESWTR), 71 FR 654, January 5, 2006, Vol. 71, No. 3, as corrected on January 30, 2006, Vol. 71, No. 19, and February 6, 2006, Vol. 71, No. 24; the Stage 2 Disinfection and Disinfection Byproducts Rule (Stage 2 DBPR), 71 FR 388, January 4, 2006, with corrections on January 27, 2006, Vol. 71, No. 18; June 29, 2006, Vol. 71, No. 125; and November 14, 2006, Vol. 73, No.221 and an amendment on June 29, 2009, Vol. 74 No. 123; and the Variances and Exceptions Rule (V & E), 63 FR 43834, August 14, 1998, Vol. 74, No. 123.

Legislative Objectives:

The legislative objective of sections 201 and 225 of the PHL is to ensure that PHHPC, in conjunction with the Commissioner of Health, protect the public health by adopting drinking water sanitary standards. In accordance with that objective, this regulation amends the SSC by revising Part 5 to enhance current protections governing public water systems (PWSs). Further, this amendment will update the SSC to ensure consistency among State and federal requirements.

Needs and Benefits:

The Department recognizes that there is no higher public health priority than ensuring the delivery of clean drinking water. To this end, the Department has obtained primacy for the implementation and enforcement of the majority of federal drinking water regulations. These revisions to Subpart 5-1, incorporate the following additional federal regulations to ensure the Department is eligible for primacy over such requirements: Minor and Short-Term Revisions to the Lead and Copper Rule (LCRMR and LCRSTR, respectively); Stage 2 Disinfectant and Disinfection Byproducts Rule (Stage 2 DBPR); Long Term 2 Enhanced Surface Water Treatment Rule (LT2 ESWTR); and the Variances and Exemptions (V&E) Rule. The Department is already implementing these federal regulations through a partnership agreement with EPA. Accordingly, the adoption of these regulations merely formalizes the existing regulatory arrangement and is expected to have no impact on PWSs.

Additionally, the proposed amendments reflect changes in the PHL regarding cross-connection control and water supply emergency plans. The proposed amendments also include revisions to

Appendix 5-C of Subpart 5-1. Minor edits to correct typographical errors and to update references are also proposed.

The minor revisions (LCRMR) eliminate unnecessary requirements in the Lead and Copper Rule (LCR), reduce the reporting burden, and promote consistent national implementation of the LCR. In addition, language was added to clarify requirements and correct oversights in the original rule. The revisions are called "minor" because they do not affect the lead and copper maximum contaminant level goals, action levels, or other basic regulatory requirements to monitor for lead and copper at the tap and to optimize corrosion control.

The Short-Term revisions (LCRSTR) enhance the implementation of the LCR in the areas of monitoring, treatment, customer awareness, lead service line replacement, and public education. The amendments ensure that drinking water consumers receive meaningful, timely, and useful information needed to help limit exposure to lead in drinking water.

The EPA promulgated the Stage 2 Disinfectant and Disinfection Byproducts Rule (Stage 2 DBPR) to reduce potential adverse health risks associated with the use disinfection byproducts (DBPs) in drinking water. Chlorination is the most popular disinfectant used and, within the State, an estimated 2,687 community (CWS) and nontransient noncommunity (NTNCWS) PWSs in the State, serving over 18 million people, use chlorination as a means of disinfecting drinking water to kill or inactivate microbial contaminants.

The Stage 2 DBPR strengthens public health protection for customers of systems that deliver disinfected water, by requiring such systems to meet maximum contaminant levels as an average

at each compliance monitoring location (instead of as a system-wide average as in previous rules) for two groups of DBPs: trihalomethanes (TTHM) and five haloacetic acids (HAA5). This amendment reduces DBP exposure, along with related potential health risks, and provides more equitable public health protection.

Additionally, the amendments include the federal Long Term 2 Enhanced Surface Water Treatment Rule (LT2 ESWTR). EPA promulgated the LT2 ESWTR to provide further protection of public health against *Cryptosporidium* and other microbial pathogens in drinking water from surface water sources. *Cryptosporidium* is a protozoan parasite that is common in surface water. Approximately 1,039 PWSs in the State, serving 14 million people, use surface water or ground water under the direct influence of surface water as a raw water source.

When ingested, *Cryptosporidium* can cause acute and severe gastrointestinal illness, which is especially dangerous for immunocompromised individuals. The proposed amendment builds on current regulations, which require PWSs using surface water sources to filter the water, unless a filtration avoidance waiver is granted, to remove at least 99 percent (2-log) of *Cryptosporidium*. This rule extends the public health benefit of *Cryptosporidium* removal or inactivation to consumers served by all PWSs that use water sources from surface water or ground water that is under the direct influence of surface water.

Further, the proposed LT2 ESWTR regulations address the risk posed by uncovered finished water storage facilities. These facilities are subject to contamination through runoff, bird and animal wastes, human activity, algal growth, insects, and airborne deposition. Under this proposed rule, PWSs must limit these risks by either covering the facility or treating the outflow.

The proposed amendments also reflect the federal Variances and Exemptions (V&E) Rule, which allows states to grant variances to small PWSs that cannot afford to comply with primary drinking water standards. These variances and exemptions allow a system to install and maintain technology that can remove a contaminant to the maximum extent that is affordable while still being protective of public health.

Further, requirements regarding cross-connection control are being revised for consistency with section 225 of the PHL. The revisions reduce the burden on the State by allowing a Department approved entity to certify backflow prevention testers.

The proposed rule also reflects an amendment to PHL section 1125. This change requires systems which service a population of more than 3,300 to submit water supply emergency plans, rather than only those with a minimum operational revenue. In addition, the proposed regulation requires a PWS to include cyber attacks in its vulnerability assessment and to incorporate the penalty established in PHL for disclosing confidential information about a water system emergency plan. This rule change simply makes Subpart 5-1 consistent with PHL.

Appendix 5-C to Subpart 5-1, Acceptable Methods for the Analysis of Contaminants in Water, is also amended. The Department is removing the approved methods from the Appendix and requiring all samples to be analyzed using a method approved by the EPA or the New York State Environmental Laboratory Approval Program (ELAP). This approach will eliminate the redundancy of listing this information in multiple locations and ensure that PWSs are using the

most current method. In addition, the revisions will also allow limited use of test strips to test for chlorine residual in drinking water.

Costs:

Costs to Public Water Systems:

The proposed regulatory amendments incorporate revisions to federal rules regarding Minor and Short-Term Revisions to the Lead and Copper Rule (LCRMR and LCRSTR); Stage 2 Disinfectant and Disinfection Byproducts Rule (Stage 2 DBPR); Long Term 2 Enhanced Surface Water Treatment Rule (LT2 ESWTR); the Variances and Exemptions (V&E) Rule. These proposed amendments will not impose an additional cost to PWSs when adopted because PWSs are already complying with these federal requirements.

In general, the proposed revision concerning cross-connection control will not impose costs because this amendment merely conforms to revisions to the PHL. The only new cost is that of having cross-connection control tester courses approved by a third-party, which may cost up to $1500 per trainer each year. However, this cost may be passed on to testers who are renewing their certifications. Spread over approximately 1,100 testers, it should cost each less than $15 for renewal, or about $5 extra per tester per year.

The requirement for systems that serve a population of more than 3,300 to submit water supply emergency plans will not incur additional costs, because PWSs are already complying with this statutory requirement.

The revisions to Appendix 5-C will not change the methods that PWSs use for monitoring water quality. Accordingly, this revision will result in no financial impact to PWSs.

Finally, the proposed amendments to the tables simply make the tables consistent with the other amendments and, therefore, will not impose any additional costs.

Costs to the Agency, the State and Local Governments for the Implementation and Continuation of the Rule:

State and local government agencies are affected in different ways by these rule revisions. Some PWSs are operated by local, State or federal government agencies. All PWSs are subject to State or local health department oversight. To the extent these amendments incorporate existing federal requirements, there is no additional cost imposed.

The cost to State and local government agencies that operate PWSs will be minimal for the proposed cross-connection control revisions. As discussed, above, the proposed revisions will incur costs to training providers for the third party certification of their courses.

The requirement for systems that serve a population of more than 3,300 to submit water supply emergency plans will not incur additional costs because PWSs are already complying with this statutory requirement.

The revisions to Appendix 5-C will not change the methods that PWSs use for monitoring water quality. Accordingly, this revision will result in no financial impact to PWSs.

Finally, the proposed amendments to the tables simply make the tables consistent with the other amendments and, therefore, will not impose any additional costs.

After the Department is granted primacy for the enforcement of these regulations, enforcement costs are expected to be minimal because the State and LHDs already enforce current public water supply regulations, and compliance with the proposed amendments is already widespread. Enforcement of these additional regulations represents a minimal increase in burden over current enforcement efforts.

Local Government Mandates:

LHDs will not be impacted by the proposed regulations because they are already in compliance.

Paperwork:

These revised regulations do not require new forms or other paperwork. Adoption of these regulations will actually reduce paperwork because it will eliminate the need for PWSs to conduct dual reporting to the State and federal government.

Duplication:

Adoption of these revised regulations will reduce duplication efforts for PWS, by eliminating the need for PWSs to conduct dual reporting to the State and federal government.

Alternatives:

Declining to adopt these regulations would make compliance oversight of PWSs primarily the responsibility of the State, with oversight by the federal government remaining for four specific federal rules. This option would require additional and unnecessary reporting and coordination for PWSs. The proposed rule revisions are the better alternative.

Federal Standards:

The majority of these revisions incorporate changes in federal standards.

Compliance Schedule:

Currently, PWSs must comply with the federal LCRMR, LCRSTR, Stage 2 DBPR, LT2 ESWTR, and V&E Rule, pursuant to schedules established by EPA, with the exception of certain deadlines in LT2 ESWTR. The provisions regarding certification of a cross-connection control tester course by a third-party will take effect in 2017. All provisions concerning the Water Supply Emergency Plans are currently in effect, pursuant to statute.

Contact Person: Katherine Ceroalo
New York State Department of Health
Bureau of House Counsel, Regulatory Affairs Unit
Corning Tower Building, Rm. 2438
Empire State Plaza
Albany, New York 12237
(518) 473-7488
(518) 473-2019 (FAX)
REGSQNA@health.ny.gov

REGULATORY FLEXIBILITY ANALYSIS FOR SMALL BUSINESSES AND LOCAL GOVERNMENTS

Effect of Rule:

Revisions to 10 NYCRR Subpart 5-1 of the State Sanitary Code are required to obtain primacy from the United States Environmental Protection Agency (EPA) for implementation of the following federal rules: Minor and Short-Term Revisions to the Lead and Copper Rule (LCRMR and LCRSTR); Stage 2 Disinfectant and Disinfection Byproducts Rule (Stage 2 DBPR); Long Term 2 Enhanced Surface Water Treatment Rule (LT2 ESWTR); and the Variances and Exemptions (V&E) Rule. Additionally, these amendments address changes the New York State Public Health Law (PHL) regulating cross-connection control and water supply emergency plans.

Local governments and small businesses operate most of the PWSs in New York State. It is estimated that almost 93 per cent of the PWSs impacted by any of the proposed revisions are either small businesses or local governments.

These revisions will benefit local governments and small businesses by consolidating and simplifying reporting requirements.

Compliance Requirements:

Currently, PWSs must comply with the federal LCRMR, LCRSTR, Stage 2 DBPR, LT2 ESWTR, and V&E Rule, pursuant to schedules established by EPA, with the exception of certain deadlines in LT2 ESWTR. The provisions regarding certification of a cross-connection control

tester course by a third-party will take effect in 2017. All provisions concerning the Water Supply Emergency Plans are currently in effect, pursuant to statute.

Professional Service:

The revision of the rules regarding LCRMR, LCRSTR, Stage 2 DBPR, LT2 ESWTR, and V&E Rule will not change the requirements for professional services used by small businesses or local governments, because PWSs are already complying with the requirements.

Additional professional services will be needed to provide required training courses on cross-connection control and for third party certification of training providers.

The addition of cyber security provisions to the water supply emergency plans may have a small impact for those systems that do not prepare their own Emergency Response Plans and Vulnerability Assessments. However, compliance is a statutory requirement.

Compliance costs:

The proposed amendments that incorporate federal regulations will not impose an additional cost to small business or local governments that own or operate a PWS, because PWSs are already complying with these federal requirements.

The cost to State and local government agencies that operate PWSs will be minimal for the proposed cross-connection control revisions. As discussed, above, the proposed revisions will incur costs to training providers for the third party certification of their courses. The requirement

for systems that serve a population of more than 3,300 to submit water supply emergency plans will not incur additional costs because PWSs are already complying with this statutory requirement.

The revisions to Appendix 5-C will not change any methods that PWS use for monitoring water quality. Accordingly, this revision will result in no financial impact to PWSs.

Finally, the proposed amendments to the tables simply make the tables consistent with the other amendments and, therefore, will not impose any additional costs.

After the Department is granted primacy for the enforcement of these regulations, enforcement costs are expected to be minimal because the State and LHDs already enforce current public water supply regulations, and compliance with the proposed amendments is already widespread. Enforcement of these additional regulations represents a minimal increase in burden over current enforcement efforts.

Economic and Technological Feasibility:

Currently available technology is adequate to meet rule requirements. Notably, EPA also determined that compliance with the federal regulations, as incorporated by these regulations, was both economically and technologically feasible for small businesses and local governments.

Minimizing Adverse Impact:

The proposed revisions largely incorporate existing federal rules and revisions to the PHL. With respect to provisions specific to New York State, the Department will provide PWSs with training, guidance documents, and other assistance.

Small Business and Local Government Participation:

The Department presented and discussed the proposed revisions at organizational meetings where small community water systems were represented. These meetings included the New York
Rural Water Association, the American Water Works Association, the Conference of Environmental Health Directors, the New York Association of Towns, and the New York Conference of Mayors, among others.

The revisions regarding cross-connection control were discussed with backflow prevention training providers, most of whom operate small businesses or are non-governmental nonprofit organizations. Prior to the implementation of the revised program, the Department provided training providers, certifying agencies, and backflow prevention device testers with an opportunity to comment on the revisions.

For Rules That Either Establish or Modify a Violation or Penalties Associated With a Violation:

Chapter 524 of the Laws of 2011 requires agencies to include a "cure period" or other opportunity for ameliorative action to prevent the imposition of penalties on the party or parties

subject to enforcement under the proposed regulation. This regulation creates no new penalty or sanction. Hence, no cure period is necessary.

RURAL AREA FLEXIBILITY ANALYSIS

Types and Estimated Numbers of Rural Areas:

Many PWSs are located in the 44 counties that are defined as rural and in the towns of the additional nine counties where there are rural towns. Although the revised regulations will impact PWSs in these rural areas, the revisions will have the same effect on a PWS regardless of whether it is in a rural area or an urban area.

Revisions to 10 NYCRR Subpart 5-1 of the State Sanitary Code are required to obtain primacy from the United States Environmental Protection Agency (EPA) for implementation of the following federal rules: Minor and Short-Term Revisions to the Lead and Copper Rule (LCRMR and LCRSTR); Stage 2 Disinfectant and Disinfection Byproducts Rule (Stage 2 DBPR); Long Term 2 Enhanced Surface Water Treatment Rule (LT2 ESWTR); and the Variances and Exemptions (V&E) Rule. Additionally, these amendments address changes the New York State Public Health Law (PHL) regulating cross-connection control and water supply emergency plans.

Reporting, Recordkeeping and Other Compliance Requirements; and Professional Services:

Currently, PWSs must comply with the federal LCRMR, LCRSTR, Stage 2 DBPR, LT2 ESWTR, and V&E Rule, pursuant to schedules established by EPA, with the exception of certain deadlines in LT2 ESWTR. The provisions regarding certification of a cross-connection control tester course by a third-party will take effect in 2017. All provisions concerning the Water Supply Emergency Plans are currently in effect, pursuant to statute.

The revision of the rules regarding LCRMR, LCRSTR, Stage 2 DBPR, LT2 ESWTR, and V&E Rule will not change the requirements for professional services used by small businesses or local governments in rural areas, because PWSs are already complying with the requirements.

Additional professional services will be needed to provide required training courses on cross-connection control and for third party certification of training providers.

The addition of cyber security provisions to the water supply emergency plans may have a small impact for those systems that do not prepare their own Emergency Response Plans and Vulnerability Assessments. However, compliance is a statutory requirement.

Compliance costs:

The proposed amendments that incorporate federal regulations will not impose an additional cost to small business or local governments in rural areas that own or operate a PWS, because PWSs are already complying with these federal requirements.

The cost to State and local government agencies that operate PWSs will be minimal for the proposed cross-connection control revisions. As discussed, above, the proposed revisions will incur costs to training providers for the third party certification of their courses. The requirement for systems that serve a population of more than 3,300 to submit water supply emergency plans will not incur additional costs because PWSs are already complying with this statutory requirement.

The revisions to Appendix 5-C will not change any methods that PWS use for monitoring water quality. Accordingly, this revision will result in no financial impact to PWSs.

Finally, the proposed amendments to the tables simply make the tables consistent with the other amendments and, therefore, will not impose any additional costs.

After the Department is granted primacy for the enforcement of these regulations, enforcement costs are expected to be minimal because the State and LHDs already enforce current public water supply regulations, and compliance with the proposed amendments is already widespread. Enforcement of these additional regulations represents a minimal increase in burden over current enforcement efforts.

Minimizing Adverse Impact:

The proposed revisions largely incorporate existing federal rules and revisions to the PHL. With respect to provisions specific to New York State, the Department will provide PWSs with training, guidance documents, and other assistance.

Rural Area Participation:

The majority of the proposed revisions incorporate existing federal regulations into 10 NYCRR Subpart 5-1. Representatives of public and private interests in rural areas had an opportunity to participate in the rule making process while the federal regulations were being developed. Outreach was also conducted by the DOH's Bureau of Water Supply Protection in the form of presentations at various stakeholder meetings, such as the New York Section of the American Water Works Association and the New York Rural Water Association.

JOB IMPACT STATEMENT

The Department of Health has determined that the proposed revisions will not have substantial adverse impact on jobs or employment opportunities. It is possible that new technologies or products developed to comply with the revised rules would bring new employment opportunities to the state.

SUMMARY OF EXPRESS TERMS

These amendments are necessary for the Department to maintain primacy for delivery, oversight and management of New York State's public drinking water supply program and to ensure consistency with the Revised Total Coliform Rule (RTCR) promulgated by the United States Environmental Protection Agency (EPA).

The RTCR builds on the Total Coliform Rule (TCR) by requiring all public water systems (PWS) to assess indicators of coliform contamination, and to take corrective action when necessary. Under these amendments, there is no longer a Maximum Contaminant Level (MCL) for total coliform, and follow up sampling requirements for total coliform-positive (TC+) samples have been reduced. Three repeat samples following a routine TC+ sample are now required, instead of four. These amendments also require a PWS that is vulnerable to microbial contamination to conduct an assessment to determine why it is vulnerable, and to take corrective action. There are two levels of assessments (designated Level 1 and Level 2) relating to the severity or frequency of the vulnerability to contamination. These assessments must be conducted within 30 days by the PWS or by the Local Health Department (LHD), depending on the level of assessment.

A technical change is also being made to Subpart 7-5 of the State Sanitary Code to make Subpart 7-5 consistent with the changes regarding the RTCR.

Pursuant to the authority vested in the Public Health and Health Planning Council and the Commissioner of Health by Section 225 of the Public Health Law, Subpart 5-1 and Subpart 7-5 of Title 10 (Health) of the Official Compilation of Codes, Rules and Regulations of the State of New York is amended, to be effective upon publication of a Notice of Adoption in the New York State Register, as follows:

Subdivisions (j)-(ba) of section 5-1.1 are re-lettered (k)-(bb), and a new subdivision (j) is added to read as follows:

(j) Clean compliance history means a record of no MCL violations for *E. coli*, no Total Coliform or *E. coli* monitoring violations, no treatment technique trigger exceedances, and no treatment technique violations under section 5-1.52 Table 6 of this Subpart.

Subdivisions (bb)-(cd) of section 5-1.1 are re-lettered (be)-(cg), and new subdivisions (bc) and (bd) are added to read as follows:

(bc) Level 1 assessment means an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and, when possible, the likely reason that the system triggered the assessment.

(bd) Level 2 assessment means an evaluation conducted by an individual approved by the State, to identify the possible presence of sanitary defects, defects in distribution system coliform

monitoring practices, and, when possible, the likely reason that the system triggered the assessment. A Level 2 assessment provides a more detailed examination of the system (including the system's monitoring and operational practices) than a Level 1 assessment, through the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices.

Subdivision (ce) of section 5-1.1 is re-lettered (ci), and new subdivision (ch) is added to read as follows:

(ch) Sanitary defect means a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.

Subdivisions (cf)-(di) of section 5-1.1 are re-lettered (ck)-(dn), and a new subdivision (cj) is added to read as follows:

(cj) Seasonal system means a non-community water system that is not operated as a public water system on a year-round basis and starts up and shuts down at the beginning and end of each operating season.

Section 5-1.25 is amended to read as follows:

5-1.25 Disinfection/Start-up of Facilities.

(a) No spring basin, collecting basin, well, infiltration gallery, water main, pumping station, standpipe or reservoir shall be placed in service following cleaning or repairs until it has been disinfected in a manner approved by the State.

(b) For each operational period, before serving water to the public, all seasonal systems must demonstrate completion of a State approved start-up procedure.

Section 5-1.30(c)(10) is amended to read as follows:

(10) The public water system must [comply with the maximum contaminant level for total coliform] not exceed a total coliform treatment technique trigger in accordance with section 5-1.52 of this Subpart in 11 months of the 12 previous months that the system served water to the public on an ongoing basis, unless the State determines that failure to meet this requirement was not caused by a deficiency in treatment of the source water.

Subdivision 5-1.30(d) is amended to read as follows:

(d) Notwithstanding anything to the contrary in sections 5-1.12, 5-1.23, 5-1.51 or 5-1.77 of this Subpart, if the public water system fails to comply with the treatment technique and/or the monitoring requirements of subdivisions (a), (b), (c) or (g) of this section, fails to install the filtration and/or disinfection treatment required by this section or fails to comply with the avoidance criteria requirements contained in subdivision (c) of this section, the system violates this Subpart and shall make State and public notification, including any required mandatory

health effects language. Pursuant to subdivision (c) of this section, if at any time the raw water turbidity exceeds five nephelometric turbidity units, the system shall consult with the State within 24 hours of learning of the exceedance. Based on this consultation, the State may determine that the exceedance constitutes a public health hazard, as found in section 5-1.1[(bw)](bz)(4) of this Subpart, which requires a Tier 1 notification.

* * *

Section 5-1.52 Table 6, Table 11, Table 11B, and Table 13 are repealed and replaced as follows:

Table 6. Microbiological Contaminants Maximum Contaminant Level (MCL)/Treatment Technique Trigger (TTT)/Treatment Technique Violation (TTV) Determination

Contaminant/Trigger/ Violation	Sample Location	MCL or TTT or TTV	Performance Standard[1]	Determination of MCL/TTV and TTT
Total coliform	Distribution Sample Sites	TTT[3]	No positive sample[4,6]	A Level 1 TTT occurs at systems collecting 40 or more samples per month when more than 5.0 percent of the samples are total coliform positive.
		TTT[3]		A Level 1 TTT occurs at systems collecting less than 40 samples per month when two or more samples are total coliform positive.
		TTT[3]		A Level 1 TTT occurs at any system that fails to collect every required repeat sample after any single total coliform positive sample.
		TTT[5]		A Level 2 TTT occurs at any system that has a second Level 1 trigger within a rolling 12-month period, unless the State has determined a likely reason that the samples that caused the first Level 1 TTT were total coliform positive and has established that the system has corrected the problem.
Escherichia coli (E. coli)		MCL/TTT[2,5]	No positive sample[4,6]	An MCL violation and Level 2 TTT occurs when a total coliform sample is positive for *E. coli* and a repeat total coliform sample is positive.
		MCL/TTT[2,5]		An MCL violation and Level 2 TTT occurs when a total coliform sample is positive for total coliform but negative for *E. coli* and a repeat total coliform

				sample is positive for *E. coli* or not analyzed for *E. coli.*
		MCL/TTT[2,5]		An MCL violation occurs when a system fails to collect every required repeat sample after any *E.coli* positive routine sample.
Fecal indicator: *E. coli*, and/or enterococci, and/or coliphage	Untreated Water from a Ground Water Source	TTV[2]	No fecal indicator in samples collected from raw source water from a ground water source.[7]	A TTV occurs when a raw water sample is positive for the fecal indicator contaminant and system does not provide and document, through process compliance monitoring, 4-log virus treatment during peak flow at first customer. If repeat sampling of the raw water is directed by the State and all additional samples are negative for fecal indicator, there is no TTV.[7]
Other trigger or violation		TTV		A TTV occurs when a system exceeds a TTT and then fails to conduct the required assessment or corrective actions.
		TTV		A TTV occurs when a seasonal system fails to complete a State-approved start-up procedure prior to serving water to the public.

1. All samples collected in accordance with Table 11 footnotes 1 and 2 and Table 11B of this section and samples collected in accordance with subdivision 5-1.51(g) of this Subpart shall be included in determining compliance with the MCL, TTT, and/or TTV unless any of the samples have been invalidated by the State.
2. For notification purpose, an *E. coli* MCL violation is a public health hazard requiring Tier 1 notification. At a ground water system, Tier 1 notification is required after initial detection of *E. coli* or other fecal indicator in raw source water, if system does not provide 4-log virus treatment and process compliance monitoring, even if not confirmed with additional sampling.
3. The system must complete a Level 1 assessment as soon as practical after exceeding any Level 1 TTT. The system must submit the completed Level 1 assessment form to the State within 30 days after the system learns that it has exceeded a trigger. Corrective actions shall be addressed in accordance with section 5-1.71(e) of this Subpart.

4. See Table 13 for public notification requirements.
5. A Level 2 assessment must be completed within 30 days after the system learns that it has exceeded a trigger. Corrective actions shall be addressed in accordance with section 5-1.71(e) of this Subpart.
6. If any total coliform or *E. coli* sample is positive, repeat samples must be collected in accordance with Table 11B of this section.
7. If raw water source sample is fecal indicator positive, the water system, in consultation with the State, may collect an additional 5 samples within 24 hours at each source that tested fecal indicator positive. If none of the additional samples are fecal indicator positive, then there is no TTV. Note that Tier 1 notification must be made after the initial raw water fecal indicator positive sample, even if it is not confirmed with additional sampling.

Table 11 Microbiological
Minimum Monitoring Requirements (Refer to Table 11B following any positive samples) [1,2,3,4]

Contaminant	**Type of Water System**	**Number of Routine Samples Based on Population**			
		Population Served	**Minimum Number of Samples per Month[4]**	**Population Served**	**Minimum Number of Samples per Month[4]**
Total coliform in distribution system[5]	Community	Up to 1,000[6,7]	1	59,001 to 70,000	70
		1,001 to 2,500	2	70,001 to 83,000	80
		2,501 to 3,300	3	83,001 to 96,000	90
		3,301 to 4,100	4	96,001 to 130,000	100
		4,101 to 4,900	5	130,001 to 220,000	120
		4,901 to 5,800	6	220,001 to 320,000	150
		5,801 to 6,700	7	320,001 to 450,000	180

		6,701 to 7,600	8	450,001 to 600,000	210
		7,601 to 8,500	9	600,001 to 780,000	240
		8,501 to 12,900	10	780,001 to 970,000	270
		12,901 to 17,200	15	970,001 to 1,230,000	300
		17,201 to 21,500	20	1,230,001 to 1,520,000	330
		21,501 to 25,000	25	1,520,001 to 1,850,000	360
		25,001 to 33,000	30	1,850,001 to 2,270,000	390
		33,001 to 41,000	40	2,270,001 to 3,020,000	420
		41,001 to 50,000	50	3,020,001 to 3,960,000	450
		50,001 to 59,000	60	3,960,001 or more	480
	Noncommunity using surface water or groundwater directly influenced by surface water	All	Same as community		
	Noncommunity using only groundwater not directly influenced by surface water[9]	≤1,000	Quarterly[8,9]		
		>1,000	Same as community		
	Seasonal	All	Monthly[9]		

Escherichia coli(E. coli)	Community and Noncommunity	All	Any routine or repeat samples that are Coliform positive must be analyzed for *E. coli.*[4,10]		
Fecal Indicator in Raw Source Water[10]	All ground water systems unless providing 4-log virus treatment and process compliance monitoring	All	State discretion[11]		

1. Public water supply systems must collect total coliform samples at sites that are representative of water throughout the distribution system and throughout the reporting period, in accordance with a written monitoring plan which is subject to State review and revision as described in section 5-1.51(c) of this Subpart. A public water system that uses only groundwater and serves 4,900 or fewer people may collect all required samples on a single day if they are taken from different sites.
2. Public water systems using surface water or groundwater directly influenced by surface water, and which do not provide filtration, must collect and analyze at least one sample for total coliforms near the first service connection each day the turbidity level of the raw water exceeds 1.49 NTU. This sample shall be collected within 24 hours. Results of this sample must be included in determining compliance with the MCLs and TTTs in Table 6 of this section.
3. Samples taken to determine disinfection practices after pipe repair, replacement, or similar activity are not to be used for determining compliance with the MCLs or TTTs in Table 6 of this section.
4. See Table 11B for repeat sampling requirements following any total coliform or *E. Coli* positive samples.
5. If chlorine or chloramines are used as the disinfectant, a chlorine residual determination shall be made at the same time and location that the sample is collected for total coliform analysis. Monitoring for heterotrophic bacteria may be substituted for free chlorine residuals. The State may allow a public water system that uses both: (1) a surface water source, or a ground water source under direct influence of surface water, and (2) a ground water source, to take disinfectant residual samples at points other than the total coliform sampling points if the State determines that such points are more representative of treated (disinfected) water quality within the distribution system. A heterotrophic plate count result equal to or less than 500 colonies per milliliter is considered to be equivalent to a measurable free chlorine residual.
6. The State may, in writing, reduce the monitoring frequency to quarterly for a community water system serving 1,000 or fewer persons and using ground water only if the system is in compliance with 10 NYCRR Subpart 5-4; has a clean compliance

history for a minimum of 12-months; is free of sanitary defects; and has a protected water source. The system must meet at least one of the following criteria: an annual site visit by the State or State-approved party that is equivalent to a Level 2 assessment and correction of all identified sanitary defects; cross connection control, as approved by the State; continuous disinfection entering the distribution system and a residual in the distribution system in accordance with criteria specified by the State; or demonstration of maintenance of at least a 4-log removal or inactivation of viruses. Systems that have been granted a disinfection waiver are not eligible for reduced monitoring frequency.

7. A community water system on quarterly monitoring must begin monthly monitoring if it meets any of the following conditions: a Level 2 assessment is triggered; two Level 1 assessment in a rolling 12-month period are triggered; an *E. coli* MCL violation; a coliform TTV; or two total coliform monitoring violations in a rolling 12-month period. Monthly monitoring must begin in the month following the event.
8. A noncommunity water system on quarterly monitoring must begin monthly monitoring if it meets any of the following conditions: a Level 2 assessment is triggered; two Level 1 assessments in a rolling 12-month period are triggered; an *E. coli* MCL violation; a coliform TTV; two total coliform monitoring violations; or one total coliform monitoring violation and one Level 1 assessment in a rolling 12-month period. Monthly monitoring must begin in the month following the event.
9. A noncommunity water system may return to quarterly monitoring if they meet the following criteria: within the last 12 months, the system must have a completed sanitary survey or Level 2 assessment, be free of sanitary defects, have a protected water source; and the system must have a clean compliance history for a minimum of 12 months.
10. Fecal indicators include *E. coli*, enterococci, and coliphage. Only *E. coli* testing will be required, unless otherwise directed by the State.
11. State discretion shall mean that monitoring is required when the State has reason to believe the MCL or TT has been violated, the potential exists for an MCL violation or TTV; or the contaminant may present a risk to public health.

Table 11B Repeat Microbiological Sampling Requirements Following Total Coliform Positive and/or Fecal Indicator Positive Sample(s)[1]

Type of Positive Sample	Type of Water System/Source	System Size	Number of Repeat Samples Required Within 24 Hours of Notification	Sampling Location	Required Action for Positive Repeat Samples
Routine total coliform sample(s) from distribution system	Surface water, GWUDI, or ground water performing 4-log virus treatment and process compliance monitoring	More than one service connection	Three distribution system samples	The same sampling site where the original coliform-positive sample was collected, one sample within five service connections upstream, one sample within five service connections downstream in accordance with a state approved sampling plan.	Distribution sampling must be repeated until total coliform is not detected in repeat samples, or it is determined that a treatment technique has been triggered or an MCL has been violated.[2, 3]
		One service connection	One distribution system sample[4]	Original sampling location	
	Ground water system or ground water source not providing (or not documenting) 4-log virus treatment[5]	Population >1,000	Three distribution system samples and one source water sample from each source collected in accordance with a State-approved sampling plan[6]	The same distribution system sampling site where the original coliform-positive sample was collected, one sample within five service connections upstream, one sample within five service connections downstream. An additional sample must be collected from each raw water source or according to State approved sampling plan.[6, 7]	Distribution sampling must be repeated until total coliform is not detected in repeat samples, or it is determined that a treatment technique has been triggered or an MCL has been violated.[2, 3]

		Population ≤1,000 and more than one service connection	Three distribution system samples and one source water sample from each source collected in accordance with a State-approved sampling plan. [5, 8]	The same distribution system sampling site where the original coliform-positive sample was collected, one sample within five service connections upstream, and one sample within five service connections downstream. An additional sample must be collected from each raw water source or according to State approved sampling plan.[6, 7, 8]	
		One service connection	One distribution system sample and source water sample(s) in accordance with a State-approved sampling plan[4, 6, 8]	Original sampling location. An additional sample must be collected from each raw water source or according to State approved sampling plan.[6, 7, 8]	
		Wholesale System of any size	After notification by consecutive system of total coliform-positive sample[6, 7, 9, 11]	Collect one raw water sample at each source or in accordance with a State-approved sampling plan.[6, 7, 9]	As directed by State[10]
Source water sample(s) fecal indicator positive[7, 10]	Ground water system or ground water source not providing or not documenting 4-log virus treatment	All	Five raw water samples for fecal indicator or immediate corrective action as directed by State[6, 9, 11]	Fecal indicator sampling from source or sources with initial fecal indicator positive samples[6, 7]	As directed by State[10, 11]

1. After any total coliform positive sample from the distribution system, the system must collect repeat samples on the same day and within 24 hours of being notified.
2. The month following a total coliform positive sample, systems collecting samples quarterly must collect a minimum of three routine distribution system samples. The State may waive, in writing, the requirement to collect three routine samples the following month the system provides water to the public, if the State carries out an onsite visit before the end of the following month and the State determines why the sample was total coliform positive and establishes that the system has corrected the problem. The State cannot waive the requirement to collect three routine samples solely on the basis that all the repeat samples were total coliform negative. Before the end of the following month the system serves water to the public, at least one routine sample to determine compliance with the MCLs and TTTs must be collected by the system as required in Table 11.
3. Results of all routine and repeat microbiological samples not invalidated by the State must be used to determine whether a coliform TTT specified in Table 6 has been exceeded.
4. The State may allow a system with a single service connection to collect the required set of repeat samples over a three-day period or to collect a larger volume repeat sample(s) in one or two more sample containers of any size, as long as the total volume collect is at least 300 mL. If *E. coli* is used as the fecal indicator at a ground water system with a single well, a single sample of two (2) times the minimum sample volume or two (2) bottles of minimum required sample volume may be collected consecutively from the tap and the third sample collected from the raw water source. This source water sample result must be used to determine compliance with all Table 6 requirements.
5. If a consecutive system purchasing (or otherwise obtaining) ground water from a wholesale system has a total coliform-positive sample from the distribution system, the system must notify the wholesale system and collect distribution system repeat samples as specified in Table 11B within 24 hours. The wholesale system must collect raw source water sample(s) unless the system provides 4-log virus treatment at peak flow before or at the first customer as confirmed through process compliance monitoring.
6. Sampling plan requirements are given in section 5-1.51 (c) of this Subpart.
7. Fecal indicators include *E. coli,* enterococci and coliphage. Sampling for fecal indicators other than *E.coli* is at State discretion.
8. A system with a single well or a ground water source serving 1,000 or fewer persons may collect a single raw water sample to serve as both a distribution repeat sample to replace the upstream location sample and a raw water sample taken following a routine total coliform positive sample, if *E. coli* is used as the fecal indicator. If this dual-purpose source water sample is collected, the sample result must be used to determine compliance with all Table 6 requirements.
9. Wholesale system source water sampling requirements are in addition to distribution system sampling requirements for consecutive systems.
10. In the event of a fecal indicator positive sample from the raw source water, the state must be notified immediately and may require immediate corrective action. In no case will notification be later than 24 hours as described in section 5-1.78(d)(4) of this Subpart.

11. If a ground water wholesale system does not perform 4-log virus treatment and process compliance monitoring, and has a fecal indicator positive sample from a raw source water, the system must notify any consecutive systems as well as any of its own customers.

Table 13 - REQUIRED NOTIFICATIONS

Contaminant/Situation (Subpart 5-1 citations)	**Single sample exceeds MCL/MRDL[1]**	**MCL/MRDL/TT[1] violation**	**Failure to meet monitoring requirements and/or failure to use applicable testing procedure**
Public Health Hazard (Section 5-1.1(bz))[2]	Not applicable	State Tier 1	State Tier 1
Escherichia coli (E. coli) in distribution system (Section 5-1.52, Tables 6, 11 and 11B)	State[3] Not applicable, or Tier 1[4]	State Tier 1	State Tier 3, or Tier 1[5]
E. coli or other fecal indicator detected in ground water source at system not providing both 4-log virus treatment and process compliance monitoring (Section 5-1.52, Tables 6, 11 and 11B)	Tier 1[2,3,5,6]	Tier 1[6]	State Tier 3, or Tier 1[2,5,7]
Total coliform in distribution system (Section 5-1.52, Tables 6, 11 and 11B)	Not applicable	State[8] Tier 2, or Tier 1[9]	State Tier 3, or Tier 2 as directed by State
Entry Point Turbidity monthly average (Section 5-1.52, Tables 4 and 10)	State[10]	State Tier 2	State Tier 3
Entry Point Turbidity two day average (Section 5-1.52, Tables 4 and 10)	State	State Tier 2, or Tier 1[11]	State Tier 3
Raw Water Turbidity (Subdivision 5-1.30(d) and Section 5-1.52, Table 10A)	State	State Tier 2, or Tier 1[11]	State Tier 3
Filtered Water Turbidity Single exceedance of the maximum allowable Turbidity level (Section 5-1.52, Tables 4A and 10A)	State	State Tier 2, or Tier 1[11]	State Tier 3
Filtered Water Turbidity Treatment Technique violation (Section 5-1.52, Tables 4A and 10A)	Not applicable	State Tier 2	State Tier 3

Table 13 (cont.)

Contaminant/Situation (Subpart 5-1 citations)	**Single sample exceeds MCL/MRDL[1]**	**MCL/MRDL/TT[1] violation**	**Failure to meet monitoring requirements and/or failure to use applicable testing procedure**
Distribution Point Turbidity (Section 5-1.52, Tables 5, 10 and 10A)	Not applicable	State Tier 2	State Tier 3
Treatment Technique violations other than turbidity[12,13] (Sections 5-1.12, 5-1.30, 5-1.32, 5-1.81, and 5-1.83 and Subdivision 5-1.71(d))	Not applicable	State Tier 2, or Tier 1[2,13]	State Tier 3[13], or Tier 2[12]
Free chlorine residual less than 0.2 mg/L at the entry point[14] (Subdivision 5-1.30(d))	Not applicable	State	Not applicable
Free chlorine residual less than required minimum for a ground water system or ground water source required to provide 4-log virus treatment[15] (Subdivision 5-1.30(a))	Not applicable	State Tier 2, or Tier 1[9]	Tier 2
Inorganic chemicals and physical characteristics listed in Tables 8A and 8B (Section 5-1.52, Tables 1, 8A, and 8B)	State	State Tier 2	State Tier 3
Chloride, iron, manganese, silver, sulfate, and zinc (Section 5-1.52, Tables 1 and 8D)	Not applicable	State Tier 3	State Tier 3
Sodium (Section 5-1.52, Tables 1 and 8D)	State if the level exceeds 20 mg/L	Tier 2 if the level exceeds 270 mg/L	Tier 3
Nitrate, Nitrite, Total Nitrate and Nitrite (Section 5-1.52, Tables 2 and 8C)	State	State Tier 1	State Tier 1, or Tier 3[16]
Lead and Copper (Sections 5-1.40 to 1.48)	Not applicable	State Tier 2	State Tier
Organic Chemicals Group 1 and 2 (Section 5-1.52, Table 9C)	State	State Tier 2	State Tier 3

Table 13 (cont.)

Contaminant/Situation (Subpart 5-1 citations)	**Single sample exceeds MCL/MRDL1**	**MCL/MRDL/TT[1] violation**	**Failure to meet monitoring requirements and/or failure to use applicable testing procedure**
Principal Organic Contaminants Unspecified Organic Contaminants Total POCs and UOCs (Section 5-1.52, Tables 3, 9B and 9D)	State	State Tier 2	State Tier 3
Radiological Contaminants (Section 5-1.52, Tables 7 and 12)	State	State Tier 2	State Tier 3
Monitoring and Control of Disinfection Byproduct Precursors (Sections 5-1.60 to 5-1.64)	Not applicable	State Tier 2	State Tier 3
Disinfectant residuals Chlorine and Chloramine (Section 5-1.52, Tables 3A and 15A)	State	State Tier 2	State Tier 3
Disinfectant residual Chlorine dioxide at entry point (Section 5-1.52, Tables 3A, 15 and 15A)	State	State Tier 2	State Tier 3, or Tier 2[17]
Disinfectant residual Chlorine dioxide in distribution system (Section 5-1.52, Tables 3A, 15 and 15A)	State	State Tier 1[18]	State Tier 1[18]
Disinfection byproducts Trihalomethanes Haloacetic acids (Section 5-1.52, Tables 3 and 9A) and Bromate and Chlorite (Section 5-1.52, Tables 1 and 8B)	Not applicable	State Tier 2	State Tier 3

Table 13 (cont.)

Contaminant/Situation (Subpart 5-1 citations)	Single sample exceeds MCL/MRDL[1]	MCL/MRDL/TT[1] violation	Failure to meet monitoring requirements and/or failure to use applicable testing procedure
Acrylamide and Epichlorohydrin (Subdivision 5-1.51(m))	Not applicable	State Tier 2	Not applicable
Operation under a variance or exemption (Sections 5-1.90 to 5-1.96)	Not applicable	Tier 3	Not applicable
Violation of conditions of a variance or exemption(Sections 5-1.90 to 5-1.96)	Not applicable	State Tier 2	Not applicable
Disruption of water service of four hours or more (Subdivision 5-1.23(b))	Not applicable	State[19]	Not applicable

[1]MCL-maximum contaminant level, MRDL-maximum residual disinfectant level, TT-treatment technique

[2]Community systems must describe in their annual water supply statement (see section 5-1.72(e) and (f)) any Public Health Hazard that is determined to be a violation, and any uncorrected significant deficiency, and must indicate whether corrective action has been completed. This notice must be repeated every year until the annual report documents that corrective action has been completed in accordance with section 5-1.22 of this Subpart.

[3]State notification must be made by the supplier of water within 24 hours of learning of an *E. coli* positive sample.

[4]Public notification normally does not have to be issued for an *E. coli* positive sample prior to the results of the repeat samples. However, there may be situations where the State determines that a Tier 1 notification is necessary to protect the public health. The supplier of water must provide the Tier 1 notification no later than 24 hours after learning of the State's determination.

[5]Failure to test for *E. coli* requires a Tier 1 notification if testing is not performed after any repeat sample tests positive for coliform. All other *E. coli* monitoring and testing procedure violations require Tier 3 notification.

[6]At a ground water system, Tier 1 notification is required after initial detection of *E. coli* or other fecal indicator in raw source water, if the system does not provide 4-log virus treatment and process compliance monitoring. Confirmation of *E. coli* or other fecal indicator in the source water requires Tier 1 notification. Failure to take confirmatory samples may be a public health hazard requiring Tier 1 notification.

[7]Notice of the fecal indicator positive raw water sample must be made in the annual water supply statement (see section 5-1.72(e)), until the annual report documents that corrective action has been completed.

[8]State notification must be made by the supplier of water within 24 hours of learning of the violation.

[9]Tier 2 notification is normally required; however, there may be situations where the State determines that a Tier 1 notification is necessary to protect the public health. The supplier of water must provide the Tier 1 notification no later than 24 hours after learning of the State's determination.

[10]If the daily entry point analysis exceeds one NTU, a repeat sample must be taken as soon as practicable, and preferably within one hour. If the repeat sample exceeds one NTU, the supplier of water must make state notification.

[11]Systems must consult with the State within 24 hours after learning of the violation. Based on this consultation, the State may subsequently decide to elevate the violation from a Tier 2 to a Tier 1 notification. If consultation does not take place within the 24-hour period, the water system must distribute a Tier 1 notification no later than 48 hours after the system learns of the violation.

[12]These violations include the following: failure to comply with the treatment technique or monitoring requirements in section 5-1.30(a), (b), (c), and (g) of this Subpart; failure to comply with the avoidance criteria in section 5-1.30(c) of this Subpart; failure to cover a finished water storage facility or treat its discharge required in section 5-1.32 of this Subpart; failure to report to the state information required in section 5-1.72(c)(3) of this Subpart; failure to maintain records required in section 5-1.72(d)(7) of this Subpart; and failure to meet the treatment and bin classification requirements associated with *Cryptosporidium* in section 5-1.83 of this Subpart. Failure to collect three or more samples for *Cryptosporidium* analysis as required in section 5-1.81 of this Subpart is a Tier 2 violation requiring public notification. Failure to perform any other monitoring and testing procedure as required in section 5-1.81 of this Subpart is a Tier 3 violation.

[13]Any significant deficiency that is not corrected, or where correction has not begun according to a State-approved corrective action plan within 120 days, or as directed by the State, is a TTV and must be addressed in accordance with section 5-1.12. If the deficiency is a public health hazard, the deficiency must be addressed as directed by the State and Tier 1 notification is required.

[14]Applies to systems that have surface water or groundwater directly influenced by surface water as a source and use chlorine. The system must make State notification whether the residual was restored to at least 0.2 mg/L within four hours.

[15]Required minimum chlorine residual at point that demonstrates adequate CT for disinfected water from ground water sources at first customer.

[16]Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL requires a Tier 1 notification. Other monitoring violations for nitrate or nitrite require a Tier 3 notification.

[17]Failure to monitor for chlorine dioxide at the entrance to the distribution system the day after exceeding the MRDL at the entrance to the distribution system requires a Tier 2 notification. Other monitoring violations for chlorine dioxide at the entrance to the distribution system require a Tier 3 notification.

[18]If any daily sample taken at the entrance to the distribution system exceeds the MRDL for chlorine dioxide and one or more samples taken in the distribution system the next day exceed the MRDL, Tier 1 notification is required. Failure to take the required samples in the distribution system the day after the MRDL is exceeded at the entry point also triggers Tier 1 notification.

[19]Tier 1 notification is required if the situation meets the definition of a public health hazard.

New subdivision (e) is added to section 5-1.71 to read as follows:

(e) Public water systems shall correct sanitary defects found through a Level 1 or 2 assessment. For corrections that have not been completed at the time that the assessment form is submitted the system shall complete the corrective action(s) within 120 days of identifying the sanitary defect or be in compliance with a timeframe approved by the State in consultation with the system. The system shall notify the State when each scheduled corrective action is complete.

Paragraphs (2) – (7) of subdivision (d) of section 5-1.72 are renumbered (4) – (9) and new paragraphs (2) and (3) are added to read as follows:

(2) All Level 1 and Level 2 assessment forms, documentation of corrective actions completed as a result of such assessments, and any other summary documentation of sanitary defects and corrective actions, shall be retained for at least five years.

(3) All records of repeat samples that are taken for the purpose of obtaining an extension of the 24-hour period for collecting such repeat samples shall be retained for at least five years.

Subdivision (c) of section 5-1.78 is amended to read as follows:

(c) Tier 1 notification requirements (public health hazards, as defined in subdivision 5-1.1 [(bw)](bz) of this Subpart, require Tier 1 notification). The supplier of water must:

* * *

Subdivision (c) of section 5-1.90 is repealed.

Subdivision (a) of section 5-1.92 is amended to read as follows:

(a) The supplier of water may request, and the department may grant, one or more exemptions from any treatment technique requirement, except for disinfection of a surface water source, and/or any MCL, except for [total coliform or Escherichia coli (E. coli)] *Escherichia coli (E. coli)*. Exemptions may be granted to any public water system based on a finding that:

* * *

Paragraph (1) of subdivision (k) of section 7-5.12 is amended to read as follows:

*****

Agricultural fairground water system type	**Required minimum operator grade**[1]
Agricultural fairground water system with on-site groundwater treatment (*i.e.*, filtration and disinfection)	IIB
Agricultural fairground water system with on-site disinfection	C
Purchases water from a public water system as defined in Subpart 5-1.1 [(at)] of this Title	D

*****

REGULATORY IMPACT STATEMENT

Statutory Authority:

The statutory authority for the proposed revisions is set forth in Public Health Law (PHL) sections 201 and 225. Section 201(1)(l) of the PHL establishes the powers and duties of the Department of Health (Department), which include the supervision and regulation of the sanitary aspects of public water supplies. Section 225 of the PHL sets forth the powers and duties of the Public Health and Health Planning Council (PHHPC), which include the authority to establish, amend and repeal sanitary regulations to be known as the State Sanitary Code (SSC), subject to the approval of the Commissioner of Health. Further, section 225(5)(a) of the PHL allows the SSC to deal with any matter affecting the security of life or health, or the preservation or improvement of public health, in New York State. These regulations are also in accordance with the requirements of the United States Environmental Protection Agency (EPA) and the Safe Drinking Water Act (SDWA).

Legislative Objectives:

The legislative objective of sections 201 and 225 of the PHL is to ensure that PHHPC, in conjunction with the Commissioner of Health, protect the public health by adopting drinking water sanitary standards. In accordance with that objective, this regulation amends the SSC by revising Part 5 to enhance current protections governing public water systems (PWSs). Further, this amendment will update the SSC to ensure consistency with federal requirements.

Needs and Benefits:

The Department recognizes that there is no higher public health priority than ensuring the delivery of clean drinking water. To this end, the Department has obtained primacy for the implementation and enforcement of the majority of federal drinking water regulations. These revisions to Subpart 5-1 incorporate federal mandates regarding the Revised Total Coliform Rule (RTCR) and ensure the Department is eligible for primacy over this Rule. Notably, the Department is already implementing these federal requirements through an agreement with EPA. Accordingly, the adoption of these regulations merely formalizes the existing regulatory arrangement and is expected to have no impact on PWSs.

The RTCR increases public health protection by reducing potential pathways for fecal contamination of distribution systems. The RTCR builds on the existing Total Coliform Rule by requiring all public water supplies to assess indicators of coliform contamination and to take corrective action. These amendments strengthen the integrity of the distribution system, through increased monitoring for effectiveness of treatment and increased monitoring for possible contamination.

A technical change is also being made to Subpart 7-5 of the State Sanitary Code to make Subpart 7-5 consistent with the changes regarding the RTCR.

Costs:

Costs to Public Water Systems

The proposed regulatory amendments incorporate revisions to federal rules regarding the Revised Total Coliform Rule (RTCR). These proposed amendments will not impose additional cost to PWSs when adopted, because PWSs are already complying with these federal requirements.

Costs to the Agency, the State and Local Governments for the Implementation and Continuation of the Rule:

State and local governments that operate PWSs are affected in different ways by these federal requirements. All PWSs are subject to State or local health department (LHD) oversight. However, because these amendments incorporate existing federal requirements, there is no additional cost imposed.

Local Government Mandates:

LHDs will not be impacted by the proposed regulations because they are already in compliance.

Paperwork:

These revised regulations do not require new forms or other paperwork. Adoption of these regulations will actually reduce paperwork because it will eliminate the need for PWSs to conduct dual reporting to the State and federal government.

Duplication:

Adopting these revised regulations will reduce duplication of effort for PWSs by eliminating the need for dual reporting to the State and federal government.

Alternatives:

Declining to adopt these regulations would make compliance oversight of PWSs primarily the responsibility of the State, with oversight by the federal government. This option would require additional and unnecessary reporting and coordination for PWSs. The proposed rule revisions are the better alternative.

Federal Standards:

These revisions incorporate changes in federal standards.

Compliance Schedule:

Currently, PWSs must comply with RTCR pursuant to schedules established by EPA.

Contact Person: Katherine Ceroalo
New York State Department of Health
Bureau of House Counsel, Regulatory Affairs Unit
Corning Tower Building, Rm. 2438
Empire State Plaza
Albany, New York 12237
(518) 473-7488
(518) 473-2019 (FAX)
REGSQNA@health.ny.gov

REGULATORY FLEXIBILITY ANALYSIS FOR SMALL BUSINESSES AND LOCAL GOVERNMENTS

Effect of Rule:

Revisions to 10 NYCRR Subpart 5-1 of the State Sanitary Code are required to obtain primacy from the United States Environmental Protection Agency (EPA) for implementation of the Revised Total Coliform Rule (RTCR).

Local governments and small businesses operate most of the Public Water Systems (PWSs) in New York State. It is estimated that almost 93 percent of the PWSs impacted by any of the proposed revisions are either small businesses or local governments.

Compliance Requirements:

Currently, PWSs must comply with the federal RTCR.

Professional Service:

The proposed regulations will not change the requirements for professional services used by small businesses or local governments, because PWSs are already complying with these federal requirements.

Compliance Costs:

The proposed regulations incorporate federal regulations and will not impose an additional cost to small business or local governments that own or operate a PWS, because PWSs are already complying with these federal requirements. After the Department is granted primacy for the enforcement of these regulations, enforcement costs are expected to be minimal because the State and Local Health Departments (LHDs) already enforce current public water supply regulations, and compliance with the proposed amendments is already widespread.

Economic and Technological Feasibility:

Currently available technology is adequate to meet rule requirements. Notably, EPA also determined that compliance with the federal regulations, as incorporated by these regulations, was both economically and technologically feasible for small businesses and local governments.

Minimizing Adverse Impact:

The proposed revisions incorporate existing federal regulations.

Small Business and Local Government Participation:

The Department presented and discussed the proposed revisions at organizational meetings where small community water systems were represented. These meetings included the New York Rural Water Association, the American Water Works Association, the Conference of Environmental Health Directors, the New York Association of Towns, and the New York Conference of Mayors, among others.

For Rules That Either Establish or Modify a Violation or Penalties Associated With a Violation:

Chapter 524 of the Laws of 2011 requires agencies to include a "cure period" or other opportunity for ameliorative action to prevent the imposition of penalties on the party or parties subject to enforcement under the proposed regulation. This regulation creates no new penalty or sanction. Hence, no cure period is necessary.

RURAL AREA FLEXIBILITY ANALYSIS

Types and Estimated Numbers of Rural Areas:

Many PWSs are located in the 44 counties that are defined as rural and in the towns of the additional nine counties where there are rural towns. Although the revised regulations will impact PWSs in these rural areas, the revisions will have the same effect on a PWS regardless of whether it is in a rural area or an urban area.

Revisions to 10 NYCRR Subpart 5-1 of the State Sanitary Code are required to obtain primacy from the United States Environmental Protection Agency (EPA) for implementation of the Revised Total Coliform Rule (RTCR).

Reporting, Recordkeeping and Other Compliance Requirements; Professional Services:

Currently, PWSs must comply with the federal RTCR, pursuant to schedules established by EPA. The proposed regulations will not change the requirements for professional services used by small businesses or local governments, because PWSs are already complying with these federal requirements.

Compliance Costs:

The proposed amendments incorporate federal regulations and will not impose an additional cost to small business or local governments in rural areas that own or operate a PWS, because PWSs are already complying with these federal requirements. After the Department is granted primacy for the enforcement of these regulations, enforcement costs are expected to be minimal because

the State and LHDs already enforce current public water supply regulations, and compliance with the proposed amendments is already widespread.

Minimizing Adverse Impact:

These revisions to Subpart 5-1 incorporate federal mandates regarding the RTCR. Notably, the Department is already implementing these federal requirements through an agreement with EPA. Accordingly, the adoption of these regulations merely formalizes the existing regulatory arrangement and is expected to have no impact on PWSs.

Rural Area Participation:

The proposed revisions incorporate existing federal regulations into 10 NYCRR Subpart 5-1. Representatives of public and private interests in rural areas had an opportunity to participate in the rule making process while the federal regulations were being developed. Outreach was also conducted by the DOH's Bureau of Water Supply Protection in the form of presentations at various stakeholder meetings, such as the New York Section of the American Water Works Association and the New York Rural Water Association.

JOB IMPACT STATEMENT

The Department of Health has determined that the proposed revisions will not have substantial adverse impact on jobs or employment opportunities, because they incorporate federal requirements with which public water systems are already complying.

Pursuant to the authority vested in the Commissioner of Health by sections 2803 and 2803-u(4) of the Public Health Law, sections 405.9, 405.18, 405.19, 405.20 and 407.5 of Title 10 of the Official Compilation of Codes, Rules and Regulations of the State of New York (NYCRR) are hereby amended, to be effective upon publication of a Notice of Adoption in the New York State Register:

Subparagraph (ii) of paragraph (11) of subdivision (b) of section 405.9 of Title 10 is amended to read as follows:

(ii) If a patient eligible for transfer to a hospital operated by the Veteran's Administration requests such transfer, hospital staff shall make such arrangements. Transfer shall be effected in accordance with paragraph [(f)(7)] (g)(7) of this section.

Subdivision (f) is relettered as (g) and a new subdivision (f) is added to section 405.9 of Title 10 to read as follows:

(f) Individuals with Substance Use Disorders. The hospital shall develop and maintain written policies and procedures for inpatient and outpatient care of individuals with documented substance use disorders or who appear to have or be at risk for substance use disorders, as that term is defined in section 1.03 of the Mental Hygiene Law. Such policies and procedures shall, at a minimum, meet the following requirements:

(1) Policies and procedures shall provide for the use of an evidence-based approach to identify

and assess individuals for substance use disorders, and to refer individuals with documented substance use disorders or who appear to have or be at risk for substance use disorders;

(2) Upon admission, treatment, or discharge of an individual with a documented substance use disorder or who appears to have or be at risk for a substance use disorder, including discharge or transfer from the emergency service of the hospital or assignment to observation services pursuant to paragraph (2) of subdivision (e) of section 405.19 of this Part, the hospital shall inform the individual of the availability of the substance use disorder treatment services that may be available to him or her through a substance use disorder services program. Such information may be provided verbally and/or in writing as appropriate;

(3) During discharge planning, the hospital shall provide to each individual with a documented substance use disorder or who appears to have or be at risk for a substance use disorder with educational materials, identified by the Office of Alcoholism and Substance Abuse Services in consultation with the Department and provided to the hospital pursuant to subdivision 1 of section 2803-u of the Public Health Law;

(4) Except where an individual has come into the hospital under section 22.09 of the Mental Hygiene Law, and where the hospital does not directly provide substance use disorder services, the hospital shall refer individuals in need of substance use disorder services to and coordinate with appropriate substance use disorder services programs that provide behavioral health services, as defined in section 1.03 of the Mental Hygiene Law; and

(5) The hospital shall establish and implement training, in addition to current training programs, for all individuals licensed or certified pursuant to title eight of the education law who provide direct patient care regarding the policies and procedures established in this paragraph.

Subdivision (g) of section 405.9 of Title 10 is relettered as (h) and subparagraph (ii) of paragraph (7) of the former subdivision (f), now relettered as subdivision (g), of section 405.9 of Title 10 is amended to read as follows:

(ii) Patients discharged from the hospital by their attending practitioner shall not be permitted to remain in the hospital without the consent of the chief executive officer of the hospital except in accordance with provisions of subdivision [(g)] (h) of this section.

Subparagraph (vi) of paragraph (2) of subdivision (b) of section 405.18 of Title 10 is amended to read as follows:

(vi) In accordance with the provisions of section [405.9(f)] 405.9(g) of this Part, rehabilitation therapy staff shall work with the attending practitioner, the nursing staff, other health care providers and agencies as well as the patient and the family, to the extent possible, to assure that all appropriate discharge planning arrangements have been made prior to discharge to meet the patient's identified needs.

New paragraph (5) is added to subdivision (c) of section 405.19 of Title 10 to read as follows and existing paragraphs (5) through (9) are renumbered (6) through (10):

(5) The emergency service shall provide for the identification, assessment and referral of individuals with documented substance use disorders or who appear to have or be at risk for substance use disorders, as that term is defined in section 1.03 of the Mental Hygiene Law, as described in subdivision (f) of section 405.9 of this Part.

Paragraph (4) of subdivision (c) of section 405.20 of Title 10 is amended, paragraph (5) is renumbered (6) and a new paragraph (5) is added to read as follows:

(4) compliance with the domestic violence provisions of section 405.9(e) of this Part; [and]

(5) identification, assessment, and referral of individuals with documented substance use disorders or who appear to have or be at risk for substance use disorders, as that term is defined in section 1.03 of the Mental Hygiene Law, as described in subdivision (f) of section 405.9 of this Part; and

Paragraph (6) of subdivision (b) of section 407.5 of Title 10 is amended to read as follows:

(6) Discharge/transfer. Hospitals shall comply with the provisions of paragraph (1) of subdivision [(g)] (h) of section 405.9 of this Title concerning discharge/transfer. In addition, PCHs and CAHs shall comply with the following:

* * *

REGULATORY IMPACT STATEMENT

Statutory Authority:

Public Health Law (PHL) § 2803 authorizes the Public Health and Health Planning Council (PHHPC) to adopt and amend rules and regulations, subject to the approval of the Commissioner, to implement the purposes and provisions of PHL Article 28, and to establish minimum standards governing the operation of health care facilities.

PHL § 2803-u(4) provides that the Department of Health (DOH), in consultation with the Office of Alcoholism and Substance Abuse Services (OASAS), shall issue regulations as necessary to implement the provisions of the section, which requires general hospitals to establish and train staff in policies and procedures for the identification, assessment and referral of individuals with substance use disorders.

Legislative Objectives:

Chapter 70 of the Laws of 2016 enacted Public Health Law (PHL) § 2803-u as part of a multi-pronged approach to address the prevalence of substance use, particularly heroin and opioids, that has become a serious public health crisis impacting communities throughout New York State. PHL § 2803-u requires general hospitals to establish policies and procedures for the identification, assessment and referral of individuals with or at risk of substance use disorders and to train staff in those policies and procedures. In particular, the statute provides for hospitals to refer individuals in need of substance use disorder services to appropriate programs and coordinate with such programs. This proposal will implement these requirements as described below.

Current Requirements:

General hospitals are required by section 405.9 of Title 10 of the New York Compilation of Codes, Rules and Regulations of New York (NYCRR) to refer patients for appropriate follow-up care after discharge from the hospital. Similar provisions are set forth in 10 NYCRR §§ 405.19 and 405.20 pertaining to hospital emergency and outpatient services. However, the current regulations do not specifically reference individuals with substance use disorders.

Needs and Benefits:

In New York State, approximately 1.4 million New Yorkers suffer from a substance use disorder.[1] The number of people affected in particular by opioid and heroin addiction has grown so dramatically over the last several years that it constitutes a public health crisis, impacting thousands of people and their families throughout New York State communities.[2] Heroin overdose is now the leading cause of accidental death in the state and 2,028 New Yorkers died of a drug overdose in 2014.[3] In 2015, approximately 107,300 New York residents received treatment for opioid substance use.[4]

To identify ways to combat this issue, the Governor convened the Heroin and Opioid Task Force. The Task Force issued a report setting forth a series of recommendations, many of which were included in Governor's Program Bills Nos. 31, 32, and 33 of 2016. Subsequently, the Governor signed Chapters 69, 70 and 71 of the Laws of 2016, which included several

[1] *Heroin and Opioid Task Force Report,* June 9, 2016, "Combatting the Heroin and Opioid Crisis," available at https://www.governor.ny.gov/sites/governor.ny.gov/files/atoms/files/HeroinTaskForceReport_3.pdf, , p. 2.

[2] Id. at p. 2.
[3] Id. at p. 2.
[4] Id. at p. 10.

initiatives to address heroin and opioid abuse across the state. Among other things, the new laws include measures to increase access to overdose reversal medication, limit opioid prescriptions for acute pain from 30 to 7 days, require ongoing education on addiction and pain management for prescribers, and eliminate insurance barriers for treatment and medication.

As part of this approach, new PHL § 2803-u was added by Chapter 70 of the Laws of 2016. As noted in the sponsor's memorandum, individuals who present at emergency rooms for treatment of an opioid overdose often are "simply stabilized and released, without the provision of treatment information or additional follow-up. However, continuous access to appropriate treatment and services is critical for an individual to have any chance to overcome an addiction." Accordingly, PHL § 2803-u requires general hospitals to establish policies and procedures and train staff in the identification, assessment and referral of individuals with or who appear to be at risk for substance use disorders.

Specifically, PHL § 2803-u(1) of the new statute requires OASAS, in consultation with DOH, to develop new or identify existing educational materials for general hospitals to disseminate to individuals who have or appear to have substance use disorders as part of discharge planning. The materials will include information such as: (1) the various types of treatment and recovery services such as inpatient, outpatient, and medication-assisted treatment; (2) how to recognize the need for treatment services; and (3) information for individuals to determine what type and level of treatment is most appropriate and what resources are available to them.

PHL § 2803-u(2)(a) requires hospitals to develop, maintain and disseminate written policies and procedures for the identification and assessment and referral of individuals with documented substance use disorders or who appear to have or be at risk for substance use

disorders. PHL § 2803-u(2)(b) requires hospitals to train their licensed and certified clinical staff members who provide direct patient care in such policies and procedures. Under PHL § 2803-u(2)(c), hospitals must refer individuals in need of substance use disorder services to appropriate programs and coordinate with such programs. PHL § 2803-u(3) provides that hospitals must inform individuals with documented substance use disorders or who appear to have or be at risk for substance use disorders of the availability of treatment services that may be available through a substance use disorder services program. Finally, PHL § 2803-u(4) provides that the Commissioner of Health, in consultation with the Commissioner of OASAS, shall issue regulations as necessary to carry out the new section.

Consistent with these requirements, this proposed regulation will require general hospitals to: (1) provide individuals who have or appear to have substance use disorders with educational materials, to be developed by OASAS in consultation with DOH, as part of discharge planning; (2) establish written policies and procedures for the identification and assessment (using an evidence-based approach) as well as the referral of individuals who have or appear to have substance use disorders; (3) train licensed and certified staff in such policies and procedures; (4) refer individuals in need of substance use disorder services to appropriate programs and coordinate with such programs; and (5) inform individuals who have or appear to have substance use disorders of treatment services that may be available, which can be accomplished verbally and/or in writing as appropriate.

As noted above, the proposed regulation requires the identification and assessment of individuals with substance use disorders by using any approach that is evidence-based. One such evidence-based approach is the Screening, Brief Intervention and Referral to Treatment (SBIRT). SBIRT seeks to identify patients who use alcohol and other drugs at risky levels with

the goal of reducing and preventing related health consequences, disease, accidents and injuries. Risky substance use is a health issue and often goes undetected. Information on SBIRT is available on the OASAS website at http://www.oasas.ny.gov/adMed/sbirt/index.cfm, which includes a video introducing this approach.

Consistent with the statute, the regulations require hospitals to refer individuals in need of substance use disorder services to appropriate programs and "coordinate" with such programs. Coordination, at a minimum, requires a referral to the most appropriate level of care but as appropriate should also include activities such as securing admission to an on-site substance use disorder services program or making an appointment with a program in the community, or establishing a telehealth connection with a distant practitioner who can further engage with the individual to identify needed services.

COSTS:

Costs to Private Regulated Parties:

While the current regulations do not specifically refer to individuals with substance use disorders, hospitals are already required to have written policies and procedures related to various operational requirements, train staff in such policies and procedures and refer patients to appropriate follow-up care. The proposed regulations do require additional effort to ensure that the policies and training encompasses the identification, assessment and referral of individuals with substance use disorders, as well as the provision of information related to substance use disorder services, consistent with the requirements of the statute. However, these efforts are expected to assist individuals in obtaining treatment that will help them avoid future emergency room visits and hospital admissions.

Costs to Local Government:

This proposal will not impact local governments unless they operate a general hospital, in which case the impact would be the same as outlined above for private parties.

Costs to the Department of Health:

The proposed regulatory changes will not result in any additional operational costs to DOH, as the new requirements will be incorporated into existing surveillance activities. The development of the educational materials to be distributed to individuals with substance use disorder during discharge planning to be developed in conjunction with OASAS, is expected to be managed within existing resources.

Costs to Other State Agencies:

The proposed regulatory changes will not result in any additional costs to other state agencies. OASAS, in consultation with DOH, will develop educational materials to be distributed to individuals with substance use disorders as part of the discharge planning process, which is expected to be managed within existing resources.

Local Government Mandate:

The proposed regulations do not impose any new programs, services, duties or responsibilities upon any county, city, town, village, school district, fire district or other special district.

Paperwork:

General hospitals are already required to establish written policies and procedures related to various operational requirements, train staff in such policies and procedures, and refer patients to appropriate follow-up care. Therefore, the proposed regulations should not significantly increase their paperwork.

Duplication:

While existing regulations require hospitals to make appropriate referrals, those regulations do not specifically reference individuals with substance use disorders. There otherwise are no relevant State regulations which duplicate, overlap or conflict with the proposed regulations.

Alternatives:

There are no alternatives to the proposed regulations related to hospital policies and procedures, which are consistent with PHL § 2803-u, added by Chapter 70 of the Laws of 2016.

Federal Standards:

The proposed regulations do not duplicate or conflict with any federal regulations.

Compliance Schedule:

The regulations will be effective upon publication of a Notice of Adoption in the New York State Register.

Contact Person: Katherine Ceroalo
New York State Department of Health
Bureau of House Counsel, Regulatory Affairs Unit
Corning Tower Building, Room 2438
Empire State Plaza
Albany, New York 12237
(518) 473-7488
(518) 473-2019 (FAX)
REGSQNA@health.ny.gov

REGULATORY FLEXIBILITY ANALYSIS
FOR SMALL BUSINESSES AND LOCAL GOVERNMENTS

Effect of Rule:

The proposed regulatory provisions related to substance use disorders will apply to all general hospitals in New York State. This proposal will not impact local governments or small business unless they operate a general hospital. In such case, the flexibility afforded by the regulations is expected to minimize any costs of compliance as described below.

Compliance Requirements:

These regulations will require general hospitals to develop, maintain and disseminate written policies and procedures for the identification and assessment (using an evidence-based approach) as well as the referral of individuals with documented substance use disorders or who appear to have or be at risk for substance use disorders. Hospitals will be required to train their licensed and certified clinical staff members in such policies and procedures.

Professional Services:

While the current regulations do not specifically refer to individuals with substance use disorders, hospitals are already required to establish written policies and procedures related to various operational requirements, train staff in such policies and procedures and refer patients to appropriate follow-up care.

Compliance Costs:

While the current regulations do not specifically refer to individuals with substance use

disorders, hospitals are already required to establish written policies and procedures related to various operational requirements, train staff in such policies and procedures and refer patients to appropriate follow-up care. The proposed regulations do require additional effort to ensure that the policies and training encompasses the identification, assessment and referral of individuals with substance use disorder, as well as the provision of information related to substance use disorder services, consistent with the requirements of the statute. However, these efforts are expected to assist individuals in obtaining treatment that will help them avoid future emergency room visits and hospital admissions.

Economic and Technological Feasibility:

This proposal is economically and technically feasible. While existing regulations do not specifically refer to individuals with substance use disorders, hospitals are already required to establish written policies and procedures related to various operational requirements, train staff in such policies and procedures and refer patients to appropriate follow-up care.

Minimizing Adverse Impact:

There are no alternatives to the proposed regulations related to hospital policies and procedures, which are consistent with PHL § 2803-u, added by Chapter 70 of the Laws of 2016.

Small Business and Local Government Participation:

Development of these regulations included input from organizations including those whose members include general hospitals that are operated by local governments or that constitute small businesses.

Cure Period:

Chapter 524 of the Laws of 2011 requires agencies to include a "cure period" or other opportunity for ameliorative action to prevent the imposition of penalties on a party subject to enforcement when developing a regulation or explain in the Regulatory Flexibility Analysis why one is not included. As this proposed regulation does not create a new penalty or sanction, no cure period is necessary.

RURAL AREA FLEXIBILITY ANALYSIS

Types and Estimated Numbers of Rural Areas:

This rule applies uniformly throughout the state, including rural areas. Rural areas are defined as counties with a population less than 200,000 and counties with a population of 200,000 or greater that have towns with population densities of 150 persons or fewer per square mile. The following 43 counties have a population of less than 200,000 based upon the United States Census estimated county populations for 2010 (http://quickfacts.census.gov). Approximately 17% of small health care facilities are located in rural areas.

Allegany County
Cattaraugus County
Cayuga County
Chautauqua County
Chemung County
Chenango County
Clinton County
Columbia County
Cortland County
Delaware County
Essex County
Franklin County
Fulton County
Genesee County
Greene County
Hamilton County
Herkimer County
Jefferson County
Lewis County
Livingston County
Madison County
Montgomery County
Ontario County
Orleans County
Oswego County
Otsego County
Putnam County
Rensselaer County
Schenectady County
Schoharie County
Schuyler County
Seneca County
St. Lawrence County
Steuben County
Sullivan County
Tioga County
Tompkins County
Ulster County
Warren County
Washington County
Wayne County
Wyoming County
Yates County

The following counties have a population of 200,000 or greater and towns with population densities of 150 persons or fewer per square mile. Data is based upon the United States Census estimated county populations for 2010.

Albany County
Broome County
Dutchess County
Erie County
Monroe County
Niagara County
Oneida County
Onondaga County
Orange County
Saratoga County
Suffolk County

There are 47 general hospitals, approximately 90 diagnostic and treatment centers, 159 nursing homes, and 92 certified home health agencies in rural areas.

Reporting, Recordkeeping, Other Compliance Requirements and Professional Services:

The proposed regulation is applicable to those general hospitals located in rural areas and is expected to impose only minimal costs upon hospitals, which are already required to establish written policies and procedures related to various operational requirements, train staff in such policies and procedures and refer patients to appropriate follow-up care. Because the proposed regulatory requirements can be incorporated into existing processes, they are not expected to substantially increase the administrative burden on these entities.

Costs:

While the current regulations do not specifically refer to individuals with substance use disorders, hospitals are already required to establish written policies and procedures related to various operational requirements, train staff in such policies and procedures and refer patients to appropriate follow-up care. The proposed regulations do require additional effort to ensure that the policies and training encompasses the identification, assessment and referral of individuals with substance use disorder, as well as the provision of information related to substance use disorder services, consistent with the requirements of the statute. However, these efforts are expected to assist individuals in obtaining treatment that will help them avoid future emergency room visits and hospital admissions.

Minimizing Adverse Impact:

There are no alternatives to the proposed regulation. The proposed regulations are consistent with PHL § 2803-u, added by Chapter 70 of the Laws of 2016 to require general hospitals to establish policies and procedures pertaining to individuals with substance use disorders.

Rural Area Participation:

Development of these regulations included input from organizations including those that include as members general hospitals located in rural areas.

STATEMENT IN LIEU OF JOB IMPACT STATEMENT

No job impact statement is required pursuant to section 201-a(2)(a) of the State Administrative Procedure Act. No adverse impact on jobs and employment opportunities is expected as a result of these proposed regulations.