

ANNEX A

TITLE 25. ENVIRONMENTAL PROTECTION
Subpart C. PROTECTION OF NATURAL RESOURCES
ARTICLE II. WATER RESOURCES
CHAPTER 109. SAFE DRINKING WATER

Subchapter A. GENERAL PROVISIONS

§ 109.1. Definitions.

Combined distribution system -- The interconnected distribution system consisting of the distribution systems of wholesale systems and of the public water systems that obtain finished water from another public water system.

DBP – Disinfection Byproduct

Dual sample set - A set of two samples collected at the same time and same location, with one sample analyzed for TTHM and the other sample analyzed for HAA5. Dual sample sets are collected for the purposes of conducting an IDSE and determining compliance with the TTHM and HAA5 MCLs under Subchapter G (relating to system management responsibilities).

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

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

IDSE – Initial Distribution System Evaluation.

LRAA – Locational running annual average: The average, computed quarterly, of quarterly arithmetic averages of all analytical results for samples taken at a particular monitoring location during the most recent 4 calendar quarters.

RAA – Running annual average: The average, computed quarterly, of quarterly arithmetic averages of all analytical results for samples taken during the most recent 4 calendar quarters.

Wholesale system - A public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

Subchapter C. MONITORING REQUIREMENTS

§ 109.301. General monitoring requirements.

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

- (i) Consecutive water suppliers shall monitor for compliance with the MCL for microbiological contaminants at the frequency established by the EPA and incorporated by reference in this chapter.
- (ii) Community consecutive water suppliers shall[:]

[(A) Monitor for compliance with the MCL for TTHMs established under 40 CFR141.12 (relating to maximum contaminant levels for total trihalomethanes) in accordance with 40 CFR 141.30 (relating to total trihalomethanes sampling, analytical and other requirements) if the system does one of the following:

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

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

(12) *Monitoring requirements for disinfection byproducts and disinfection byproduct precursors.* Community water systems and nontransient noncommunity water systems that use a chemical disinfectant or oxidant shall monitor for disinfection byproducts and disinfection byproduct precursors in accordance with this paragraph. Community water systems and nontransient noncommunity water systems that obtain finished water from another public water system that uses a chemical disinfectant or oxidant to treat the finished water shall monitor for TTHMs and HAA5 in accordance with this paragraph. Systems that use either surface water or GUDI sources and that serve at least 10,000 persons shall begin monitoring by January 1, 2002. Systems that use either surface water or GUDI sources and that serve fewer than 10,000 persons, or systems that use groundwater sources, shall begin monitoring by January 1, 2004. Systems monitoring for disinfection byproducts and disinfection byproduct precursors shall take all samples during normal operating conditions. Systems monitoring for disinfection byproducts and disinfection byproduct precursors shall use only data collected under this chapter to qualify for reduced monitoring. Compliance with the MCLs and monitoring requirements for TTHMs, HAA5, chlorite (where applicable) and bromate (where applicable) shall be determined in accordance with 40 CFR 141.132 and 141.133 (relating to monitoring requirements; and compliance requirements) which are incorporated herein by reference.

(i) TTHMs and HAA5 **Stage 1 DBP Rule**

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

(I) For systems serving at least 500 persons that use either surface water or GUDI sources and that have a source water TOC running annual average that is no greater than 4.0 mg/L, a TTHM running annual average that is no greater than 0.040 mg/L and an HAA5 running annual average that is no greater than 0.030 mg/L, the required monitoring is reduced according to items (-a-) and (-b-). Systems serving at least 10,000 persons shall resume routine monitoring as prescribed in clause (A) if the TTHM running annual average exceeds 0.060 mg/L or the HAA5 running annual average exceeds 0.045 mg/L. Systems serving from 500 to 9,999 persons shall resume routine monitoring as prescribed in clause (A) if the annual TTHM average exceeds 0.060 mg/L or the annual HAA5 average exceeds 0.045 mg/L. Systems serving at least 500 persons that must resume routine monitoring shall resume routine monitoring in the quarter immediately following the quarter in which the system exceeded the specified TTHM or HAA5 criteria.

(-c-) Beginning April 1, 2008, systems not monitoring under the provisions of subparagraph (ii) shall take monthly TOC samples every 30 days at a location prior to any treatment, to qualify for reduced monitoring for

TTHM and HAA5 under this sub paragraph. In addition to meeting other criteria for reduced monitoring in this section, the source water TOC running annual average must be less than 4.0 mg/L (based on the most recent 4 quarters of monitoring) on a continuing basis at each treatment plant to reduce or remain on reduced monitoring for TTHM and HAA5. Once qualified for reduced monitoring for TTHM and HAA5 under this section, a system may reduce source water TOC monitoring to quarterly TOC samples taken every 90 days at a location prior to any treatment.

(II) For systems that use only groundwater sources not included under subclause (I), the required monitoring is reduced according to the following:

(-b-) For systems serving fewer than 10,000 persons that have an annual TTHM average that is no greater than 0.040 mg/L and an annual HAA5 average that is no greater than 0.030 mg/L for 2 consecutive years or an annual TTHM average that is no greater than 0.020 mg/L and an annual HAA5 average that is no greater than 0.015 mg/L for 1 year, the required monitoring is reduced to one sample per 3-year cycle per treatment plant. The sample shall be taken at a location that represents a maximum residence time during the month of warmest water temperature. The 3-year cycle shall begin on January 1 following the quarter in which the system qualifies for reduced monitoring. If the TTHM **annual** average exceeds 0.060 mg/L or the HAA5 **annual** average exceeds 0.045 mg/L the system shall resume routine monitoring as prescribed in clause (A), except that systems that exceed either a TTHM or HAA5 MCL shall increase monitoring to at least one sample per quarter per treatment plant beginning in the quarter immediately following the quarter in which the system exceeds the TTHM or HAA5 MCL.

(ii) TTHMs and HAA5 Stage 2 DBP Rule.

(A) Applicability and schedule.

I. Community water systems and nontransient noncommunity water systems using 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 shall monitor for compliance with the MCLs based on the LRAA for TTHMs and HAA5. A consecutive system or wholesale system shall comply at the same time as the system with the earliest compliance date in the combined distribution system. Systems shall comply with the requirements of this subparagraph as follows:

(-a-) Systems serving 100,000 or more people begin April 1, 2012.

(-b-) Systems serving from 50,000 to 99,999 people begin October 1, 2012.

(-c-) Systems serving from 10,000 to 49,999 people begin October 1, 2013.

(-d-) Systems serving less than 10,000 people:

- (-1-) Begin October 1, 2013, if no Cryptosporidium monitoring is required under § 109.1201-1204*.
- (-2-) Begin October 1, 2014, if Cryptosporidium monitoring is required under § 109.1201-1204*.

II. For the purpose of the schedule under this subparagraph, the Department may determine that the combined distribution system does not include certain consecutive systems based on factors such as receiving water from a wholesale system only on an emergency basis or receiving only a small percentage and small volume of water from a wholesale system. The Department may also determine that the combined distribution system does not include certain wholesale systems based on factors such as delivering water to a consecutive system only on an emergency basis or delivering only a small percentage and small volume of water to a consecutive system.

(B) Routine monitoring.

- I. A system that submitted an IDSE report shall begin monitoring at the locations and months recommended in the IDSE report unless the Department notifies the system that other locations or additional locations are required. A system that submitted a 40/30 certification, or qualified for a very small system waiver or a nontransient noncommunity water system serving less than 10,000, shall monitor at the locations and dates identified in its monitoring plan following the schedule in § 109.701(g)(2)(ii) (relating to reporting and recordkeeping).**
- II. A system required to conduct quarterly monitoring shall begin monitoring in the first full calendar quarter that includes the compliance date specified in clause (A). A system required to conduct monitoring at frequencies less than quarterly shall begin monitoring in the calendar month recommended in the IDSE report in accordance with 40 CFR 141.601 and 141.602 (relating to standard monitoring and system specific studies) as incorporated by reference or the calendar month identified in the Subchapter G (relating to system management responsibilities) monitoring plan relating to § 109.701(g)(2)(ii) no later than 12 months after the compliance date under clause (A).**
- III. Monitoring shall be conducted at no fewer than the number of locations identified in the table under subclauses IV and V. All systems shall monitor during the month of highest DBP concentrations. Systems on quarterly monitoring shall take dual sample sets every 90 days at each monitoring location, except for community water systems using surface water or GUDI sources serving 500-3,300. Systems on annual monitoring and community water systems using surface water or GUDI sources serving 500-3,300 are required to take individual TTHM and HAA5 samples (instead of a dual sample set) at the locations with the highest TTHM and HAA5 concentrations, respectively. Only one location with a dual sample set per monitoring period is needed if the**

* These sections are being added by the LT2 package that is also being proposed today.

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highest TTHM and HAA5 concentrations occur at the same location (and month, if monitored annually).

IV. Community water systems and nontransient noncommunity water systems using surface water or GUDI sources shall monitor as follows:

<u>Population size</u>	<u>Monitoring frequencies</u>	<u>Distribution system monitoring location total per monitoring period</u>
<u>< 500</u>	<u>Annually</u>	<u>2</u>
<u>500 – 3,300</u>	<u>Quarterly</u>	<u>2</u>
<u>3,301 – 9,999</u>	<u>Quarterly</u>	<u>2</u>
<u>10,000 – 49,999</u>	<u>Quarterly</u>	<u>4</u>
<u>50,000 – 249,999</u>	<u>Quarterly</u>	<u>8</u>
<u>250,000 – 999,999</u>	<u>Quarterly</u>	<u>12</u>
<u>1,000,000 – 4,999,999</u>	<u>Quarterly</u>	<u>16</u>
<u>≥ 5,000,000</u>	<u>Quarterly</u>	<u>20</u>

V. Community water systems and nontransient noncommunity water systems using ground water sources shall monitor as follows:

<u>Population size</u>	<u>Monitoring frequencies</u>	<u>Distribution system monitoring location total per monitoring period</u>
<u>< 500</u>	<u>Annually</u>	<u>2</u>
<u>500 – 9,999</u>	<u>Annually</u>	<u>2</u>
<u>10,000 – 99,999</u>	<u>Quarterly</u>	<u>4</u>
<u>100,000 – 499,999</u>	<u>Quarterly</u>	<u>6</u>
<u>≥500,000</u>	<u>Quarterly</u>	<u>8</u>

VI. An undisinfected system that begins using a disinfectant other than UV light after the dates under 40 CFR 141.600 (relating to general requirements) as incorporated by reference for complying with the IDSE requirements, shall consult with the Department to identify compliance monitoring locations. The system shall develop a monitoring plan under §109.701(g)(2)(ii) that includes those monitoring locations.

VII. Systems shall use analytical techniques adopted by the EPA under the Federal act for TTHM and HAA5 analyses. Laboratories that have received accreditation by the Department shall conduct analyses.

(C) Reduced monitoring.

I. Systems may reduce monitoring to the level specified in the table under subclauses II & III if, after at least 4 consecutive quarters, the LRAA is equal to or less than 0.040 mg/L for TTHM and equal to or less than 0.030 mg/L for

HAA5 at all monitoring locations. Only data collected under the provisions of subparagraph (i) and (ii) may be used to qualify for reduced monitoring. Systems with surface water or GUDI sources shall also take monthly TOC samples every 30 days at a location prior to any treatment, to qualify for reduced monitoring for TTHM and HAA5 under this clause. In addition to meeting other criteria for reduced monitoring in this clause, the source water TOC running annual average (based on the most recent 4 quarters of monitoring) must be equal to or less than 4.0 mg/ L on continuing basis at each treatment plant to reduce monitoring for TTHM and HAA5. Once qualified for reduced monitoring for TTHM and HAA5 under this clause, a system may reduce source water TOC monitoring to quarterly TOC samples taken every 90 days at a location prior to any treatment.

II. Community water systems and nontransient noncommunity water systems using surface water or GUDI sources may reduce monitoring as follows:

<u>Population size</u>	<u>Monitoring frequencies</u>	<u>Distribution system monitoring location total per monitoring period</u>
<u>< 500</u>	<u>Monitoring may not be reduced</u>	
<u>500 –3,300</u>	<u>Annually</u>	<u>1 TTHM and 1 HAA5 sample: 1 at the location and during the quarter with the highest TTHM single measurement, 1 at the location and during the quarter with the highest HAA5 single measurement; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.</u>
<u>3,301 – 9,999</u>	<u>Annually</u>	<u>2 dual sample sets: 1 at the location and during the quarter with the highest TTHM single measurement, 1 at the location and during the quarter with the highest HAA5 single measurement.</u>
<u>10,000 –49,999</u>	<u>Quarterly</u>	<u>2 dual sample sets at the locations with the highest TTHM and the highest HAA5 LRAAs.</u>
<u>50,000-249,999</u>	<u>Quarterly</u>	<u>4 dual sample sets at the locations with two highest</u>

		<u>TTHM and two highest HAA5 LRAAs.</u>
<u>250,000-999,999</u>	<u>Quarterly</u>	<u>6 dual sample sets at the locations with the three highest TTHM and the three highest HAA5 LRAAs.</u>
<u>1,000,000-4,999,999</u>	<u>Quarterly</u>	<u>8 dual sample sets at the locations with the 4 highest TTHM and 4 highest HAA5 LRAAs.</u>
<u>≥5,000,000</u>	<u>Quarterly</u>	<u>10 dual sample sets at the locations with the five highest TTHM and five highest HAA5 LRAAs.</u>

III. Community water systems and nontransient noncommunity water systems using ground water sources may reduce monitoring as follows:

<u>Population size</u>	<u>Monitoring frequencies</u>	<u>Distribution system monitoring location total per monitoring period</u>
<u><500</u>	<u>Every third year</u>	<u>1 TTHM and 1 HAA5 sample: 1 at the location and during the quarter with the highest TTHM single measurement; 1 at the location and during quarter with highest HAA5 single measurement; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter.</u>
<u>500-9,999</u>	<u>Annually</u>	<u>1 TTHM and 1 HAA5 sample: 1 at the location and during the quarter with highest TTHM single measurement, 1 at the location during the quarter with the highest HAA5 single measurement; 1 dual sample set per year if the highest TTHM and HAA5 measurements occurred at the same location and quarter</u>
<u>10,000-99,999</u>	<u>Annually</u>	<u>2 dual sample sets: 1 at the location and during the</u>

		<u>quarter with the highest TTHM single measurement, 1 at the location and during the quarter with the highest HAA5 single measurement.</u>
<u>100,000-499,999</u>	<u>Quarterly</u>	<u>2 dual sample sets at the locations with the highest TTHM and highest HAA5 LRAAs</u>
<u>>500,000</u>	<u>Quarterly</u>	<u>4 dual sample sets at the locations with the two highest TTHM and two highest HAA5 LRAAs.</u>

IV. Systems on reduced quarterly monitoring may remain on reduced monitoring as long as the TTHM LRAA is equal to or less than 0.040 mg/L and the HAA5 LRAA is equal to or less than 0.030 mg/L at each monitoring location. Systems on reduced annual or less frequent monitoring may remain on reduced monitoring as long as each TTHM sample result is equal to or less than 0.060 mg/L and each HAA5 sample result is equal to or less than 0.045 mg/L. In addition, the source water TOC running annual average (based on the most recent 4 quarters of monitoring) from samples collected every 90 days at a location prior to any treatment must be equal to or less than 4.0 mg/L at each treatment plant treating surface water or GUDI sources.

V. 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, is greater than 4.0 mg/L at any treatment plant treating surface water or GUDI sources, the system shall resume routine monitoring under clause (B) or begin increased monitoring if subclause (D)(I) applies.

VI. The Department retains the right to require a system that meets the requirements of this clause to resume routine monitoring.

(D) Increased monitoring.

I. Systems that are required to monitor at a particular location annually or less frequently than annually under clause (B) or (C) shall increase monitoring to dual sample sets once per quarter (taken every 90 days) at all locations if any single TTHM sample result is greater than 0.080 mg/L or any single HAA5 sample result is greater than 0.060 mg/L at any location.

II. A system may return to routine monitoring once it has conducted increased monitoring for at least 4 consecutive quarters and the LRAA for every monitoring location is equal to or less than 0.060 mg/L for TTHM and is equal to or less than 0.045 mg/L for HAA5.

- III. Systems on increased monitoring under subparagraph (i) shall remain on increased monitoring until they qualify for a return to routine monitoring under subclause (II). Systems shall conduct increased monitoring under subclause (I) at the monitoring locations in the monitoring plan developed under §109.701(g)(2)(ii) beginning at the date identified in clause (A) for compliance with this subparagraph and remain on increased monitoring until they qualify for a return to routine monitoring under subclause (II).**
- IV. A system may remain on reduced monitoring after the dates identified in clause (A) for compliance with this subparagraph only if it qualified for a 40/30 certification under 40 CFR 141.603 (relating to 40/30 certification) as incorporated by reference or has received a very small system waiver under 40 CFR 141.603 as incorporated by reference, plus meets the reduced monitoring criteria in clause (C), and has not changed or added monitoring locations from those used for compliance monitoring in subparagraph (i). If a system's monitoring locations under this subparagraph differ from monitoring locations under subparagraph (i), the system may not remain on reduced monitoring after the dates identified in clause (A) for compliance with this subparagraph.**

(E) General monitoring and compliance requirements.

- I. A system required to monitor quarterly shall calculate LRAAs for TTHM and HAA5 using monitoring results collected under this subparagraph and determine that each LRAA does not exceed the MCL. A system that fails to complete 4 consecutive quarters of monitoring, shall calculate compliance with the MCL based on the average of the available data from the most recent 4 quarters. A system that takes more than one sample per quarter at a monitoring location shall average all samples taken in the quarter at that location to determine a quarterly average to be used in the LRAA calculation.**
- II. A system required to monitor yearly or less frequently shall determine that each sample result is less than the MCL. If any single sample result exceeds the MCL, the system shall comply with the requirements of clause (D). If no sample result exceeds the MCL, the sample result for each monitoring location is considered the LRAA for that monitoring location.**
- III. A system required to conduct quarterly monitoring, shall make compliance calculations at the end of the 4th 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 4 quarters of data would cause the MCL to be exceeded regardless of the monitoring results of subsequent quarters. A system required to conduct monitoring at a frequency that is less than quarterly shall make compliance calculations beginning with the first compliance sample taken after the compliance date.**
- IV. A system is in violation of the MCL when the LRAA at any location exceeds the MCL for TTHM or HAA5, calculated based on 4 consecutive quarters of monitoring, or the LRAA calculated based on fewer than 4 quarters of data if the MCL would be exceeded regardless of the monitoring results of subsequent quarters. A system is in violation of the monitoring requirements for each**

quarter that a monitoring result would be used in calculating an LRAA if it fails to monitor.

[(ii)] **(iii)** ***

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

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

(B) *Reduced monitoring*.

I. **Until March 31, 2009,** [For] systems that have an average source water bromide concentration that is less than 0.05 mg/L based upon representative monthly bromide measurements for 1 year, the required monitoring is reduced from monthly to quarterly. Systems on reduced monitoring shall continue to take monthly samples for source water bromide. If the running annual average source water bromide concentration, computed quarterly, equals or exceeds 0.05 mg/L based upon representative monthly measurements, the system shall revert to routine monitoring as prescribed by clause (A).

II. **Beginning April 1, 2009, a system required to analyze for bromate may reduce monitoring from monthly to quarterly, if the system's running annual average bromate concentration computed quarterly is less than or equal to 0.0025 mg/L based on monthly measurements as prescribed in clause (A) for the most recent 4 quarters. Systems qualifying for reduced bromate monitoring under subclause (I) may remain on reduced monitoring as long as the running annual average of quarterly bromate samples is less than or equal to 0.0025 mg/L. If the running annual average bromate concentration is greater than 0.0025 mg/L, the system shall resume routine monitoring as prescribed under clause (A).**

[(iv)] **(v)** ***

Subchapter G. SYSTEM MANAGEMENT RESPONSIBILITIES

§109.701 Reporting and recordkeeping

(a) *Reporting requirements for public water systems.*

(8) *Reporting requirements for disinfectant residuals.* **In addition to the reporting requirements specified in paragraph (1),** [P]public water systems shall report MRDL monitoring data as follows:

- (i) [For s]Systems monitoring for chlorine dioxide under §109.301(13)[:] **shall report the number of days chlorine dioxide was used at each entry point during the last month.**
 - [(A) The dates, results, and locations of the samples that were taken during the previous month.
 - (B) Whether the MRDL was exceeded.
 - (C) Whether the MRDL was exceeded during any 2-consecutive daily samples and whether the resulting violation was acute or non-acute.]
- (ii) [For s]Systems monitoring for either chlorine or chloramines under §109.301(13)[:] **shall report the arithmetic average of all distribution samples taken in the last month.**
 - [(A) The number of samples taken during each month of the previous quarter.
 - (B) The monthly arithmetic average of all samples taken in each month for the last 12 months.
 - (C) The arithmetic average of all monthly averages for the last 12 months.
 - (D) Whether the MRDL was exceeded.]

[(9)*Reporting requirements for disinfection byproducts.*

- (i) Systems monitoring for TTHMs and HAA5 under §109.301(12) shall report the following:
 - (A) Systems monitoring on a quarterly or more frequent basis shall report the following:
 - (I) The number of samples taken during the last quarter.
 - (II) The date, location and result of each sample taken during the last quarter.
 - (III) The arithmetic average of all samples taken in the last quarter.
 - (IV) The annual arithmetic average of the quarterly arithmetic averages for the last 4 quarters.
 - (V) Whether the annual arithmetic average exceeds the MCL for either TTHM or HAA5.
 - (B) Systems monitoring less than quarterly, but no less than annually shall report the following:
 - (I) The number of samples taken during the last year.
 - (II) The date, location and result of each sample taken during the last monitoring period.
 - (III) The arithmetic average of all samples taken in the last year.

(IV) Whether the annual arithmetic average exceeds the MCL for either TTHM or HAA5.

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

(I) The date, location and result of the last sample taken.

(II) Whether the sample exceeds the MCL for either TTHM or HAA5.

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

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

(B) The date, location and result of each entry point and distribution sample taken during the last month.

(C) The arithmetic average of each three-sample set of distribution samples taken during the last month.

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

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

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

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

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

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

[(10)] **(9)** ***

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

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

(g) *Monitoring plans for disinfectants, disinfection byproducts and disinfection byproduct precursors.*

(1) Stage 1 DBPR. *Systems* required to monitor for disinfection byproducts **under §109.301(12)(i)** or disinfection byproduct precursors under § 109.301(12)(v) or disinfectant residuals under §109.301(13) shall develop and implement a monitoring plan. The system

shall maintain the plan and make it available for inspection by the Department and the general public no later than 30 days following the applicable compliance dates. All systems that use either surface water or GUDI sources shall submit a copy of the monitoring plan to the Department no later than 30 days prior to the date of the first report required under this subchapter. The Department may also require the plan to be submitted by any other system, regardless of size or source water type. After review, the Department may require changes in any of the plan components.

[(1)] **(i)** The plan [shall] **must** include the following components:

[(i)] **(A)** ***

[(ii)] **(B)** ***

[(iii)] **(C)** ***

[(iv)] **(D)** ***

[(2)] **(ii)** ***

(iii) Copies of Stage 1 DBP Rule monitoring plans developed under this clause shall be kept for the same period of time as the Stage 1 DBP Rule records of analyses are required to be kept under paragraph (d)(1).

(2) Stage 2 DBPR. Systems required to monitor for disinfection byproducts under §109.301(12)(ii) shall comply with the following:

(i) IDSE Requirements. The IDSE requirements established by the EPA under the National Primary Drinking Water Regulations in 40 CFR 141.600 – 141.605 (relating to initial distribution system evaluations) are incorporated by reference except as otherwise established by this chapter.

(ii) Subchapter G monitoring plan.

(A) A public water system shall develop and implement a monitoring plan to be kept on file for Department and public review. The monitoring plan must contain the elements in subclauses (I) through (IV) and be completed no later than the date systems conduct their initial monitoring under this subpart.

(I) Monitoring locations,

(II) Monitoring dates,

(III) Compliance calculation procedures,

(IV) Monitoring plans for any other systems in the combined distribution system if the Department has reduced monitoring requirements under the Department authority.

(B) Public water systems not required to submit an IDSE report under either 40 CFR 141.601 or 141.602 (relating to standard monitoring and system specific studies) as incorporated by reference, and do not have sufficient §109.301(12)(i) monitoring locations to identify the required number of compliance monitoring locations, shall identify additional locations by alternating selection of locations

representing high TTHM levels and high HAA5 levels until the required number of compliance monitoring locations have been identified. The system shall also provide the rationale for identifying the locations as having high levels of TTHM or HAA5. Systems that have more monitoring locations than required for compliance monitoring shall identify which locations will be used for subchapter G compliance monitoring by alternating selection of locations representing high TTHM levels and high HAA5 levels until the required number of Subchapter G compliance monitoring locations have been identified.

(C) A public water system shall submit a copy of its monitoring plan to the Department prior to the date for initial monitoring specified in §109.301(12)(ii), unless the system submits to the Department an IDSE report containing all the information required by clause (A).

(D) A public water system may revise its 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. A system that changes monitoring locations, shall replace existing compliance monitoring locations with the lowest LRAA with new locations that reflect the current distribution system locations with expected high TTHM or HAA5 levels. The Department may also require modifications in the system's monitoring plan. A system using surface water or GUDI sources and serving more than 3,300 people, shall submit a copy of its modified monitoring plan to the Department prior to the date the system is required to comply with the revised monitoring plan.

(iii) Operational evaluation levels.

(A) The operational evaluation level for TTHM and HAA5 is the sum of the two previous quarterly results plus twice the current quarter's result, divided by 4. Each quarter, public water systems shall calculate the TTHM and HAA5 operation evaluation levels for each monitoring location.

(B) If the TTHM operational evaluation level exceeds 0.080 mg/L, or the HAA5 operational evaluation level exceeds 0.060 mg/L at any monitoring location, the system shall conduct an operational evaluation to identify the cause of the exceedence 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.

(C) The 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.

(I) A system may request and the Department may allow a system to limit the scope of evaluation if the system is able to identify the cause of the operational evaluation level exceedance.

(II) The request to limit the scope of the evaluation does not extend the schedule in subclause (I) of this clause for submitting the written report. The Department must approve this limited scope of evaluation in writing and systems shall keep that approval with the completed report.

(iv) Reporting and recordkeeping requirements

(A) For each monitoring location, public water systems shall report to the Department within 10 days of the end of any quarter in which monitoring is required any TTHM operational evaluation level that exceeded 0.080 mg/L and any HAA5 operational evaluation level that exceeded 0.060 mg/L during the quarter and the location, date, and the TTHM and HAA5 calculated operation evaluation level.

(B) Copies of Stage 2 DBP Rule monitoring plans developed under this clause shall be kept for the same period of time as the Stage 2 DBP Rule records of analyses are required to be kept under paragraph (d)(1).

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

§109.1003. Monitoring requirements.

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

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

(viii) **(A) TTHM and HAA5 Stage 1 DBP Rule.** ***

[(A)] **(I) Routine monitoring.** Beginning January 1, 2004, monitor annually for TTHMs and HAA5 if the system uses a chemical disinfectant or oxidant, or obtains finished water from another public water system that uses a chemical disinfectant or oxidant to treat the [finished] water. Bottled water systems are not required to monitor for TTHMs and HAA5 if the system does not use a chlorine-based disinfectant or oxidant and does not obtain finished

water from another public water system that uses a chlorine-based disinfectant or oxidant to treat the [finished] water.

[(B)] **(II)** *Reduced monitoring.* ***

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

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

(B) TTHM and HAA5 Stage 2 DBP Rule. Beginning October 1, 2013, monitor annually for TTHMs and HAA5 if the system uses a chemical disinfectant or oxidant to treat the water, or obtains finished water from another public water system that uses a chemical disinfectant or oxidant to treat the water as follows:

(I) Routine Monitoring. Systems shall take at least one dual sample set per year per entry point during the month of warmest water temperature.

(II) Increased Monitoring. If any sample results exceed either a TTHM or HAA5 MCL, the system shall take at least one dual sample set per quarter per entry point. The system shall return to the sampling frequency of one dual sample set per year per entry point if, after at least 1 year of monitoring, each TTHM sample result is no greater than 0.060 mg/L and each HAA5 sample result is no greater than 0.045 mg/L.

(x) Beginning January 1, 2004, monitor monthly for bromate if the system uses ozone for disinfection or oxidation.

(A) *Routine monitoring.* ***

(B) *Reduced monitoring.*

(I) Until March 31, 2009, [S] systems shall reduce monitoring for bromate from monthly to quarterly if the average source water bromide concentration is less than 0.05 mg/L based upon representative monthly bromide measurements for 1 year. Systems on reduced monitoring shall continue monthly source water bromide monitoring. If the running annual average source water bromide concentration, computed quarterly, is equal to or exceeds 0.05 mg/L, the system shall revert to routine monitoring as prescribed by clause (A).

(II) Beginning April 1, 2009, a system required to analyze for bromate may reduce monitoring from monthly to quarterly, if each sample result is less than or equal to 0.0025 mg/L based on monthly measurements as prescribed in clause (A) for the most recent 12 months. Systems qualifying for reduced bromate monitoring under subclause (I) may remain on reduced monitoring as long as each sample result from the previous 12 months is less than or equal to 0.0025 mg/L. If any sample result exceeds 0.0025 mg/L, the system shall resume routine monitoring as prescribed under clause (A).