STATE OF COLORADO

Bill Ritter, Jr., Governor
James B. Martin, Executive Director

WATER QUALITY CONTROL COMMISSION
http://www.cdphe.state.co.us/op/wqcc/index.html

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Colorado Department of Public Health and Environment

NOTICE OF PUBLIC RULEMAKING HEARING
BEFORE THE
COLORADO WATER QUALITY CONTROL COMMISSION

SUBJECT:

At the date, time and location listed below, the Water Quality Control Commission will hold a rulemaking hearing to consider the adoption of revisions to the Primary Drinking Water Regulations (5 CCR 1003-1). Revisions to the Primary Drinking Water Regulations proposed by the Water Quality Control Division as staff to the Commission, along with a proposed Statement of Basis, Specific Statutory Authority, and Purpose, are attached to this Notice as Exhibit 1. Proposed new language is shown with double-underlining and proposed deletions are shown with ~~strikeouts.~~ Any alternative proposals related to the revisions proposed in Exhibit 1, and developed in response to those proposed revisions, will also be considered.

HEARING SCHEDULE:

DATE:	Monday, August 10, 2009
TIME:	10:00 a.m.
PLACE:	CDPHE, Florence Sabin Conference Room 4300 Cherry Creek Drive South Denver, CO 80246-1530

PUBLIC PARTICIPATION ENCOURAGED:

The Commission encourages all interested persons to provide their opinions or recommendations regarding the matters to be addressed in this rulemaking hearing, either orally at the hearing or in writing prior to or at the hearing. Although oral testimony from those with party status (see below) and other interested persons will be received at the hearing, the time available for such oral testimony may be limited. Written submissions prior to the hearing are encouraged, so that they can be distributed to the Commission for review prior to the hearing. Oral testimony at the hearing should primarily summarize written material previously submitted. The hearing will emphasize Commission questioning of parties and other interested persons about their written prehearing submittals. Introduction of written material at the hearing by those with party status or mailing list status (see below) generally will not be permitted. The Commission requests that all interested persons submit to the Commission any available information that may be relevant in considering the noticed proposals.

PARTY STATUS/MAILING LIST STATUS:

Participation as a "party" to this hearing or acquisition of "mailing list status," will require compliance with section 21.3(D) of the Procedural Rules, Regulation #21 (5 CCR 1002-21). Mailing list status will allow receipt of all party documents (except individual exhibits more than five pages in length).

It is not necessary to acquire party status or mailing list status in order to testify or comment. **For each request for party status or mailing list status, please provide the organization's name, a contact person, mailing address, phone number, fax number and email address if available.** Written party status or mailing list status requests are due in the Commission Office on or before:

DATE: Tuesday, May 26, 2009
TIME: 5:00 p.m.

A single copy of the party status or mailing list status request may be transmitted as an email attachment to cdphe.wqcc@state.co.us, submitted by fax to 303-691-7702, mailed or otherwise conveyed so as to be received in the Commission Office no later than this deadline. PLEASE NOTE that, as indicated below, parties will have the option of distributing materials to other parties electronically, except in instances where a party has requested receiving hard copies of documents. Therefore, **anyone requesting party or mailing list status that wishes to receive hard copies of documents instead of emailed copies should so indicate in the party status/mailing list status request so that this information can be included on the list distributed by the Commission Office.**

PREHEARING STATEMENTS:

PLEASE NOTE that for this hearing two separate deadlines for prehearing statements are established: (1) An original and 13 copies of **Proponent's Prehearing Statement** from **the Water Quality Control Division, as proponent of the revisions proposed in Exhibit 1 attached to this notice,** including written testimony and exhibits providing the basis for the proposals, must be received in the Commission Office no later than **June 2, 2009**; and (2) an original and 13 copies of a **Responsive Prehearing Statement**, including any exhibits, written testimony, and alternative proposals of **anyone seeking party status and intending to respond to the proponent's proposals** must be received in the Commission Office no later than **June 25, 2009**.

For each deadline, the required number of hard copies of documents must be received in the Commission office by the specified deadline. These requirements are not satisfied by electronic transmission of a facsimile copy or copies. However, **parties are also strongly encouraged to email a copy of their written documents to the Commission Office**, so that materials received can be posted on the Commission's web site. (Please email to cdphe.wqcc@state.co.us.) In addition, copies of these documents must be mailed or hand-delivered by the specified dates to all persons requesting party status or mailing list status, and to the Attorney General's Office representatives for the Commission and the Division, in accordance with a list provided by the Commission Office following the party status/mailing list status deadline. **Alternatively, parties may email documents to those with party status or mailing list status by the specified dates,** except to those that the list distributed by the Commission Office identifies as requesting hard copies**.**

Also **note** that the Commission has prepared a document entitled **Information for Parties to Water Quality Control Commission Rulemaking Hearings.** A copy of this document will be mailed or emailed to all persons requesting party status or mailing list status. It is also posted on the Commission's web site at

http://www.cdphe.state.co.us/op/wqcc/PublicParticipation/HBappC.pdf. Following the suggestions set forth in this document will enhance the effectiveness of parties' input for this proceeding. **Please note the request that all parties submit two-sided copies of all hearing documents on three-hole punch paper.**

MAILING LIST STATUS COMMENTS:

Those requesting mailing list status shall provide written testimony, if any testimony is to be offered for the hearing, by the above deadline for responsive prehearing statements – i.e., **June 25, 2009**. Copies shall be submitted and distributed in the same manner as noted above for prehearing statements.

PREHEARING CONFERENCE:

DATE: Tuesday, July 7, 2009
TIME: 3:30 p.m.
PLACE: Carson Room, Department of Public Health and Environment
4300 Cherry Creek Drive South
Denver, Colorado

Attendance at the prehearing conference is mandatory for all persons requesting party status. An opportunity may be available to participate in this prehearing conference by telephone. Persons wishing to participate by telephone should notify the Commission Office as early as possible.

REBUTTAL STATEMENTS:

Written rebuttal statements responding to the prehearing statements due on June 25, 2009 may be submitted by anyone seeking party status or mailing list status. Any such rebuttal statements must be received in the Commission Office by **July 29, 2009**. An original and 13 copies of written rebuttal statements must be received in the Commission Office by this deadline, and submission of an emailed copy as noted above is strongly encouraged. In addition, copies of these documents must be mailed or hand-delivered by that date to all those requesting party status or mailing list status, and to the Attorney General's Office representatives for the Commission and Division. **Alternatively, parties may email documents to those with party status or mailing list status by this deadline,** except to those that the list distributed by the Commission Office identifies as requesting hard copies**.** No other written materials will be accepted following this deadline except for good cause shown.

SPECIFIC STATUTORY AUTHORITY:

The provisions of sections 25-1.5-202; 25-8-202(1)(n) and (2); and 25-8-401 C.R.S. provide the specific statutory authority for consideration of the regulatory amendments proposed by this notice. Should the Commission adopt the regulatory language as proposed in this notice or alternative amendments, it will also adopt, in compliance with section 24-4-103(4) C.R.S., an appropriate Statement of Basis, Specific Statutory Authority, and Purpose.

NOTIFICATION OF POTENTIAL MATERIAL INJURY TO WATER RIGHTS:

In accordance with section 25-8-104(2)(d), C.R.S. any person who believes that the actions proposed in this notice have the potential to cause material injury to his or her water rights is requested to fully explain the basis for their claim in the written comments submitted. This

explanation should identify and describe the water right(s), and explain how and to what degree the material injury will be incurred.

Dated this 20th day of April 2009 at Denver, Colorado.

WATER QUALITY CONTROL COMMISSION

Paul D. Frohardt

Paul Frohardt, Administrator

EXHIBIT 1
WATER QUALITY CONTROL COMMISSION

DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Water Quality Control Commission

COLORADO PRIMARY DRINKING WATER REGULATIONS

5 CCR 1003-1

. . .

1.5.2 Definitions

As used in the *Colorado Primary Drinking Water Regulations:*

. . .

(56) *First draw sample*, as it applies to section 8.~~7~~2(Monitoring Requirements for Lead and Copper in Tap Water), means a one-liter sample of tap water that has been standing in plumbing pipes for at least six hours and is collected without flushing the tap.

. . .

(118) *Service line sample,* as it applies to section 8.~~7~~2(Monitoring Requirements for Lead and Copper in Tap Water), means a one-liter sample of water that has been standing for at least 6 hours in a service line.

. . .

1.6.3 Recordkeeping

Each public water system shall retain on the system's premises or at a convenient location near such premises the following records:

. . .

(o) In addition to the requirements of section 1.6.3(a) – (n), a groundwater system regulated under Article 13 must maintain the following information in its records:

. . .

(2) Documentation of notice to the public as required under sections ~~9.1.3(h)(6)~~9.1.3(h) and 9.2.13. Documentation shall be kept for a period of not less than three years.

. . .

(5) For systems, including wholesale systems, that are required to perform compliance monitoring under section 13.4~~(b)~~(c):

. . .

1.6.4 Reporting Requirements

. . .

(e) In addition to the requirements of section 1.6.4(a) – (d), groundwater systems regulated under Article 13 must provide the following information to the Department:

(1) A groundwater system conducting compliance monitoring under section 13.4~~(b)~~(c) must notify the Department any time the system fails to meet any Department-specified requirements including, but not limited to, minimum residual disinfectant concentration, membrane operating criteria or membrane integrity, and alternative treatment operating criteria, if operation in accordance with the criteria or requirements is not restored within four hours. The groundwater system must notify the Department as soon as possible, but in no case later than the end of the next business day.

. . .

2.2 MCLs and MCLGs for Inorganic Chemical Contaminants

~~(a) The maximum contaminant level for arsenic for community water systems is 0.05 milligrams per liter (mg/L) until January 23, 2006.~~

~~(b)~~(a) The following maximum contaminant levels for inorganic chemical contaminants apply to all community and non-transient, non-community water systems. The fluoride maximum contaminant level (MCL) applies only to community water systems and may be applied to non-community water systems when found by the Department to be necessary to protect the public health. In addition, the maximum contaminant levels for nitrate, nitrite and total nitrate/nitrite also apply to transient, non-community water systems.

Table 2-3 MCLs and MCLGs for Inorganic Chemicals

.	**Contaminant**	**MCL (mg/L)**	**MCLG (mg/L)**
. . .	. . .	. . .	. . .
(2)	Arsenic	0.010~~1~~	Zero~~1~~

~~1 The effective date for the arsenic MCL and its corresponding MCLG as listed is January 23, 2006. Until then, the MCL is 0.05 mg/L and there is no MCLG.~~

2.3 MCLs, MCLGs and Treatment Technique Requirements for Microbiological Contaminants

. . .

Table 2-4 MCLs, MCLGs and TTs for Microbiological Contaminants

	Contaminant	**Number of Samples**	**MCL**	**MCLG**	**TT** ***Requirements***
. . .	. . .	. . .	. . .	. . .	. . .

1 The treatment technique requirement for Cryptosporidium will not apply for surface water or ~~ground water~~ groundwater under the direct influence of surface water serving less than 10,000 until January 1, 2005.

. . .

2.8 Filtration (Turbidity) Treatment for Surface Water Systems

. . .

Table 2-9 Required Turbidity Levels

.	**Treatment Technique**	**System Size (in population served)**	**Turbidity Level (NTU)**	.
~~(1)~~	~~Conventional or Direct Filtration~~	~~Less than 10,000~~[1]	~~less than or equal to (≤) 0.5 NTU in at least 95% of the measurement taken each month~~	~~At no time to exceed 5 NTU~~
~~(2)~~ (1)	Conventional, Direct, or Membrane Filtration	All sizes[2]	less than or equal to (≤) 0.3 NTU in at least 95% of the measurement taken each month	At no time to exceed 1 NTU
~~(3)~~ (2)	Slow Sand Filtration	All sizes	less than or equal to (≤) 1 NTU in at least 95% of the measurement taken each month	At no time to exceed 5 NTU
~~(4)~~ (3)	Diatomaceous Earth and Cartridge & Bag Filtration	All sizes	less than or equal to (≤) 1 NTU in at least 95% of the measurement taken each month	At no time to exceed 5 NTU
~~(5)~~ (4)	Other Filtration Technologies	Less than 10,000	Department approved technology must consistently achieve 99.9% (3-log) removal and/or inactivation of Giardia lamblia cysts, and 99.99% (4-log) removal and/or inactivation of viruses 99% (2-log) removal of Cryptosporidium oocysts[2]	.
~~(6)~~ (5)	Other Filtration Technologies	greater than or equal to (≥) 10,000	Department approved technology must consistently achieve 99.9% (3-log) removal and/or inactivation of Giardia lamblia cysts, and 99.99% (4-log) removal and/or inactivation of viruses, and 99% (2-log) removal of Cryptosporidium oocysts	.

~~1 Surface water or ground water under direct influence of surface water systems serving less than 10,000 using direct or conventional filtration must comply with these standards through January 1, 2005~~

~~2 The standards in this row do not apply to surface water systems serving less than 10,000 people using direct or conventional filtration until January 1, 2005.~~

. . .

5.4 Fecal Coliforms/*Escherichia coli* (*E. coli*) Testing

(a) If any routine or repeat sample is total coliform-positive, the system must have a certified laboratory analyze that total coliform-positive culture medium to determine if fecal coliforms are present, except that the system may test for *E. coli* in lieu of fecal coliforms.

. . .

6.1.1 Applicability

(a) These regulations shall apply to all community and non-transient, non-community water systems in Colorado, except:

. . .

~~(3) The arsenic MCL applies only to community water systems, until January 23, 2006 when it will also apply to non-transient, non-community water systems.~~

. . .

6.1.3 Compliance Determination

(a) Compliance with section 2.2, MCLs and MCLGs for Inorganic Chemical Contaminants, shall be determined based on the analytical result(s) obtained at each sampling point.

(1) For systems which are conducting monitoring at a frequency greater than annual, compliance with the maximum contaminant levels for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium or thallium is determined by a running annual average based on data from the most recent four consecutive quarters at any sampling point. If the running annual average at any sampling point is greater than the MCL, then the system is out of compliance. If any one sample would cause the running annual average to be exceeded, then the system is out of compliance immediately. ~~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.~~

(2) For systems which are monitoring annually, or less frequently, the system is out of compliance with the maximum contaminant levels for antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, cyanide, fluoride, mercury, nickel, selenium or thallium if the level of a contaminant is greater than the MCL. If confirmation samples are required by the Department the determination of compliance will be based on the annual average of the initial MCL exceedance and any Department-required confirmation samples. ~~If a system fails to collect the required number of samples, compliance (average concentration) will be based on the total number of samples collected. If a sample result is less than the detection limit, zero will be used to calculate compliance.~~

. . .

(4) 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.

~~(4)~~(5) Arsenic sampling results will be reported to the nearest 0.001mg/L.

. . .

6.1.4 Best Available Technology (BAT) and Small System Compliance Technology (SSCT)

(a) The ~~EPA Administrator,~~EPA Administrator hereby identifies the following as the best technology, treatment technique, or other means available for achieving compliance with the maximum contaminant levels for inorganic contaminants identified in section 2.2, except fluoride:

. . .

7.4.1 General Requirements

. . .

(b) Applicability. The requirements in section 7.4 apply to all Surface Water and GWUDI systems, which are public water systems supplied by a surface water source and public water systems supplied by a ~~ground water~~ groundwater source under the direct influence of surface water.

. . .

7.4.2 Source Water Monitoring

(a) Initial round of source water monitoring. Systems must conduct the following monitoring on the schedule in paragraph (c) of this section unless they meet the monitoring exemption criteria in paragraph (d) of this section.

. . .

(2) ~~(i) Filtered systems serving fewer than 10,000 people must sample their source water for *E. coli* at least once every two weeks for 12 months.~~

(i) Filtered systems serving fewer than 10,000 people must sample their source water for *E. coli* at least once every two weeks for 12 months.

~~(i)~~(ii) A filtered system serving fewer than 10,000 people may avoid *E*. *coli* monitoring if the system notifies the Department that it will monitor for *Cryptosporidium* as described in paragraph (a)(3) of this section. The system must notify the Department no later than 3 months prior to the date the system is otherwise required to start *E. coli* monitoring under section 7.4.2(c).

(3) Filtered systems serving fewer than 10,000 people must sample their source water for *Cryptosporidium* at least twice per month for 12 months or at least monthly for 24 months if they meet one of the following, based on monitoring conducted under paragraph (a)(2) of this section:

. . .

(iv) Systems using ~~ground water~~ groundwater under the direct influence of surface water (GWUDI) must comply with the requirements of paragraph (a)(3) of this section based on the *E. coli* level that applies to the nearest surface water body. If no surface water body is nearby, the system must comply based on the requirements that apply to systems using lake/reservoir sources.

. . .

7.4.4 Sampling Locations

. . .

(e) Multiple sources. Systems with plants that use multiple water sources, including multiple surface water sources and blended surface water and ~~ground water~~ groundwater sources, must collect samples as specified in paragraph (e)(1) or (2) of this section. The use of multiple sources during monitoring must be consistent with routine operational practice.

. . .

7.4.8 Developing the Disinfection Profile and Benchmark

(a) Systems required to develop disinfection profiles under Section 7.4.7 must follow the requirements of this section. Systems must monitor at least weekly for a period of 12 consecutive months to determine the total log inactivation for *Giardia lamblia* and viruses. If systems monitor more frequently, the monitoring frequency must be evenly spaced. Systems that operate for fewer than 12 months per year must monitor weekly during the period of operation. Systems must determine log inactivation for *Giardia lamblia* through the entire plant, based on $CT_{99.9}$ values in Tables ~~10-14 through 10-21~~ 10-15 through 10-22 of Section 10.6(b) as applicable. Systems must determine log inactivation for viruses through the entire treatment plant based on a protocol approved by the Department.

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7.4.15 Pre-filtration Treatment Toolbox Components

. . .

(c) Bank filtration. Systems receive *Cryptosporidium* treatment credit for bank filtration that serves as pretreatment to a filtration plant by meeting the criteria in this paragraph. Systems using bank filtration when they begin source water monitoring under Section 7.4.2(a) must collect samples as described in Section 7.4.4(d) and are not eligible for this credit.

(1) Wells with a ~~ground water~~ groundwater flow path of at least 25 feet receive 0.5-log treatment credit; wells with a ~~ground water~~ groundwater flow path of at least 50 feet receive 1.0-log treatment credit. The ~~ground water~~ groundwater flow path must be determined as specified in paragraph (c)(4) of this section.

. . .

(4) For vertical wells, the ~~ground water~~ groundwater flow path is the measured distance from the edge of the surface water body under high flow conditions (determined by the 100 year floodplain elevation boundary or by the floodway, as defined in Federal Emergency Management Agency flood hazard maps) to the well screen. For horizontal wells, the

~~ground water~~ groundwater flow path is the measured distance from the bed of the river under normal flow conditions to the closest horizontal well lateral screen.

. . .

7.5.1 Applicability

All surface water or groundwater under the direct influence of surface water systems that employ conventional filtration or direct filtration treatment and that recycle spent filter backwash water, thickener supernatant, or liquids from dewatering processes must meet the requirements in sections 7.5.2 through ~~7.5.4~~ 7.5.3 of this Article 7 and the requirements of section 1.6.3(j).

. . .

7.6.3 Monitoring Requirements

(a) General requirements.

. . .

(3) Failure to monitor in accordance with the monitoring plan required under section 7.6.3~~(f)~~(e) is a monitoring violation.

. . .

(b) Monitoring requirements for disinfection byproducts.

(1) TTHMs and HAA5.

. . .

Table 7-18 Routine Monitoring Frequency for TTHM And HAA5

Type of System	**Minimum Monitoring Frequency**	**Sample Location in the Distribution System**
. . .	. . .	. . .
. . .	. . .	. . .
Surface water or groundwater under the direct influence of surface water system serving fewer than 500 persons.	One sample per year per treatment plant during month of warmest water temperature.	Locations representing maximum residence time.[1] If the sample (or average of annual samples, if more than one sample is taken) exceeds the MCL, the system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the system meets criteria in paragraph (b)(1)~~(iv)~~(v) of this section.
. . .	. . .	. . .

System using only groundwater not under direct influence of surface water using chemical disinfectant and serving fewer than 10,000 persons.	One sample per year per treatment plant [2] during month of warmest water temperature.	Locations representing maximum residence time.[1] If the sample (or average of annual samples, if more than one sample is taken) exceeds the MCL, the system must increase monitoring to one sample per treatment plant per quarter, taken at a point reflecting the maximum residence time in the distribution system, until the system meets criteria in paragraph (b)(1)~~(iv)~~(v) of this section.

. . .

(iv) Systems on a reduced monitoring schedule may remain on that reduced schedule as long as the average of all samples taken in the year (for systems which must monitor quarterly) or the result of the sample (for systems which must monitor no more frequently than annually) is no more than 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively. Systems that do not meet these levels must resume monitoring at the frequency identified in paragraph (b)(1)(i) of this section (minimum monitoring frequency column) in the quarter immediately following the monitoring period in which the system exceeds 0.060 mg/L or 0.045 mg/L for TTHMs and HAA5, respectively. For systems using only ~~ground water~~ groundwater not under the direct influence of surface water and serving fewer than 10,000 persons, if either the TTHM annual average is >0.080 mg/L or the HAA5 annual average is >0.060 mg/L, the system must go to the increased monitoring identified in paragraph (b)(1)(i) of this section (sample location column) in the quarter immediately following the monitoring period in which the system exceeds 0.080 mg/L or 0.060 mg/L for TTHMs or HAA5 respectively. ~~A system on a reduced monitoring schedule may remain on that schedule as long as annual average of all samples taken in the year or the result of the sample is no more than 0.060 mg/L for TTHM and 0.045 mg/L for HAA5; systems that do not meet these levels must resume monitoring at the frequency identified in section 7.5.3(b)(1)(i) (minimum monitoring frequency column) in the quarter immediately following the monitoring period in which the system exceeds 0.060 mg/L or 0.045 mg/L for TTHM or HAA5 respectively. For systems using only groundwater not under the direct influence of surface water and serving fewer than 10,000 persons, if either the TTHM annual average is greater than (>) 0.080 mg/L or the HAA5 annual average is greater than (>) 0.060 mg/L, the system must go to the increased monitoring identified in section 7.6.3(b)(1)(i) (sample location column) in the quarter immediately following the monitoring period in which the system exceeds 0.080 mg/L or 0.060 mg/L for TTHMs or HAA5 respectively.~~

. . .

(2) Chlorite. Community and non-transient, non-community water systems using chlorine dioxide for disinfection or oxidation must conduct monitoring for chlorite.

(i) Routine monitoring.

(A) Daily monitoring. Systems must take daily samples at the entrance to the distribution system. For any daily sample that exceeds the chlorite MCL, the system must take additional samples in the distribution system the following day at the locations required by section ~~6.3(b)(2)(ii)~~ 7.6.3(b)(2)(ii), in addition to the sample required at the entrance to the distribution system.

(B) Monthly monitoring. Systems must take a three-sample set each month in the distribution system. The system must take one sample at each of the following locations: near the first customer, at a location representative of average residence time, and at a location reflecting maximum residence time in the distribution system. Any additional routine sampling must be conducted in the same manner (as three-sample sets, at the specified locations). The system may use the results of additional monitoring conducted under section ~~6.3(b)(2)(ii)~~ 7.6.3(b)(2)(ii) to meet the requirement for monitoring in this paragraph.

. . .

(iii) Reduced monitoring.

(A) Chlorite monitoring at the entrance to the distribution system required by section ~~6.3(b)(2)(i)(A)~~ 7.6.3(b)(2)(i)(A) may not be reduced.

(B) Chlorite monitoring in the distribution system required by section ~~6.3(b)(2)(i)(B)~~ 7.6.3(b)(2)(i)(B) may be reduced to one three-sample set per quarter after one year of monitoring where no individual chlorite sample taken in the distribution system under section ~~6.3(b)(2)(i)(B)~~ 7.6.3(b)(2)(i)(B) has exceeded the chlorite MCL and the system has not been required to conduct monitoring under section ~~6.3(b)(2)(ii)~~ 7.6.3(b)(2)(ii). The system may remain on the reduced monitoring schedule until either any of the three individual chlorite samples taken quarterly in the distribution system under section ~~6.3(b)(2)(i)(B)~~ 7.6.3(b)(2)(i)(B) exceeds the chlorite MCL or the system is required to conduct monitoring under section ~~6.3(b)(2)(ii)~~ 7.6.3(b)(2)(ii), at which time the system must revert to routine monitoring.

(3) Bromate.

. . .

(ii) Reduced monitoring.

~~(A) Until March 31, 2009, systems required to analyze for bromate may reduce monitoring from monthly to quarterly, if the system's average source water bromide concentration is less than 0.05 mg/L based on representative monthly bromide measurements for one year. The system may remain on reduced bromate monitoring until the running annual average source water bromide concentration, computed quarterly, is equal to or greater than 0.05 mg/L based on representative monthly measurements. If the running annual average source water bromide concentration is ≥0.05 mg/L, the system must resume routine monitoring required by paragraph (b)(3)(i) of this section in the following month.~~

(B) ~~Beginning April 1, 2009, systems may no longer use the provisions of paragraph (b)(3)(ii)(A) of this section to qualify for reduced monitoring.~~ A system required to analyze for bromate may reduce monitoring from monthly to quarterly, if the system's running annual average bromate concentration is ≤0.0025 mg/L based on monthly bromate measurements under paragraph (b)(3)(i) of this section for the most recent four quarters, with samples analyzed using Method 317.0 Revision 2.0, 326.0 or 321.8.

If a system has qualified for reduced bromate monitoring ~~under paragraph (b)(3)(ii)(A)of this section~~ prior to April 1, 2009, that system may remain on reduced monitoring as long as the running annual average of quarterly bromate samples is ≤0.0025 mg/L based on samples analyzed using Method 317.0 Revision 2.0, 326.0, or 321.8. If the running annual average bromate concentration is >0.0025 mg/L, the system must resume routine monitoring required by paragraph (b)(3)(i) of this section.

. . .

(d) Monitoring requirements for disinfection byproduct precursors (DBPP).

(1) Routine monitoring. Surface water or groundwater under the direct influence of surface water systems which use conventional filtration treatment [as defined in section 1.5.2~~(27)~~] must monitor each treatment plant for TOC no later than the point of combined filter effluent turbidity monitoring and representative of the treated water. All systems required to monitor under this section 7.6.3(d)(1) must also monitor for TOC in the source water prior to any treatment at the same time as monitoring for TOC in the treated water. These samples (source water and treated water) are referred to as paired samples. At the same time as the source water sample is taken, all systems must monitor for alkalinity in the source water prior to any treatment. Systems must take one paired sample and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and influent water quality.

. . .

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

~~(f)~~(e) Monitoring plans. Each system required to monitor under this section 7.6 must develop and implement a monitoring plan. The system must maintain the plan and make it available for inspection by the Department. All Surface water or groundwater under the direct influence of surface water systems serving more than 3,300 people must submit a copy of the monitoring plan to the Department no later than the date of the first report required under section 7.6.5(a). The Department may also require the plan to be submitted by any other system. If the Department has not requested additional information or approved the submitted plan within 60 days of its receipt, the plan shall be deemed to be approved. The Department however reserves the right to review the plan and request information at any time, and may require changes to the plan. After review, the Department may require changes in any plan elements. The plan must include at least the following elements.

. . .

7.6.5 Reporting and Recordkeeping Requirements

. . .

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

Table 7-21 Disinfectant Reporting Requirements

If you are a * * *	You must report * * *[1]
(1) System monitoring for chlorine or chloramines under the requirements of section 7.6.3(c).	(i) The number of samples taken during each month of the last quarter.
. . .	. . .
. . .	. . .
.	(iv) Whether, based on section 7.6.4(c)(1), the MRDL was violated.
. . .	. . .
. . .	. . .
. . .	. . .

. . .

7.6.6 Treatment Technique for Control of Disinfection Byproduct (DBP) Precursors

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(b) Enhanced coagulation and enhanced softening performance requirements

. . .

Table 7-23 3 x 3 Table for Step1 TOC Removal Requirements

Step 1-Required removal of TOC by Enhanced Coagulation and Enhanced Softening for surface water or groundwater under the direct influence of surface water systems using conventional treatment.[1,2]			
Source-water TOC, mg/L	**Source-water alkalinity, mg/L as $CaCO_3$**		
	~~0-6~~ 0-60	>60-120	>120[3]
	TOC Required Removal (in percentages)		
>2.0-4.0	35.0	25.0	15.0
>4.0-8.0	45.0	35.0	25.0
>8.0	50.0	40.0	30.0

1 Systems meeting at least one of the conditions in section ~~7.5.6(a)(2)(i) – (vi)~~ 7.6.6(a)(2)(i) – (vi) are not required to operate with enhanced coagulation.

2 Softening system meeting one of the alternative compliance criteria in section ~~7.5.6(a)(3)(i) – (ii)~~ 7.6.6(a)(3)(i) – (ii) are not required to operate with enhanced softening.

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

(3) Surface water or ~~ground water~~ groundwater under the direct influence of surface water conventional treatment systems that cannot achieve the Step 1 TOC removals required by section 7.6.6(b)(2) due to water quality parameters or operational constraints must apply to the Department, within three months of failure to achieve the TOC removals required by section 7.6.6(b)(2), for approval of alternative minimum TOC (Step 2) removal requirements submitted by the system. If the Department approves the alternative minimum TOC removal (Step 2) requirements, the Department may make those requirements retroactive for the purposes of determining compliance. Until the

Department approves the alternate minimum TOC removal (Step 2) requirements, the system must meet the Step 1 TOC removals contained in section 7.6.6(b)(2).

. . .

7.7.1 General Requirements

. . .

(b) Applicability. ~~You~~The system ~~are~~is subject to the requirements of this section 7.7 if ~~your~~the system is a community water system that uses a primary or residual disinfectant other than ultraviolet light or delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light; or if ~~your~~the system is a nontransient noncommunity water system that serves at least 10,000 people and uses a primary or residual disinfectant other than ultraviolet light or delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light.

(c) Schedule.

(1) ~~You~~The system must comply with the requirements of section 7.7 in accordance with the schedule outlined in Table 7-25.

. . .

(d) The system must conduct standard monitoring that meets the requirements in Section 7.7.2, or a system specific study that meets the requirements in Section 7.7.3, or certify to the Department that ~~you~~the system meets 40/30 certification criteria under Section 7.7.4, or qualify for a very small system waiver under Section 7.7.5.

(1) ~~You~~The system must have taken the full complement of routine TTHM and HAA5 compliance samples required ~~of a system with your population and source water~~ under Section 7.6 of this part (or ~~you~~the system must have taken the full complement of reduced TTHM and HAA5 compliance samples required of ~~a system with your population and source water~~ under Section 7.6 if ~~you~~the system meets reduced monitoring criteria under Section 7.6 of this part) during the period specified in Section 7.7.4(a) to meet the 40/30 certification criteria in Section 7.7.4. The system must have taken TTHM and HAA5 samples under Sections 7.6.2 and 7.6.3 to be eligible for the very small system waiver in Section 7.7.5.

(2) If ~~you~~the system ~~have~~has not taken the required samples, ~~you~~the system must conduct standard monitoring that meets the requirements in Section 7.7.2, or a system specific study that meets the requirements in Section 7.7.3.

(e) ~~You~~The system must use only the analytical methods specified in Section ~~7.6.2~~10.7, or otherwise approved by EPA for monitoring under this section, to demonstrate compliance with the requirements of section 7.7.

. . .

7.7.2 Standard monitoring

(a) Standard monitoring plan. ~~Your~~The system's standard monitoring plan must comply with paragraphs (a)(1) through (a)(4) of this section. ~~You~~The system must prepare and submit ~~your~~a standard monitoring plan to the Department according to the schedule in Section 7.7.1.

(1) ~~Your~~The system's standard monitoring plan must include a schematic of ~~your~~the distribution system (including distribution system entry points and their sources, and storage facilities), with notes indicating locations and dates of all projected standard monitoring, and all projected Section 7.6 compliance monitoring.

(2) ~~Your~~The system's standard monitoring plan must include justification of standard monitoring location selection and a summary of data ~~you~~ relied on to justify standard monitoring location selection.

(3) ~~Your~~The system's standard monitoring plan must specify the population served and system type (Surface Water or GWUDI or ~~ground water~~groundwater).

(4) ~~You~~The system must retain a complete copy of your standard monitoring plan submitted under this paragraph (a), including any Department modification of ~~your~~the standard monitoring plan, for as long as ~~you~~the System ~~are~~is required to retain ~~your~~the IDSE report under paragraph (c)(4) of this section.

(b) Standard monitoring.

(1) ~~You~~ The System must monitor as indicated in the table in this paragraph (b)(1). ~~You~~ The System must collect dual sample sets at each monitoring location. One sample in the dual sample set must be analyzed for TTHM. The other sample in the dual sample set must be analyzed for HAA5. ~~You~~ The system must conduct one monitoring period during the peak historical month for TTHM levels or HAA5 levels or the month of warmest water temperature. ~~You~~ The system must review available compliance, study, or operational data to determine the peak historical month for TTHM or HAA5 levels or warmest water temperature.

Table 7-26 Monitoring Locations and Frequencies for Standard Monitoring

Source water type	**Population size category**	**Monitoring periods and frequency of monitoring**	**Distribution system monitoring locations[1]**				
			Total per monitoring period	**Near entry points**	**Average residence time**	**High TTHM locations**	**High HAA5 locations**
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .
~~Ground Water~~ Groundwater	< 500 consecutive systems	One (during peak historical month) [2]	2	1		1	
	< 500 non-consecutive systems	One (during peak historical month) [2]	2			1	1
	500 – 9,999	Four (every 90 days)	2			1	1
	10,000 – 99,999	Four (every 90 days)	6	1	1	2	2

	100,000 – 499,999	Four (every 90 days)	8	1	1	3	3
	≥ 500,000	Four (every 90 days)	12	2	2	4	4

. . .

(2) ~~You~~ The system must take samples at locations other than the existing Section 7.6 monitoring locations. Monitoring locations must be distributed throughout the distribution system.

(3) If the number of entry points to the distribution system is fewer than the specified number of entry point monitoring locations, excess entry point samples must be replaced equally at high TTHM and HAA5 locations. If there is an odd extra location number, ~~you~~ the system must take a sample at a high TTHM location. If the number of entry points to the distribution system is more than the specified number of entry point monitoring locations, ~~you~~ the system must take samples at entry points to the distribution system having the highest annual water flows.

(4) ~~Your m~~Monitoring under this paragraph (b) may not be reduced under the provisions of Section 1.9.

(c) IDSE report. ~~Your~~ The system's IDSE report must include the elements required in paragraphs (c)(1) through (c)(3) of this section. ~~You~~ The system must submit ~~your~~ an IDSE report to the Department according to the schedule in Section 7.7.1(c).

(1) The system's IDSE report must include all TTHM and HAA5 analytical results from Section 7.6 compliance monitoring and all standard monitoring conducted during the period of the IDSE as individual analytical results and LRAAs presented in a tabular or spreadsheet format acceptable to the Department. If changed from ~~your~~ the standard monitoring plan submitted under paragraph (a) of this section, the report must also include a schematic of your distribution system, the population served, and system type (Surface Water and GWUDI or ~~ground water~~groundwater).

(2) ~~Your~~ The system's IDSE report must include an explanation of any deviations from the approved standard monitoring plan.

(3) ~~You~~ The system must recommend and justify section 7.8 compliance monitoring locations and timing based on the protocol in Section 7.7.6.

(4) ~~You~~ The system must retain a complete copy of ~~your~~ the IDSE report submitted under this section for 10 years after the date that ~~you submitted your report~~the report was submitted. If the Department modifies the Section 7.8 monitoring requirements that ~~you~~ were recommended in the system's IDSE report or if the Department approves alternative monitoring locations, ~~you~~ the system must keep a copy of the Department's notification on file for 10 years after the date of the Department's notification. ~~You~~ The system must make the IDSE report and any Department notification available for review by the Department or the public.

7.7.3 System specific studies

(a) System specific study plan. ~~Your~~ A system specific study plan must be based on either existing monitoring results as required under paragraph (a)(1) of this section or modeling as required under paragraph (a)(2) of this section. ~~You~~ The system must prepare and submit ~~your~~ a system specific study plan to the Department according to the schedule in section 7.7.1(c).

(1) Existing monitoring results. ~~You~~ The system may comply by submitting monitoring results collected before ~~you are~~ required to begin monitoring under section 7.7.1(c). The monitoring results and analysis must meet the criteria in paragraphs (a)(1)(i) and (a)(1)(ii) of this section.

. . .

Table 7-27 Monitoring Locations and Frequencies for System Specific Studies

System Type	Population Size Category	Number of Monitoring Locations	Number of Samples	
			TTHM	HAA5
. . .	. . .	. . .	. . .	. . .
~~-~~Groundwater	< 500	3	3	3
	500 – 9,999	3	9	9
	10,000 – 99,999	12	48	48
	100,000 – 499,999	18	72	72
	≥500,000	24	96	96

(ii) Reporting monitoring results. ~~You~~ The system must report the information in this paragraph (a)(1)(ii).

(A) ~~You~~ The system must report previously collected monitoring results and certify that the reported monitoring results include all compliance and non-compliance results generated during the time period beginning with the first reported result and ending with the most recent Section 7.6 results.

(B) ~~You~~ The system must certify that the samples were representative of the entire distribution system and that treatment, and distribution system have not changed significantly since the samples were collected.

(C) ~~Your~~ The system's study monitoring plan must include a schematic of ~~your~~ the distribution system (including distribution system entry points and their sources, and storage facilities), with notes indicating the locations and dates of all completed or planned system specific study monitoring.

(D) ~~Your~~ The system specific study plan must specify the population served and system type (Surface Water and GWUDI or ~~ground water~~groundwater).

(E) ~~You~~ The system must retain a complete copy of ~~your~~ the system specific study plan submitted under this paragraph (a)(1), including any Department modification of ~~your~~ the system specific study plan, for as long as ~~you~~ the system ~~are~~ is required to retain ~~your~~ the IDSE report under paragraph (b)(5) of this section.

(F) If ~~you~~ the system submits previously collected data that fully meet the number of samples required under paragraph (a)(1)(i)(B) of this section and the Department rejects some of the data, ~~you~~ the system must either conduct additional monitoring to replace rejected data on a schedule the Department approves or conduct standard monitoring under Section 7.7.2.

(2) Modeling. ~~You~~ The system may comply through analysis of an extended period simulation hydraulic model. The extended period simulation hydraulic model and analysis must meet the criteria in this paragraph (a)(2).

. . .

(ii) Reporting modeling. ~~Your~~ The system specific study plan must include the information in this paragraph (a)(2)(ii).

. . .

(E) Description of how all requirements will be completed no later than 12 months after ~~you~~ submitting ~~your~~ the system specific study plan.

(F) Schematic of ~~your~~ the system's distribution system (including distribution system entry points and their sources, and storage facilities), with notes indicating the locations and dates of all completed system specific study monitoring (if calibration is complete) and all Section 7.6 compliance monitoring.

(G) Population served and system type (Surface Water and GWUDI or ~~ground water~~groundwater).

(H) ~~You~~ The system must retain a complete copy of ~~your~~ the system specific study plan submitted under paragraph (a)(2) of this section, including any Department modification of ~~your~~ the system specific study plan, for as long as ~~you~~ the system ~~are~~ is required to retain ~~your~~ the IDSE report under paragraph (b)(7) of this section.

(iii) If ~~you~~ the system submits a model that does not fully meet the requirements under paragraph (a)(2) of this section, ~~you~~ must correct the deficiencies and respond to Department inquiries concerning the model. If ~~you~~ the system fails to correct deficiencies or respond to inquiries to the Department's satisfaction, ~~you~~ the system must conduct standard monitoring under Section 7.7.2.

(b) IDSE report. ~~Your~~ The system's IDSE report must include the elements required in paragraphs (b)(1) through (b)(6) of this section. ~~You~~ The system must submit ~~you're the~~ IDSE report according to the schedule in section 7.7.1(c).

(1) The IDSE report must include all TTHM and HAA5 analytical results from section 7.6 compliance monitoring and all system specific study monitoring conducted during the

period of the system specific study presented in a tabular or spreadsheet format acceptable to the Department. If changed from ~~your~~ the system specific study plan submitted under paragraph (a) of this section, ~~your~~ the system's IDSE report must also include a schematic of ~~your~~ the distribution system, the population served, and system type (Surface Water and GWUDI or ~~ground water~~groundwater).

(2) If ~~you~~ the system used the modeling provision under paragraph (a)(2) of this section, ~~you~~ the system must include final information for the elements described in paragraph (a)(2)(ii) of this section, and a 24-hour time series graph of residence time for each section 7.8 compliance monitoring location selected.

(3) ~~You~~ The system must recommend and justify section 7.8 compliance monitoring locations and timing based on the protocol in section 7.7.6.

(4) ~~Your~~ The IDSE report must include an explanation of any deviations from ~~your~~ the approved system specific study plan.

(5) ~~Your~~ The IDSE report must include the basis (analytical and modeling results) and justification ~~you~~ used to select the recommended section 7.8 monitoring locations.

(6) ~~You~~ The system may submit ~~your~~ the IDSE report in lieu of ~~your~~ the system specific study plan on the schedule identified in section 7.7.1(c) for submission of the system specific study plan if ~~you~~ the system believes that ~~you have~~ the necessary information is available by the time that the system specific study plan is due. If ~~you~~ the system elects this approach, ~~your~~ the IDSE report must also include all information required under paragraph (a) of this section.

(7) ~~You~~ The system must retain a complete copy of ~~your~~ the IDSE report submitted under this section for 10 years after the date that ~~you~~ the system submitted ~~your~~ the IDSE report. If the Department modifies the Section 7.8 monitoring requirements that ~~you~~ were recommended in the ~~your~~ IDSE report or if the Department approves alternative monitoring locations, ~~you~~ the system must keep a copy of the Department's notification on file for 10 years after the date of the Department's notification. ~~You~~ The system must make the IDSE report and any Department notification available for review by the Department or the public.

7.7.4 40/30 Certification

(a) Eligibility. ~~You are~~ The system is eligible for 40/30 certification if ~~you had~~ no TTHM or HAA5 monitoring violations were received under Section 7.6 and no individual sample exceeded 0.040 mg/L for TTHM or 0.030 mg/L for HAA5 during an eight (8) consecutive calendar quarter period beginning no earlier than the date specified in section 7.7.4(b).

Table 7-28 40/30 Certification Submittal Dates

If ~~your~~ the system's 40/30 certification is due	**Then ~~your~~ the eligibility for 40/30 certification is based on eight consecutive calendar quarters of section 7.6 compliance monitoring results beginning no earlier than[1]**
. . .	**. . .**

1 Unless ~~you are~~ the system is on reduced monitoring under section 7.6 of this part and ~~were~~ was not required to monitor during the specified period. If ~~you~~ the system did not monitor during the specified period, ~~you~~ the system must base ~~your~~ eligibility on compliance samples taken during the 12 months preceding the specified period.

(b) 40/30 certification.

(1) ~~You~~ The system must certify to the Department that every individual compliance sample taken under section 7.6 of this part during the periods specified in paragraph (a) of this section were ≤ 0.040 mg/L for TTHM and ≤ 0.030 mg/L for HAA5, and that ~~you have~~ the system has not had any TTHM or HAA5 monitoring violations during the period specified in paragraph (a) of this section.

(2) The Department may require ~~you~~ the system to submit compliance monitoring results, distribution system schematics, and/or recommended section 7.8 compliance monitoring locations in addition to your certification. If ~~you~~ the system fails to submit the requested information, the Department may require standard monitoring under section 7.7.2 or a system specific study under section 7.7.3.

(3) The Department may still require standard monitoring under section 7.7.2 or a system specific study under section 7.7.3 even if ~~you~~ the system meets the criteria in paragraph (a) of this section.

(4) ~~You~~ The system must retain a complete copy of ~~your~~ the certification submitted under this section for 10 years after the date that ~~you submitted your certification~~the certification was submitted. ~~You~~ The system must make the certification, all data upon which the certification is based, and any Department notification available for review by the Department or the public.

7.7.5 Very small system waivers

(a) If ~~you~~ the system serves fewer than 500 people and ~~you have~~ has taken TTHM and HAA5 samples under Section 7.6 of this part, ~~you are~~ the system is not required to comply with this section unless the Department notifies ~~you that you~~ the system that it must conduct standard monitoring under section 7.7.2 or a system specific study under Section 7.7.3.

(b) If ~~you have~~ the system has not taken TTHM and HAA5 samples under section 7.6 of this part or if the Department notifies ~~you that you~~ the system that it must comply with this section, ~~you~~ the system must conduct standard monitoring under section 7.7.2 or a system specific study under section 7.7.3.

7.7.6 Section 7.8 compliance monitoring location recommendations

(a) ~~Your~~ The IDSE report must include ~~your~~ recommendations and justification for where and during what month(s) TTHM and HAA5 monitoring for section 7.8 of this part should be conducted. ~~You~~ The systems must base ~~your~~ recommendations on the criteria in paragraphs (b) through (e) of this section.

(b) ~~You~~ The system must select the number of monitoring locations specified in Table 7-29 in this paragraph (b). ~~You~~ The system will use these recommended locations as section 7.8 routine compliance monitoring locations, unless Department requires different or additional locations. ~~You~~ The system should distribute locations throughout the distribution system to the extent possible.

Table 7-29 Recommended Compliance Monitoring Locations and Frequencies

Source	Population Size	Monitoring	Distribution System Monitoring Locations

Water Type	Category	Frequency[1]	Total per Monitoring Period[2]	Highest TTHM Locations	Highest HAA5 Locations	Existing Section 7.6 Compliance Locations
. . .	. . .	. . .	. . .	. . .	. . .	. . .
~~GroundWater~~ Groundwater	< 500	per year	2	1	1	N/A
	500 – 9,999	per year	2	1	1	N/A
	10,000 – 99,999	per quarter	4	2	1	1
	100,000 – 499,999	per quarter	6	3	2	1
	≥ 500,000	per quarter	8	3	3	2

. . .

(c) ~~You~~ The system must recommend section 7.8 compliance monitoring locations based on standard monitoring results, system specific study results, and section 7.6 compliance monitoring results. ~~You~~ Systems must follow the protocol in paragraphs (c)(1) through (c)(8) of this section. If required to monitor at more than eight locations, ~~you~~ systems must repeat the protocol as necessary. If ~~you~~ systems do not have existing section 7.6 compliance monitoring results or ~~if you~~ do not have enough existing section 7.6 compliance monitoring results, ~~you~~ systems must repeat the protocol, skipping the provisions of paragraphs (c)(3) and (c)(7) of this section as necessary, until ~~you~~ systems have identified the required total number of monitoring locations.

. . .

(3) Existing section 7.6 average residence time compliance monitoring location (maximum residence time compliance monitoring location for ~~ground water~~ groundwater systems) with the highest HAA5 LRAA not previously selected as a Section 7.8 monitoring location.

. . .

(7) Existing section 7.6 average residence time compliance monitoring location (maximum residence time compliance monitoring location for ~~ground water~~ groundwater systems) with the highest TTHM LRAA not previously selected as a section 7.8 monitoring location.

. . .

(d) ~~You~~ Systems may recommend locations other than those specified in paragraph (c) of this section if ~~you~~ systems include a rationale for selecting other locations. If the Department approves the alternate locations, ~~you~~ systems must monitor at these locations to determine compliance under section 7.8 of this part.

(e) ~~Your~~ The system's recommended schedule must include section 7.8 monitoring during the peak historical month for TTHM and HAA5 concentration, unless the Department approves another month. Once ~~you~~ systems have identified the peak historical month, and if ~~youare~~ the systems is required to conduct routine monitoring at least quarterly, ~~you~~ systems must schedule section 7.8 compliance monitoring at a regular frequency of every 90 days or fewer.

7.8.1 General requirements

. . .

(b) ~~You~~ Systems are subject to the requirements of section 7.8 if ~~your~~ the system is a community water system or a nontransient noncommunity water system that uses a primary or residual disinfectant other than ultraviolet light or delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light.

(c) ~~You~~ Systems must comply with the requirements of section 7.8 in accordance with the schedule in the Table 7-30.

. . .

(1) ~~you're a~~ system's monitoring frequency is specified in section 7.8.2(a)(2).

(i) If ~~you are~~ a system is required to conduct quarterly monitoring, ~~you~~ the system must begin monitoring in the first full calendar quarter that includes the compliance date in Table 7-30.

(ii) If ~~you are~~ a system is required to conduct monitoring at a frequency that is less than quarterly, ~~you~~ the system must begin monitoring in the calendar month recommended in the IDSE report prepared under section 7.7.2 or section 7.7.3 or the calendar month identified in the section 7.8 monitoring plan developed under section 7.8.3 no later than 12 months after the compliance date in this table.

(2) If ~~are~~a system is required to conduct quarterly monitoring, ~~you~~ the system must make compliance calculations at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent 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). If ~~you are~~ the system is required to conduct monitoring at a frequency that is less than quarterly, ~~you must make~~ compliance calculations must be made beginning with the first compliance sample taken after the compliance date.

. . .

(d) Monitoring and compliance.

(1) Systems required to monitor quarterly. To comply with disinfection byproducts MCLs in Table 2-5, ~~you~~ systems must calculate LRAAs for TTHM and HAA5 using monitoring results collected under this section and determine that each LRAA does not exceed the MCL. If ~~you~~ systems fail to complete four consecutive quarters of monitoring, ~~you~~ systems must calculate compliance with the MCL based on the average of the available data from the most recent four quarters. If ~~you~~ systems take more than one sample per quarter at a monitoring location, ~~you~~ the systems must average all samples taken in the quarter at that location to determine a quarterly average to be used in the LRAA calculation.

(2) Systems required to monitor yearly or less frequently. To determine compliance with section 2.4 MCLs, ~~you~~ systems must determine that each sample taken is less than the MCL. If any sample exceeds the MCL, ~~you~~ systems must comply with the requirements of Section 7.8.6. If no sample exceeds the MCL, the sample result for each monitoring location is considered the LRAA for that monitoring location.

(e) Violation. ~~You~~ Systems are in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if ~~you~~ systems fail to monitor.

. . .

7.8.2 Routine monitoring

(a) Monitoring.

(1) If ~~you~~ a system submitted an IDSE report, ~~you~~ the system must begin monitoring at the locations and months ~~you have~~ recommended in ~~your~~ the IDSE report submitted under section 7.7.6 following the schedule in section 7.8.1(c), unless the Department requires other locations or additional locations after its review. If ~~you~~ a system submitted a 40/30 certification under section 7.7.4 or ~~you~~ qualified for a very small system waiver under section 7.7.5 or ~~you are~~ is a nontransient noncommunity water system serving < 10,000, ~~you~~ the system must monitor at the location(s) and dates identified in ~~your~~ the monitoring plan in Section 7.6.3~~(f)~~(e), updated as required by section 7.8.3.

(2) ~~You~~ Systems must monitor at no fewer than the number of locations identified in this paragraph (a)(2).

Table 7-33 Compliance Monitoring Locations and Frequencies

Source Water Type	**Population Size Category**	**Monitoring Frequency[1]**	**Distribution System Monitoring Location Total Per Monitoring Period[2]**
. . .	. . .	. . .	. . .
~~Ground Water~~ Groundwater	< 500	per year	2
	500 – 9,999	per year	2
	10,000 – 99,999	per quarter	4
	100,000 – 499,999	per quarter	6
	≥ 500,000	per quarter	8

. . .

(3) If ~~you are~~ a system is an undisinfected system that begins using a disinfectant other than UV light after the dates in section 7.7 for complying with the Initial Distribution System Evaluation requirements, ~~you~~ the system must consult with the Department to identify compliance monitoring locations for this section. ~~You~~ The system must then develop a monitoring plan under section 7.8.3 that includes those monitoring locations.

(b) Analytical methods. ~~You~~ Systems must use an approved method listed in section ~~7.6.2~~ 10.7 for TTHM and HAA5 analyses in this section. Analyses must be conducted by laboratories that have received certification by EPA or the Department as specified in section ~~7.6.2~~10.7.

7.8.3 Section 7.8 monitoring plan

(a) ~~(1) You must develop and implement a monitoring plan to be kept on file for Department and public review. The monitoring plan must contain the elements in paragraphs (a)(1)(i) through (a)(1)(iv) of this section and be complete no later than the date you conduct your initial monitoring under this section.~~

(1) Systems must develop and implement a monitoring plan to be kept on file for Department and public review. The monitoring plan must contain the elements in paragraphs (a)(1)(i) through (a)(1)(iv) of this section and be complete no later than the date the system must conduct initial monitoring under this section.

. . .

(2) If ~~you~~ systems were not required to submit an IDSE report under either section 7.7.2 or section 7.7.3, and ~~you~~ do not have sufficient section 7.6 monitoring locations to identify the required number of section 7.8 compliance monitoring locations indicated in section 7.7.6(b), ~~you~~ systems must 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. ~~You~~ Systems must also provide the rationale for identifying the locations as having high levels of TTHM or HAA5. If ~~you have~~ a system has more section 7.6 monitoring locations than required for section 7.8 compliance monitoring in section 7.7.6(b), ~~you~~ the system must identify which locations ~~you will use~~ will be used for section 7.8 compliance monitoring by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of section 7.8 compliance monitoring locations have been identified.

(b) If ~~you are~~ a system is a Surface Water ~~and~~ or GWUDI system serving > 3,300 people, ~~you~~ the system must submit a copy of ~~your~~ the system's monitoring plan to the Department prior to the date ~~you~~ required to conduct ~~your~~ initial monitoring under this section, unless ~~your~~ the system's IDSE report submitted under section 7.7 of this part contains all the information required by this section.

(c) ~~You~~ Systems may revise ~~your~~ the monitoring plan to reflect changes in treatment, distribution system operations and layout (including new service areas), or other factors that may affect TTHM or HAA5 formation, or for Department-approved reasons, after consultation with the Department regarding the need for changes and the appropriateness of changes. If ~~you~~ the system changes monitoring locations, ~~you~~ the system must 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. The Department may also require modifications in ~~your~~ the system's monitoring plan. If ~~you are~~ the system is a Surface Water ~~and~~ or GWUDI system serving > 3,300 people, ~~you~~ the system must submit a copy of ~~your~~ the modified monitoring plan to the Department prior to the date ~~you are~~ required to comply with the revised monitoring plan.

7.8.4 Reduced monitoring

(a) ~~You~~ Systems may reduce monitoring to the level specified in the table in this paragraph (a) any time the LRAA is ≤ 0.040 mg/L for TTHM and ≤0.030 mg/L for HAA5 at all monitoring locations. ~~You~~ Systems may only use data collected under the provisions of this section or section 7.6 of this part to qualify for reduced monitoring. In addition, the source water annual average TOC level, before any treatment, must be ≤ 4.0 mg/L at each treatment plant treating surface water or ~~ground water~~ groundwater under the direct influence of surface water, based on monitoring conducted under either section 7.6.3(b)(1)(iii) or Section 7.6.3(d).

Table 7-34 Reduced Monitoring Frequencies

Source Water Type	Population Size Category	Monitoring Frequency[1]	Distribution System Monitoring Location per Monitoring Period
. . .	. . .	. . .	. . .
~~Ground Water~~ Groundwater	< 500	every third year	1 TTHM and 1 HAA5 sample: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement; or, 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.
	500 – 9,999	per year	1 TTHM and 1 HAA5 sample: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement; or, 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.
	10,000 – 99,999	per year	2 dual sample sets: one at the location and during the quarter with the highest TTHM single measurement, one at the location and during the quarter with the highest HAA5 single measurement.
	100,000 – 499,999	per quarter	2 dual sample sets at the locations with the highest TTHM and highest HAA5 LRAAs.
	≥ 500,000	per quarter	4 dual sample sets – at the locations with the two highest TTHM and two highest HAA5 LRAAs.

. . .

(b) ~~You~~ Systems may remain on reduced monitoring as long as the TTHM LRAA ≤ 0.040 mg/L and the HAA5 LRAA ≤ 0.030 mg/L at each monitoring location (for systems with quarterly reduced monitoring) or each TTHM sample ≤ 0.060 mg/L and each HAA5 sample ≤ 0.045 mg/L (for systems with annual or less frequent monitoring). In addition, the source water annual average TOC level, before any treatment, must be ≤4.0 mg/L at each treatment plant treating surface water or ~~ground water~~ groundwater under the direct influence of surface water, based on monitoring conducted under either Section 7.6.3(b)(1)(iii) or Section 7.6.3(d).

(c) If the LRAA based on quarterly monitoring at any monitoring location exceeds either 0.040 mg/L for TTHM or 0.030 mg/L for HAA5 or if the annual (or less frequent) sample at any location exceeds either 0.060 mg/L for TTHM or 0.045 mg/L for HAA5, or if the source water annual average TOC level, before any treatment, >4.0 mg/L at any treatment plant treating surface water or ~~ground water~~ groundwater under the direct influence of surface water, ~~you~~ the system must resume routine monitoring under Section 7.8.2 or begin increased monitoring if section 7.8.6 applies.

7.8.5 Additional requirements for consecutive systems

If ~~you~~ systems are a consecutive system that does not add a disinfectant but delivers water that has been treated with a primary or residual disinfectant other than ultraviolet light, ~~you~~ systems must comply with analytical and monitoring requirements for chlorine and chloramines in section 7.6.3 (c) and Section 7.6.3(c)(1) and the compliance requirements in section 7.6.4(c)(1) beginning April 1, 2009, unless required earlier by the Department, and report monitoring results under section 7.6.5(c).

7.8.6 Conditions requiring increased monitoring

(a) If ~~you are~~ a system is required to monitor at a particular location annually or less frequently than annually under section 7.8.2 or section 7.8.4, ~~you~~ the system must increase monitoring to dual sample sets taken every 90 days at all locations if a TTHM sample is >0.080 mg/L or a HAA5 sample is >0.060 mg/L at any location.

(b) ~~You are~~ A system is in violation of the MCL when the LRAA exceeds the disinfection byproducts MCLs in Table 2-5, calculated based on four consecutive quarters of monitoring (or the LRAA calculated based on fewer than four quarters of data if the MCL would be exceeded regardless of the monitoring results of subsequent quarters). ~~You are~~ A system is in violation of the monitoring requirements for each quarter that a monitoring result would be used in calculating an LRAA if ~~you~~ the system fails to monitor.

(c) ~~You~~ A system may return to routine monitoring once ~~you have conducted~~ increased monitoring has been conducted for at least four consecutive quarters and the LRAA for every monitoring location is < =0.060 mg/L for TTHM and < =0.045 mg/L for HAA5.

7.8.7 Operational evaluation levels

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

(b) ~~(1) If you exceed the operational evaluation level, you must conduct an operational evaluation and submit a written report of the evaluation to the Department no later than 90 days after being notified of the analytical result that causes you to exceed the operational evaluation level. The written report must be made available to the public upon request.~~

(1) If the system exceeds the operational evaluation level, the system must conduct an operational evaluation and submit a written report of the evaluation to the Department no later than 90 days after being notified of the analytical result that causes the system to exceed the operational evaluation level. The written report must be made available to the public upon request.

(2) ~~Your~~ The system's operational evaluation must include an examination of system treatment and distribution operational practices, 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 exceedences.

7.8.8 Requirements for remaining on reduced TTHM and HAA5 monitoring based on Section 7.8 results

(a) ~~You~~ The system may remain on reduced monitoring after the dates identified in section 7.8.1(c) for compliance with this section only if ~~you~~ the system ~~qualify~~ qualifies for a 40/30 certification under section 7.7.4 or ~~have~~ has received a very small system waiver under section 7.7.5, ~~plus you meet~~ meets the reduced monitoring criteria in section 7.8.4(a), and ~~you~~ do not change or add monitoring locations from those used for compliance monitoring under section 7.6 of this part. If ~~your~~ the monitoring locations under this section differ from ~~your~~ the monitoring locations under section 7.6 of this part, ~~you~~ the system may not remain on reduced monitoring after the dates identified in section 7.8.1(c) for compliance with this section.

7.8.9 Requirements for remaining on increased TTHM and HAA5 monitoring based on Section 7.6 results

(a) If ~~you were~~ a system was on increased monitoring under section 7.6.3(b)(1), ~~you~~ the system must remain on increased monitoring until ~~you qualify~~ qualifying for a return to routine monitoring under section 7.8.6(c). ~~You~~ A system must conduct increased monitoring under Section 7.8.6 at the monitoring locations in the monitoring plan developed under section 7.8.3 beginning at the date identified in section 7.8.1(c) for compliance with this section and remain on increased monitoring until ~~you qualify~~ qualifying for a return to routine monitoring under section 7.8.6(c).

7.8.10 Reporting and recordkeeping requirements

(a) Reporting.

(1) ~~You~~ Systems must report the following information for each monitoring location to the Department within 10 days of the end of any quarter in which monitoring is required:

. . .

(iii) Arithmetic average of quarterly results for the last four quarters for each monitoring location (LRAA), beginning at the end of the fourth calendar quarter that follows the compliance date and at the end of each subsequent quarter. 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, ~~you~~ systems must report this information to the Department as part of the first report due following the compliance date or anytime thereafter that this determination is made. If ~~you~~ systems are required to conduct monitoring at a frequency that is less than quarterly, ~~you~~ the systems must make compliance calculations beginning with the first compliance sample taken after the compliance date, unless ~~you are~~ required to conduct increased monitoring under Section 7.8.6.

. . .

(2) If ~~you~~ systems are a Surface Water and GWUDI system seeking to qualify for or remain on reduced TTHM/HAA5 monitoring, ~~you~~ the systems must report the following source

water TOC information for each treatment plant that treats surface water or ~~ground water~~ groundwater under the direct influence of surface water to the Department within 10 days of the end of any quarter in which monitoring is required:

. . .

(b) Recordkeeping. ~~You~~ Systems must retain any section 7.8 monitoring plans and ~~your~~ section 7.8 monitoring results as required by section 1.6.3.

. . .

8.1 General Requirements

. . .

(a) Lead and copper action levels.

(1) The lead action level is exceeded if the concentration of lead in more than 10 percent of tap water samples collected during any monitoring period conducted in accordance with section 8.~~7~~2 (Monitoring Requirements for Lead and Copper in Tap Water) is greater than 0.015 mg/L (i.e., if the "90th percentile" lead level is greater than 0.015 mg/L).

(2) The copper action level is exceeded if the concentration of copper in more than 10 percent of tap water samples collected during any monitoring period conducted in accordance with section 8.~~7~~2 (Monitoring Requirements for Lead and Copper in Tap Water) is greater than 1.3 mg/L (i.e., if the "90th percentile" copper level is greater than 1.3 mg/L).

(3) 90th percentile computation. The 90th percentile lead and copper levels shall be computed as follows:

(i) The results of all lead or copper samples taken during a monitoring period shall be placed in ascending order from the sample with the lowest concentration to the sample with the highest concentration. Each sampling result shall be assigned a number, ascending by single integers beginning with the number 1 for the sample with the lowest contaminant level. The number assigned to the sample with the highest contaminant level shall be equal to the total number of samples taken.

(ii) The number of samples taken during the monitoring period shall be multiplied by 0.9.

(iii) The contaminant concentration in the numbered sample yielded by the calculation in section 8.1(a)(3)(ii)(above) is the 90th percentile contaminant level.

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

(b) Corrosion control treatment requirements.

(1) All water systems shall install and operate optimal corrosion control treatment as defined in section 1.5.2~~(96)~~.

(2) Any water system that complies with the applicable corrosion control treatment requirements specified by the Department under sections 8.~~2~~5(Corrosion Control Treatment Steps) and 8.~~3~~6(Description of Corrosion Control Treatment Requirements) shall be deemed in compliance with the treatment requirement contained in section 8.1(b)(1)(above).

(c) Source water treatment requirements. Any system exceeding the lead or copper action level shall implement all applicable source water treatment requirements specified by the Department under section 8.~~4~~7(Source Water Treatment Requirements).

(d) Lead service line replacement requirements. Any system exceeding the lead action level after implementation of applicable corrosion control and source water treatment requirements shall complete the lead service line replacement requirements contained in section 8.~~5~~8(Lead Service Line Replacement Requirements).

(e) Public education requirements. Pursuant to section 8.~~6~~9(Public Education and Supplemental Monitoring Requirements), all water systems must provide a consumer notice of lead tap water monitoring results to persons served at the sites (taps) that are tested. Any system exceeding the lead action level shall implement the public education requirements~~ contained in section 8.6.~~.

(f) Monitoring and analytical requirements. Tap water monitoring for lead and copper, monitoring for water quality parameters, source water monitoring for lead and copper, and analyses of the monitoring results under Article 8 shall be completed in compliance with sections 8.~~7~~2 (Monitoring Requirements for Lead and Copper in Tap Water), 8.~~8~~3(Monitoring Requirements for Water Quality Parameters), 8.~~9~~4(Monitoring Requirements for Lead and Copper in Source Water), and 10.8(Lead and Copper Analytical Requirements).

(g) Reporting requirements. Systems shall report to the Department any information required by the treatment provisions of Article 8 in addition to the requirements of section 8.10(Reporting Requirements).

(h) Recordkeeping requirements. Systems shall maintain records in accordance with section 8.11(Recordkeeping Requirements).

(i) Violations of the Colorado Primary Drinking Water Regulations. Failure to comply with the applicable requirements of sections 8.1-8.12 shall constitute a violation of the Colorado Primary Drinking Water Regulations.

8.~~7~~2 Monitoring Requirements for Lead and Copper in Tap Water

(a) Sample site location.

(1) Each water system shall complete a materials evaluation[8-1] of its distribution system in order to identify a pool of targeted sampling sites that meets the requirements, and which is sufficiently large to ensure that the water system can collect the number of lead and copper tap samples required in section 8.~~7~~2(c)(Number of lead and copper tap samples). 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.

8-1 See section 1.6.9(Special Monitoring for Construction Materials) for a list of materials that must be reported to the Department.

(2) A water system shall use the information on lead, copper, and galvanized steel that it is required to collect under section 1.6.9(Special Monitoring for Construction Materials)

when conducting a materials evaluation. When an evaluation of the information collected pursuant to section 1.6.9(Special Monitoring for Construction Materials) is insufficient to locate the requisite number of lead and copper sampling sites that meet the targeting criteria in section 8.~~7~~2(a)(Sample site location), the water system shall review the 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 materials when reading water meters or performing maintenance activities):

(i) 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;

(ii) 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

(iii) 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.

(3) Community water system tier 1 sampling sites. The sampling sites selected for a community water system's sampling pool ("tier 1~~l~~ sampling sites") shall consist of single family structures that:

(i) Contain copper pipes with lead solder installed after 1982 or contain lead pipes; and/or

(ii) Are served by a lead service line. When multiple-family residences comprise at least 20 percent of the structures served by a water system, the system may include these types of structures in its sampling pool.

(4) Community water system tier 2 sampling sites. 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:

(i) Contain copper pipes with lead solder installed after 1982 or contain lead pipes; and/or

(ii) Are served by a lead service line.

(5) Community water system tier 3 or representative sampling sites. Any community water system with insufficient tier 1 and tier 2 sampling sites shall complete its sampling pool with "tier 3 sampling sites", consisting of single family structures that contain copper pipes with lead solder installed before 1983. A community water system with insufficient tier 1, tier 2, and tier 3 sampling sites shall complete its sampling pool with representative sites throughout the distribution system. ~~For the purpose of section 8.7~~2(a)~~(5), a~~ A community water system representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

(6) Non-transient, non-community water system tier 1 sampling sites. The sampling sites selected for a non-transient, non-community water system ("tier ~~l~~1 sampling sites") shall consist of buildings that:

(i) Contain copper pipes with lead solder installed after 1982 or contain lead pipes; and/or

(ii) Are served by a lead service line.

(7) Non-transient, non-community water system non-tier 1 or representative sampling sites. A non-transient, non-community water system with insufficient tier 1 sites that meet the targeting criteria in section 8.~~7~~2(a)(6)(Non-transient, non-community water system tier 1 sampling sites) shall complete its sampling pool with sampling sites that contain copper pipes with lead solder installed before 1983. If additional sites are needed to complete the sampling pool, the non-transient, non-community water system shall use representative sites throughout the distribution system~~. For the purpose of section 8.72(a)(7), a~~ A non-community water system representative site is a site in which the plumbing materials used at that site would be commonly found at other sites served by the water system.

(8) 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.

(b) Sample collection methods.

(1) All tap samples for lead and copper collected in accordance with Article 8, with the exception of lead service line samples collected under section ~~8.5(c)~~8.2(b)(3)(Lead service line samples) and samples collected under section 8.~~7~~2(b)(5)(Substituting non-first-draw samples) shall be first-draw samples.

(2) First draw samples. 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 section 8.~~7~~2(b)(5) (Substituting non-first-draw samples) 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 section 8.~~7~~2(b)(Sample collection methods). 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 the accuracy of sampling results, based solely on alleged errors in sample collection.

(3) Lead service line samples. 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:

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

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

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

(4) 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 in order 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.

(5) Substituting non-first-draw samples. A non-transient, non-community water system, or a community water system that meets the criteria of section~~s~~ 8.~~6~~9(b)~~(c)~~(7)~~(i) (ii)~~(Alternative public education for community water systems), that does not have enough taps that can supply first-draw samples, as defined in section 1.5.2~~(56)~~, may apply to the Department 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.

(c) Number of lead and copper tap samples. Water systems shall collect at least one sample during each monitoring period specified in section 8.~~7~~2(d)(Timing of monitoring) from the number of sites listed in the first column ("standard monitoring") of Table 8-1. A system conducting reduced monitoring under section 8.~~7~~2(d)(4)(Reduced monitoring for lead and copper in tap water) shall collect at least one sample from the number of sites specified in the second column ("reduced monitoring") of Table 8-1 during each monitoring period specified in section 8.~~7~~2(d)(4) (Reduced monitoring for lead and copper in tap water). Such reduced monitoring sites shall be representative of the sites required for standard monitoring. ~~The Department may specify sampling locations when a system is conducting reduced monitoring.~~

(1) A public water system that has fewer than five drinking water taps, that can be used for human consumption meeting the sample site criteria of section 8.~~7~~2(a)(Sample site location) to reach the required number of sample sites listed in this section 8.~~7~~2(c), must collect at least one sample from each tap and then must collect additional samples from those taps on different days during the monitoring period to meet the required number of sites.

(2) The Department may specify sampling locations when a system is conducting reduced monitoring.

Table 8-1 Lead and Copper Monitoring Sampling Sites

System size (population served)	**Number of sites (standard monitoring)**	**Number of sites (reduced monitoring)**
Greater than (>) 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
Less than or equal to (≤) 100	5	5

(d) Timing of monitoring

(1) Initial tap sampling.

(i) All systems serving a population of greater than (>) 50,000 shall monitor during two consecutive six-month periods.

(ii) All systems serving a population of less than or equal to (≤) 50,000 shall monitor during each six-month monitoring period until:

(A) The system exceeds the lead or copper action level and is therefore required to implement the corrosion control treatment requirements under section 8.~~2~~5(Corrosion Control Treatment Steps), in which case the system shall continue monitoring in accordance with section 8.~~7~~2(d)(2)(Monitoring after installation of corrosion control and source water treatment), or

(B) The system meets the lead and copper action levels during two consecutive six-month monitoring periods, in which case the system may reduce monitoring in accordance with section 8.~~7~~2(d)(4)(Reduced monitoring for lead and copper in tap water).

(2) Monitoring after installation of corrosion control and source water treatment.

(i) Monitoring timing after installation of corrosion control. Any system that installs optimal corrosion control treatment pursuant to section 8.~~2~~5(d)(5)(Treatment steps and timelines) shall monitor during two consecutive six-month monitoring periods.

(ii) Monitoring timing after installation of source water treatment Any system that installs source water treatment pursuant to section 8.~~4~~7(a)(3)(Deadlines for completing source water treatment steps) shall monitor during two consecutive six-month monitoring periods by the date specified in section 8.~~4~~7(a)(4)(Deadlines for completing source water treatment steps).

(3) Timing of monitoring for water quality control parameters. After the Department specifies the values for water quality control parameters under section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters), the system shall monitor during each subsequent six-month monitoring period, with the first monitoring period to begin on the date the Department specifies the optimal values under section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters).

(4) Reduced monitoring for lead and copper in tap water.

(i) A system serving a population of less than or equal to (≤) 50,000 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 section 8.~~7~~2(c)(Number of lead and copper tap samples), and reduce the

frequency of sampling to once per year. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.

(ii) Any water system that meets the lead action level and maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the Department under section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters) 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 section 8.~~7~~2(c)(Number of lead and copper tap samples) if it receives written approval from the Department. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period. The Department shall review monitoring, treatment, and other relevant information submitted by the water system in accordance with section 8.10(Reporting Requirements), and shall notify the system in writing when it determines the system is eligible to commence reduced monitoring pursuant to this section 8.~~7~~2(d)(4). The Department shall review, and where appropriate, revise its determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

(iii) A system serving a population of less than or equal to (≤) 50,000 that meets the lead and copper action levels during three consecutive years of monitoring may reduce the frequency of monitoring for lead and copper from annually to once every three years. Any water system that meets the lead action level and maintains the range of values for the water quality control parameters reflecting optimal corrosion control treatment specified by the Department under section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters) during three consecutive years of monitoring may reduce the frequency of monitoring from annually to once every three years if it receives written approval from the Department. Samples collected once every three years shall be collected no later than every third calendar year. The Department shall review monitoring, treatment, and other relevant information submitted by the water system in accordance with section 8.10(Reporting Requirements), and shall notify the system in writing when it determines the system is eligible to reduce the frequency of monitoring to once every three years. The Department shall review, and where appropriate, revise its determination when the system submits new monitoring or treatment data, or when other data relevant to the number and frequency of tap sampling becomes available.

(iv) A water system that reduces the number and frequency of sampling shall collect these samples from representative sites included in the pool of targeted sampling sites identified in section 8.~~7~~2(a)(Sample site location). 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 Department has approved a different sampling period in accordance with the following section 8.~~7~~2(d)(4)(iv)(A).

(A) The Department, at its discretion, may approve a different period for conducting the lead and copper tap sampling for systems collecting a reduced number of samples. Such a period shall be no longer than four consecutive months and must represent a time of normal operation where the highest levels of lead are most likely to occur. For a non-transient, non-community water system that does not operate during the

months of June through September, and for which the period of normal operation where the highest levels of lead are most likely to occur is not known, the Department shall designate a period that represents a time of normal operation for the system. This sampling shall begin during the period approved or designated by the Department in 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.

(B) Systems monitoring annually, that have been collecting samples during the months of June through September and that receive Department approval to alter their sample collection period under the previous section 8.~~7~~2(d)(4)(iv)(A), must 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 Department approval to alter the sampling collection period as per the previous section 8.~~7~~2(d)(4)(iv)(A), must 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 must be collected annually or triennially, as required by section 8.~~7~~2(Monitoring Requirements for Lead and Copper in Tap Water). Systems serving a population of ≤ 3,300 with waivers, granted pursuant to section 8.~~7~~2(g)(Monitoring waivers for small systems), that have been collecting samples during the months of June through September and receive Department approval to alter their sample collection period under the previous section 8.~~7~~2(d)(4)(iv)(A) must collect their next round of samples before the end of the 9-year period.

(v) Any water system that demonstrates for two consecutive 6-month monitoring periods that the tap water lead level computed under section 8.1(a)(3)(90^{th} percentile computation) is less than or equal to 0.005 mg/L and the tap water copper level computed under section 8.1(a)(3)(90^{th} percentile computation) is less than or equal to 0.65 mg/L may reduce the number of samples in accordance with section 8.~~7~~2(c)(Number of lead and copper tap samples) and reduce the frequency of sampling to once every three calendar years.

(vi) ~~A system serving a population of less than or equal to (≤) 50,000 subject to reduced monitoring that exceeds the lead or copper action level.~~

(A) A system serving a population of less than or equal to (≤) 50,000 subject to reduced monitoring that exceeds the lead or copper action level shall resume sampling in accordance with section 8.~~7~~2(d)(3)(Timing of monitoring for water quality control parameters) and collect the number of samples specified for standard monitoring under section 8.~~7~~2(c)(Number of lead and copper tap samples). Such a system shall also conduct water quality parameter monitoring in accordance with section 8.~~8~~3(b)(Initial sampling for water quality parameters), 8.~~8~~3(c)(Monitoring for water quality parameters after installation of corrosion control) or 8.~~8~~3(d)(Monitoring after Department specifies water quality parameter values for optimal corrosion control) (as appropriate) during the monitoring period in which it exceeded the action level. Any such system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in section 8.~~7~~2(c)(Number of

lead and copper tap samples) after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of section 8.~~7~~2(d)(4)(i)(Reduced monitoring for lead and copper in tap water) and/or may resume triennial monitoring for lead and copper at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either section 8.~~7~~2(d)(4)(iii)(Reduced monitoring for lead and copper in tap water) or 8.~~7~~2(d)(4)(v)(Reduced monitoring for lead and copper in tap water).

(B) Any water system subject to the reduced monitoring frequency 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 Department under section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters) for more than nine days in any six-month period specified in section 8.~~8~~3(d)(Monitoring after Department specifies water quality parameter values for optimal corrosion control) shall conduct tap water sampling for lead and copper at the frequency specified in section 8.~~7~~2(d)(3)(Timing of monitoring for water quality control parameters), collect the number of samples specified for standard monitoring under section 8.~~7~~2(c)(Number of lead and copper tap samples)), and shall resume monitoring for water quality parameters within the distribution system in accordance with section 8.~~8~~3(d)(Monitoring after Department specifies water quality parameter values for optimal corrosion control). This standard tap water sampling shall begin no later than the six-month period beginning January 1 of the calendar year following the lead action level exceedance or water quality parameter excursion. Such a system may resume reduced monitoring for lead and copper at the tap and for water quality parameters within the distribution system under the following conditions:

(I) The system may resume annual monitoring for lead and copper at the tap at the reduced number of sites specified in section 8.~~7~~2(c)(Number of lead and copper tap samples) after it has completed two subsequent six-month rounds of monitoring that meet the criteria of section 8.~~7~~2(d)(4)(ii)(Reduced monitoring for lead and copper in tap water) and the system has received written approval from the Department that it is appropriate to resume reduced monitoring on an annual frequency. This sampling shall begin during the calendar year immediately following the end of the second consecutive six-month monitoring period.

(II) The system may resume triennial monitoring for lead and copper at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either section 8.~~7~~2(d)(4)(iii)(Reduced monitoring for lead and copper in tap water) or 8.~~7~~2(d)(4)(v)(Reduced monitoring for lead and copper in tap water) and the system has received written approval from the Department that it is appropriate to resume triennial monitoring.

(III) The system may reduce the number of water quality parameter tap water samples required in accordance with section 8.~~8~~3(e)(1)(Reduced number of water quality parameter sites)

and the frequency with which it collects such samples in accordance with section 8.~~8~~3(e)(2)(Maintaining water quality parameters and reduced frequency of water quality parameter tap samples). Such a system may not resume triennial monitoring for water quality parameters at the tap until it demonstrates in accordance with the requirements of section 8.~~8~~3(e)(2)(Maintaining water quality parameters and reduced frequency of water quality parameter tap samples) that it has re-qualified for triennial monitoring.

(vii) Any water system subject to a reduced monitoring frequency under section 8.~~7~~2(d)(4)(Reduced monitoring for lead and copper in tap water) ~~that either adds a new source of water or changes any water treatment~~ shall ~~inform~~ notify the Department in writing in accordance with section 8.10(a)(3)(Reporting requirements for a new source or long term change in water treatment) of any upcoming long-term change in treatment or addition of a new source as described in that section. The Department 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 Department may require the system to resume sampling in accordance with section 8.~~7~~2(d)(3)(Timing of monitoring for water quality control parameters) and collect the number of samples specified for standard monitoring under section 8.~~7~~2(c)(Number of lead and copper tap samples) 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.

(e) Additional monitoring by system. The results of any monitoring conducted in addition to the minimum requirements of section 8.~~7~~2(Monitoring Requirements for Lead and Copper in Tap Water) shall be considered by the system and the Department in making any determinations (i.e., calculating the 90th percentile lead or copper level) under Article 8.

(f) Invalidation of lead or copper tap water samples. A sample invalidated under this section 8.~~7~~2(f) does not count toward determining lead or copper 90th percentile levels under section 8.1(a)(3)(90th percentile computation) or toward meeting the minimum monitoring requirements of section 8.~~7~~2(c)(Number of lead and copper tap samples).

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

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

(ii) The Department determines that the sample was taken from a site that did not meet the site selection criteria of section 8.~~7~~2(Monitoring Requirements for Lead and Copper in Tap Water).

(iii) The sample container was damaged in transit.

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

(v) Sampling or analytic errors.

(2) The system must report the results of all samples to the Department and all supporting documentation for samples the system believes should be invalidated.

(3) To invalidate a sample under section 8.~~7~~2(f)(1)(Invalidation of lead or copper tap water samples), the decision and the rationale for the decision must be documented in writing. The Department may not invalidate a sample solely on the grounds that a follow-up sample result is higher or lower than that of the original sample.

(4) The water system must collect replacement samples for any samples invalidated under section 8.~~7~~2(f)(Invalidation of lead or copper tap water samples) if, after the invalidation of one or more samples, the system has too few samples to meet the minimum requirements of section 8.~~7~~2(c)(Number of lead and copper tap samples). Any such replacement samples must be taken as soon as possible, but no later than 20 days after the date the Department invalidates the sample or by the end of the applicable monitoring period, whichever occurs later. Replacement samples taken after the end of the applicable monitoring period shall not also be used to meet the monitoring requirements of a subsequent monitoring period. The replacement samples shall be taken at the same locations as the invalidated samples or, if that is not possible, at locations other than those already used for sampling during the monitoring period.

(g) Monitoring waivers for small systems. Any system serving a population of less than or equal to (≤) 3,300 that meets the criteria may apply to the Department to reduce the frequency of monitoring for lead and copper under this section 8.~~7~~2(g) to once every nine years (i.e., a "full waiver") if it meets all of the materials criteria specified in section 8.~~7~~2(g)(1)(Materials criteria) and all of the monitoring criteria specified in section 8.~~7~~2(g)(2)(Monitoring criteria for waiver issuance). Any system serving a population of less than or equal to (≤) 3,300 that meets the criteria in section 8.~~7~~2(g)(1)(Materials criteria) and 8.~~7~~2(g)(2)(Monitoring criteria for waiver issuance) only for lead, or only for copper, may apply to the Department for a waiver to reduce the frequency of tap water monitoring to once every nine years for that contaminant only (i.e., a "partial waiver").

(1) Materials criteria. 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 in section 1.5.2(~~74~~), as follows:

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

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

(B) 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 42 United States Code (U.S.C.) 300g-6(e)(Plumbing fittings and fixtures) (SDWA section 1417(e)).

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

(2) Monitoring criteria for waiver issuance. The system must have completed at least one 6-month round of standard tap water monitoring for lead and copper at sites approved by the Department and from the number of sites required by section 8.~~7~~2(c)(Number of lead

and copper tap samples) and demonstrate that the 90th percentile levels for any and all rounds of monitoring conducted since the system became free of all lead-containing and/or copper-containing materials, as appropriate, meet the following criteria.

(i) Lead levels. To qualify for a full waiver, or a lead waiver, the system must demonstrate that the 90th percentile lead level does not exceed 0.005 mg/L.

(ii) Copper levels. To qualify for a full waiver, or a copper waiver, the system must demonstrate that the 90th percentile copper level does not exceed 0.65 mg/L.

(3) Department approval of waiver application. The Department shall notify the system of its waiver determination, in writing, setting forth the basis of its decision and any condition of the waiver. As a condition of the waiver, the Department may require the system to perform specific activities (e.g., limited monitoring, periodic outreach to customers to remind them to avoid installation of materials that might void the waiver) to avoid the risk of lead or copper concentration of concern in tap water. The system serving a population of ≤ 3,300 must continue monitoring for lead and copper at the tap as required by sections 8.~~7~~2(d)(1)-(4)(Timing of monitoring), as appropriate, until it receives written notification from the Department that the waiver 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 section 8.~~7~~2(d)(4)(iv)(Reduced monitoring for lead and copper in tap water) at the reduced number of sampling sites identified in section 8.~~7~~2(c)(Number of lead and copper tap samples) at least once every nine years and provide the materials certification specified in section 8.~~7~~2(g)(1)(Materials criteria) for both lead and copper to the Department along with the monitoring results. Samples collected every nine years shall be collected no later than every ninth calendar year.

(ii) A system with a partial waiver must conduct tap water monitoring for the waived contaminant in accordance with section 8.~~7~~2(d)(4)(iv)(Reduced monitoring for lead and copper in tap water) at the reduced number of sampling sites specified in section 8.~~7~~2(c)(Number of lead and copper tap samples) at least once every nine years and provide the materials certification specified in section 8.~~7~~2(g)(1)(Materials criteria) pertaining to the waived contaminant along with the monitoring results. Such a system also must continue to monitor for the non-waived contaminant in accordance with requirements of sections 8.~~7~~2(d)(1)-(4)(Timing of monitoring), as appropriate.

(iii) ~~If a~~ Any water system with a full or partial waiver ~~adds a new source of water or changes any water treatment, the system must~~ shall notify the Department in writing in accordance with section 8.10(a)(3)(Reporting requirements for a new source or long term change in water treatment) of any upcoming long-term change in treatment or addition of a new source, as described in that section. The Department 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 Department has the authority to require the system to add or modify waiver conditions (e.g., require re-certification 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 shall notify the Department in writing no later than 60 days after becoming aware of such a change.

(5) Continued eligibility. If the system continues to satisfy the requirements of section 8.~~7~~2(g)(4)(Monitoring frequency for systems with waivers), the waiver will be renewed automatically, unless any of the conditions listed in sections 8.~~7~~2(g)(5)(i)-(iii)(Continued eligibility) occurs. 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 section 8.~~7~~2(g)(1)(Materials criteria) and 8.~~7~~2(g)(2)(Monitoring criteria for waiver issuance).

(i) A system with a full waiver or a lead waiver no longer satisfies the materials criteria of section 8.~~7~~2(g)(1)(i)(Materials criteria) 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 section 8.~~7~~2(g)(1)(ii)(Materials criteria) or has a 90th percentile copper level greater than 0.65 mg/L.

(iii) The Department notifies the system, in writing, that the waiver has been revoked, setting forth the basis of its decision.

(6) Requirements following waiver revocation. A system whose full or partial waiver has been revoked by the Department 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 in accordance with the deadlines specified in section 8.~~2~~5(Corrosion Control Treatment Steps), and any other applicable requirements of Article 8.

(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 8.~~7~~2(c)(Number of lead and copper tap samples).

8.~~8~~3 Monitoring Requirements for Water Quality Parameters

All systems that exceed the lead or copper action level shall monitor water quality parameters in addition to lead and copper in accordance with this section 8.~~8~~3. The requirements of this section 8.~~8~~3 are summarized in the Table 8-4 - Summary of Monitoring Requirements for Water Quality Parameters.

(a) General requirements for water quality parameters.

(1) Sample collection methods.

(i) Tap samples[8-2] shall be representative of water quality throughout the distribution system taking into account the number of individuals served, the different sources of water, the different treatment methods employed by the system, and seasonal variability. Tap sampling under this section 8.~~8~~3(Monitoring Requirements for Water Quality Parameters) is not required to be conducted at taps targeted for lead and copper sampling under section 8.~~7~~2(a)(Sample site location).

8-2 Systems may find it convenient to conduct tap sampling for water quality parameters at sites used for coliform sampling under Article 5(Microbiological Contaminants), if coliform sampling sites are customers' residences.

(iii) Samples collected at the entry point(s) 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 must sample at an entry point to the distribution system during periods of normal operating conditions (i.e., when water is representative of all sources being used).

(2) Number of samples.

(i) Systems shall collect two tap samples for applicable water quality parameters during each monitoring period specified under sections 8.~~8~~3(b)(Initial sampling for water quality parameters) through (e)(Reduced monitoring for water quality parameters) from the following number of sites.

Table 8-2 Number of Water Quality Parameter Samples for Lead and Copper

System size (population served)	Number of sites for water quality parameters
Greater than (>) 100,000	25
10,001-100,000	10
3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
Less than or equal to (≤) 100	1

(ii) Except as provided in section 8.~~8~~3(c)(3)(Limited entry point water quality parameter sampling for groundwater systems), systems shall collect two samples for each applicable water quality parameter at each entry point to the distribution system during each monitoring period specified in section 8.~~8~~3(b)(Initial sampling for water quality parameters). During each monitoring period specified in sections 8.~~8~~3(c)-(e)(Monitoring for water quality parameters after installation of corrosion control, Monitoring after Department specifies water quality parameter values for optimal corrosion control, Reduced monitoring for water quality parameters), systems shall collect one sample for each applicable water quality parameter at each entry point to the distribution system.

(b) Initial sampling for water quality parameters. All systems serving a population of greater than (>) 50,000 shall measure the applicable water quality parameters as specified below at taps and at each entry point to the distribution system during each six-month monitoring period specified in section 8.~~7~~2(d)(1)(Initial tap sampling). All systems serving a population of less than or equal to (≤) 50,000 shall measure the applicable water quality parameters at the locations specified below during each six-month monitoring period specified in section 8.~~7~~2(d)(1)(Initial tap sampling) during which the system exceeds the lead or copper action level.

(1) At taps:

(i) pH;

(ii) Alkalinity;

(iii) Orthophosphate, when an inhibitor containing a phosphate compound is used;

(iv) Silica, when an inhibitor containing a silicate compound is used;

(v) Calcium;

(vi) Conductivity; and

(vii) Water temperature.

(2) At each entry point to the distribution system: all of the applicable parameters listed in section 8.~~8~~3(b)(1)(Initial sampling for water quality parameters).

(c) Monitoring for water quality parameters after installation of corrosion control. Any system serving a population of greater than (>) 50,000 which installs optimal corrosion control treatment pursuant to section 8.~~2~~5(d)(4)(Treatment steps and timelines) shall measure the water quality parameters at the locations and frequencies specified below during each six-month monitoring period specified in section 8.~~7~~2(d)(2)(i)(Monitoring timing after installation of corrosion control). Any system serving a population of less than or equal to (≤) 50,000 which installs optimal corrosion control treatment shall conduct such monitoring during each six-month monitoring period specified in section 8.~~7~~2(d)(2)(ii)(Monitoring timing after installation of source water treatment) in which the system exceeds the lead or copper action level.

(1) At taps, two samples for:

(i) pH;

(ii) Alkalinity;

(iii) Orthophosphate, when an inhibitor containing a phosphate compound is used;

(iv) Silica, when an inhibitor containing a silicate compound is used;

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

(2) Entry point monitoring for water quality parameters. Except as provided in section 8.~~8~~3(c)(3)(Limited entry point water quality parameter sampling for groundwater systems), at each entry point to the distribution system, at least one sample no less frequently than every two weeks (biweekly) for:

(i) pH;

(ii) When alkalinity is adjusted as part of optimal corrosion control, a reading of the dosage rate of the chemical used to adjust alkalinity, and the alkalinity concentration; and

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

(3) Limited entry point water quality parameter sampling for groundwater systems. Any groundwater system can limit entry point sampling described in section 8.~~8~~3(c)(2)(Entry point monitoring for water quality parameters) to those entry points that are representative of water quality and treatment conditions throughout the system. If water from untreated groundwater sources mixes with water from treated groundwater sources, the system must 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 section 8.~~8~~3(c)(Monitoring for water quality parameters after installation of corrosion control), the system shall provide to the Department 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.

(d) Monitoring after Department specifies water quality parameter values for optimal corrosion control. After the Department specifies the values for applicable water quality control parameters reflecting optimal corrosion control treatment under section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters), all systems serving a population of greater than (>) 50,000 shall measure the applicable water quality parameters in accordance with section 8.~~8~~3(c)(Monitoring for water quality parameters after installation of corrosion control) and determine compliance with the requirements of section 8.~~3~~6(g)(Continued operation and monitoring) every six months with the first six-month period to begin on ~~the date~~ either January 1, or July 1, whichever comes first, after the Department specifies the optimal values under section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters). Any system serving a population of less than or equal to (≤) 50,000 shall conduct such monitoring during each six-month period specified in section 8.~~8~~3(d)(Monitoring after Department specifies water quality parameter values for optimal corrosion control) in which the system exceeds the lead or copper action level. For any system serving a population of less than or equal to (≤) 50,000 that is subject to a reduced monitoring frequency pursuant to section 8.~~7~~2(d)(4)(Reduced monitoring for lead and copper in tap water) at the time of the action level exceedance, the ~~end~~ start of the applicable six-month period under section 8.~~8~~3(d))(Monitoring after Department specifies water quality parameter values for optimal corrosion control) shall coincide with the ~~end~~ start of the applicable monitoring period under section 8.~~7~~2(d)(4))(Reduced monitoring for lead and copper in tap water). Compliance with Department-designated optimal water quality parameter values shall be determined as specified under section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters).

(e) Reduced monitoring for water quality parameters.

(1) Reduced number of water quality parameter sites. Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment during each of two consecutive six-month monitoring periods under section 8.~~8~~3(d)(Monitoring after Department specifies water quality parameter values for optimal corrosion control) shall continue monitoring at the entry point(s) to the distribution system as specified in section 8.~~8~~3(c)(2)(Entry point monitoring for water quality parameters). Such system may collect two tap samples for applicable water quality parameters from the following reduced number of sites during each six-month monitoring period.

Table 8-3 Reduced Sampling Sites for Lead and Copper

System Size (population served)	**Reduced number of sites for water quality parameters**
Greater than (>) 100,000	10
10,000 to 100,000	7

3,301 to 10,000	3
501 to 3,300	2
101 to 500	1
Less than or equal to (≤) 100	1

(2) Maintaining water quality parameters and reduced frequency of water quality parameter tap samples.

(i) Any water system that maintains the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the Department under section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters) during three consecutive years of monitoring may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in ~~this~~ section 8.~~8~~3(e)(1)(Reduced number of water quality parameter sites) from every six months to annually. This sampling begins 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 values for the water quality parameters reflecting optimal corrosion control treatment specified by the Department under section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters) during three consecutive years of annual monitoring under this section 8.~~8~~3(e)(2)(i) may reduce the frequency with which it collects the number of tap samples for applicable water quality parameters specified in section 8.~~8~~3(e)(1)(Reduced number of water quality parameter sites) from annually to every three years. This sampling begins no later than the third calendar year following the end of the monitoring period in which the third consecutive year of monitoring occurs.

(ii) A water system may reduce the frequency with which it collects tap samples for applicable water quality parameters specified in section 8.~~8~~3(e)(1))(Reduced number of water quality parameter sites) 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 10.8.1(a)(1)(ii)(Lead and Copper Analysis), that its tap water copper level at the 90th percentile is less than or equal to (≤) 0.65 mg/L for copper in section 8.1(a)(2)(Lead and copper action levels), and that it also has maintained the range of values for the water quality parameters reflecting optimal corrosion control treatment specified by the Department under section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters). Monitoring conducted every three years shall be done no later than every third calendar year.

(3) A water system that conducts sampling annually shall collect these samples evenly throughout the year 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 Department in section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters) for more than nine days in any six-month period specified in section 8.~~3~~6(g)(Continued operation and monitoring) shall

resume distribution system tap water sampling in accordance with the number and frequency requirements in section 8.~~8~~3(d)(Monitoring after Department specifies water quality parameter values for optimal corrosion control). Such a system may resume annual monitoring for water quality parameters at the tap at the reduced number of sites specified in section 8.~~8~~3(e)(1)(Reduced number of water quality parameter sites) after it has completed two subsequent consecutive six-month rounds of monitoring that meet the criteria of section 8.~~8~~3(e)(Reduced monitoring for water quality parameters) and/or may resume triennial monitoring for water quality parameters at the tap at the reduced number of sites after it demonstrates through subsequent rounds of monitoring that it meets the criteria of either section 8.~~8~~3(e)(2)(i) or 8.~~8~~3(e)(2)(ii)(Maintaining water quality parameters and reduced frequency of water quality parameter tap samples).

(f) Additional monitoring by systems. The results of any monitoring conducted in addition to the minimum requirements of section 8.~~8~~3(Monitoring Requirements for Water Quality Parameters) shall be considered by the system and the Department in making any determinations (i.e., determining concentrations of water quality parameters) under section 8.~~8~~3(Monitoring Requirements for Water Quality Parameters) or section 8.~~3~~6(Description of Corrosion Control Treatment Requirements).

Table 8-4 Summary of Monitoring Requirements for Water Quality Parameters [1]

Monitoring Period	Parameters [2]	Location	Frequency
Initial monitoring	pH, alkalinity, orthophosphate or silica[3], calcium, conductivity, temperature	Taps and at entry point(s) to the distribution system	Every 6 months
After installation of optimal corrosion control	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Taps	Every 6 months
	pH, alkalinity, dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual[5]	Entry point(s) to the distribution system[6]	No less frequently than every two weeks
After Department specifies parameter values for optimal corrosion control	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Taps	Every 6 months
	pH, alkalinity, dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual[5]	Entry point(s) to the distribution system[6]	No less frequently than every two weeks
Reduced Monitoring	pH, alkalinity, orthophosphate or silica[3], calcium[4]	Taps	Every 6 months, annually[7] or every 3 years[8]; reduced number of sites

	pH, alkalinity, dosage rate and concentration (if alkalinity adjusted as part of corrosion control), inhibitor dosage rate and inhibitor residual[5]	Entry point(s) to the distribution system[6]	No less frequently than every two weeks

1 Table is for illustrative purposes; consult the text of Article 8 for precise regulatory requirements.

2 Systems serving a population of less than or equal to (≤) 50,000 have to monitor for water quality parameters only during monitoring periods in which the system exceeds the lead or copper action level.

3 Orthophosphate must be measured only when an inhibitor containing a phosphate compound is used. Silica must be measured only when an inhibitor containing silicate compound is used.

4 Calcium must be measured only when calcium carbonate stabilization is used as part of corrosion control.

5 Inhibitor dosage rates and inhibitor residual concentrations (orthophosphate or silica) must be measured only when an inhibitor is used.

6 Groundwater systems may limit monitoring to representative locations throughout the system.

7 Water systems may reduce frequency of monitoring for water quality parameters at the tap from every six months to annually if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during 3 consecutive years of monitoring.

8 Water systems may further reduce the frequency of monitoring for water quality parameters at the tap from annually to once every 3 years if they have maintained the range of values for water quality parameters reflecting optimal corrosion control during 3 consecutive years of annual monitoring. Water systems may accelerate to triennial monitoring for water quality parameters at the tap if they have maintained 90th percentile lead levels less than or equal to (≤) 0.005 mg/L, 90th percentile copper levels less than or equal to (≤) 0.65 mg/L, and the range of water quality parameters designated by the Department under section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters) as representing optimal corrosion control during two consecutive six-month monitoring periods.

8.~~9~~4 Monitoring Requirements for Lead and Copper in Source Water

(a) Sample location, collection methods, and number of samples.

(1) A water system that fails to meet the lead or copper action level on the basis of tap samples collected in accordance with section 8.~~7~~2(Monitoring Requirements for Lead and Copper in Tap Water) shall collect lead and copper source water samples in accordance with the following requirements regarding sample location, number of samples, and collection methods:

(i) Groundwater systems shall take a minimum of one sample at every entry point to the distribution system that is representative of each well after treatment (hereafter called a sampling point). The system shall take one sample at the same sampling point unless conditions make another sampling point more representative of each source or treatment plant.

(ii) Surface water systems[8-3] shall take a minimum of one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point that is representative of each source after treatment (hereafter called a sampling point). 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.

8-3 For the purposes of Article 8, surface water systems include systems with a combination of surface and ~~ground water~~ groundwater sources.

(iii) 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 (i.e., when water is representative of all sources being used).

(iv) The Department may reduce the total number of samples that must be analyzed by allowing the use of compositing. Compositing of samples must be done by certified laboratory personnel. Composite samples from a maximum of five samples are allowed, provided that, 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:

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

(B) 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 re-sampling.

(2) Where the results of sampling indicate an exceedance of maximum permissible source water levels established under section 8.47(b)(4)(Department review of source water treatment and specification of maximum permissible source water levels), the Department may require that one additional 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 Department-required confirmation sample is taken for lead or copper, then the results of the initial and confirmation sample shall be averaged in determining compliance with the Department-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 PQL shall either be considered as the measured value or be considered one-half the PQL.

(b) Monitoring frequency after system exceeds tap water action level. Any system that exceeds the lead or copper action level at the tap shall collect one source water sample from each entry point to the distribution system ~~within~~ no later than six months after the ~~exceedance~~ 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 Department has established an alternative monitoring period, the last day of that period.

(c) Monitoring frequency after installation of source water treatment. Any system that installs source water treatment pursuant to section 8.47(a)(3)(Deadlines for completing source water treatment steps) shall collect an additional source water sample from each entry point to the distribution system during two consecutive six-month monitoring periods by the deadline specified in section 8.47(a)(4)(Deadlines for completing source water treatment steps).

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

(1) Source water monitoring frequency. A system shall monitor at the frequency specified below in cases where the Department specifies maximum permissible source water levels under section 8.47(b)(4)(Department review of source water treatment and specification of maximum permissible source water levels) or determines that the system is not required to install source water treatment under section 8.47(b)(2)(Department determination regarding source water treatment).

(i) A water system using only groundwater shall collect samples once during the three-year compliance period, as that term is defined in section 1.5.2, ~~(19)~~ in effect when the applicable Department determination under this section 8.~~9~~4(d)(1) is made. Such systems shall collect samples once during each subsequent compliance period. Triennial samples shall be collected every third calendar year.

(ii) A water system using surface water (or a combination of surface and groundwater) shall collect samples once during each year, the first annual monitoring period to begin ~~on the date on~~ during the year in which the applicable Department determination is made under this section 8.~~9~~4(d)(1).

(2) 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 section 8.~~9~~4(d)(1)(i) or 8.~~9~~4(d)(1)(ii)(Source water monitoring frequency).

(e) Reduced source water monitoring frequency.

(1) A water system using only groundwater may reduce the monitoring frequency for lead and copper in source water to once during each nine-year compliance cycle, as defined in section 1.5.2~~(11)~~, 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 Department in section 8.47(b)(4)(Department review of source water treatment and specification of maximum permissible source water levels) during at least three consecutive compliance periods under section 8.~~9~~4(d)(1)(Source water monitoring frequency); or

(ii) The Department has determined that source water treatment is not needed and the system demonstrates that, during at least three consecutive compliance periods in which sampling was conducted under section 8.~~9~~4(d)(1)(Source water monitoring frequency), 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.

(2) A water system using surface water (or a combination of surface water and groundwater) may reduce the monitoring frequency in section 8.~~9~~4(d)(1)(Source water monitoring frequency) to once during each nine-year compliance cycle ~~(~~, as that term is defined in section 1.5.2~~(16))~~, 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 Department in section 8.47(b)(4)(Department review of source water treatment and specification of maximum permissible source water levels) for at least three consecutive years; or

(ii) The Department 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 are below the maximum permissible lead and copper concentrations specified by the Department in section 8.~~4~~7(a)(5)(Deadlines for completing source water treatment steps).

8.~~2~~5 Corrosion Control Treatment Steps

(a) Systems shall complete the applicable corrosion control treatment requirements described in section 8.~~3~~6(Description of Corrosion Control Treatment Requirements) by the deadlines established in this section 8.~~2~~5~~(a)~~.

(1) A system serving a population of greater than (>) 50,000 shall complete the corrosion control treatment steps specified in section 8.~~2~~5(d)(Treatment steps and timelines), unless it is deemed to have optimized corrosion control under section 8.~~2~~5(b)(2)(Deemed to have optimized corrosion control by the Department) or 8.~~2~~5(b)(3)(Deemed to have optimized corrosion control based upon tap water and source water monitoring results).

(2) Systems serving a population of less than or equal to (≤) 50,000 shall complete the corrosion control treatment steps specified in section 8.~~2~~5(d)(Treatment steps and timelines), unless it is deemed to have optimized corrosion control under section 8.~~2~~5(b)(Deemed optimized corrosion control)~~(1), (b)(2), or (b)(3)~~.

(b) Deemed 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 Article 8 if the system satisfies one of the criteria specified below in sections 8.~~2~~5(b)(1)-(3). Any such system deemed to have optimized corrosion control under Article 8, and which has treatment in place, shall continue to operate and maintain optimal corrosion control treatment and meet any requirements that the Department determines appropriate to ensure optimal corrosion control treatment is maintained.

(1) Deemed to have optimized corrosion control by meeting lead and copper action levels. A system serving a population of less than or equal to (≤) 50,000 is deemed to have optimized corrosion control if the system meets the lead and copper action levels during each of two consecutive six-month monitoring periods conducted in accordance with section 8.~~7~~2(Monitoring Requirements for Lead and Copper in Tap Water).

(2) Deemed to have optimized corrosion control by the Department. Any water system may be deemed by the Department to have optimized corrosion control treatment if the system demonstrates to the satisfaction of the Department that it has conducted activities equivalent to the corrosion control steps applicable to such system under section 8.~~2~~5(Corrosion Control Treatment Steps). If the Department makes this determination, it shall provide the system with written notice explaining the basis for its decision and shall specify the water quality control parameters representing optimal corrosion control in accordance with section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters). Water systems deemed to have optimized corrosion control under Article 8 shall operate in compliance with the Department-designated optimal water quality control parameters in accordance with section 8.~~3~~6(g)(Continued operation and monitoring) and continue to conduct lead and copper tap and water quality parameter sampling in accordance with section 8.~~7~~2(d)(3)(Timing of monitoring for water quality control parameters) and section 8.~~8~~3(d)(Monitoring after Department specifies

water quality parameter values for optimal corrosion control), respectively. A system shall provide the Department with the following information in order to support a determination under this section 8.~~2~~5(b)(2):

(i) The results of all test samples collected for each of the water quality parameters in section 8.~~3~~6(c)(3).

(ii) A report explaining the test methods used by the water system to evaluate the corrosion control treatments listed in section 8.~~3~~6(c)(1), 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 tap water samples collected in accordance with section 8.~~7~~2(Monitoring Requirements for Lead and Copper in Tap Water) at least once every six months for one year after corrosion control has been installed.

(3) Deemed to have optimized corrosion control based upon tap water and source water monitoring results. Any water system is deemed to have optimized corrosion control if it submits results of tap water monitoring conducted in accordance with section 8.~~7~~2(Monitoring Requirements for Lead and Copper in Tap Water) and source water monitoring conducted in accordance with section 8.~~9~~4(Monitoring Requirements for Lead and Copper in Source Water) that demonstrates for two consecutive 6-month monitoring periods that the difference between the 90th percentile tap water lead level computed under section 8.1(a)(3)(90th percentile computation), and the highest source water lead concentration is less than the Practical Quantitation Level for lead specified in section 10.8.1(a)(1)(ii)(Achieve quantitative acceptance limits as follows).

(i) Those systems whose highest source water lead level is below the Method Detection Limit may also be deemed to have optimized corrosion control under Article 8 if the 90th percentile tap water lead level is less than or equal to the Practical Quantitation Level for lead for two consecutive 6-month monitoring periods.

~~(ii)~~(4) Any water system deemed to have optimized corrosion control in accordance with Article 8 shall continue monitoring for lead and copper at the tap no less frequently than once every three calendar years using the reduced number of sites specified in section 8.~~7~~2(c)(Number of lead and copper tap samples) and collecting the samples at times and locations specified in section 8.~~7~~2(d)(4)(iv)(Reduced monitoring for lead and copper in tap water).

~~(iii)~~(5) Any water system deemed to have optimized corrosion control under section 8.~~2~~5(b)(Deemed optimized corrosion control) must notify the Department in writing, as required by section 8.10(a)(3)(Reporting requirements for a new source or long term change in water treatment) of any upcoming long-term change in treatment or the addition of a new source as described in that section. The Department 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 Department may require any such system to conduct additional monitoring or to take other action the Department determines appropriate to ensure that such systems maintain minimal levels of corrosion in the distribution system.

~~(iv)~~(6) A system is not deemed to have optimized corrosion control under section 8.~~2~~5(b)(Deemed optimized corrosion control), and shall implement corrosion control treatment pursuant to section 8.~~2~~5(b)~~(3)(v)~~(7), unless it meets the copper action level.

~~(v)~~(7) Any system triggered into corrosion control because it is no longer deemed to have optimized corrosion control under section 8.~~2~~5(b)(Deemed optimized corrosion control), shall implement corrosion control treatment in accordance with the deadlines in section 8.~~2~~5(d)(Treatment steps and timelines). The time periods for completing each step are triggered by the date the system is no longer deemed to have optimized corrosion control under section 8.~~2~~5(b)(Deemed optimized corrosion control).

(c) Any system serving a population of ≤ 50,000 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 system meets both action levels during each of two consecutive monitoring periods conducted pursuant to section 8.~~7~~2(Monitoring Requirements for Lead and Copper in Tap Water) and submits the results to the Department. If any such water system thereafter exceeds the lead or copper action level during any monitoring period, the system shall recommence completion of the applicable treatment steps, beginning with the first treatment step that was not previously completed in its entirety. The Department may require a system to repeat treatment steps previously completed by the system where the Department determines that this is necessary to implement properly the treatment requirements of section 8.~~2~~5(Corrosion Control Treatment Steps). The Department shall notify the system in writing of such a determination and explain the basis for its decision. The requirement for any system serving a population of ≤ 50,000 to implement corrosion control treatment steps in accordance with section 8.~~2~~5(d)(Treatment steps and timelines), including systems deemed to have optimized corrosion control under section 8.~~2~~5(b)(1)(Deemed to have optimized corrosion control by meeting lead and copper action levels), is triggered whenever any system serving a population of less than or equal to (≤) 50,000 exceeds the lead or copper action level.

(d) Treatment steps and timelines. Except as provided in section 8.~~2~~5(b)(Deemed optimized corrosion control), systems shall complete the following corrosion control treatment steps (described in the referenced portions of section 8.~~3~~6(Description of Corrosion Control Treatment Requirements), section 8.~~7~~2(Monitoring Requirements for Lead and Copper in Tap Water) and section 8.~~8~~3(Monitoring Requirements for Water Quality Parameters)) by the indicated time periods.

(1) Step 1: The system shall conduct initial tap sampling (section 8.~~7~~2(d)(1)(Initial tap sampling) and section 8.~~8~~3(b)(Initial sampling for water quality parameters)) until the system either exceeds the lead or copper action level or becomes eligible for reduced monitoring under section 8.~~7~~2(d)(4)(Reduced monitoring for lead and copper in tap water). A system exceeding the lead or copper action level shall recommend optimal corrosion control treatment (section 8.~~3~~6(a)(System recommendation regarding corrosion control treatment)) within six months after the end of the monitoring period during which it exceeds one of the action levels.

(2) Step 2: Within 12 months after the end of the monitoring period during which a system exceeds the lead or copper action level, the Department may require the system to perform corrosion control studies (section 8.~~3~~6(b)(Department decision to require studies of corrosion control treatment)). If the Department does not require the system to perform such studies, the Department shall specify optimal corrosion control treatment (section 8.~~3~~6(d)(Department designation of optimal corrosion control treatment)) within the following timeframes:

(i) For systems serving a population greater than (>) 50,000, within 6 months after the end of the monitoring period during which such system exceeds the lead or copper action level,

(ii) For systems serving a population of greater than (>) 3,300 but less than or equal to (≤) 50,000, within 18 months after the end of the monitoring period during which such system exceeds the lead or copper action level,

(iii) For systems serving a population of less than or equal to (≤) 3,300, within 24 months after the end of the monitoring period during which such system exceeds the lead or copper action level.

(3) Step 3: If the Department requires a system to perform corrosion control studies under step 2, the system shall complete the studies (section 8.~~3~~6(c)(Performance of corrosion control studies)) within 18 months after the Department requires that such studies be conducted.

(4) Step 4: If the system has performed corrosion control studies under step 2, the Department shall designate optimal corrosion control treatment (section 8.~~3~~6(d)(Department designation of optimal corrosion control treatment)) within 6 months after completion of step 3.

(5) Step 5: The system shall install optimal corrosion control treatment (section 8.~~3~~6(e)(Installation of optimal corrosion control)) within 24 months after the Department designates such treatment.

(6) Step 6: The system shall complete follow-up sampling (section 8.~~7~~2(d)(2)(Monitoring after installation of corrosion control and source water treatment) and section 8.~~8~~3(c)(Monitoring for water quality parameters after installation of corrosion control)) within 36 months after the Department designates optimal corrosion control treatment.

(7) Step 7: The Department shall review the system's installation of treatment and designate optimal water quality control parameters (section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters)) within 6 months after completion of step 6.

(8) Step 8: The system shall operate in compliance with the Department-designated optimal water quality control parameters (section 8.~~3~~6(g)(Continued operation and monitoring)) and continue to conduct tap sampling (section 8.~~7~~2(d)(3)(Timing of monitoring for water quality control parameters) and section 8.~~8~~3(d)(Monitoring after Department specifies water quality parameter values for optimal corrosion control)).

8.~~3~~6 Description of Corrosion Control Treatment Requirements

Each system shall complete the corrosion control treatment requirements described below which are applicable to such system under section 8.~~2~~5(Corrosion Control Treatment Steps).

(a) System recommendation regarding corrosion control treatment. Based upon the results of lead and copper tap monitoring and water quality parameter monitoring, systems serving a population of less than or equal to (≤) 50,000 exceeding the lead or copper action level shall recommend installation of one or more of the corrosion control treatments listed in section 8.~~3~~6(c)(1)(Corrosion control treatments) which the system believes constitutes optimal corrosion control for that system. The Department may require the system to conduct additional water

quality parameter monitoring in accordance with section 8.~~8~~3(b)(Initial sampling for water quality parameters) to assist the Department in reviewing the system's recommendation.

(b) Department decision to require studies of corrosion control treatment. The Department may require any system serving a population of less than or equal to (≤) 50,000 that exceeds the lead or copper action level to perform corrosion control studies under section 8.~~3~~6(c)(Performance of corrosion control studies) to identify optimal corrosion control treatment for the system.

(c) Performance of corrosion control studies.

(1) Corrosion control treatments. Any public water system performing corrosion control studies shall evaluate the effectiveness of each of the following treatments, and, if appropriate, combinations of the following treatments to identify the optimal corrosion control treatment for that system:

(i) Alkalinity and pH adjustment;

(ii) Calcium hardness adjustment; and

(iii) 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.

(2) The water system shall evaluate each of the corrosion control treatments using either pipe rig/loop tests, metal coupon tests, partial-system tests, or analyses based on documented analogous treatments with other systems of similar size, water chemistry and distribution system configuration.

(3) The water system shall measure the following water quality parameters in any tests conducted under section 8.~~3~~6(c)(Performance of corrosion control studies) before and after evaluating the corrosion control treatments listed above:

(i) Lead;

(ii) Copper;

(iii) pH;

(iv) Alkalinity;

(v) Calcium;

(vi) Conductivity;

(vii) Orthophosphate (when an inhibitor containing a phosphate compound is used);

(viii) Silicate (when an inhibitor containing a silicate compound is used); and

(ix) Water temperature.

(4) The water system shall identify all chemical or physical constraints that limit or prohibit the use of a particular corrosion control treatment and document such constraints with at least one of the following:

(i) Data and documentation showing that a particular corrosion control treatment has adversely affected other water treatment processes when used by another water system with comparable water quality characteristics; and/or

(ii) Data and documentation demonstrating that the water system has previously attempted to evaluate a particular corrosion control treatment and has found that the treatment is ineffective or adversely affects other water quality treatment processes.

(5) The water system shall evaluate the effect of the chemicals used for corrosion control treatment on other water quality treatment processes.

(6) On the basis of an analysis of the data generated during each evaluation, the water system shall recommend to the Department in writing the treatment option that the corrosion control studies indicate constitutes optimal corrosion control treatment for that system. The water system shall provide a rationale for its recommendation along with all supporting documentation specified in sections 8.~~3~~6(c)(1)-(5)(Performance of corrosion control studies).

(d) Department designation of optimal corrosion control treatment.

(1) Based upon consideration of available information including, where applicable, studies performed under section 8.~~3~~6(c)(Performance of corrosion control studies) and a system's recommended treatment alternative, the Department shall either approve the corrosion control treatment option recommended by the system or designate alternative corrosion control treatment(s) from among those listed in section 8.~~3~~6(c)(1)(Corrosion control treatments). When designating optimal treatment the Department shall consider the effects that additional corrosion control treatment will have on water quality parameters and on other water quality treatment processes.

(2) The Department shall notify the system of its decision on optimal corrosion control treatment in writing and explain the basis for this determination. If the Department requests additional information to aid its review, the water system shall provide the information.

(e) Installation of optimal corrosion control. Each system shall properly install and operate throughout its distribution system the optimal corrosion control treatment designated by the Department under section 8.~~3~~6(d)(Department designation of optimal corrosion control treatment).

(f) Department review of treatment and designation of optimal water quality parameters. The Department shall evaluate the results of all lead and copper tap samples and water quality parameter samples submitted by the water system and determine whether the system has properly installed and operated the optimal corrosion control treatment designated by the Department in section 8.~~3~~6(d)(Department designation of optimal corrosion control treatment). Upon reviewing the results of tap water and water quality parameter monitoring by the system, both before and after the system installs optimal corrosion control treatment, the Department shall designate:

(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 Department 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 required by section 8.~~8~~3(a)(General requirements for water quality parameters), that the Department 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;

(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.

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

~~(h)~~(g) Continued operation and monitoring. 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 Department under section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters), in accordance with ~~Article 8~~ this paragraph for all samples collected under section 8.~~8~~3(d)-(f)(Monitoring after Department specifies water quality parameter values for optimal corrosion control-Additional monitoring by systems). Compliance with the requirements of ~~Article 8~~ this section 8.6(g) shall be determined every six months, as specified under section 8.~~8~~3(d)(Monitoring after Department specifies water quality parameter values for optimal corrosion control). A water system is out of compliance with the requirements of this section 8.~~3~~6(g) for a six-month period if it has excursions for any Department-specified parameter on more than nine days during the 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 Department. Daily values are calculated as follows. The Department has the discretion to delete results of sampling or analytic errors from this calculation.

(1) 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.

(2) 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.

(3) 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.

~~(i) Upon its own initiative or in response to a request by a water system or other interested party, the Department may modify its determination of the optimal corrosion control treatment under section 8.3(d) or optimal water quality control~~

~~parameters under section 8.3(f). A request for modification by a system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The Department may modify its determination where it concludes that such change is necessary to ensure that the system continues to optimize corrosion control treatment. A revised determination shall be made in writing, set forth the new treatment requirements, explain the basis for the Department's decision, and provide an implementation schedule for completing the treatment modifications.~~

(h) Modification of Department treatment decisions. Upon its own initiative or in response to a request by a water system or other interested party, the Department may modify its determination of the optimal corrosion control treatment under section 8.~~3~~6(d)(Department determined water quality control parameter values) or optimal water quality control parameters under section 8.~~3~~6(f)(Department review of treatment and designation of optimal water quality parameters). A request for modification by a system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The Department may modify its determination where it concludes that such change is necessary to ensure that the system continues to optimize corrosion control treatment. A revised determination shall be made in writing, set forth the new treatment requirements, explain the basis for the Department's decision, and provide an implementation schedule for completing the treatment modifications.

8.4~~7~~ Source Water Treatment Requirements

Systems shall complete the applicable source water monitoring and treatment requirements (described in the referenced portions of sections 8.4~~7~~(b)(Description of source water treatment requirements), 8.~~7~~2(Monitoring Requirements for Lead and Copper in Tap Water), and 8.~~9~~4(Monitoring Requirements for Lead and Copper in Source Water)) if determined by the Department to be appropriate, by the following deadlines.

(a) Deadlines for completing source water treatment steps:

(1) Step 1: A system exceeding the lead or copper action level shall complete lead and copper source water monitoring (section 8.~~9~~4(b)(Monitoring frequency after system exceeds tap water action level)) and make a treatment recommendation to the Department (section 8.4~~7~~(b)(1)(System treatment recommendation)) ~~within 6 months~~ no later than 180 days after the end of the monitoring period during which ~~exceeding~~ the lead or copper action level was exceeded.

(2) Step 2: The Department shall make a determination regarding source water treatment (section 8.4~~7~~(b)(2)(Department determination regarding source water treatment)) within 6 months after submission of monitoring results under Step 1.

(3) Step 3: If the Department requires installation of source water treatment, the system shall install the treatment (section 8.4~~7~~(b)(3)(Installation of source water treatment)) within 24 months after completion of Step 2.

(4) Step 4: The system shall complete follow-up tap water monitoring (section 8.~~7~~2(d)(2)(Monitoring after installation of corrosion control and source water treatment) and source water monitoring (section 8.~~9~~4(c)(Monitoring frequency after installation of source water treatment)) within 36 months after completion of Step 2.

(5) Step 5: The Department shall review the system's installation and operation of source water treatment and specify maximum permissible source water levels (section 8.4~~7~~(b)(4)(Department review of source water treatment and specification of maximum permissible source water levels)) within 6 months after completion of Step 4.

(6) Step 6: The system shall operate in compliance with the Department-specified maximum permissible lead and copper source water levels (section 8.~~4~~7(b)(4)(Department review of source water treatment and specification of maximum permissible source water levels)) and continue source water monitoring (section 8.~~9~~4(d)(Monitoring frequency after Department specifies maximum permissible source water levels or determines that source water treatment is not needed)).

(b) Description of source water treatment requirements:

(1) System treatment recommendation. Any system which exceeds the lead or copper action level shall recommend in writing to the Department the installation and operation of one of the source water treatments listed in section 8.~~4~~7(b)(2)(Department determination regarding source water treatment). 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) Department determination regarding source water treatment. The Department shall complete an evaluation of the results of all source water samples submitted by the water system to determine whether source water treatment is necessary to minimize lead or copper levels in water delivered to users' taps. If the Department determines that treatment is needed, the Department shall either require installation and operation of the source water treatment recommended by the system (if any) or require the installation and operation of another source water treatment from among the following: Ion exchange, reverse osmosis, lime softening or coagulation/filtration. If the Department requests additional information to aid in its review, the water system shall provide the information by the date specified by the Department in its request. The Department shall notify the system in writing of its determination and set forth the basis for its decision.

(3) Installation of source water treatment. Each system shall properly install and operate the source water treatment designated by the Department under section 8.~~4~~7(b)(2)(Department determination regarding source water treatment).

(4) Department review of source water treatment and specification of maximum permissible source water levels. The Department shall review the source water samples taken by the water system both before and after the system installs source water treatment, and determine whether the system has properly installed and operated the source water treatment designated by the Department. Based upon its review, the Department shall designate the maximum permissible lead and copper concentrations for finished water entering the distribution system. Such levels shall reflect the contaminant removal capability of the treatment properly operated and maintained. The Department shall notify the system in writing and explain the basis for its decision.

(5) Continued operation and maintenance. Each water system shall maintain lead and copper levels below the maximum permissible concentrations designated by the Department at each sampling point monitored in accordance with section 8.~~9~~4(Monitoring Requirements for Lead and Copper in Source Water). The system is out of compliance with this section 8.~~4~~7(b)(5)(Continued operation and maintenance) if the level of lead or copper at any sampling point is greater than the maximum permissible concentration designated by the Department.

(6) Modification of Department treatment decisions. Upon the Department's initiative or in response to a request by a water system or other interested party, the Department may modify its determination of the source water treatment under section 8.~~4~~7(b)(2)(Department determination regarding source water treatment), or maximum permissible lead and copper concentrations for finished water entering the distribution

system under section 8.4~~7~~(b)(4)(Department review of source water treatment and specification of maximum permissible source water levels). A request for modification by a system or other interested party shall be in writing, explain why the modification is appropriate, and provide supporting documentation. The Department may modify its determination where it concludes that such change is necessary to ensure that the system continues to minimize lead and copper concentrations in source water. A revised determination shall be made in writing, set forth the new treatment requirements, explain the basis for the Department's decision, and provide an implementation schedule for completing the treatment modifications.

8.~~5~~8 Lead Service Line Replacement Requirements

(a) When lead service line replacement is required. Systems that fail to meet the lead action level in tap samples taken pursuant to section 8.~~7~~2(d)(2)(Monitoring after installation of corrosion control and source water treatment), after installing corrosion control and/or source water treatment (whichever sampling occurs later), shall replace lead service lines in accordance with the requirements of section 8.~~5~~8(Lead Service Line Replacement Requirements). If a system is in violation of section 8.4~~7~~(Source Water Treatment Requirements) for failure to install source water treatment or in violation of section 8.~~2~~5(Corrosion Control Treatment Steps) for failure to install corrosion control treatment, the Department may require the system to commence lead service line replacement under section 8.~~5~~8(Lead Service Line Replacement Requirements) after the date by which the system was required to conduct monitoring under section 8.~~7~~2(d)(2)(Monitoring after installation of corrosion control and source water treatment) has passed.

(b) Annual Lead Line 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 a materials evaluation, including the evaluation required under section 8.~~7~~2(a)(Sample site location) 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 ~~date~~ the action level was exceeded ~~in tap sampling referenced in~~ under section 8.~~5~~8(a)(When lead service line replacement is required). 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 the Department has established an alternative monitoring period, then the end of the monitoring period will be the last day of that period.

(2) Resuming lead service line replacement after cessation. Any water system resuming a lead service line replacement program after the cessation of its lead service line replacement program as allowed by section 8.~~5~~8(f)(Lead service line replacement may cease based on first draw samples) 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 section 8.~~5~~8(c)(Individual Lead Service Line Replacement Not Required). 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 must be replaced per year (7 percent lead service line replacement is based on a 15-year replacement program, so, for example, systems resuming lead service line replacement after previously conducting two years of replacement would divide the updated inventory by 13). For those systems that have completed a 15-year lead service line replacement program, the Department will determine a schedule for replacing or

retesting lines that were previously tested out under the replacement program when the system re-exceeds the action level.

(c) Individual Lead Service Line Replacement Not Required. A system is not required to replace an individual lead service line if the lead concentration in all service line samples from that line, taken pursuant to section 8.~~7~~2(b)(3)(Lead service line samples), is less than or equal to 0.015 mg/L.

(d) A water system shall replace that 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, nor is it required to replace the privately-owned portion 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 Department, 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) Notice to residents served. At least 45 days prior to commencing with the 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 Department may allow the water system to provide notice under the previous sentence less than 45 days prior to commencing partial lead service line replacement where such replacement is 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 under section 8.~~7~~2(b)(3)(Lead service line samples), 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 section 8.~~5~~8(d)(1)(Notice to residents served) to the residents of individual dwellings by mail or by other methods approved by the Department. In instances where multi-family dwellings are served by the line, the water system shall have the option to post the information at a conspicuous location.

(e) Department required shorter lead service line replacement schedule. The Department shall require a system to replace lead service lines on a shorter schedule than that required by section 8.~~5~~8(Lead Service Line Replacement Requirements), taking into account the number of lead service lines in the system, where such a shorter replacement schedule is feasible. The Department 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 referenced in section 8.~~5~~8(a)(When lead service line replacement is required).

(f) Lead service line replacement may cease based on first draw samples. Any system may cease replacing lead service lines whenever first draw samples collected pursuant to section 8.~~7~~2(b)(2)(First draw samples) meet the lead action level during each of two consecutive monitoring periods and the system submits the results to the Department. If first draw tap samples collected in any such system thereafter exceeds the lead action level, the system shall recommence replacing lead service lines pursuant to section 8.~~5~~8(b)(2)(Resuming lead service line replacement after cessation).

(g) To demonstrate compliance with section 8.~~5~~8(a)-(d)(When lead service line replacement is required-A water system shall replace that portion of the lead service line that it owns), a system shall report to the Department the information specified in section 8.10(e)(Lead service line replacement reporting requirements).

8.~~6~~9 Public Education and Supplemental Monitoring Requirements

All water systems must deliver a consumer notice of lead tap water monitoring results to persons served by the water system at sites that are tested, as specified in section 8.~~6~~9(d)(Notification of results). A water system that exceeds the lead action level based on tap water samples collected in accordance with section 8.~~7~~2(Monitoring Requirements for Lead and Copper in Tap Water) shall deliver the public education materials contained in section 8.~~6~~9(a)(Content of written public education materials) ~~and 8.6(b)~~ in accordance with the requirements in section 8.~~6~~9~~(c)~~(b)(Delivery of public education materials). Water systems that exceed the lead action level must sample the tap water of any customer who requests it in accordance with section 8.~~6~~9(c)(Supplemental monitoring and notification of results).

(a) Content of written public education materials.

(1) Content of materials for Community water systems and Non-transient non-community water systems. Water systems must include the following elements in printed materials (e.g., brochures and pamphlets) in the same order as listed below. In addition, the following language in sections 8.~~6~~9(a)(1)(i) through 8.~~6~~9(a)(1)(ii) and section 8.~~6~~9(a)(1)(vi) must be included in the material, exactly written, except for text in brackets in these paragraphs for which the water system must include specific information. ~~A community water system shall include the following text in all of the printed materials it distributes through its lead public education program. Systems may delete information pertaining to lead service lines, upon approval by the Department, if no lead service lines exist anywhere in the water system service area. Public education language at sections 8.6(a)(1)(iv)(B)(V) and 8.6(a)(1)(iv)(D)(II) may be modified regarding building permit record availability and consumer access to these records, if approved by the Department. Systems may also continue to utilize pre-printed materials that meet the public education language requirements in 40 CFR 141.85, effective November 6, 1991, and contained in the 40 CFR, parts 100 to 149, edition revised as of July 1, 1991.~~ Any additional information presented by a water system ~~shall~~ must be consistent with the information below and be in plain ~~English~~ language that can be understood by ~~lay people~~the general public. Water systems must submit all written public education materials to the Department prior to delivery. The Department may require the system to obtain approval of the content of written public materials prior to delivery.

(i) 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.~~The United States Environmental Protection Agency (EPA) and [insert name of water supplier] are concerned about lead in your drinking water. Although most homes have very low levels of lead in their drinking water, some homes in the community have lead levels above the EPA action level of 15 parts per billion (ppb), or 0.015 milligrams of lead per liter of water (mg/L). Under Federal law we are required to have a program in place to minimize lead in your drinking water by [insert date when corrosion control will be completed for your system]. This program includes corrosion control treatment, source water treatment, and public education. We are also required to replace the portion of each lead service line that we own if the line contributes lead concentrations of more than 15 ppb after we have completed the comprehensive treatment program. If you have any~~

~~questions about how we are carrying out the requirements of the lead regulation please give us a call at [insert water system's phone number]. This brochure explains the simple steps you can take to protect you and your family by reducing your exposure to lead in drinking water.~~

(ii) 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. ~~Lead is a common metal found throughout the environment in lead-based paint, air, soil, household dust, food, certain types of pottery porcelain and pewter, and water. Lead can pose a significant risk to your health if too much of it enters your body. Lead builds up in the body over many years and can cause damage to the brain, red blood cells and kidneys. The greatest risk is to young children and pregnant women. Amounts of lead that won't hurt adults can slow down normal mental and physical development of growing bodies. In addition, a child at play often comes into contact with sources of lead contamination--like dirt and dust--that rarely affect an adult. It is important to wash children's hands and toys often, and to try to make sure they only put food in their mouths.~~

(iii) Sources of lead. ~~Lead In Drinking Water~~

(A) Explain what lead is.~~Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase an individual's total lead exposure, particularly the exposure of infants who drink baby formulas and concentrated juices that are mixed with water. The EPA estimates that drinking water can make up 20 percent or more of an individual's total exposure to lead.~~

(B) Explain possible sources of lead in drinking water, Include information on home/building plumbing materials and service lines that may contain lead. ~~Lead is unusual among drinking water contaminants in that it seldom occurs naturally in water supplies like rivers and lakes. Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials containing lead in the water distribution system and household plumbing. These materials include lead-based solder used to join copper pipe, brass and chrome plated brass faucets, and in some cases, pipes made of lead that connect your house to the water main (service lines). In 1986, Congress banned the use of lead solder containing greater than 0.2% lead, and restricted the lead content of faucets, pipes and other plumbing materials to 8.0%.~~

(C) Discuss other important sources of lead exposure in addition to drinking water (e.g., paint). ~~When water stands in lead pipes or plumbing systems containing lead for several hours or more, the lead may dissolve into your drinking water. This means the first water drawn from the tap in the morning, or later in the afternoon after returning from work or school, can contain fairly high levels of lead.~~

(iv) Discuss the steps the consumer can take to reduce their exposure to lead in drinking water. ~~Steps you can take in the home to reduce exposure to lead in drinking water.~~

(A) Encourage running the water to flush out the lead. ~~Despite our best efforts mentioned earlier to control water corrosivity and remove lead from the water supply, lead levels in some homes or buildings can be high. To find out whether you need to take action in your own home, have your drinking water tested to determine if it contains excessive concentrations of lead. Testing the water is essential because you cannot see, taste, or smell lead in drinking water. Some local laboratories that can provide this service are listed at the end of this booklet. For more information on having your water tested, please call [insert phone number of water system].~~

(B) Explain concerns with using hot water from the tap and specifically caution against the use of hot water for preparing baby formula. ~~If a water test indicates that the drinking water drawn from a tap in your home contains lead above 15 ppb, then you should take the following precautions:~~

~~(I) Let the water run from the tap before using it for drinking or cooking any time the water in a faucet has gone unused for more than six hours. The longer water resides in your home's plumbing the more lead it may contain. Flushing the tap means running the cold water faucet until the water gets noticeably colder, usually about 15-30 seconds. If your house has a lead service line to the water main, you may have to flush the water for a longer time, perhaps one minute, before drinking. Although toilet flushing or showering flushes water through a portion of your home's plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your family's health. It usually uses less than one or two gallons of water and costs less than [insert a cost estimate based on flushing two times a day for 30 days] per month. To conserve water, fill a couple of bottles for drinking water after flushing the tap, and whenever possible use the first flush water to wash the dishes or water the plants. If you live in a high-rise building, letting the water flow before using it may not work to lessen your risk from lead. The plumbing systems have more, and sometimes larger pipes than smaller buildings. Ask your landlord for help in locating the source of the lead and for advice on reducing the lead level.~~

~~(II) Try not to cook with, or drink water from the hot water tap. Hot water can dissolve more lead more quickly than cold water. If you need hot water, draw water from the cold tap and heat it on the stove.~~

~~(III) Remove loose lead solder and debris from the plumbing materials installed in newly constructed homes, or homes in which the plumbing has recently been replaced, by removing the faucet strainers from all taps and running the water from 3 to 5~~

~~minutes. Thereafter, periodically remove the strainers and flush out any debris that has accumulated over time.~~

~~(IV) If your copper pipes are joined with lead solder that has been installed illegally since it was banned in 1986, notify the plumber who did the work and request that he or she replace the lead solder with lead-free solder. Lead solder looks dull gray, and when scratched with a key looks shiny. In addition, notify the Colorado Department of Public Health and Environment about the violation.~~

~~(V) The best way to determine if your service line is made of lead is by either hiring a licensed plumber to inspect the line or by contacting the plumbing contractor who installed the line. You can identify the plumbing contractor by checking the city's record of building permits which should be maintained in the files of the [insert name of department that issues building permits]. A licensed plumber can at the same time check to see if your home's plumbing contains lead solder, lead pipes, or pipe fittings that contain lead. The public water system that delivers water to your home should also maintain records of the materials located in the distribution system. If the service line that connects your dwelling to the water main contributes more than 15 ppb to drinking water, after our comprehensive treatment program is in place, we are required to replace the portion of the line we own. If the line is only partially owned by the [insert the name of the city, county, or water system that owns the line], we are required to provide the owner of the privately-owned portion of the line with information on how to replace the privately-owned portion of the service line, and offer to replace that portion of the line at the owner's expense. If we replace only the portion of the line that we own, we also are required to notify you in advance and provide you with information on the steps you can take to minimize exposure to any temporary increase in lead levels that may result from the partial replacement, to take a follow-up sample at our expense from the line within 72 hours after the partial replacement, and to mail or otherwise provide you with the results of that sample within three business days of receiving the results. Acceptable replacement alternatives include copper, steel, iron, and plastic pipes.~~

~~(VI) If grounding wires from the electrical system are attached to your pipes, corrosion may be greater. Check with a licensed electrician or your local electrical code to determine if your wiring can be grounded elsewhere. DO NOT attempt to change the wiring yourself because improper grounding can cause electrical shock and fire hazards.~~

(C) Explain that boiling water does not reduce lead levels. ~~The steps described above will reduce the lead concentrations in your drinking water. However, if a water test indicates that the drinking water coming from your tap contains lead concentrations in excess of 15 ppb after flushing, or after we have completed our actions to minimize lead levels, then you may want to take the following additional measures:~~

~~(I) Home treatment devices are limited in that each unit treats only the water that flows from the faucet to which it is connected, and all of the devices require periodic maintenance and replacement. Devices such as reverse osmosis systems or distillers can effectively remove lead from your drinking water. Some activated carbon filters may reduce lead levels at the tap, however all lead reduction claims should be investigated. Be sure to check the actual performance of a specific home treatment device before and after installing the unit.~~

~~(II) Purchase bottled water for drinking and cooking.~~

(D) Discuss other options consumers can take to reduce exposure to lead in drinking water, such as alternative sources or treatment of water. ~~You can consult a variety of sources for additional information. Your family doctor or pediatrician can perform a blood test for lead and provide you with information about the health effects of lead. State and local government agencies that can be contacted include:~~

~~(I) [insert the name of city or county department of public utilities] at [insert phone number] can provide you with information about your community's water supply, and a list of local laboratories that have been certified by EPA for testing water quality;~~

~~(II) [insert the name of city or county department that issues building permits] at [insert phone number] can provide you with information about building permit records that should contain the names of plumbing contractors that plumbed your home; and~~

~~(III) The Colorado Department of Public Health and Environment at 303-692-3500 or the [insert the name of the city or county health department] at [insert phone number] can provide you with information about the health effects of lead and how you can have your child's blood tested.~~

(E) Suggest that parents have their child's blood tested for lead. ~~A list of State approved laboratories that you can call to have your water tested for lead is available at the web site www.cdphe.state.co.us/lr/Certification/SDWLIST.pdf or by contacting the State's laboratory certification program at (303) 692-3090.~~

(v) 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 levels in home/buildings in this area.

(vi) For more information call us at [INSERT YOU NUMBER] [(IF APPLICABLE), visit our Web site at [INSERT YOUR WEB SITE HERE]]. For more information on reducing lead exposure around your home/building and the health effects of lead, visit EPA's Web site at http://www.epa.gov/lead or contact your health care provider.

(2) Additional content for Community water systems. In addition to including the elements specified in section 8.~~6~~9(a)(1)(Content of materials for Community water systems and Non-transient non-community water systems), community water systems must: ~~A non-transient, non-community water system shall either include the text specified in section~~

~~8.6(a)(1) or shall include the following text in all of the printed materials it distributes through its lead public education program. Water systems may delete information pertaining to lead service lines upon approval by the Department if no lead service lines exist anywhere in the water system service area. Any additional information presented by a system shall be consistent with the information below and be in plain English that can be understood by lay people.~~

(i) Tell consumers how to get their water tested. ~~The United States Environmental Protection Agency (EPA) and [insert name of water supplier] are concerned about lead in your drinking water. Some drinking water samples taken from this facility have lead levels above the EPA action level of 15 parts per billion (ppb), or 0.015 milligrams of lead per liter of water (mg/L). Under Federal law we are required to have a program in place to minimize lead in your drinking water by [insert date when corrosion control will be completed for your system]. This program includes corrosion control treatment, source water treatment, and public education. We are also required to replace the portion of each lead service line that we own if the line contributes lead concentrations of more than 15 ppb after we have completed the comprehensive treatment program. If you have any questions about how we are carrying out the requirements of the lead regulation please give us a call at [insert water system's phone number]. This brochure explains the simple steps you can take to protect yourself by reducing your exposure to lead in drinking water.~~

(ii) Discuss lead in plumbing components and the difference between low lead and lead free. ~~Lead is found throughout the environment in lead-based paint, air, soil, household dust, food, certain types of pottery porcelain and pewter, and water. Lead can pose a significant risk to your health if too much of it enters your body. Lead builds up in the body over many years and can cause damage to the brain, red blood cells and kidneys. The greatest risk is to young children and pregnant women. Amounts of lead that won't hurt adults can slow down normal mental and physical development of growing bodies. In addition, a child at play often comes into contact with sources of lead contamination—like dirt and dust—that rarely affect an adult. It is important to wash children's hands and toys often, and to try to make sure they only put food in their mouths.~~

~~(iii) Lead in Drinking Water~~

~~(A) Lead in drinking water, although rarely the sole cause of lead poisoning, can significantly increase an individual's total lead exposure, particularly the exposure of infants who drink baby formulas and concentrated juices that are mixed with water. The EPA estimates that drinking water can make up 20 percent or more of an individual's total exposure to lead.~~

~~(B) Lead is unusual among drinking water contaminants in that it seldom occurs naturally in water supplies like rivers and lakes. Lead enters drinking water primarily as a result of the corrosion, or wearing away, of materials containing lead in the water distribution system and household plumbing. These materials include lead-based solder used to join copper pipe, brass and chrome-plated brass faucets, and in some cases, pipes made of lead that connect houses and buildings to water mains (service lines). In 1986, Congress banned the use of lead solder containing greater than 0.2% lead, and restricted the lead content of faucets, pipes and other plumbing materials to 8.0%.~~

~~(C) When water stands in lead pipes or plumbing systems containing lead for several hours or more, the lead may dissolve into your drinking water. This means the first water drawn from the tap in the morning, or later in the afternoon if the water has not been used all day, can contain fairly high levels of lead.~~

~~(iv) Steps you can take to reduce exposure to lead in drinking water.~~

~~(A) Let the water run from the tap before using it for drinking or cooking any time the water in a faucet has gone unused for more than six hours. The longer water resides in plumbing the more lead it may contain. Flushing the tap means running the cold-water faucet for about 15-30 seconds. Although toilet flushing or showering flushes water through a portion of the plumbing system, you still need to flush the water in each faucet before using it for drinking or cooking. Flushing tap water is a simple and inexpensive measure you can take to protect your health. It usually uses less than one gallon of water.~~

~~(B) Do not cook with, or drink water from the hot water tap. Hot water can dissolve more lead more quickly than cold water. If you need hot water, draw water from the cold tap and then heat it.~~

~~(C) The steps described above will reduce the lead concentrations in your drinking water. However, if you are still concerned, you may wish to use bottled water for drinking and cooking.~~

~~(D) You can consult a variety of sources for additional information. Your family doctor or pediatrician can perform a blood test for lead and provide you with information about the health effects of lead. State and local government agencies that can be contacted include:~~

~~(I) [Insert the name or title of facility official if appropriate] at [insert phone number] can provide you with information about your facility's water supply; and~~

~~(II) The Colorado Department of Public Health and Environment at (303) 692-3500 or the [insert the name of the city or county health department] at [insert phone number] can provide you with information about the health effects of lead.~~

~~(b) A water system shall include the following information in all public service announcements submitted under its lead public education program to television and radio stations for broadcasting:~~

~~(1) Why should everyone want to know the facts about lead and drinking water? Because unhealthy amounts of lead can enter drinking water through the plumbing in your home. That's why I urge you to do what I did. I had my water tested for [insert free or $ per sample]. You can contact the [insert the name of the city or water system] for information on testing and on simple ways to reduce your exposure to lead in drinking water.~~

~~(2) To have your water tested for lead, or to get more information about this public health concern, please call [insert the phone number of the city or water system].~~

(b)~~(c)~~ Delivery of ~~a~~ public education materials~~program~~.

(1) For public water systems serving a large proportion of non-English speaking consumers, as determined by the Department, the public education materials must contain information in the appropriate languages 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. ~~In communities where a significant proportion of the population speaks a language other than English, public education materials shall be communicated in the appropriate language(s).~~

(2) Public education tasks when a community water system exceeds the lead action level. A community water system that exceeds the lead action level on the basis of tap water samples collected in accordance with section 8.~~7~~72(Monitoring Requirements for Lead and Copper in Tap Water), and that is not already conducting ~~repeating~~ public education tasks under this section 8.~~6~~9,~~pursuant to sections 8.6(c)(3), 8.6(c)(7), or 8.6(c)(8),~~ must conduct the public education tasks under this section~~shall~~, within 60 days after the end of the monitoring period in which the exceedance occurred:

(i) Deliver printed materials meeting the content requirements of section 8.~~6~~9(a)(Content of written public education materials) to all bill paying customers. ~~Insert notices in each customer's water utility bill containing the information in section 8.6(a)(1), along with the following alert on the water bill itself in large print: "SOME HOMES IN THIS COMMUNITY HAVE ELEVATED LEAD LEVELS IN THEIR DRINKING WATER. LEAD CAN POSE A SIGNIFICANT RISK TO YOUR HEALTH. PLEASE READ THE ENCLOSED NOTICE FOR FURTHER INFORMATION." A community water system having a billing cycle that does not include a billing within 60 days of exceeding the action level, or that cannot insert information in the water utility bill without making major changes to its billing system, may use a separate mailing to deliver the information in section 8.6(a)(1) as long as the information is delivered to each customer within 60 days of exceeding the action level. Such water systems shall also include the "alert" language specified in 8.6(c)(2)(i).~~

(ii) ~~Submit the information in section 8.6(a)(1) to the editorial departments of the major daily and weekly newspapers circulated throughout the community.~~

(A) Contact customers who are most at risk by delivering education materials that meet the content requirements of section 8.~~6~~9(a)(Content of written public education materials) to local public health agencies even if they are not 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. The water system must contact the local public health agencies directly by phone or in person. The local public health agencies may provide a specific list of additional community based organizations serving target populations, which may include organizations outside the service area of the water system. If such lists are provided, systems must deliver education materials that meet the content requirements of section 8.~~6~~9(a)(Content of written public education materials) to all organizations on the provided lists.

(B) Contact customers who are most at risk by delivering materials that meet the content requirements of section 8.~~6~~9(a)(Content of written public education materials) to the following organizations listed in 1 through 6 that are located within the water system's service area, along with an informational notice that that encourages distribution to all the

organization's potentially affected customers or community water system's users:

(I) Public and private schools and 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.

(C) Make a good faith effort to locate the following organizations within the service area and deliver materials that meet the content requirements of 8.~~6~~9(a)(Content of written public education materials) to them, along with an informational notice that encourages distribution to all potentially affected customers and users. The good faith effort to contact at-risk customers may include requesting a specific contact list of these organizations from the local public health agencies, even if the agencies are not located within the water system's service area:

(I) Licensed childcare centers.

(II) Public and private preschools.

(III) Obstetricians-Gynecologists and Midwives.

(iii) 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 must include the following statement exactly as written except for the text in brackets for which the water system must 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 WEB SITE HERE)]. The message or delivery mechanism can be modified in consultation with the Department; specifically, the Department may allow a separate mailing of public education materials to customers if the water system cannot place the information on water bills. ~~Deliver pamphlets and/or brochures that contain the public education materials in sections 8.6 (a)(1)(ii) and 8.6(a)(1)(iv) to facilities and organizations, including the following:~~

(iv) Post material meeting the content requirements section 8.~~6~~9(a)(Content of written public education materials) on the water system's Web site if the system serves a population greater than 100,000.

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

(vi) In addition to sections 8.~~6~~9(b)(2)(i) through 8.~~6~~9(b)(2)(v)(above), systems must 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 Department.

(A) Public Service Announcements. ~~Public schools, and/or local school boards~~

(B) Paid advertisements. ~~City or county health department~~

(C) Public area Informational Displays. ~~Women, infants, and children and/or head start program(s) whenever available~~

(D) E-mails to customers. ~~Public and private hospitals and/or clinics~~

(E) Public Meetings. ~~Pediatricians~~

(F) Household Deliveries. ~~Family planning clinics~~

(G) Targeted Individual Customer Contact. ~~Local welfare agencies~~

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

(I) Other methods approved by the Department.

(vii)~~(iv)~~ 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 Department has established an alternate monitoring period, the last day of that period. ~~Submit the public service announcement in section 8.6(b) to at least five of the radio and television stations with the largest audiences that broadcast to the community served by the water system.~~

(3) Repeating public education tasks each year a community water system exceeds lead action level. As long as a community water system exceeds the action level, it must repeat the activities pursuant to section 8.~~6~~9(b)(2)(Public education tasks when a community water system exceeds the lead action level) as described in sections 8.~~6~~9(b)(3)(i) through 8.~~6~~9(b)(3)(iv)(below). ~~A community water system shall repeat the tasks contained in Sections 8.6(c)(2)(i)-(iii) every 12 months, and the tasks contained in section 8.6(c)(2)(iv) every 6 months for as long as the system exceeds the lead action level.~~

(i) A community water system shall repeat the tasks contained in sections 8.~~6~~9(b)(2)(i), (ii) and (vi)(Public education tasks when a community water system exceeds the lead action level) every 12 months.

(ii) A community water system shall repeat tasks contained in section 8.~~6~~9(b)(2)(iii)(Public education tasks when a community water system exceeds the lead action level) with each billing cycle.

(iii) A community water system serving a population greater than 100,000 shall post and retain material on a publicly accessible Web site pursuant to section 8.~~6~~9(b)(2)(iv)(Public education tasks when a community water system exceeds the lead action level).

(iv) The community water system shall repeat the task in section 8.~~6~~9(b)(2)(v)(Public education tasks when a community water system exceeds the lead action level) twice every 12 months on a schedule agreed upon with the Department. The Department can allow activities in section 8.~~6~~9(b)(2)(Public education tasks when

a community water system exceeds the lead action level) 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 Department in advance of the 60-day deadline.

(4) Public education tasks when a non-transient, non-community water system exceeds the lead action level. Within 60 days after the end of the monitoring period in which the exceedance occurred ~~it exceeds the lead action level~~ (unless it already is repeating public education tasks pursuant to section 8.~~6~~9~~(c)~~(b)(5)(Repeating public education tasks each year a non-transient, non-community water system exceeds lead action level)), a non-transient, non-community water system shall deliver the public education materials specified by section 8.~~6~~9(a)(1)(Content of materials for Community water systems and Non-transient non-community water systems) ~~or the public education materials specified by section 8.6(a)(2)~~ as follows:

(i) 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

(ii) Distribute informational pamphlets and/or brochures on lead in drinking water to each individual served by the non-transient, non-community water system. The Department 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.

(iii) 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 Department has established an alternate monitoring period, the last day of that period.

(5) Repeating public education tasks each year a non-transient, non-community water system exceeds lead action level. A non-transient, non-community water system shall repeat the tasks contained in section 8.~~6~~9(b)~~(c)~~(4)(Public education tasks when a non-transient, non-community water system exceeds the lead action level) at least once during each calendar year in which the system exceeds the lead action level. The Department can allow activities in section 8.~~6~~9(b)(4)(Public education tasks when a non-transient, non-community water system exceeds the lead action level) 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 Department in advance of the 60-day deadline.

(6) 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 conducted pursuant to section 8.~~7~~2(Monitoring Requirements for Lead and Copper in Tap Water). Such a system shall recommence public education in accordance with section 8.~~6~~9(Public Education and Supplemental Monitoring Requirements) if it subsequently exceeds the lead action level during any monitoring period.

(7) Alternative public education for community water systems. A community water system may apply to the Department, in writing, to use only the text specified in section 8.~~6~~9(a)(1)~~(2)~~ in lieu of the text in sections 8.~~6~~9(a)(1) and 8.~~6~~9(a)(2) and to perform the tasks listed in Sections 8.~~6~~9(b)~~(c)~~(4) and 8.~~6~~9(b)~~(c)~~(5) in lieu of the tasks in Sections 8.~~6~~9(b)~~(c)~~(2) and 8.~~6~~9(b)~~(c)~~(3) if:

(i) 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; and

(ii) The system provides water as part of the cost of services provided and does not separately charge for water consumption.

(8) ~~Community water system serving a population of less than or equal to (≤) 3,300.~~A community water system serving a population of less than or equal to (≤) 3,300 may limit certain aspects of their public education programs as follows:

~~(i) A community water system serving a population of less than or equal to (≤) 3,300 may omit the task contained in section 8.6(c)(2)(iv). As long as it distributes notices containing the information contained in section 8.6(a)(1) to every household served by the system, such systems may further limit their public education programs as follows:~~

(i) With respect to the requirements of section 8.~~6~~9(b)(2)(vi)(Public education tasks when a community water system exceeds the lead action level), a system serving a population of less than or equal to (≤)3,300 must implement at least one of the activities listed in that section.

(ii) With respect to requirements of section 8.~~6~~9(b)(2)(ii)(Public education tasks when a community water system exceeds the lead action level), a system serving a population less than or equal to (≤)3,300 may limit the distribution of the public education materials required under that paragraph to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children.

(iii) With respect to the requirements of section 8.~~6~~9(b)(2)(v)(Public education tasks when a community water system exceeds the lead action level), the Department may waive these requirements for systems serving a population less than or equal to (≤)3,300 as long as a system distributes notice to every household served by the system.

~~(A) Systems serving a population of less than or equal to (≤) 500 may forego the task contained in section 8.6(c)(2)(ii). Such a system may limit the distribution of the public education materials required under section 8.6(c)(2)(iii) to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children, unless it is notified by the Department in writing that it must make a broader distribution.~~

~~(B) If approved by the Department in writing, a system serving a population of 501 to 3,300 may omit the task in section 8.6(c)(2)(ii) and/or limit the distribution of the public education materials required under section 8.6(c)(2)(iii) to facilities and organizations served by the system that are most likely to be visited regularly by pregnant women and children.~~

~~(ii) A community water system serving a population of less than or equal to (≤) 3,300 that delivers public education in accordance with section 8.6(c)(8)(i) shall repeat the required public education tasks at least once during each calendar year in which the system exceeds the lead action level.~~

(c)~~(d)~~ Supplemental monitoring and notification of results. A water system that fails to meet the lead action level on the basis of tap samples collected in accordance with section 8.~~7~~72(Monitoring Requirements for Lead and Copper in Tap Water) shall offer to sample the tap water of any customer who requests it. The system is not required to pay for collecting or analyzing the sample, nor is the system required to collect and analyze the sample itself.

(d) Notification of results.

(1) Reporting requirement. All water systems must provide a notice of the individual tap results from lead tap water monitoring carried out under the requirements of section 8.~~7~~72(Monitoring Requirements for Lead and Copper in Tap Water) to the persons served by the water system at the specific sample site from which the sample was taken (e.g., the occupants of the residence where the tap was tested).

(2) Timing of notification. A water system must provide the consumer notice as soon as practical, but no later than 30 days after the system learns of the tap monitoring results.

(3) Content. The consumer notice must include the results of the lead tap water monitoring for the tap that was tested, an explanation of the health effects of lead, list steps consumers can take to reduce exposure to lead in drinking water and contact information for the water utility. The notice must also provide the maximum contaminate level goal and action level for lead and definitions for these two terms from section 1.5.2.

(4) Delivery. The consumer notice must be provided to persons served at the tap that was tested, either by mail or by another method approved by the Department. For example, upon approval by the Department, a non-transient non-community water system could post the results on a bulletin board in the facility to allow users to review the information. The system must provide the notice to the customers at sample taps tested, including consumers who do not receive water bills.

8.10 Reporting Requirements

All water systems shall report all of the following information to the Department in accordance with section 8.10.

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

(1) Except as provided in section 8.10(a)(1)(viii)(below), a water system shall report the information specified below for all tap water samples specified in section 8.~~7~~72(Monitoring Requirements for Lead and Copper in Tap Water) and for all water quality parameter samples specified in section 8.~~8~~83(Monitoring Requirements for Water Quality Parameters) within the first 10 days following the end of each applicable monitoring period specified in section 8.~~7~~72(Monitoring Requirements for Lead and Copper in Tap Water) and section 8.~~8~~83(Monitoring Requirements for Water Quality Parameters) (i.e., every six months, annually, every 3 years, or every 9 years).~~:~~ For monitoring periods with a duration less than six months, the end of the monitoring period is that last date samples can be collected during that period as specified in section 8.~~7~~72(Monitoring Requirements for Lead and Copper in Tap Water) and 8.~~8~~83(Monitoring Requirements for Water Quality Parameters).

(i) The results of all tap samples for lead and copper including the location of each site and the criteria under section 8.~~7~~72(a)(3), (4), (5), (6), and/or (7) under which the site was selected for the system's sampling pool;

(ii) Documentation for each tap water lead or copper sample for which the water system requests invalidation pursuant to section 8.~~7~~2(f)(2)(Invalidation of lead or copper tap water samples);

(iii) [Reserved]

(iv) The 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period (calculated in accordance with section 8.1(a)(3)(90th percentile computation)), unless the Department calculates the system's 90th percentile lead and copper levels under section 8.10(h)(Reporting of 90th percentile lead and copper concentration where the Department calculates a system's 90th percentile concentrations);

(v) With the exception of initial tap sampling conducted pursuant to section 8.~~7~~2(d)(1)(Initial tap sampling), the system shall designate any site which was not sampled during previous monitoring periods, and include an explanation of why sampling sites have changed;

(vi) The results of all tap samples for pH, and where applicable, alkalinity, calcium, conductivity, temperature, and orthophosphate or silica collected under section 8.~~8~~3 (b)-(e)(Initial sampling for water quality parameters-Reduced monitoring for water quality parameters);

(vii) The results of all samples collected at the entry point(s) to the distribution system for applicable water quality parameters under section 8.~~8~~3 (b)-(e)(Initial sampling for water quality parameters-Reduced monitoring for water quality parameters);

(viii) A water system shall report the results of all water quality parameter samples collected under sections 8.~~8~~3(c)-(f)(Monitoring for water quality parameters after installation of corrosion control-Additional monitoring by systems) during each six-month monitoring period specified in section 8.~~8~~3(d)(Monitoring after Department specifies water quality parameter values for optimal corrosion control) within the first 10 days following the end of the monitoring period unless the Department has specified a more frequent reporting requirement.

(2) For a non-transient, non-community water system, or a community water system meeting the criteria of sections 8.~~6~~9(b)~~(c)~~(7)~~(i) and (ii)~~(Alternative public education for community water systems), that does not have enough taps that can provide first-draw samples, the system must provide written documentation to the Department identifying standing times and locations for enough non-first-draw samples to make up its sampling pool under section 8.~~7~~2(b)(5)(Substituting non-first-draw samples) by the start of the first applicable monitoring period under section 8.~~7~~2(d)(Timing of monitoring).

(3) ~~No later than 60 days after~~Reporting requirements for a new source or long term change in water treatment. At a time specified by the Department, or if no specific time is designated by the Department, 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 under section 8.~~2~~5(b)(3)(Deemed to have optimized corrosion control based upon tap water and source water monitoring results), a water system subject to reduced monitoring pursuant to section 8.~~7~~2(d)(4)(Reduced monitoring for lead and copper in tap water), or a water system subject to a monitoring waiver pursuant to section 8.~~7~~2(g)(Monitoring waivers for small systems), shall ~~send~~ submit written documentation to the Department describing the change or addition. The Department must review and approve the addition of a new source or long-term change in treatment

before it is implemented by the water system. 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 a population of less than or equal to (≤) 3,300 applying for a monitoring waiver under section 8.~~7~~2(g)(Monitoring waivers for small systems), or subject to a waiver granted pursuant to section 8.~~7~~2(g)(3)(Department approval of waiver application), shall provide the following information to the Department in writing by the specified deadline:

(i) By the start of the first applicable monitoring period under section 8.~~7~~2(d)(Timing of monitoring), any system serving a population of less than or equal to (≤) 3,300 applying for a monitoring waiver shall provide the documentation required to demonstrate that it meets the waiver criteria of sections 8.~~7~~2(g)(1)(Materials criteria) and 8.~~7~~2(g)(2)(Monitoring criteria for waiver issuance).

(ii) No later than nine years after the monitoring previously conducted pursuant to section 8.~~7~~2(g)(2)(Monitoring criteria for waiver issuance) or section 8.~~7~~2(g)(4)(i)(Monitoring frequency for systems with waivers), each system serving a population of less than or equal to (≤) 3,300 desiring to maintain its monitoring waiver shall provide the information required by section 8.~~7~~2(g)(4)(i) and (ii)(Monitoring frequency for systems with waivers).

(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 a population of less than or equal to (≤) 3,300 with a monitoring waiver shall provide written notification to the Department, setting forth 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.

(5) Each groundwater system that limits water quality parameter monitoring to a subset of entry points under section 8.~~8~~3(c)(3)(Limited entry point water quality parameter sampling for groundwater systems) shall provide, by the commencement of such monitoring, written correspondence to the Department 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 8.~~9~~4(Monitoring Requirements for Lead and Copper in Source Water) within the first 10 days following the end of each source water monitoring period (i.e., annually, per compliance period, per compliance cycle) specified in section 8.~~9~~4(Monitoring Requirements for Lead and Copper in Source Water).

(2) With the exception of the first round of source water sampling conducted pursuant to section 8.~~9~~4(b)(Monitoring frequency after system exceeds tap water action level), the system shall specify any site that 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~~deadlines under section 8.~~2~~5(Corrosion Control Treatment Steps), systems shall report the following information:

(1) For systems demonstrating that they have already optimized corrosion control, information required in section 8.~~2~~5(b)-(2)(Deemed to have optimized corrosion control by the Department) or (3)(Deemed to have optimized corrosion control based upon tap water and source water monitoring results).

(2) For systems required to optimize corrosion control, their recommendation regarding optimal corrosion control treatment under section 8.~~3~~6(a)(System recommendation regarding corrosion control treatment).

(3) For systems required to evaluate the effectiveness of corrosion control treatments under section 8.~~3~~6(c)(Performance of corrosion control studies), the information required by section 8.~~3~~6(c)(Performance of corrosion control studies).

(4) For systems required to install optimal corrosion control designated by the Department under section 8.~~3~~6(d)(Department designation of optimal corrosion control treatment), a letter certifying that the system has completed installing that treatment.

(d) Source water treatment reporting requirements. By the applicable ~~dates~~deadlines in section 8.~~4~~7(Source Water Treatment Requirements), systems shall provide the following information to the Department:

(1) If required under section 8.~~4~~7(b)(1)(System treatment recommendation), their recommendation regarding source water treatment;

(2) For systems required to install source water treatment under section 8.~~4~~7(b)(2)(Department determination regarding source water treatment), a letter certifying that the system has completed installing the treatment designated by the Department within 24 months after the Department designated the treatment.

(e) Lead service line replacement reporting requirements. Systems shall report the following information to the Department to demonstrate compliance with the requirements of section 8.~~5~~8(Lead Service Line Replacement Requirements):

(1) ~~Within~~ 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 8.~~5~~8(a)(When lead service line replacement is required), the system ~~shall demonstrate in writing~~ must submit written documentation to the Department ~~that it has conducted a~~ of the material evaluation~~,~~ ~~including the evaluation~~ conducted as required in section 8.~~7~~2(a)(Sample site location), ~~to~~ identify the initial number of lead service lines in its distribution system at the time the system exceeds the lead action level, and ~~shall~~ provide ~~the Department with~~ the system's schedule for annually replacing ~~annually~~ at least 7 percent of the initial number of lead service lines in its distribution system.

(2) ~~Within~~ No later than12 months after the end of a monitoring period in which a system exceeds the lead action level in sampling referred to in section 8.~~5~~8(a)(When lead service line replacement is required), and every 12 months thereafter, the system shall demonstrate to the Department in writing that the system has either:

(i) Replaced in the previous 12 months at least 7 percent of the initial lead service lines (or a greater number of lines specified by the Department under section

8.~~5~~8(e)(Department required shorter lead service line replacement schedule)) in its distribution system, or

(ii) Conducted sampling which demonstrates that the lead concentration in all service line samples from an individual line(s), taken pursuant to section 8.~~7~~2(b)(3)(Lead service line samples), 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 8.~~5~~8(c)(Individual Lead Service Line Replacement Not Required) shall equal at least 7 percent of the initial number of lead lines identified under section 8.10(e)(1)~~(a)~~(above) (or the percentage specified by the Department under section 8.~~5~~8(e)(Department required shorter lead service line replacement schedule)).

(3) The annual letter submitted to the Department under section 8.10(e)(2)(above) shall contain the following information:

(i) The number of lead service lines scheduled to be 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;

(iii) If measured, the water lead concentration and 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 required by section 8.~~5~~8(Lead Service Line Replacement Requirements) shall report the results to the Department within the first ten days of the month following the month in which the system receives the laboratory results, or as specified by the Department. Departments, at their discretion may eliminate this requirement to report these monitoring results. Systems shall also report any additional information as specified by the Department, and in a time and manner prescribed by the Department, to verify that all partial lead service line replacement activities have taken place.

(f) Public education program reporting requirements.

(1) Any water system that is subject to the public education requirements in section 8.~~6~~9(Public Education and Supplemental Monitoring Requirements) shall, within ten days after the end of each period in which the system is required to perform public education tasks in accordance with section 8.~~6~~9(b)~~(c)~~(Delivery of public education materials), send written documentation to the Department that contains:

(i) A demonstration that the system has delivered the public education materials that meet the content requirements in sections 8.~~6~~9(a)(Content of written public education materials) ~~and 8.6(b)~~ and the delivery requirements in section 8.~~6~~9(b)~~(c)~~(Delivery of public education materials); and

(ii) A list of all the 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.

(2) Unless required by the Department, a system that previously has submitted the information required by section 8.10(f)(1)(ii)(Public education program reporting requirements) need not resubmit the information, 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.

(3) No later than 3 months following the end of the monitoring period, each system must mail a sample copy of the consumer notification of tap results to the Department along with a certification that the notification has been distributed in a manner consistent with the requirements of 8.~~6~~9(d)(Notification of results).

(g) Reporting of additional monitoring data. Any system which collects sampling data in addition to that required by Article 8 shall report the results to the Department within the first ten days following the end of the applicable monitoring period under sections 8.~~7~~72(Monitoring Requirements for Lead and Copper in Tap Water), 8.~~8~~3(Monitoring Requirements for Water Quality Parameters) and 8.~~9~~4(Monitoring Requirements for Lead and Copper in Source Water) during which the samples are collected.

(h) Reporting of 90th percentile lead and copper concentration where the Department calculates a system's 90th percentile concentrations. A water system is not required to report the 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period, as required by section 8.10(a)(1)(iv)(Reporting requirements for tap water monitoring for lead and copper and for water quality parameter monitoring) if:

(1) The Department 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 section 8.10(h)(2)(i)(Reporting of 90th percentile lead and copper concentration where the Department calculates a system's 90th percentile concentrations), and has specified a date before the end of the applicable monitoring period by which the system must provide the results of lead and copper tap water samples;

(2) The system has provided the following information to the Department by the date specified in section 8.10(h)(1)(Reporting of 90th percentile lead and copper concentration where the Department calculates a system's 90th percentile concentrations):

(i) The results of all tap samples for lead and copper including the location of each site and the criteria under section 8.~~7~~72(a)(3)(Community water system tier 1 sampling sites), (4)(Community water system tier 2 sampling sites), (5)(Community water system tier 3 or representative sampling sites), (6)(Non-transient, non-community water system tier 1 sampling sites), and/or (7)(Non-transient, non-community water system non-tier 1 or representative sampling sites) under which the site was selected for the system's sampling pool, pursuant to section 8.10(a)(1)(i)(Reporting requirements for tap water monitoring for lead and copper and for water quality parameter monitoring); 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 Department 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.

8.11 Recordkeeping Requirements

Any system subject to the requirements of Article 8 shall retain on its premises original records of all sampling data and analyses, reports, surveys, letters, evaluations, schedules, Department determinations, and any other information required by Article 8. Each water system shall retain the records required by Article 8 for no fewer than 12 years.

8.12 Prohibition on Use of Lead Pipes, Solder, and Flux

In general any pipe, solder, or flux, which is used after June 19, 1986, in the installation or repair of any public water system, or any plumbing in a residential or nonresidential facility providing water for human consumption that is connected to a public water system shall be lead free as defined in section 1.5.2~~(74)~~. This prohibition shall not apply to leaded joints necessary for the repair of cast iron pipes.

. . .

9.1.2 Important Dates

. . .

(c) A community water system that ~~sells~~ delivers water to another community water system must deliver the applicable information required in section 9.1.3 to the ~~buyer~~ consecutive system:

. . .

(2) On a date mutually agreed upon by the ~~seller~~ wholesale system and the ~~purchaser~~consecutive system, and specifically included in a contract between the parties.

. . .

9.1.3 Content of the Reports

. . .

(b) Information on the source of the water delivered:

(1) Each report must identify the source(s) of the water delivered by the community water system by providing information on:

. . .

(ii) The commonly used name (if any) and general location of the body (or bodies) of water.

. . .

9.1.4 Required Additional Health Information

. . .

(d) Every report must include the following lead-specific information~~Systems which detect lead above the action level in more than 5%, and up to and including 10%, of homes sampled~~:

(1) ~~Must include a~~ A short informational statement about ~~the special impact of~~ lead in drinking water and its effects on children ~~using language such as: "Infants and young children are typically more vulnerable to lead in drinking water than the general~~

~~population~~. The statement must include the following information: If present, elevated levels of lead can cause serious health problems, especially for pregnant women and young children. Lead in drinking water is primarily from materials and components associated with service lines and home plumbing. [NAME OF UTILITY] is responsible for providing high quality drinking water, but cannot control the variety of materials used in plumbing components. When your water has been sitting for several hours, you can minimize the potential for lead exposure by flushing your tap for 30 seconds to 2 minutes before using water for drinking or cooking. If you are concerned about lead in your water, you may wish to have your water tested. Information on lead in drinking water, testing methods, and steps you can take to minimize exposure is available from the Safe Drinking Water Hotline or at *http://www.epa.gov/safewater/lead*. ~~It is possible that lead levels at your home may be higher than at other homes in the community as a result of materials used in your home's plumbing. If you are concerned about elevated lead levels in your home's water, you may wish to have your water tested and flush your tap for 30 seconds to 2 minutes before using tap water. Additional information is available from the Safe Drinking Water Hotline (800-426-4791).~~

(2) ~~May~~ A system may write its own educational statement, but only in consultation with the Department.

~~(e) Beginning in the report due by July 1, 2002 and ending January 22, 2006, a community water system that detects arsenic above 0.010 mg/L and up to and including 0.05 mg/L must include the arsenic health effects language prescribed by Table 9-1.~~

9.1.5 Report Delivery and Recordkeeping

. . .

Table 9-1 Table of Regulated Contaminants

Contaminant (units)	Traditional MCL in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG	Major sources in drinking water	Health effects language
. . .						
Inorganic Chemical Contaminants:						
. . .	. . .	. . .	. . .	. . .	. . .	. . .

Fluoride (ppm)	~~4~~4.0		~~4~~4.0	~~4~~4.0	Erosion of natural deposits; Water additive that promotes strong teeth; Discharge from fertilizer and aluminum factories.	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.
. . .	. . .	. . .	. . .	. . .	. . .	. . .
Synthetic ~~organic~~ Organic Chemical Contaminants including Pesticides and Herbicides:						
. . .	. . .	. . .	. . .	. . .	. . .	. . .
Volatile ~~organic~~ Organic Chemical Contaminants:						
. . .	. . .	. . .	. . .	. . .	. . .	. . .

. . .

2 The MCL = 0.10 for samples collected by public water systems using surface water serving > 10,000 prior to January 1, 2002 and for samples collected by public water systems using ~~ground water~~ groundwater serving >10,000 prior to January 1, 2004.

. . .

9.2.1 Introduction

Public water systems must comply with the requirements in section 9.2 in accordance with section ~~1.4~~1.6.4, unless otherwise noted.

. . .

Table 9-2 Violation Categories and Other Situations Requiring a Public Notice

. . .	. . .	. . .
(3)	Special public notices:	. . .
		(v) Repeated failure to conduct monitoring of the source water for *Cryptosporidium* and for failure to determine bin classification.
		(vi) Groundwater systems with a waiver request that the Department has determined satisfies the criteria of section 13.2(d).
		(vii) Significant deficiencies identified at non-community groundwater systems.

		~~(v)~~(viii) Other violations and situations determined by the Department to require a public notice under section 9.2~~, not already listed in section 9.2.11~~.

. . .

9.2.2 Tier 1 Public Notice Form, Manner, and Frequency of Notice

. . .

Table 9-4 Violation Categories and Other Situations Requiring a Tier 1 Public Notice

. . .	. . .
(7)	Occurrence of a waterborne disease outbreak, as defined in section 1.5.2~~(129)~~, or other waterborne emergency (such as a failure or significant interruption in key water treatment processes, a natural disaster that disrupts the water supply or distribution system, or a chemical spill or unexpected loading of possible pathogens into the source water that significantly increases the potential for drinking water contamination);
. . .	. . .

. . .

9.2.3 Tier 2 Public Notice Form, Manner, and Frequency of Notice

(a) Table 9-5 lists the violation categories and other situations requiring a Tier 2 public notice. Table 9-7 identifies the tier assignment for each specific violation or situation.

Table 9-5 Violation Categories and Other Situations Requiring a Tier 2 Public Notice

. . .	. . .
(4)	Failure to take corrective action or failure to maintain at least 4-log treatment of viruses before or at the first customer under sections ~~11.4 or 13.4(a)~~11.4, 13.4(a) or 13.4(b).

. . .

9.2.4 Tier 3 Public Notice Form, Manner, and Frequency of Notice

(a) Table 9-6 lists the violation categories and other situations requiring a Tier 3 public notice. Table 9-7 identifies the tier assignment for each specific violation or situation.

Table 9-6 Violation Categories and Other Situations Requiring a Tier 3 Public Notice

. . .	. . .
(6)	Failure to meet the monitoring requirements of section 13.3(a)-(f), ~~or~~ 13.4~~(b)(3)~~ or 11.4.

. . .

9.2.13 Special notice to the public of significant deficiencies identified at non-community groundwater systems

(a) Non-community ground water systems that receive notice from the Department of a significant deficiency must inform the public served by the water system in a manner approved by the Department of any significant deficiency that has not been corrected within 12 months of being notified by the Department, or earlier if directed by the Department. The system must continue to inform the public annually until the significant deficiency is corrected. The information must include:

(1) The nature of the significant deficiency and the date the significant deficiency was identified by the Department;

(2) The Department-approved plan and schedule for correction of the significant deficiency, including interim measures, progress to date, and any interim measures completed; and

(3) For systems with a large proportion of non-English speaking consumers, as determined by the Department, information in the appropriate language(s) regarding the importance of the notice or a telephone number or address where consumers may contact the system to obtain a translated copy of the notice or assistance in the appropriate language.

(b) If directed by the Department, a non-community water system with significant deficiencies that have been corrected must inform its customers of the significant deficiencies, how the deficiencies were corrected, and the dates of correction.

Table 9-7 Table of CPDWR Violations and Other Situations Requiring Public Notice [1]

Contaminant		MCL/MRDL/TT violations [2]		Monitoring & testing procedure violations	
		Tier of public notice required	Citation	Tier of public notice required	Citation
I. Violations of *Colorado Primary Drinking Water Regulations* (CPDWR): [3]					
A. Microbiological Contaminants					
. . .		. . .	. . .	. . .	. . .
10. LT2 ESWTR Violations		2	7.4	2, 3 [~~22~~17]	7.4
11. Groundwater Rule violations		2	13.4(a), 13.4(b), 11.4	3	11.4, 13.3, 13.4
. . .		. . .	. . .	. . .	. . .
B. Inorganic Chemical Contaminants (IOCs)					
1.	Antimony	2	2.2	3	~~6.1.6~~6.1.5
2.	Arsenic	2	2.2 [8]	3	~~6.1.6~~ [11]6.1.5
3.	Asbestos (fibers >10 µm)	2	2.2	3	~~6.1.6~~6.1.5
4.	Barium	2	2.2	3	~~6.1.6~~6.1.5
5.	Beryllium	2	2.2	3	~~6.1.6~~6.1.5
6.	Cadmium	2	2.2	3	~~6.1.6~~6.1.5
7.	Chromium (total)	2	2.2	3	~~6.1.6~~6.1.5
8.	Cyanide	2	2.2	3	~~6.1.6~~6.1.5
9.	Fluoride	2	2.2	3	~~6.1.6~~6.1.5
10.	Mercury (inorganic)	2	2.2	3	~~6.1.6~~6.1.5
11.	Nitrate	1	2.2	1 [~~12~~8], 3	~~6.1.6~~6.1.5
12.	Nitrite	1	2.2	1 [~~12~~8], 3	~~6.1.6~~6.1.5
13.	Total Nitrate and Nitrite	1	2.2	3	~~6.1.6~~6.1.5
14.	Selenium	2	2.2	3	~~6.1.6~~6.1.5
15.	Thallium	2	2.2	3	~~6.1.6~~6.1.5
C. Lead and Copper Rule (Action Level for lead is 0.015 mg/L, for copper is 1.3 mg/L)					
1.	Lead and Copper Rule (TT)	2	2.7	3	~~8.7, 8.8, 8.9~~8.2, 8.3, 8.4
D. Synthetic Organic Chemical Contaminants (SOCs)					
1.	2,4–D	2	2.1(b)	3	~~6.2.6(b)~~6.2.6(a)
2.	2,4,5–TP (Silvex)	2	2.1(b)	3	~~6.2.6(b)~~6.2.6(a)
3.	Alachlor	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)

4.	Atrazine	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
5.	Benzo(a)pyrene (PAHs)	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
6.	Carbofuran	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
7.	Chlordane	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
8.	Dalapon	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
9.	Di (2-ethylhexyl) adipate	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
10.	Di (2-ethylhexyl) phthalate	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
11.	Dibromochloropropane	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
12.	Dinoseb	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
13.	Dioxin (2,3,7,8-TCDD)	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
14.	Diquat	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
15.	Endothall	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
16.	Endrin	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
17.	Ethylene dibromide	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
18.	Glyphosate	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
19.	Heptachlor	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
20.	Heptachlor epoxide	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
21.	Hexachlorobenzene	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
22.	Hexachlorocyclo-pentadiene	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
23.	Lindane	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
24.	Methoxychlor	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
25.	Oxamyl (Vydate)	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
26.	Pentachlorophenol	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
27.	Picloram	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
28.	Polychlorinated biphenyls (PCBs)	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
29.	Simazine	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
30.	Toxaphene	2	2.1(b)	3	~~6.2.6(b)~~ 6.2.6(a)
E. Volatile Organic Chemical Contaminants (VOCs)					
1.	Benzene	2	2.1(a)	3	~~6.2.6(a)~~6.2.5(a)
2.	Carbon tetrachloride	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
3.	Chlorobenzene (monochlorobenzene)	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
4.	o-Dichlorobenzene	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
5.	p-Dichlorobenzene	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
6.	1,2-Dichloroethane	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
7.	1,1-Dichloroethylene	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
8.	cis-1,2-Dichloroethylene	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
9.	trans-1,2-Dichloroethylene	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)

10.	Dichloromethane	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
11.	1,2-Dichloropropane	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
12.	Ethylbenzene	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
13.	Styrene	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
14.	Tetrachloroethylene	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
15.	Toluene	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
16.	1,2,4-Trichlorobenzene	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
17.	1,1,1-Trichloroethane	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
18.	1,1,2-Trichloroethane	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
19.	Trichloroethylene	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
20.	Vinyl chloride	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
21.	Xylenes (total)	2	2.1(a)	3	~~6.2.6(a)~~ 6.2.5(a)
F. Radioactive Contaminants					
1.	Beta/photon emitters	2	2.6	3	~~6.3.2~~6.3.3
2.	Alpha emitters	2	2.6	3	~~6.3.1~~6.3.2
3.	Combined radium (226 & 228)	2	2.6	3	~~6.3.1~~6.3.2
4.	Uranium	2~~[9]~~	2.6	3~~[10]~~	~~6.3.1~~6.3.2
G. Disinfection Byproducts (DBPs), Byproduct Precursors, Disinfectant Residuals. Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBPs). The Department sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes (THMs) and haloacetic acids (HAAs).~~[13]~~					
1.	Total trihalomethanes (TTHMs)	2	2.4~~[14]~~~~9~~	3	7.6.3(a), 7.6.3(b)(1)
. . .		. . .	. . .	. . .	. . .
7.	Chlorine dioxide (MRDL), where any 2 consecutive daily samples at entrance to distribution system only are above MRDL	2	2.5	2 ~~[15]~~~~10~~, 3	7.6.3(a), 7.6.3(c)(2)
8.	Chlorine dioxide (MRDL), where sample(s) in distribution system the next day are also above MRDL	1~~[16]~~~~11~~	2.5	1	7.6.3(a), 7.6.3(c)(2)
. . .		. . .	. . .	. . .	. . .
10.	Bench marking and disinfection profiling	N/A	N/A	3	7.2.2 & 7.3.2 – 7.3.3, 7.4.7 & 7.4.8

. . .	. . .	. . .	. . .	. . .
H. Other Treatment Techniques				
. . .	. . .	. . .	. . .	. . .
2. Epichlorohydrin (TT)	2	2.9	N/A	N/A
II. Unregulated Contaminant Monitoring:~~17~~12				
. . .	. . .	. . .	. . .	. . .
III. Public Notification for Variances and Exemptions:				
A. Operation under a variance or exemption	3	4.8(f) ~~18~~13	N/A	N/A
B. Violation of conditions of a variance or exemption	2	4.8(f)~~)~~ ~~19~~14	N/A	N/A
IV. Other Situations Requiring Public Notification:				
. . .	. . .	. . .	. . .	. . .
E. Other waterborne emergency ~~20~~15	1	N/A	N/A	N/A
. . .	. . .	. . .	. . .	. . .
H. Other situations as determined by the Department	1, 2, 3~~21~~16	N/A	N/A	N/A

Endnotes to Table 9-7 - Table of CPDWR Violations and Other Situations Requiring Public Notice

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7 Sections 7.3 and 7.4 add additional requirements for surface water systems and groundwater systems under the direct influence of surface water serving at least 10,000 persons and do not in many cases supercede section 7.1.4.

~~8 The arsenic MCL citations are effective January 23, 2006.~~

~~9 The uranium MCL Tier 2 violation citations are effective December 8, 2003 for all community water systems.~~

~~10 The uranium Tier 3 violation citations are effective December 8, 2000 for all community water systems.~~

~~11 The arsenic Tier 3 violation MCL citations are effective January 23, 2006. Until then, the citation is section 2.2 footnote 2.~~

~~12~~8 Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL is a Tier 1 violation. Other monitoring violations for nitrate are Tier 3.

~~13 Surface Water and GWUDI community and non-transient non-community systems serving ≥10,000 must comply with new DBP MCLs, disinfectant MRDLs, and related monitoring requirements beginning January 1, 2002. All other community and non-transient non-community systems must meet the MCLs and MRDLs beginning January 1, 2004. Surface Water and GWUDI transient non-community systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine~~

~~dioxide MRDL beginning January 1, 2002. Surface Water and GWUDI transient non-community systems serving fewer than 10,000 persons and using only ground water not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2004.~~

~~14~~9 Section 7.6.3(a)–(b) apply until sections 7.8.1-7.8.10 take effect under the schedule in Section 7.8.1(c).

~~15~~10 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 is a Tier 2 violation.

~~16~~11 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 after the MRDL is exceeded at the entry point also triggers Tier 1 notification.

~~17~~12 Some water systems must monitor for certain unregulated contaminants listed in section 6.4.

~~18~~13 This citation refers to §§1415 and 1416 of the Safe Drinking Water Act. §§1415 and 1416 require that "a schedule prescribed. . . for a public water system granted a variance [or exemption] shall require compliance by the system. . ."

~~19~~14 In addition to §§1415 and 1416 of the Safe Drinking Water Act, Section 4.3 specifies the items and schedule milestones that must be included in a variance for small systems.

~~20~~15 Other waterborne emergencies require a Tier 1 public notice under section 9.2.2(a) for situations that do not meet the definition of a waterborne disease outbreak given in section 1.5.2, but that still have the potential to have serious adverse effects on health as a result of short-term exposure. These could include outbreaks not related to treatment deficiencies, as well as situations that have the potential to cause outbreaks, such as failures or significant interruption in water treatment processes, natural disasters that disrupt the water supply or distribution system, chemical spills, or unexpected loading of possible pathogens into the source water.

~~21~~16 The Department may place other situations in any tier believed appropriate, based on threat to public health.

~~22~~17 Failure to collect three or more samples for *Cryptosporidium* analysis is a Tier 2 violation requiring special notice as specified in section 9.2.11. All other monitoring and testing procedure violations are Tier 3.

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Endnotes to Table 9-8 - Table of Standard Health Effects Language for Public Notification

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8 There are various regulations that set turbidity standards for different types of systems, see section 2.8. For systems serving at least 10,000 people, using surface water or ~~ground water~~ groundwater under the direct influence of surface water, that use conventional filtration or direct filtration, after January 1, 2002, the turbidity level of a system's combined filter effluent may not exceed 0.3 NTU in at least 95 percent of monthly measurements, and the turbidity level of a system's combined filter effluent must not exceed 1 NTU at any time. Systems serving at least 10,000 people, using surface water or ~~ground water~~ groundwater under the direct influence of surface water, using technologies other than conventional, direct, slow sand, or diatomaceous earth filtration must meet turbidity limits set by the primacy agency. For systems serving fewer than 10,000 people, using surface water or ~~ground water~~ groundwater under the direct influence of surface water, that use conventional filtration or direct filtration, after January 1, 2005, the turbidity level of a system's combined filter effluent may not exceed 0.3 NTU in at least 95 percent of monthly measurements, and the turbidity level of a system's combined filter effluent must not exceed 1 NTU at any time. Systems serving fewer than 10,000 people, using surface water or ~~ground water~~ groundwater under the direct influence of surface water, using technologies other than conventional, direct, slow sand, or diatomaceous earth filtration must meet turbidity limits set by the Department.

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~~9.2.13~~9.2.14 List of Acronyms Used in Public Notification Regulation

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10.2.2 Inorganic Chemical Contaminants Analysis

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Table 10-5 Inorganic Chemical Contaminant Analytical Methods

Contaminant and Methodology[13]	EPA	ASTM [3]	SM [4] (18th, 19th ed.)	SM [4] (20th ed.)	Other
~~1. Alkalinity:~~**1. Alkalinity:**					
. . .	. . .	. . .	. . .	. . .	. . .
. . .					
~~5. Barium:~~**5. Barium:**					
. . .	. . .	. . .	. . .	. . .	. . .
~~6. Beryllium:~~**6. Beryllium:**					
. . .	. . .	. . .	. . .	. . .	. . .
~~7. Cadmium:~~**7. Cadmium:**					
. . .	. . .	. . .	. . .	. . .	. . .
~~8. Calcium:~~**8. Calcium:**					
. . .	. . .	. . .	. . .	. . .	. . .
~~9. Chromium:~~**9. Chromium:**					
. . .	. . .	. . .	. . .	. . .	. . .
~~10. Copper:~~**10. Copper:**					
. . .	. . .	. . .	. . .	. . .	. . .

. . .					
~~12. Cyanide:~~**12. Cyanide:**					
. . .	. . .	. . .	. . .	. . .	. . .
~~13. Fluoride:~~**13. Fluoride:**					
. . .	. . .	. . .	. . .	. . .	. . .
~~14. Lead:~~**14. Lead:**					
. . .	. . .	. . .	. . .	. . .	. . .
~~15. Magnesium:~~**15. Magnesium:**					
. . .	. . .	. . .	. . .	. . .	. . .
~~16. Mercury:~~**16. Mercury:**					
. . .	. . .	. . .	. . .	. . .	. . .
~~17. Nickel:~~**17. Nickel:**					
. . .	. . .	. . .	. . .	. . .	. . .
. . .					
~~19. Nitrite:~~**19. Nitrite:**					
. . .	. . .	. . .	. . .	. . .	. . .
. . .					
~~21. pH:~~**21. pH:**					
. . .	. . .	. . .	. . .	. . .	. . .
~~22. Selenium:~~**22. Selenium:**					
. . .	. . .	. . .	. . .	. . .	. . .
~~23. Silica:~~**23. Silica:**					
. . .	. . .	. . .	. . .	. . .	. . .
~~24. Sodium:~~**24. Sodium:**					
. . .	. . .	. . .	. . .	. . .	. . .
~~25. Temperature:~~**25. Temperature:**					
. . .	. . .	. . .	. . .	. . .	. . .
. . .					

. . .

10.3.3 Cited Detection for Organic Chemical Contaminants

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Table 10-9 Cited Detection Limits for Synthetic Organic Chemical Contaminants

Contaminant	Cited Detection Limit (mg/L)
. . .	. . .

Table 10-10 Cited Detection Limits for Volatile Organic Chemical Contaminants

Contaminant	Cited Detection Limit (mg/L)
Vinyl chloride	0.0005
Benzene	0.0005
Carbon tetrachloride	0.0005
1,2-Dichloroethane	0.0005
Trichloroethylene	0.0005
Para-Dichlorobenzene	0.0005
1,1-Dichloroethylene	0.0005
1,1,1-Trichloroethane	0.0005
cis-1,2 Dichloroethylene	0.0005
1,2-Dichloropropane	0.0005
Ethylbenzene	0.0005
Monochlorobenzene	0.0005
o-Dichlorobenzene	0.0005
Styrene	0.0005
Tetrachloroethylene	0.0005
Toluene	0.0005
Trans-1,2 Dichloroethylene	0.0005
Xylenes (total)	0.0005
Dichloromethane (methylene chloride)	0.0005
1,2,4-Trichlorobenzene	0.0005
1,1,2-Trichloroethane	0.0005

. . .

10.4.1 Sampling and Analytical Requirements

. . .

Table ~~10-10~~10-11 Sampling and Analytical Requirements for Radionuclides

Contaminant	Methodology	Reference (method or page number)								
		EPA[1]	EPA[2]	EPA[3]	EPA[4]	SM[5]	ASTM[6]	USGS[7]	DOE[8]	Other
. . .										

. . .

10.4.2 Cited Detection Limits for Radionuclides

(a) For the purpose of monitoring radioactivity concentrations in drinking water, the required sensitivity of the radioanalysis is defined in terms of a detection limit. The detection limit shall be that concentration which can be counted with a precision of plus or minus 100 percent at the 95 percent confidence level (1.96σ where σ is the standard deviation of the net counting rate of the sample).

(1) To determine compliance with section 2.6 the detection limit shall not exceed the concentrations in Table ~~10-11~~ 10-12 to this section 10.4.2(a).

Table ~~10-11~~10-12 Cited Detection Limits for Gross Alpha Particle Activity, Radium 226, Radium 228, and Uranium

.	Contaminant	Cited Detection limit
. . .	. . .	. . .

(2) To determine compliance with section 6.5.1(d) the detection limits shall not exceed the concentrations listed in Table ~~10-12~~ 10-13 to this section 10.4.2(a).

Table ~~10-12~~10-13 Cited Detection Limits for Man-Made Beta Particle and Photon Emitters

.	Radionuclide	Cited Detection limit
. . .	. . .	. . .

. . .

10.5.1 Turbidity, Heterotrophic Plate Count (HPC) and Disinfectant Testing Requirements

. . .

Table ~~10-13~~10-14 Turbidity and HPC Analytical Methods

Organism	Methodology	Methods[1]
. . .	. . .	. . .

. . .

Table ~~10-14~~10-15 Disinfectant Residual Analytical Methods

Residual	Methodology	Methods
. . .	. . .	. . .

. . .

10.6.1 CT Calculations

(a) The total inactivation ratio is determined based on the CT99.9 values in Tables ~~10-14~~ 10-15 through ~~10-21~~ 10-22 of this section 10.6, as appropriate. The parameters necessary to determine the total inactivation ratio must be monitored as follows:

. . .

Table ~~10-15~~10-16 CT Values (CT99.9) for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine at 0.5°C or Lower [1]

Free Residual (mg/L)	pH	.	.	.	.	.	.
.	≤6.0	6.5	7.0	7.5	8.0	8.5	≤9.0
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

. . .

Table ~~10-16~~10-17 CT Values (CT99.9) for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine at 5.0°C or Lower [1]

Free Residual (mg/L)	pH	.	.	.	.	.	.
.	≤6.0	6.5	7.0	7.5	8.0	8.5	≤9.0
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

. . .

Table ~~10-17~~10-18 CT Values (CT99.9) for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine at 10.0°C or Lower [1]

Free Residual (mg/L)	pH	.	.	.	.	.	.
.	≤6.0	6.5	7.0	7.5	8.0	8.5	≤9.0
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

. . .

Table ~~10-18~~10-19 CT Values (CT99.9) for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine at 15.0°C or Lower [1]

Free Residual (mg/L)	**pH**	**.**	**.**	**.**	**.**	**.**	**.**
.	**≤6.0**	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**≤9.0**
. . .	**. . .**	**. . .**	**. . .**	**. . .**	**. . .**	**. . .**	**. . .**

. . .

Table ~~10-19~~10-20 CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine at 20.0°C [1]

Free Residual (mg/L)	**pH**	**.**	**.**	**.**	**.**	**.**	**.**
.	**≤6.0**	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**≤9.0**
. . .	**. . .**	**. . .**	**. . .**	**. . .**	**. . .**	**. . .**	**. . .**

. . .

Table ~~10-20~~10-21 CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Free Chlorine at 25°C[1] and Higher

Free Residual (mg/L)	**pH**	**.**	**.**	**.**	**.**	**.**	**.**
.	**≤6.0**	**6.5**	**7.0**	**7.5**	**8.0**	**8.5**	**≤9.0**
. . .	**. . .**	**. . .**	**. . .**	**. . .**	**. . .**	**. . .**	**. . .**

. . .

Table ~~10-21~~10-22 CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of Giardia Lamblia Cysts by Chlorine Dioxide and Ozone [1]

	Temperature					
	≤1°C	**5°C**	**10°C**	**15°C**	**20°C**	**25°C**
. . .	**. . .**	**. . .**	**. . .**	**. . .**	**. . .**	**. . .**

. . .

Table ~~10-22~~10-23 CT Values ($CT_{99.9}$) for 99.9 Percent Inactivation of Giardia Lamblia Cysts By Chloramines [1]

	Temperature					
	≤1°C	**5°C**	**10°C**	**15°C**	**20°C**	**25°C**
. . .	**. . .**	**. . .**	**. . .**	**. . .**	**. . .**	**. . .**

. . .

10.7.2 Disinfection Byproduct Analytical Requirements

(a) Systems must measure disinfection byproducts by the methods (as modified by the footnotes) listed in Table ~~10-23~~10-24:

Table ~~10-23~~10-24 Approved Methods for Disinfection Byproduct Compliance Monitoring

Contaminant and Methodology [1]	EPA method	Standard method[2]	SM online[9]	ASTM method[3]
. . .	. . .	. . .	. . .	. . .

. . .

Table ~~10-24~~10-25 Acceptance Limits for Quantitative Results on PE Sample Analyses

DBP	Acceptance limits (percent of true value)	Comments
TTHM		
Chloroform	±20	Laboratory must meet all 4 individual THM ~~acceptanc~~ acceptance limits in order to successfully pass a PE sample for TTHM
. . .	. . .	. . .
. . .		

. . .

Table ~~10-25~~10-26 Minimum Reporting Level for Quantitative Data for DBP Samples

DBP	Minimum reporting level (mg/L) [1]	Comments
. . .		

. . .

10.7.3 Disinfectant Residual Analytical Requirements

(a) Systems shall measure residual disinfectant concentrations for free chlorine, combined chlorine (chloramines), and chlorine dioxide by the methods listed in Table ~~10-26~~10-27:

Table ~~10-26~~10-27 Approved Methods For Disinfectant Residual Compliance Monitoring

Methodology	Standard method	SM Online [2]	ASTM method	Residual Measured [1]				
				EPA method	Free chlorine	Combined chlorine	Total chlorine	Chlorine dioxide
. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .	. . .

. . .

10.7.4 Additional Analytical Methods

Systems required to analyze parameters not included in Tables ~~10-22 and 10-23~~ 10-23 and 10-24must use the following methods. A party approved by the Department must measure these parameters.

. . .

10.8.1 Lead and Copper Analysis

(a) Analyses for lead, copper, pH, conductivity, calcium, alkalinity, orthophosphate, silica, and temperature shall be conducted with the methods in Table 10-5.

(1) Analyses for alkalinity, calcium, conductivity, orthophosphate, pH, silica, and temperature may be performed by any person acceptable to the Department. Analyses under this section for lead and copper shall only be conducted by laboratories that have been certified by EPA or the Department. To obtain certification to conduct analyses for lead and copper, laboratories must:

. . .

(iii) Achieve the method detection limit for lead of 0.001 mg/L according to the procedures in Appendix B of 40 CFR Part 136, July 1, 2004. This need only be accomplished if the laboratory will be processing source water composite samples under section 8.~~9~~4.

(iv) Be currently certified by EPA or the Department to perform analyses to the specifications described in section 10.8.1 (a)(1)~~(2)~~.

. . .

10.10.2 Laboratory Certification for Inorganic Chemical Contaminants

. . .

Table ~~10-27~~10-28 Acceptable Limits for Performance Evaluation Sample Analysis for Inorganic Chemical Contaminant Laboratory Certification

Contaminant	Acceptance limit
. . .	. . .

. . .

10.10.4 Laboratory Certification for Synthetic Organic Chemiclas (SOCs)

. . .

Table ~~10-28~~10-29 Acceptable Limits for PE Sample Analysis for SOC Laboratory Certification

Contaminant	Acceptance limits (%-percent)
. . .	. . .

. . .

11.4 Response to Significant Deficiencies or Violations of Colorado Primary Drinking Water Regulations in a Sanitary Survey Written Notice

. . .

(b) A public water system must consult with the Department regarding appropriate corrective action and a schedule for implementing corrective action within 30 days of receiving written notice from the Department, or authorized party, of significant deficiencies or violations, as defined in sections 1.5.2~~(119) and (146)~~. This consultation may take the form of a telephone conversation, electronic mail, meeting, or other mechanism agreed to by the Department. Groundwater systems with significant deficiencies must implement one or more of the following corrective actions:

. . .

(d) Within 120 days (or earlier if directed by the ~~department~~Department) of receiving notification from the Department of significant deficiencies or violations, a public water system must either:

. . .

(e) A public water system must respond in writing to significant deficiencies and violations, as defined in sections 1.5.2~~(119) and (146)~~, outlined in the sanitary survey report no later than 45 days after receipt of the report. The system must submit a response to the Department indicating the actions the system will take to address the significant deficiencies and violations noted in the survey and include a proposed schedule for completing those corrective actions and achieving compliance.

. . .

13.1 General requirements and applicability.

. . .

(c) *General requirements.*

(4) Groundwater systems that provide at least 4-log treatment of viruses before or at the first customer are required to conduct compliance monitoring to demonstrate treatment effectiveness, as described in section 13.4~~(b)~~(c).

. . .

13.2 Disinfection of Groundwater

. . .

(b) A public water system that uses only groundwater sources which have been determined to not be under the direct influence of surface water shall be disinfected by means or methods which are approved by the Department and are ~~affective~~ effective in the killing or removal of pathogenic organisms. Disinfection may include physical as well as chemical treatment. When chlorination methods are employed, a sufficient amount of chlorine shall be added to the water to destroy any pathogenic organisms potentially present and to maintain a detectable residual in at least 95 percent of the samples taken at the extremities of the distribution system from which water may be withdrawn.

. . .

13.4 Treatment technique requirements for groundwater systems.

(a) Groundwater systems with a fecal indicator positive source water sample collected under section 13.3(a)(3) must comply with the requirements of this section. Groundwater systems with a fecal indicator positive source water sample collected under 13.3(a)(2), 13.3(a)(4), or 13.3(b) must comply with the requirements of this section if directed by the Department.

(1) Groundwater systems that meet the conditions of sections 13.4(a) must implement one or more of the following corrective actions:

. . .

(b) A groundwater system subject to the requirements of 13.4(c)(3) that fails to maintain at least 4-log treatment of viruses before or at the first customer for a groundwater source is in violation of the treatment technique requirement if the failure is not corrected within four hours of determining the system is not maintaining at least 4-log treatment of viruses before or at the first customer.

~~(b)~~(c) Compliance monitoring

(1) Existing groundwater sources. A groundwater system that is not required to meet the source water monitoring requirements of Article 13 for any groundwater source because it provides at least 4-log treatment of viruses before or at the first customer for any groundwater source before December 1, 2009, must notify the Department in writing that it provides at least 4-log treatment of viruses before or at the first customer for the specified groundwater source and begin compliance monitoring in accordance with section 13.4~~(b)~~(c)(3) by December 1, 2009. Notification to the Department must include engineering, operational, or other information that the Department requests to evaluate the submission.

(2) New groundwater sources. A groundwater system that places a groundwater source in service after November 30, 2009, that is not required to meet the source water monitoring requirements of Article 13 because the system provides at least 4-log treatment of viruses before or at the first customer for the groundwater source must comply with the requirements of sections 13.4 ~~(b)~~(c)(2)(i), ~~(b)~~(c)(2)(ii) and ~~(b)(2)(iii)~~13.4(d).

. . .

(ii) The system must conduct compliance monitoring as required under section 13.4~~(b)~~(c)(3) within 30 days of placing the source in service.

(3) *Monitoring requirements.* A groundwater system subject to the requirements of sections 11.4(b), 13.4(a), ~~(b)~~(c)(1) or ~~(b)~~(c)(2) must monitor the effectiveness and reliability of treatment for that groundwater source before or at the first customer as follows:

(i) Chemical disinfection

. . .

(B) Groundwater systems serving 3,300 or fewer people. A groundwater system that serves 3,300 or fewer people must monitor the residual disinfectant concentration using analytical methods specified in section 10.5(a)(2) at a location approved by the Department and record the

residual disinfection concentration each day that water from the groundwater source is served to the public. The groundwater system must maintain the Department-determined residual disinfectant concentration every day the groundwater system serves water from the groundwater source to the public. The groundwater system must take a daily grab sample during the hour of peak flow or at another time specified by the Department. If any daily grab sample measurement falls below the Department-determined residual disinfectant concentration, the groundwater system must take follow-up samples every four hours until the residual disinfectant concentration is restored to the Department-determined level. Alternatively, a groundwater system that serves 3,300 or fewer people may monitor continuously and meet the requirements of section 13.4~~(b)~~(c)(3)(i)(A).

. . .

~~(c)~~(d) Discontinuing compliance monitoring or treatment. A groundwater system may discontinue compliance monitoring if the system notifies the Department and the Department determines and documents in writing that compliance monitoring is no longer necessary for that groundwater source. A system that discontinues compliance monitoring is subject to the source water monitoring and analytical methods requirements of sections 13.3 and 10.1.5. A system discontinuing compliance monitoring is still subject to the requirements for disinfection of groundwater in sections 13.2(b) and 13.2(c), unless the system has obtained a disinfection waiver under sections 13.2(d) and 13.2(e).

. . .

PROPOSED

Article 24 **STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: August 10, 2009 rulemaking; Effective Date October 30, 2009**

Adoption of Revisions to Article 8 – Lead and Copper Control, with amendments to Articles 5, 6, 7, 9, 10 and 13 of the *Colorado Primary Drinking Water Regulations.*

The Colorado Revised Statutes (CRS), §25-1.5-202, provide specific authority for adoption of these regulatory amendments. The Commission also adopted, in compliance with §24-4-103(4), CRS, the following statement of basis and purpose.

Basis and Purpose

All suppliers of drinking water in Colorado are subject to regulations adopted by the U.S. Environmental Protection Agency (EPA) under the Safe Drinking Water Act, (42 U.S.C. 300f et seq.) as well as by the Colorado Primary Drinking Water Regulations under the direction of the Water Quality Control Division (Division). Colorado has been granted primary enforcement responsibility (primacy) for the public water system supervision program under the federal Safe Drinking Water Act. However, in order to maintain primacy, states must also promulgate new regulations that are no less stringent than those adopted by the federal government. By retaining primacy, the Division is able to protect the public health by ensuring that public water systems provide safe drinking water to Colorado citizens and visitors.

The Commission amended Article 8, with minor amendments to Article 9 of the Colorado Primary Drinking Water Regulations to include:

- The provisions of the federal regulations as published in the Federal Register, Volume 72, Number 195, October 10, 2007, pages 57782 through 57820, National Primary Drinking Water Regulations for Lead and Copper: Short-Term Regulatory Revisions and Clarifications.

These amendments to Article 8 and Article 9 are summarized as follows:

- Revision to the minimum number of samples required
    - 8.2(c)(1) - Language was added to clarify that systems that have less than five taps are required to sample twice at one or more taps to meet the required number of sites.
- Revision concerning definitions for compliance and monitoring periods
    - 8.2(d)(4)(vi)(B) - Language was added which states that a large system would trigger two six-month periods of sampling if a lead action level exceedance occurred as well as a water quality parameter failure.
- Revisions concerning reduced monitoring criteria
    - 8.2(d)(4) Language was added to clarify that systems start the annual sampling during the calendar year immediately following the end of the six month sampling.
    - 8.2(d)(4)(ii) Language was also added requiring systems serving >50,000 to meet the lead action level as well as maintain water quality ranges in order to move to a reduced schedule.

- 8.2(d)(4)(iii) Language was added regarding the requirement that systems on a three year schedule must sample every three years.

- Revisions concerning consumer notice of lead tap water monitoring results
  - 8.9(d)(2) This section requires all systems (whether they exceeded the action levels or not) to send a consumer notice of tap water monitoring results to the individuals that had their tap water tested for lead and copper compliance monitoring.
  - 9.1.4(d) There is new required health information in every Consumer Confidence Report that contains mandatory language regarding lead.
- Revisions concerning public education requirements
  - 8.9 The revision has struck most of the mandatory language and allows systems to author their own public education materials. The revision allows for Department pre-approval of public education materials before distribution. The revision requires submittal of the material to the Department before distribution.
  - 8.9(b)(1) The Department must determine whether or not there is a large portion of non-English speaking persons within a system.
  - 8.9(b)(2) Language was added specifying the end of the monitoring period as being the date from which the 60-day public education deadline starts.
  - 8.9(b)(2)(ii) Systems must contact local health agencies, in person or by phone, in order to obtain a list of target organizations.
  - 8.9(b)(3) Allowance for an extension for new public education delivery requirements. Extensions can be given if requested prior to the 60 day deadline.
- Revisions concerning public water system reporting requirements
  - 8.10 Requires that systems report all of their lead and copper tap water results by the 10th of the month following the monitoring period.
  - 8.10 Requires that changes in new sources and long term treatment changes to be reported to the Department as early as possible.
- Revisions concerning reevaluation of lead service lines
  - 8.8(b)(2) Language was added regarding a system resuming the lead service line replacement program. The system must reassess the number of lead lines to include lead lines that were opted out previously because of sampling results. It divides the number of lead lines left by the number of years left in the program to obtain the amount needed to be replaced per year.

These amendments provide more effective protection of public health by reducing exposure to lead in drinking water and by strengthening the implementation of lead and copper control in the following areas: monitoring, treatment processes, public education, customer awareness, and lead service line replacement.

Additionally, the public health is served by a rule that is clear and as easy to read and understand as possible. Therefore, the Commission further amends multiple Articles of the Colorado Primary Drinking Water Regulations to include:

- Revisions to Article 8 to rearrange the order and flow of the sections to provide clarity
- Revisions to Article 8 and Article 10 to update references and to include cross referencing titles where this provides clarity.
- Numerous minor changes removing obsolete references and definitions that are not used within the regulation, and correction of identified spelling and typographical errors.
- Other identified changes include the following:
    - 5.4(a) the words “have a certified laboratory” are added concerning fecal coliforms/escherichia coli (E. coli) testing
    - 6.1.3 is amended to clarify compliance with Maximum Contaminant Levels and Maximum Contaminant Level Goals for Inorganic Chemical Contaminants
    - 7.5.1 removes the reference to 7.5.4 since this section does not exist and adds the words “and the requirements of section 1.6.3(j)”
    - Sections 7.7 and 7.8 are amended to remove the word “you” and replace it with “the system”
    - 9.1.2 replaces the words “sells” with “delivers”, “buyer” with “consecutive”, “seller” with “wholesaler”, and “purchaser” with “consecutive”
    - 9.1.3(b)(1)(ii) adds the word “general”
    - “Table 10-10 Cited Detection Limits for Volatile Organic Chemical Contaminants” is added
    - Changes to Articles 1, 9, and 13 related to the Groundwater Rule. The following changes are required to assure that Colorado regulations are at least as stringent as the federal regulations in order to maintain primary enforcement authority:
        - 1.6.3(o)(2) corrects reference to public notification requirements to include 9.1.3(h) and 9.2.13.
        - 9.2.3(a)(4) Table 9-5 corrects Tier 2 public notice reference to include 13.4(b).
        - 9.2.4(a)(6) Table 9-6 corrects Tier 3 public notice reference to include all of 13.4 and 11.4.
        - 9.2.13 adds public notice requirements for non-community groundwater systems.
        - Table 9-7 I.A.11 corrects violation citations to include 13.4(a), 13.4(b) and 11.4 as treatment technique violations with Tier 2 public notice. Also corrects violation citations to include 11.4 as a monitoring violation with Tier 3 public notice.
        - 13.4(c)(3) adds reference to include 11.4(b).

- 13.4(b) adds a requirement that systems that are subject to compliance monitoring requirements will incur a treatment technique violation when a failure to provide 4-log treatment of viruses is not corrected within four hours.