ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
WATER DIVISION - WATER SUPPLY PROGRAM
ADMINISTRATIVE CODE

CHAPTER 335-7-2
PRIMARY DRINKING WATER STANDARDS

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335-7-2-.01 Applicability.

Drinking water standards established in these regulations are applicable to water systems required to monitor for the various contaminants. Systems are required to monitor at the frequency and time designated by the Department. All systems required to meet

these standards must provide drinking water in compliance with regulation 335-7 at all times.
Author: Joe Alan Power, Edgar K. Hughes
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990. **Revised:** September 23, 1992; effective November 9, 1992. **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005.

335-7-2-.02 Sampling And Analytical Requirements.

Samples to be used to demonstrate compliance with these regulations must be collected using procedures, containers, and preservatives established by EPA. Analysis of such samples must be performed using approved EPA methodology and by a laboratory certified by EPA or this Department which has demonstrated the ability to analyze the specific contaminants at an acceptable detectable limit established by EPA. Turbidity, chlorine residual, and secondary standards may be analyzed by a certified operator using procedures established by EPA. Confirmation samples may be required after the detection of a contaminant or the submittal of results which is questionable.
Author: Joe Alan Power, Edgar K. Hughes
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335-7-2-.03 Inorganic Chemical Standards And Monitoring Requirements.

(1) The following are MCLs for inorganic chemicals:

Contaminant	MCL in mg/L
Antimony	0.006
Arsenic	0.01
Asbestos	7 Million Fibers*/Liter
Barium	2.0
Beryllium	0.004
Cadmium	0.005
Chromium	0.1

Contaminant	MCL in mg/L
Cyanide	0.2
Fluoride	4.0
Lead	0.015
Mercury	0.002
Nickel	0.1
Nitrate (as N)	10
Nitrite (as N)	1
Total Nitrate/Nitrite	10
Selenium	0.05
Sulfate	500
Thallium	0.002

*Longer than 10 micrometers

(2) Should any inorganic contaminant exceed the MCL, the system must establish a treatment process using the best available technology to achieve compliance with the MCL or cease using the source of supply in conjunction with a Department- issued compliance schedule and provide an alternate source of approved drinking water with any cost to be born by the water system.

(3) Sampling for asbestos shall be as follows:

(a) Community and NTNC water systems shall analyze for asbestos during the first three-year compliance period of each nine-year compliance cycle.

(b) A system that is not vulnerable to asbestos contamination may apply to the Department for a waiver from asbestos monitoring for each three-year monitoring period. If the Department grants the waiver, the system is not required to monitor.

(c) A system vulnerable to asbestos contamination due to corrosion of asbestos-cement pipe shall collect at least one sample from a tap served by asbestos-cement pipe and under conditions where asbestos contamination is most likely to occur. A system determined to be vulnerable to asbestos contamination in source water shall monitor at least one sample representative of each suspected source after treatment.

(d) Community and NTNC water systems which exceed the MCL shall analyze for asbestos quarterly beginning in the next quarter after the violation occurred. Sampling may be reduced to initial monitoring requirements if the average of all

analytical results is less than 3.5 million fibers/Liter. Groundwater systems shall analyze a minimum of two quarterly samples and surface water systems a minimum of four quarterly samples.

(e) The Department may require analysis of asbestos during a specific quarter of the year.

(f) The Department has the authority to determine compliance based on analytical results and other information compiled by Department staff.

(g) When the MCL for asbestos is exceeded, a second analysis shall be initiated within two weeks and the average of the two analyses shall be used as the compliance level. Should this level also exceed the MCL, the Department shall be notified within 48 hours.

(4) Sampling for nitrates shall be as follows:

(a) Community and NTNC water systems utilizing surface sources shall analyze for nitrates annually. Community and NTNC water systems utilizing a new surface source shall analyze for nitrates four consecutive quarters. Samples shall be collected during periods of normal operating conditions from the entry point to the distribution system for each surface source.

(b) Community and NTNC water systems utilizing surface sources shall analyze for nitrates annually if all analytical results from four consecutive quarters are less than 4.5 mg/L. A surface water system shall return to quarterly monitoring if any one sample is greater than 4.4 mg/L. 335-7-2-.03

(c) Community and NTNC water systems utilizing groundwater sources and all non-community water systems shall analyze for nitrates annually. Samples shall be collected during periods of normal operating conditions from the entry point to the distribution system representing each source or treatment plant utilized.

(d) Community and NTNC water systems utilizing groundwater sources shall analyze for nitrates quarterly for at least one year following any one sample whose analytical result is greater than 4.4 mg/L. Sampling may be reduced to annually if the average of four consecutive quarterly results is less than 4.5 mg/L.

(e) The Department may require analysis of nitrates during a specific quarter of the year. Samples must be collected during the quarter which previously resulted in the highest analytical result unless laboratory availability or other conditions require sampling during another quarter.

(f) The Department has the authority to determine compliance based on analytical results and other information compiled by Department staff.

(g) When the MCL for nitrates is exceeded, a second analysis shall be initiated within 24 hours and the average of the two analyses shall be used as the compliance level. Should this level also exceed the MCL, the Department shall be notified within 48 hours. Should the system be unable to collect a confirmation sample within 24 hours, the system must immediately notify their customers for an acute violation and collect a confirmation sample within 14 days of the original sample date.

(5) Sampling for nitrites shall be as follows:

(a) Community and NTNC water systems utilizing a new surface source shall collect during periods of normal operating conditions one sample for nitrites annually. Community and NTNC water systems utilizing groundwater sources shall collect during periods of normal operating conditions from the entry point to the distribution system representing each groundwater source or treatment plant utilized one sample for nitrites every three years. One sample shall be collected from every new transient non-community water source prior to approval being given to place the new source into operation.

(b) All public water systems shall collect repeat samples for nitrites the quarter following any analytical result for nitrate which exceeds 4.4 mg/L. Systems shall monitor at least quarterly for one year following any one sample whose analytical result is greater than 0.54 mg/L. Sampling may be reduced to annually if the average of four consecutive quarterly results is less than 0.54 mg/L.

(c) The Department may require analysis of nitrites during a specific quarter of the year. Samples must be collected during the quarter which previously resulted in the highest analytical result unless laboratory availability or other conditions require sampling during another quarter.

(d) The Department has the authority to determine compliance based on analytical results and other information compiled by Department staff.

(e) When the MCL for nitrites is exceeded, a second analysis shall be initiated within 24 hours and the average of the two analyses shall be used as the compliance level. Should this level also exceed the MCL, the Department shall be notified within 48 hours. Should the system be unable to collect a confirmation sample within 24 hours, the system must immediately notify their customers for an acute violation and

collect a confirmation sample within 14 days of the original sample date.

(6) Sampling for inorganic chemicals other than asbestos, nitrates, and nitrites shall be as follows:

(a) Community and NTNC water systems utilizing surface sources shall analyze for inorganic chemicals annually. Samples shall be taken during periods of normal operating conditions from a representative point in the distribution system for each surface source.

(b) Community and NTNC water systems using groundwater sources shall analyze samples collected during periods of normal operating conditions from the distribution system representing each source or treatment plant utilized. Analysis will be performed on no less than a three year cycle.

(c) Non-community systems must sample at a frequency established by the Department.

(d) Community and NTNC water systems which exceed the MCL for an inorganic contaminant other than asbestos, nitrate and nitrite shall analyze quarterly for that contaminant beginning in the next quarter after the violation occurred. Sampling may be reduced to initial monitoring requirements if the average of all analytical results is less than one-half of the MCL. Groundwater systems shall analyze a minimum of two quarterly samples and surface water systems a minimum of four quarterly samples.

(e) The Department may require analysis of inorganic contaminants during a specific quarter or season of the year.

(f) The Department has the authority to determine compliance based on analytical results and other information compiled by Department staff.

(g) If the results of an analysis for an inorganic contaminant other than asbestos, nitrites and nitrates exceeds the established MCL, the supplier of water shall report to the Department within seven days of receipt of the results and have analyzed an additional confirmation sample collected from the same sampling point within fourteen days. The average of the two samples shall be used to determine the compliance level. If more than the minimum number of samples are collected during a compliance period, the average of the values will be used as the compliance level.

1. Compliance with MCLs will be determined based on the analytical result(s) obtained at each sampling point. If one sampling point is in violation of an MCL, the system is in violation of the MCL.

2. For systems monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point. If the average of any sampling point is greater than the MCL, then the system is out of compliance with the MCL. If any one sample would cause the annual average to be exceeded, then the system is out of compliance immediately.

3. For systems monitoring annually or less frequently, if any sample result exceeds the MCL at any sample point, the system is out of compliance with the MCL.

4. Systems must include all samples taken and analyzed under the provisions of this rule in determining compliance, even if that number is greater than the minimum required.

5. If a system does not collect all required samples when compliance is based on a running annual average of quarterly samples, compliance will be based on the running average of the samples collected.

6. If a sample result is less than the detection limit, zero will be used to calculate the annual average.

(h) Arsenic sampling results shall be reported to the nearest 0.001 mg/L

(i) All new systems or systems that use a new source of water must demonstrate compliance with the MCL by monitoring the first year of operation. Monitoring conducted to allow a new source to be utilized may be substitute for this initial sample. Routine and increased monitoring frequencies shall be conducted in accordance with the requirements of this rule.

(j) Community and NTNC water systems may apply to the Department for a waiver from monitoring inorganic chemicals other than asbestos, nitrates, and nitrites. Issuance of the waiver shall be based on established vulnerability criteria, results of water analysis and a demonstration by the system of no use, transport, storage or disposal in the watershed or Source Water Assessment Areas I and II. The waiver, if granted, shall be in effect for two compliance periods and the system must reapply for the waiver every two compliance periods. A system must collect one sample at each sampling point for inorganic chemicals other than asbestos, nitrates, and nitrites during the time frame the waiver is in effect.

Author: Joe Alan Power, Thomas S DeLoach, Edgar K. Hughes, Dennis D. Harrison

Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.

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335-7-2-.04 Synthetic Organic Chemical (SOCs) Standards And Monitoring Requirements.

(1) The following are the MCLs for SOCs:

CONTAMINANT	**MCL in mg/L**
Alachlor	0.002
Atrazine	0.003
Carbofuran	0.04
Chlordane	0.002
Dibromochloropropane	0.0002
2,4-D	0.07
Endrin	0.002
Ethylene Dibromide	0.00005
Heptachlor	0.0004
Heptachlor Epoxide	0.0002
Lindane	0.0002
Methoxychlor	0.04
Polychlorinated Biphenyls	0.0005
Pentaclorophenol	0.001
Toxaphene	0.003
2,4,5-TP	0.05
Benzo(a)pyrene	0.0002
Dalapon	0.2
Di(2-ethylhexyl) phthalate	0.006
Di(2-ethylhexyl) adipate	0.4
Dinoseb	0.007
Diquat	0.02
Endothall	0.1
Glyphosate	0.7
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Oxamyl (Vydate)	0.2
Picloram	0.5
Simazine	0.004
2,3,7,8-TCDD (Dioxin)	0.00000003

(2) The following are the monitoring requirements for SOCs:

(a) Community and NTNC water systems shall analyze for SOCs at the frequency listed below. Samples shall be collected during periods of normal operating conditions from the entry point to the distribution system for each surface source or from the entry point to the distribution system representing each source of water used after any application of treatment. Samples shall be collected during the period most susceptible to pesticide contamination. Raw water analysis may be used to determine compliance if no treatment processes are used for the reduction of SOCs.

1. Community and NTNC water systems serving a population of less than or equal to 3,300 persons must collect one sample during each repeat compliance period if no SOCs were detected in the initial compliance period.

2. Community and NTNC water systems serving a population of greater than 3,300 persons must collect a minimum of two quarterly samples in one year during each repeat compliance period if no SOCs were detected in the initial compliance period.

(b) Community and NTNC water systems using water from more than one source and blending prior to the entry point to the distribution system must sample at the entry point to the distribution system during periods of normal operating conditions. Sampling of raw water from each source may be required if a contaminant is detected.

(c) Community and NTNC water systems shall sample all new sources for SOCs for four consecutive quarters. The system may apply for a waiver for the new source after two quarters of monitoring for any SOC which has not been detected above the monitoring trigger.

(d) Confirmation samples may be required by the Department to confirm a negative or positive result. Confirmation samples must be collected from a point representing the source and unless investigation proves initial samples were contaminated because of conditions at the sampling site or because of sampling procedure the confirmation results will be averaged with the initial results to determine compliance.

(e) Community and NTNC water systems may apply to the Department for a waiver from monitoring of any SOC. The waiver application should demonstrate lack of transport, storage and disposal of the contaminant in the watershed or Source Water Assessment Areas I and II as identified by the Alabama Wellhead Protection Plan. The waiver if granted shall be in effect for one compliance period and the system must reapply for the waiver for each compliance period. Reduced initial monitoring may be allowed during the compliance period for the SOCs for which the waiver is granted.

(f) The Department may require analysis of SOCs during a specific quarter of the year.

(g) The Department has the authority to determine compliance based on analytical results and other information compiled by Department staff.

(h) Non-compliance with any SOC MCL will occur when:

1. For systems monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point.

2. Any sample analysis exceeds the MCL, if monitoring is being conducted annually or less.

3. If one sampling point is in violation of an MCL, the system is in violation of the MCL.

(i) Upon exceeding the MCL, the system must establish a treatment process using the EPA approved best available technology to achieve compliance with the MCL or cease using the source of supply in conjunction with a Department issued compliance schedule.

(j) Repeat samples must be analyzed according to the following schedule:

1. If an SOC is detected above the monitoring trigger, community and NTNC water systems must monitor quarterly for the particular SOC which is detected. If related contaminants (heptachlor and heptachlor epoxide) are detected, then subsequent monitoring shall analyze for all related compounds.

2. Monitoring may be reduced to annually if the average of all analytical results within the past two years is less than one half the MCL and no analytical result within the past two years exceeds 75% of the MCL. Groundwater systems shall analyze a minimum of two quarterly samples and surface water systems a minimum of four quarterly samples.

3. Community and NTNC water systems which have three consecutive annual sample results with no detection of a SOC may apply to the Department for a waiver according to the criteria listed in rule 335-7-2-.19.

4. Systems serving a population of less than or equal to 3,300 persons and which are granted a waiver for a SOC which has been previously detected must collect a minimum of one sample during each repeat compliance period.

5. Systems serving a population of greater than 3,300 persons and which are granted a waiver for a SOC which has been previously detected must collect a minimum of two quarterly samples in one year during each repeat compliance period.

6. Community and NTNC water systems which exceed the MCL for a SOC shall analyze quarterly for that contaminant beginning in the next quarter after the violation occurred. Sampling may be reduced to annually if the average of all analytical results within the past two years is less than one half of the MCL and no analytical result within the past two years exceeds 75% of the MCL. All community and NTNC water systems must analyze a minimum of four quarterly samples.

7. All repeat samples shall be collected at the sampling point where the detection occurred.

(k) If a system fails to collect the required number of samples, compliance will be based on the total number of samples collected.

(l) If a sample result is less than the detection limit, zero will be used to calculate the annual average.

Author: Joe Alan Power, Thomas S. DeLoach, Edgar K. Hughes, Dennis D. Harrison
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
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335-7-2-.05 Volatile Synthetic Organic Chemicals (VOCs) Standards and Monitoring Requirements.

(1) The following are the MCLs for VOCs:

CONTAMINANT	**MCL (mg/L)**
Benzene	0.005
Carbon Tetrachloride	0.005
1,2-dichloroethane	0.005
Trichloroethylene	0.005
para-dichlorobenzene	0.075

CONTAMINANT	MCL (mg/L)
1,1-dichloroethylene	0.007
1,1,1-trichloroethane	0.2
Vinyl chloride	0.002
cis-1,2-Dichloroethylene	0.07
1,2-Dichloropropane	0.005
Ethylbenzene	0.7
Monochlorobenzene	0.1
O-Dichlorobenzene	0.6
Styrene	0.1
Tetrachloroethylene	0.005
Toluene	1
Trans-1,2-Dichloroethylene	0.1
Xylene (Total)	10
Dichloromethane	0.005
1,2,4-Trichlorobenzene	0.07
1,1,2-Trichloroethane	0.005

(2) The following are the monitoring requirements for VOCs:

(a) Community and NTNC water systems shall analyze for each VOC during each three year monitoring period if no regulated VOC has been detected in the past. Samples shall be collected during periods of normal operating conditions from the entry point to the distribution system representing each source of water used after any application of treatment. Raw water analysis may be used to determine compliance if no treatment processes are used for the reduction of VOCs.

(b) Community and NTNC water systems shall sample all new sources for VOCs for four consecutive quarters. The system may apply for a waiver for the new source after two quarters of monitoring for any VOC which has not been detected above the monitoring trigger.

(c) Community and NTNC water systems using water from more than one source and blending prior to the entry point to the distribution system must sample at the entry point to the distribution system during periods of normal operating conditions. Sampling of raw water from each source may be required if a contaminant is detected.

(d) Confirmation samples may be required by the Department to confirm a negative or positive result. Confirmation samples must be collected from a point representing the source and unless investigation proves initial samples were contaminated because of conditions at the sampling site or sampling procedures, the confirmation results will be averaged with the initial results to determine compliance.

(e) Community and NTNC water systems may apply to the Department for a waiver from monitoring VOCs. Issuance of the

waiver shall be based on established vulnerability criteria, results of water analysis and a demonstration by the system of no use, transport, storage or disposal in the watershed or Source Water Assessment Areas I and II. The waiver, if granted, shall be in effect for two compliance periods and the system must reapply for the waiver every two compliance periods. A system must collect one sample at each sampling point for a VOC analysis during the time frame the waiver is in effect and update the vulnerability assessment within three years after the waiver is granted.

(f) The Department may require analysis of VOCs during a specific quarter of the year.

(g) The Department has the authority to determine compliance based on analytical results and other information compiled by Department staff.

(h) Non compliance with any regulated VOC MCL will occur when:

1. For systems monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point.

2. Any sample analysis exceeds the MCL, if monitoring is being conducted annually or less frequently.

3. Upon exceeding the MCL, the system must establish a treatment process using the EPA approved best available technology to achieve compliance with the MCL or phase out using the source of supply in conjunction with a Department-issued compliance schedule.

4. If one sampling point is in violation of an MCL, the system is in violation of the MCL.

(i) Repeat samples must be analyzed after initial sampling has been completed according to the following schedule:

1. Community and NTNC water systems shall monitor for VOCs annually if no regulated VOCs are detected above the monitoring trigger in the initial compliance monitoring.

2. Monitoring may be reduced to one sample per compliance period for ground water systems if no regulated VOCs are detected above the monitoring trigger after a minimum of three years of annual sampling.

3. Monitoring may be reduced to one sample per compliance period for surface water systems if no regulated VOCs are detected above the monitoring trigger after a minimum of three years of annual sampling and the system is

determined to be non-vulnerable according to previously approved EPA criteria.

4. If a regulated VOC is detected above the monitoring trigger, community and NTNC water systems must monitor quarterly for VOCs. The system will not be considered in violation of the MCL until it has completed one year of quarterly sampling.

5. Monitoring may be reduced to annually if the average of all analytical results within the past two years is less than one-half of the MCL and no analytical result within the past two years exceeds 75% of the MCL. Groundwater systems shall analyze a minimum of two quarterly samples and surface water systems a minimum of four quarterly samples.

6. Community and NTNC water systems which exceed the MCL for a regulated VOC shall analyze quarterly for that contaminant beginning in the next quarter after the violation occurred. Sampling may be reduced to annually if the average of all analytical results within the past two years is less than one-half of the MCL and no analytical result within the past two years exceeds 75% of the MCL. All community and NTNC water systems must analyze a minimum of four quarterly samples.

7. Community and NTNC water systems which have three consecutive annual sample results with no detection of a regulated volatile organic chemical may apply to the Department for a waiver according to the criteria listed in this chapter.

8. All repeat samples shall be collected at the sampling point where detection occurred.

9. Systems which have detected one or more of the following two-carbon organic compounds: trichloroethylene, tetrachloroethylene, 1,2 dichloroethane, 1,1,1-trichloroethane, cis-1,2 dichloroethylene, trans-1,2-dichloroethylene, or 1,1-dichloroethylene shall monitor quarterly for vinyl chloride. A vinyl chloride sample shall be taken at each sampling point at which one or more of the two-carbon organic compounds were detected. If the results of the first analysis do not detect vinyl chloride, the system shall collect one sample during each compliance period.

(j) Consecutive systems which obtain all of their water from a public water system are exempt from monitoring for the regulated VOCs.

(k) If a system fails to collect the required number of samples, compliance will be based on the total number of samples collected.

(l) If a sample result is less than the detection limit, zero will be used to calculate the annual average.

Author: Dennis D. Harrison
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
History: **New Rule:** Filed December 18, 2007; effective January 22, 2008.

335-7-2-.06 Turbidity Standards And Monitoring Requirements.

(1) Public water systems must meet the following levels for turbidity:

(a) Water systems using surface sources or groundwater sources under the direct influence of a surface water source must provide a filtration process to produce a filtered water turbidity no greater than 0.3 turbidity units (NTU) in 95% of filtered water samples analyzed each month and at no time exceeds 1.0 NTU. Should a turbidity treatment technique violation occur, public notification is required and the Department must be notified within 24 hours. If the Department is not notified within 24 hours, an acute violation occurs and the system must provide public notification within 24 hours.

(b) All other groundwater sources must produce treated water which at no time exceeds 5.0 NTU.

(c) Any system failing to meet these standards violates treatment technique requirements and shall provide public notification using appropriate language from Appendix C within 30 days.

(2) Turbidity monitoring and recording requirements for surface sources and ground water under the influence of surface water:

(a) Samples of the raw water shall be collected at least every other hour the plant is in operation and analyzed for turbidity. Samples from each clarification unit shall be collected and analyzed for turbidity every four hours the plant is in operation. Filtered water shall be analyzed for turbidity every 15 minutes from each filter that is in operation and the result recorded and maintained for 5 years. Each filter in service must be equipped with a continuous turbidity monitoring and recording analyzer. All turbidimeters must be calibrated and standardized according to standard methods and the procedure specified by the manufacturer and in accordance with EPA's standard methods. Results from the

continuous turbidity monitoring analyzer may be used to demonstrate compliance with these standards if records are maintained at the plant that confirm proper calibration of this instrument in accordance with manufactures recommendation and which show that the accuracy of continuous turbidity monitoring analyzers is verified weekly and bench turbidimeters is verified daily.

(b) If there is a failure in the continuous turbidity monitoring equipment, a grab sample must be collected every two hours in lieu of continuous monitoring, but for no more than five working days following the failure of the equipment. Systems must notify the Department within 48 hours of any failure in the continuous turbidity monitoring equipment that lasts for more than eight hours.

(c) Turbidity results must be logged on a daily operation report and the highest value determined during that operating day recorded on the monthly operation data report. Should any filtered water turbidity values exceed 0.3 NTU, the site shall be resampled within 15 minutes and if this repeat sample also exceeds 0.3 NTU, the Department shall be notified of the filter numbers, values, date and time within 24 hours of the occurrence. A filter self-assessment must be conducted within 14 days and a report submitted to the Department on any filter where the filtered water turbidity exceeds 0.5 NTU at any time unless it can be demonstrated to the Department the exceedance is due to other than ineffective treatment and filter performance. The minimum requirements for the filter self-assessment report are: an assessment of filter performance, a filter profile, identification and prioritization of factors limiting filter performance and an assessment of the applicability of corrections.

(d) If a turbidity measurement of filter effluent from any filter is greater than 0.5 NTU in two consecutive measurements taken 15 minutes apart at any time in each of two consecutive months, the system must report the filter number, the turbidity measurement, and the dates on which the exceedance occurred. In addition, the system must arrange for a comprehensive performance evaluation (CPE) to be conducted by a party approved by the Department with adequate CPE training no later than 30 days following the exceedance and have the evaluation completed and submitted to the Department no later than 90 days following the exceedance. Within 45 days following Department approval of the CPE report, the system shall submit a written report outlining corrective measures to address the performance limiting factors identified by the CPE. The submittal shall contain an implementation schedule acceptable to the Department.

(e) Operation data reports showing daily levels of turbidity shall be provided to the Department within ten days after the

end of each month. The total number of monthly turbidity measurements of the filtered water, the total number of measurements of the filtered water exceeding 0.3 NTU and the percentage of the filtered water measurements exceeding 0.3 NTU shall be reported.

(3) Public water systems using only groundwater and which are required to monitor for turbidity by the Department shall analyze and record the results of at least one turbidity measurement each day the source is in operation. Continuous turbidity monitoring devices may be used and the highest value indicated each day must be listed on the operational data report.

(a) Should any turbidity result of the finished or filtered water exceed 5.0 NTU, that site shall be resampled within 60 minutes and if this result exceeds 5.0 NTU, the Department shall be notified within 24 hours. If the average of these samples exceeds 5.0 NTU, the standard is exceeded. Public notification must be made, unless the source is immediately taken out of service after the second sample.

(b) Turbidity measurements must be reported to the Department within ten days after the end of each month.

Author: Joe Alan Power, Thomas D. DeLoach, Edgar K. Hughes, Dennis D. Harrison
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335-7-2-.07 Microbiological Standards And Monitoring Requirements.

(1) Public water systems will be in compliance with the *E. coli* MCL unless any of the conditions identified below exist:

(a) The system has an *E. coli* positive repeat sample following a total coliform positive routine sample.

(b) The system has a total coliform positive repeat sample following an *E. coli* positive routine sample.

(c) The system fails to take all required repeat samples following an *E. coli* positive routine sample.

(d) The system fails to test for *E. coli* when any repeat sample tests positive for total coliform.

(2) Water systems are required to monitor for microbiological contaminants at sites which are representative of water throughout a distribution system during any month of operation according to a written sample plan acceptable to the Department. All routine and repeat compliance samples showing total coliform positive must be analyzed for *E. coli* bacteria. If *E. coli* is present, the system must notify the Department no later than the end of the day the results are provided to the system, unless the system is notified of the result after the working hours of the Department and the Department does not have either an after-hours phone line or an alternative notification procedure, in which case the system must notify the Department before the end of the next business day. Failure to notify the Department following an *E. coli*-positive sample in a timely manner is a reporting violation of subparagraph 335-7-10-.06(13)(b). The residual disinfectant concentration must be measured at least at the same points in the distribution system and at the same time as total coliforms are sampled. The Department may allow a public water system which uses both a surface water source or a ground water source under direct influence of surface water, and a ground water source, to take disinfectant residual samples at points other than the total coliform sampling points if the Department determines that such points are more representative of treated (disinfected) water quality within the distribution system. Systems must provide the results of monthly bacteriological monitoring to the Department. Samples invalidated by the Department cannot be used to demonstrate compliance with this rule. Water systems must have analyzed a minimum number of monthly routine distribution compliance samples based on the population shown in the following chart:

POPULATION SERVED	**COMPLIANCE SAMPLES**
25 - 2,500	2
2,501 - 3,300	3
3,301 - 4,100	4
4,101 - 4,900	5
4,901 - 5,800	6
5,801 - 6,700	7
6,701 - 7,600	8
7,601 - 8,500	9

POPULATION SERVED	COMPLIANCE SAMPLES
8,501 - 12,900	10
12,901 - 17,200	15
17,201 - 21,500	20
21,501 - 25,000	25
25,001 - 33,000	30
33,001 - 41,000	40
41,001 - 50,000	50
50,001 - 59,000	60
59,001 - 70,000	70
70,001 - 83,000	80
83,001 - 96,000	90
96,001 - 130,000	100
130,001 - 220,000	120
220,001 - 320,000	150
320,001 - 450,000	180
450,001 - 600,000	210
600,001 - 780,000	240
780,001 - 970,000	270
970,001 - 1,230,000	300

(3) Public water systems shall collect bacteriological compliance samples at regular time intervals throughout the month. Systems required to collect five or fewer distribution compliance samples in one month and only use ground water may collect all required samples on a single day if they are taken from different sites. Systems required to collect more than five distribution compliance samples in one month shall not collect all of their samples on the same day. A system may conduct more compliance monitoring than is required by this subpart to investigate potential problems in the distribution system and use monitoring as a tool to assist in uncovering problems. A system may take more than the minimum number of required routine and repeat samples and must include the results in calculating whether the coliform treatment technique trigger has been exceeded only if the samples are taken in accordance with the existing sample siting plan and are representative of water throughout the distribution system.

(4) Special samples may be required to provide information regarding the quality of raw water from existing and proposed sources and to determine whether disinfection practices following water main installation or repair is sufficient. Raw or plant water samples shall be taken at a frequency established by the Department. Neither raw samples nor special samples will be used to determine compliance with the microbiological drinking water

standards. Repeat samples are not considered special purpose samples, and must be used to determine whether the coliform treatment technique trigger has been exceeded.

(5) Repeat samples shall be collected according to the following requirements:

(a) If a routine compliance sample is total coliform positive the public water system must collect a set of repeat samples within 24 hours of being notified of the positive results unless a time extension is obtained from the Department. No fewer than three repeat samples must be obtained for each total coliform positive sample found.

(b) Community water systems must collect at least one repeat sample from the sampling tap where the original total coliform positive sample was taken and at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. The Department may waive the requirement to collect the downstream sample should the original sample be collected at the end of a distribution line. If the downstream sample is waived, one additional sample must be taken upstream at a location within five service connections upstream of the original sampling site.

(c) Transient non-community and NTNC water systems must collect at least one repeat sample from the sampling tap where the original total coliform positive sample was taken and at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. The Department may allow alternative sample locations in lieu of the requirement to collect at least one repeat sample upstream or downstream of the original sample site. The alternative sample locations must be included in the site sampling plan required by paragraph 335-7-2-.07(6).

(d) The system must collect all repeat samples on the same day except a system with a single service connection may be allowed by the Department to collect the required set of repeat samples over a three-day period.

(e) If one or more repeat samples in a set is total coliform positive, the public water system must collect an additional set of repeat samples for each positive sample required above. The additional samples must be collected within 24 hours of being notified of the positive result. The system must repeat this process until either total coliforms are not detected in one complete set of repeat samples or the system exceeds the treatment technique trigger for total coliforms and notifies the Department.

(f) Systems may propose repeat monitoring locations to the Department that the system believes to be representative of a pathway for contamination of the distribution system. A system may elect to specify either alternative fixed locations or criteria for selecting repeat sampling sites on a situational basis in a standard operating procedure (SOP) in its sample siting plan. The system must design its SOP to focus the repeat samples at locations that best verify and determine the extent of potential contamination of the distribution system area based on specific situations. The Department may modify the SOP or require alternative monitoring locations as needed.

(g) Ground water systems serving 1,000 or fewer people may propose repeat sampling locations to the Department that differentiate potential source water and distribution system contamination. A ground water system with a single well required to conduct triggered source water monitoring may, with written Department approval, take one of its repeat samples at the monitoring location required for triggered source water monitoring if the system demonstrates to the Department's satisfaction that the sample siting plan remains representative of water quality in the distribution system. If approved by the Department, the system may use that sample result to meet the monitoring requirements for both the groundwater rule and this rule.

1. If a repeat sample taken at the monitoring location required for triggered source water monitoring is *E. coli*-positive, the system has violated the *E. coli* MCL. If a system takes more than one repeat sample at the monitoring location required for triggered source water monitoring, the system may reduce the number of additional source water samples by the number of repeat samples taken at that location that were not E. coli-positive.

2. If a system takes more than one repeat sample at the monitoring location required for triggered source water monitoring, and more than one repeat sample is *E. coli*-positive, the system has violated the *E. coli* MCL.

3. If all repeat samples taken at the monitoring location required for triggered source water monitoring are *E. coli*-negative and a repeat sample taken at a monitoring location other than the one required for triggered source water monitoring is *E. coli*-positive, the system has violated the *E. coli* MCL.

4. The system must demonstrate that the alternate repeat sampling sites identified in their sample site plan remains representative of the water quality in the distribution system. The Department may determine that monitoring at the entry point to the distribution system

(especially for undisinfected ground water systems) is effective to differentiate between potential source water and distribution system problems.

(h) The system must demonstrate that the alternate repeat sampling sites identified in their sample site plan remains representative of the water quality in the distribution system. The Department may determine that monitoring at the entry point to the distribution system (especially for undisinfected ground water systems) is effective to differentiate between potential source water and distribution system problems.

(6) Systems must develop a written sample siting plan that identifies sampling sites and a sample collection schedule that are representative of water throughout the distribution. These plans are subject to Department review and revision. Systems must collect total coliform samples according to the written sample siting plan. Routine and repeat sample sites and any sampling points necessary to meet the requirements of the groundwater rule must be included in the sampling plan.

(7) All seasonal systems must demonstrate completion of a Department-approved start-up procedure, which may include a requirement for start-up sampling prior to serving water to the public. Seasonal system may be exempt from some or all of the requirements for seasonal systems if the entire distribution system remains pressurized during the entire period that the system is not operating. A treatment technique violation will occur when a seasonal system fails to complete a Department-approved start-up procedure prior to serving water to the public. Failure to submit certification of completion of Department-approved start-up procedure by a seasonal system is a reporting violation.

Author: Joe Alan Power, Thomas S. DeLoach, Edgar K. Hughes, Dennis D. Harrison

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335-7-2-.08 Radionuclide Standards And Monitoring Requirements.

(1) To determine compliance with the MCLs for natural radionuclides in picocuries per liter (pCi/L) listed below, the averages of data shall be used and shall be rounded to the same number of significant figures as the MCL for the contaminant in question:

Contaminant	**MCL**
Gross alpha particle	15 pCi/L)[1]
Combined radium-226 and radium-228	5 pCi/L
Uranium	30 µg/L

[1]Includes radium 226 but excludes radon & uranium:

(2) The MCLs for manmade radionuclides are:

Contaminant	**MCL**
Tritium	20,000 pCi/L
Strontium 90	8 pCi/L
Beta particle and photon	4 millirem/year radioactivity

(3) To determine compliance the detection limits shall not exceed the concentrations listed below:

Contaminant	**Detection Limit**
Gross Alpha Particle Activity	3 pCi/L
Radium 226	1 pCi/L
Radium 228	1 pCi/L
Uranium	1 µg/L
Tritium	1,000 pCi/L
Strontium-89	10 pCi/L
Strontium-90	2 pCi/L
Iodin-131	1 pCi/L
Cesium 134	10 pCi/L
Gross Beta	4 pCi/L
Other Radionuclides	1/10 of the MCL

(4) Monitoring requirements for gross alpha particle activity, radium-226, radium-228 and Uranium in community water systems are as follows:

(a) Initial monitoring for all community system sources to determine compliance for naturally occurring radionuclides shall be completed by December 31, 2007. Community water systems utilizing surface and/or groundwater sources shall monitor at every entry point to the distribution system that is representative each source of water used after any application of treatment. Community water systems using water from more than one source and blending prior to the entry point to the distribution system must sample at the entry point to the distribution system during periods of normal operating conditions. Sampling of raw water from each source may be required if a contaminant is detected. New community water systems or community water systems that use a new source of water must begin monitoring in the first quarter after initiating use of the source. Community water systems must conduct more frequent monitoring if there are conditions determined by the Department that may increase the concentration of radioactivity in finished water. All samples collected from each entry point must be collected at the same sampling point.

1. Systems without acceptable previous monitoring data must monitor for four consecutive quarters at all sampling points before December 31, 2007.

2. Appropriate monitoring data from each entry point for the last compliance monitoring period that began between June 2000 and December 8, 2003 may be used to satisfy initial monitoring requirements.

3. The Department may waive the final two quarters of initial monitoring if the results of the monitoring from the previous two quarters are below the detection limit.

4. A gross alpha particle activity measurement may be substituted for the required radium-226 analyses, provided that the measured gross alpha particle activity does not exceed five pCi/L. A gross alpha particle activity measurement may be substituted for the required Uranium analyses, provided that the measured gross alpha particle activity does not exceed 15 pCi/L. A gross alpha measurement shall have a confidence level of 95 percent (1.65σ, where σ is the standard deviation of the net counting rate of the sample) for Radium 226 and Uranium. When a system uses a gross alpha particle activity measurement in lieu of a radium-226 and/or uranium measurement, the gross alpha particle activity analytical result will be used to determine the future monitoring frequency for radium-226 and/or uranium. If the gross alpha particle activity result is less than detection, one half the detection limit will be used to determine compliance and the future monitoring frequency.

(b) Community water systems may reduce monitoring for naturally occurring radionuclides after completing initial monitoring requirements.

1. If the average of the initial monitoring results for each contaminant (gross alpha particle activity, uranium, radium-226, or radium-228) is below the detection limit, the system must monitor for that contaminant at that sampling point every nine years.

2. For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is at or above the detection limit but at or below one half the MCL, the system must monitor for that contaminant at the sampling point every six years. For combined radium-226 and radium-228, the analytical results must be combined. If the average of the combined initial monitoring results for radium-226 and radium-228 is at or above the detection limit but at or below one half the MCL, the system must monitor for that contaminant at the sampling point every six years.

3. For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is above one half the MCL but at or below the MCL, the system must monitor for that contaminant at the sampling point every three years. For combined radium-226 and radium-228, the analytical results must be combined. If the average of the combined initial monitoring results for radium-226 and radium-228 is above one half the MCL but at or below the MCL, the system must monitor for that contaminant at the sampling point every three years.

4. Systems must use the analytical results from the previous reduced monitoring period to determine the monitoring frequency for subsequent monitoring periods (e.g., if a system's sampling point is on a nine year monitoring period, and the sample result is above on half the MCL, then the next monitoring period for that sampling point is three years).

5. If a system has a monitoring result that exceeds the MCL while on reduced monitoring, the system must monitor quarterly at that sampling point until the system has results from four consecutive quarters that are below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the Department.

(c) If the average annual MCL for gross alpha particle activity, Radium 226, Radium 228 or Uranium is exceeded, the supplier of a community water system shall notify the Department and provide public notification. The system shall

monitor quarterly at the monitoring point until results from four consecutive quarters are at or below the MCL or until a monitoring schedule as a condition to an exemption or enforcement action shall become effective. Upon exceeding the MCL, the system must establish a treatment process using the EPA approved best available technology to achieve compliance with the MCL or cease using the source of supply in conjunction with a Department issued compliance schedule.

(5) Monitoring requirements for man-made radioactivity in community and NTNC water systems are as follows:

(a) Community water systems determined by the Department to be vulnerable shall monitor for beta particle and photon radioactivity. Systems must monitor quarterly for beta emitters and annually for tritium and strontium-90 at each entry point to the distribution system beginning within one quarter after being notified by the Department.

1. If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 50 pCi/L, the Department may reduce the frequency of monitoring at that sampling point to once every 3 years. Systems must collect all the samples required in the previous paragraph during the reduced monitoring period.

2. If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity exceeds 50 pCi/L, an analysis of the sample must be performed to identify the major radioactive constituents present and the appropriate organ and total body doses shall be calculated to determine compliance. Doses must also be calculated and combined for measured levels of tritium and strontium to determine compliance.

3. Community water systems designated by the Department to monitor for beta particle and photon radioactivity cannot apply to the Department for a waiver from the specified listed above.

4. Community water systems may analyze for naturally occurring potassium-40 beta particle activity from the same or equivalent sample used for the gross beta particle activity analysis. Systems are allowed to subtract the potassium-40 beta particle activity value from the total gross beta particle activity value to determine if the screening level of 50 pCi/L is exceeded. The potassium-40 beta particle activity must be calculated by multiplying elemental potassium concentrations (in mg/L) by a factor of 0.82.

(b) Community water systems utilizing water contaminated by effluents from nuclear facilities shall monitor quarterly for gross beta particle and iodine-131 radioactivity and annually for strontium-90 and tritium at each entry point to the distribution system beginning within one quarter after being notified by the Department.

1. Quarterly monitoring for gross beta particle activity shall be based on the analyses of monthly samples

2. For iodine-131, a composite of five consecutive daily samples shall be analyzed once each quarter. As ordered by the Department, more frequent monitoring shall be conducted when iodine-131 is identified in the finished water.

3. Annual compliance for strontium-90 and tritium shall be based on the analyses of four quarterly samples.

4. If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 15 pCi/L, the Department may reduce the frequency of monitoring at that sampling point to every 3 years. Systems must collect all the samples required in this paragraph (b) during the reduced monitoring period.

5. The Department may allow the substitution of environmental surveillance data taken in conjunction with a nuclear facility for direct monitoring of man-made radioactivity by the supplier of water where the Department determines such data are applicable to a particular water system. In the event that there is a release from a nuclear facility, systems that are using surveillance data must begin monitoring at the community water system's entry point(s) in accordance with paragraph (5)(a) or (b)of this rule.

6. If the average annual MCL for man-made radioactivity is exceeded, the supplier of water shall give notice to the Department and to the public. Monitoring at monthly intervals shall be continued until the concentration no longer exceeds the MCL as established by a rolling average of three monthly samples, or until a monitoring schedule as a condition of an exemption or enforcement action shall become effective. Systems who establish that the MCL is being met must return to quarterly monitoring until they meet the requirements set forth in this rule. Upon exceeding the MCL, the system must establish a treatment process using the EPA approved best available technology to achieve compliance with the MCL or cease

using the source of supply in conjunction with a Department issued compliance schedule.

(c) General monitoring and compliance requirements for radionuclides.

1. The Department may require more frequent monitoring than specified in this rule, or may require confirmation samples at its discretion. The results of the initial and confirmation samples will be averaged for use in compliance determinations.

2. Each public water system shall monitor at the time designated by the Department during each compliance period.

3. Compliance with radionuclide MCLs will be determined based on the analytical result(s) obtained at each sampling point. If one sampling point is in violation of an MCL, the system is in violation of the MCL.

(i) For systems monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point. If the average of any sampling point is greater than the MCL, then the system is out of compliance with the MCL.

(ii) For systems monitoring more than once per year, if any sample result will cause the running average to exceed the MCL at any sample point, the system is out of compliance with the MCL immediately.

(iii) Systems must include all samples taken and analyzed under the provisions of this rule in determining compliance, even if that number is greater than the minimum required.

(iv) If a system does not collect all required samples when compliance is based on a running annual average of quarterly samples, compliance will be based on the running average of the samples collected.

(v) If a sample result is less than the detection limit, zero will be used to calculate the annual average, unless a gross alpha particle activity is being used in lieu of radium-226 and/or uranium. If the gross alpha particle activity result is less than detection, one half the detection limit will be used to calculate the annual average.

(6) The Department has the discretion to delete results of obvious sampling or analytic errors.

Author: Joe Alan Power, Thomas S. DeLoach, Edgar K. Hughes, Dennis D. Harrison
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335-7-2-.09 Maximum Residual Disinfectant Levels And Monitoring Requirements (MRDLs).

(1) The following are the MRDLs:

Disinfectant	MRDL in mg/L
Chlorine	4.0 (as Cl2)
Chloramines	4.0 (as Cl2)
Chlorine Dioxide	0.8 (as ClO2)

(2) Community and NTNC water systems measure for disinfectant residuals.

(a) Systems that use either chlorine or chloramines as a primary or secondary disinfectant must measure the disinfectant levels at the time and location of monthly distribution microbiological samples that are collected to determine compliance with the total coliform rule.

(b) Community, NTNC, and transient noncommunity water systems using chlorine dioxide must measure the chlorine dioxide level daily at the entrance to the distribution system. On each day following a daily sample monitoring result that exceeds the MRDL, the system is required to take three chlorine dioxide distribution system samples. If chlorine dioxide or chloramines are used to maintain a disinfectant residual in the distribution system, or if chlorine is used to maintain a disinfectant residual in the distribution system and there are no disinfection addition points after the entrance to the distribution system, the system must collect three samples as close to the first customer as possible, at intervals of at least six hours. If chlorine is used to maintain a disinfectant residual in the distribution system and there are one or more disinfection addition points after the entrance to

the distribution system, the system must collect one sample as close to the first customer as possible, one sample at a location representative of average residence time, and one sample representative of the maximum residence time in the distribution system.

(c) Non-compliance with the chlorine or chloramine MRDL will occur when the running annual average of monthly samples, computed quarterly, exceeds the MCL. When a water system switches between chlorine and chloramines, the average of all results must be used and the disinfectant utilized recorded on all monitoring reports. If a system fails to complete 12 consecutive months' monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

(d) Acute non-compliance with the chlorine dioxide MRDL will occur when any daily sample taken at the entrance to the distribution system exceeds the MRDL and on the following day one or more of the three samples taken in the distribution system exceed the MRDL or the system fails to collect samples in the distribution system the day following an exceedance of the chlorine dioxide MRDL at the entrance to the distribution system. The system must also take immediate corrective action to lower the level of chlorine dioxide below the MRDL. Nonacute non-compliance with the chlorine dioxide MRDL will occur when any two consecutive daily samples collected at the entrance to the distribution system exceed the MRDL and all distribution system samples collected are below the MRDL or the system fails to collect samples at the entrance to the distribution system the day following an exceedance of the chlorine dioxide MRDL. The system must also take corrective action to lower the level of chlorine dioxide below the MRDL at the point of sampling.

Author: Thomas S. DeLoach, Edgar K. Hughes, Dennis D. Harrison
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335-7-2-.10 Special Monitoring And Analytical Requirements For Unregulated Contaminants.

(1) All community and NTNC water systems shall monitor for the following:

Unregulated/Miscellaneous SOCs	
Aldicarb	Dieldrin
Aldicarb Sulfone	3-Hydroxycarbofuran
Aldicarb Sulfoxide	Methomyl
Aldrin	Metolachlor
Butachlor	Metribuzin
Carbaryl	Propachlor
Dicamba	

Unregulated VOCs	
Bromobenzene	Dichlorodifluoromethane
Bromochloromethane	1,3-Dichloropropane
Bromodichloromethane	2,2-Dichloropropane
Bromoform	1,1-Dichloropropene
Bromomethane	1,3-Dichloropropene
n-Butylbenzene	Fluorotrichloromethane
sec-Butylbenzene	Hexachlorobutadiene
tert-Butylbenzene	Isopropylbenzene
Chlorodibromomethane	p-Isopropyltoluene
Chloroethane	Methyl Tertiary Butyl Ether (MTBE)
Chloroform	Naphthalene
Chloromethane	n-Propylbenzene
o-Chlorotoluene	1,1,2,2-Tetrachloroethane
p-Chlorotoluene	1,2,3-Trichlorobenzene
Dibromomethane	1,2,4-Trichlorobenzene
m-Dichlorobenzene	1,2,3-Trichloropropane
1,1-Dichloroethane	1,2,4-Trimethylbenzene
	1,3,5-Trimethylbenzene

(2) The following are the monitoring requirements for the unregulated contaminants:

(a) All community and NTNC water systems shall sample for unregulated SOCs at the same sampling point and at the same time as the initial samples are collected for the analysis of the regulated SOCs.

(b) All community and NTNC water systems shall collect one sample at each sampling point for the unregulated inorganic chemicals at the same time as samples are collected for the analysis of the regulated inorganic chemicals.

(c) The monitoring frequency and analytical requirements for the unregulated and regulated VOCs shall be the same.

(d) Any water system required to monitor by this rule shall notify persons served by the system of the availability of the results of sampling. Results of such monitoring and notice shall be provided to the Department within 30 days of completion.

(e) The Department may increase monitoring where necessary to detect variations within a water system.

(f) In addition to the contaminants listed at paragraph (1) of this rule, the Department may require monitoring for other contaminants of concern in drinking water for which health advisories or toxicity values have been issued, at locations and frequencies as determined by the Department.

Author: Joe Alan Power, Thomas S. DeLoach, Edgar K. Hughes, Dennis D. Harrison, Aubrey White
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335-7-2-.11 Stage 1 Disinfection Byproducts.

Community and NTNC water systems that use a surface water source, groundwater source or purchase water from another public water system must monitor for disinfection byproducts (DBPs).

(a) The following are the MCLs for DBPs:

CONTAMINANT	MCL (mg/L)
Bromate	0.010
Chlorite	1.0
HAA5	0.060
TTHM	0.080

(b) Community and NTNC water systems using chlorine dioxide must collect daily samples for chlorite analysis at the entrance to the distribution system. If a daily sample exceeds the chlorite MCL of 1.0 mg/L, the system shall collect three additional samples from the distribution system the following day in addition to the daily sample required an entrance to the distribution system. The distribution samples shall be collected from a location near the first customer, a location representative of the average residence time and a location representative of the maximum residence time.

(c) In addition to daily chlorite monitoring, community and NTNC water systems using chlorine dioxide must collect at least three samples monthly for chlorite analysis. The samples must be collected in the distribution system on the same day from a location near the first customer, a location representative of the average residence time and a location representative of the maximum residence time. Monthly chlorite monitoring may be reduced to quarterly after one year of monitoring if no chlorite sample has exceeded the chlorite MCL. If any sample analyzed for chlorites exceeds the chlorite MCL, the system must revert to monthly monitoring.

(d) Non-compliance with the chlorite MCL will occur when the average of any three distribution sample set exceeds the MCL.

(e) Community and NTNC water systems using ozone must collect one sample per month for bromate analysis from each treatment plant using ozone. The samples shall be collected at the entrance to the distribution system while the ozonation system is operating under normal conditions. Systems required to analyze for bromate may reduce monitoring from monthly to quarterly if the system demonstrates that the system's running annual average bromate concentration is less than 0.0025 mg/L based upon representative monthly bromate measurements for one year. The system must return to routine bromate monitoring requirements if the running annual average bromate concentration is equal to or greater than 0.0025 mg/L based upon representative quarterly measurements.

(f) Non-compliance with the bromate MCL will occur when the running annual average of monthly samples, computed quarterly, exceeds the MCL. If a system fails to complete 12 consecutive months' monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

(g) Community and NTNC water systems utilizing surface sources or groundwater under the direct influence of surface water shall sample each treatment plant for Total Organic Carbon (TOC) analysis. One sample shall be collected from the raw water and one sample shall be collected from the point of combined filter effluent. These samples are referred to as

paired samples and shall be collected at the same time. At the same time as the raw water sample is collected, the alkalinity in the raw water prior to any treatment must be determined. Systems must collect one paired sample and one source water alkalinity sample per month per plant at a time representative of normal operating conditions and raw water quality. Water treatment plants with an average treated water TOC of less than 2.0 mg/L for two consecutive years determined quarterly, or less than 1.0 mg/L for one year, may reduce monitoring for both TOC and alkalinity to one paired sample and one source water alkalinity sample per plant every 90 days if the system is on reduced TTHM and HAA5 monitoring. The water treatment plant must revert to routine monitoring in the month following the quarter when the annual average treated water TOC is greater than or equal to 2.0 mg/L or the system does not qualify for reduced TTHM and HAA5 monitoring. Systems with multiple water treatment plants must sample each water treatment plant at the same frequency.

(h) Community and NTNC water systems must monitor for TTHMs and HAA5s according to the following subparagraphs until January 1, 2012:

1. Community water systems utilizing surface sources or groundwater under the direct influence of surface water shall collect each quarter and have analyzed for TTHMs and HAA5s at least four samples that are representative of each treatment plant used by the system. Twenty five percent of these samples shall be collected at a location reflecting the maximum residence time of the water even if the sample is collected outside the system's distribution area. The remaining 75 percent shall be collected at locations representative of the average residence time in the distribution system taking into account the number of persons served, different sources of water, and different treatment methods employed. The results of these samples will be averaged to provide the quarterly compliance value. In addition to the samples required above, each system will take one sample per quarter from each water treatment plant effluent.

2. After four consecutive quarters of monitoring, a community water system using a surface source or groundwater under the direct influence of surface water may reduce the monitoring frequency to one sample per quarter for each treatment plant, if the annual average for TTHMs is less than or equal to 0.040 mg/L and the annual average for HAA5s is less than or equal to 0.030 mg/L and the source water TOC running annual average is = 4.0 mg/L at each treatment plant. The sample must be collected from a point in the distribution system reflecting the maximum residence time of the water.

3. In order to qualify for reduced TTHM and HAA5 monitoring, systems that are required to monitor TOC shall take monthly samples every 30 days.

4. Community and NTNC water systems utilizing only groundwater sources not under the direct influence of surface water and serving at least 10,000 persons shall collect each quarter and have analyzed for TTHMs and HAA5s one sample from a point in the total service area reflecting the maximum residence time of the water. After four consecutive quarters of monitoring, the frequency may be reduced to one sample per year between the months of June and September for each groundwater treatment plant if the annual average for TTHMs is less than or equal to 0.040 mg/L and the annual average for HAA5s is less than or equal to 0.030 mg/L. The sample must be collected from a point in the total service area reflecting the maximum residence time of the water.

5. Community and NTNC water systems utilizing only groundwater sources not under the direct influence of surface water and serving less than 10,000 persons shall collect each year between the months of June and September and have analyzed for TTHMs and HAA5s one sample from a point in the total service area reflecting the maximum residence time of the water. The frequency may be reduced to one sample every three years between the months of June and September for each treatment plant if the annual average for TTHMs is less than or equal to 0.040 mg/L and the annual average for HAA5s is less than or equal to 0.030 mg/L for two consecutive years or if the annual average for TTHMs is less than or equal to 0.020 mg/L and the annual average for HAA5s is less than or equal to 0.015 mg/L for one year. The sample must be collected from a point in the total service area reflecting the maximum residence time of the water in the system.

6. Community systems purchasing water from another system for more than 60 days a year must monitor for DBPs according to the following:

(i) Community systems purchasing water from a system that is surface water or ground water under the influence of surface water must monitor for TTHMs and HAA5s at four locations per purchase connection per quarter. Twenty-five percent of these samples shall be collected at a location reflecting the maximum residence time of the water and the remaining seventy-five percent shall be collected at locations representative of the average residence time in the distribution system taking into account the number of

persons served. The results of all samples will be averaged to provide the quarterly compliance value.

(ii) After four consecutive quarters of monitoring, a community water system purchasing surface water or groundwater under the direct influence of surface water may reduce the monitoring frequency to one sample per quarter for each purchase connection if the annual average for TTHMs is less than or equal to 0.040 mg/L and the annual average for HAA5s is less than or equal to 0.030 mg/L. The sample must be collected from a point in the distribution system reflecting the maximum residence time of the water.

(iii) Community and NTNC water systems purchasing water only from a system(s) that is ground water not under the influence of surface water and is serving at least 10,000 persons shall collect each quarter and have analyzed for TTHMs and HAA5s one sample from a point in the distribution system reflecting the maximum residence time of the water from each purchase connection. After four consecutive quarters of monitoring, the frequency may be reduced to one sample per year between the months of June and September for each purchase connection if the annual average for TTHMs is less than or equal to 0.040 mg/L and the annual average for HAA5s is less than or equal to 0.030 mg/L. The sample must be collected from a point in the distribution system reflecting the maximum residence time of the water.

(iv) Community and NTNC water systems purchasing water only from a system(s) that is ground water not under the influence of surface water and serving less than 10,000 persons shall collect each year between the months of June and September and have analyzed for TTHMs and HAA5s one sample from a point in the distribution system reflecting the maximum residence time of the water from each purchase connection. The frequency may be reduced to one sample every three years between the months of June and September for each purchase connection if the annual average for TTHMs is less than or equal to 0.040 mg/L and the annual average for HAA5s is less than or equal to 0.030 mg/L for two consecutive years or if the annual average for TTHMs is less than or equal to 0.020 mg/L and the annual average for HAA5s is less than or equal to 0.015 mg/L for one year. The sample must be collected from a point in the distribution system reflecting the maximum residence time of the water in the system.

(v) Multiple purchase connections to the same system may be reduced to one set of four samples for surface water or one sample for ground water provided that the system proves to the Department that the purchase connections have the same water quality.

7. NTNC systems using a surface source or groundwater under the direct influence of surface water or purchasing surface water or ground water under the direct influence of surface water shall collect each quarter and have analyzed for TTHMs and HAA5s a minimum of one sample representing the maximum residence time in the distribution system for each plant and purchase connection.

8. Systems on a reduced monitoring schedule may remain on the reduced schedule as long as the annual average of all samples collected in the previous four quarters (for systems that monitor quarterly) or the result of a sample (for systems which that annually or less frequently) is no more than 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively. In addition, the source water TOC running annual average for a surface water or ground water under the influence of surface water must be = 4.0 mg/L. Systems that do not meet these levels must resume monitoring at the initial monitoring frequency in the quarter immediately following the quarter in which the system exceeds 0.060 mg/L and 0.045 mg/L for TTHMs and HAA5, respectively. For systems using only ground water not under the 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 begin quarterly monitoring in the quarter immediately following the monitoring period in which the system exceeded 0.080 mg/L for TTHM or 0.060 mg/L for HAA5.

9. Multiple wells drawing water from a single aquifer may be considered one treatment plant for determining the minimum number of samples required for TTHM and HAA5 analysis.

10. All samples must be collected during periods of normal operating conditions.

11. Should a community or NTNC water system make significant modification to the existing treatment process for the purpose of achieving compliance with TTHM standards, the system must submit an engineering report demonstrating that the treatment changes will allow the system to continue to meet bacteriological standards and that the quality of the water will not be adversely impacted by the treatment change.

12. Upon exceeding the MCL, the system will be required to submit a schedule to either establish a treatment process using the EPA approved best available technology, specified in 40 CFR 141.64(a)(2) or (b)(1)(ii) as applicable, to achieve compliance with the MCL or cease using the source of supply in conjunction with a Department issued compliance schedule.

13. If providing water to a consecutive system(s), the maximum and average residence time TTHM and HAA5 sample locations must reflect the entire distribution system including the consecutive system(s) that utilize water produced by the plant being sampled until December 31, 2006.

14. Non-compliance with the TTHM and HAA5 MCL will occur when the running annual average of four consecutive quarterly analyses exceeds the MCL for systems that are sampling quarterly. For systems that have not completed the first four quarters of monitoring, should any individual quarter average cause the running annual average of that system to exceed the MCL, the system is in non-compliance at the end of that quarter. For systems monitoring less frequently than quarterly, compliance must be based on an average of samples collected that year. Systems on a reduced monitoring schedule whose annual average exceeds the MCL will not be considered in violation of the MCL until they have completed one year of routine monitoring. If a system on quarterly monitoring fails to complete four quarters' monitoring, compliance with the MCL for the last four-quarter compliance period must be based on an average of the available data.

(i) Upon exceeding the MCL, the system will be required to submit a schedule to either establish a treatment process using the EPA approved best available technology, specified in 40 CFR 141.64(a)(2) or (b)(1)(ii) as applicable, to achieve compliance with the MCL or cease using the source of supply in conjunction with a Department issued compliance schedule.

(j) Compliance dates. Surface water or ground water under the influence of surface water systems serving 10,000 or more persons must comply with this rule beginning January 1, 2002. Surface water or ground water under the influence of surface water systems serving fewer than 10,000 persons and systems using only ground water not under the direct influence of surface water must comply with this rule beginning January 1, 2004.

(k) Analytical Methods: Analysis of all samples for compliance with MCLs contained in this rule shall comply with the

approved EPA methodology found in 40 CFR 141.131 and by a laboratory certified by EPA or the Department.

Author: Dennis D. Harrison
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
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335-7-2-.12 Stage 2 Disinfection Byproducts.

Community and NTNC water systems that use a surface water source, groundwater source or purchase water from another public water system must monitor for disinfection byproducts (DBPs).

(a) Beginning January 1, 2012 systems must be in compliance with the TTHM and HAA5 MCLs [located in paragraph 335-7-2-.11(a)]. Any site's locational running annual average that exceeds either MCL will be an MCL violation. Systems may be granted a compliance extension until January 1, 2014 if the system requires capital improvements to comply with the MCLs. The system must enter into a binding contract, which would result in significant penalties to the system if the contract is not completed. All systems beginning January 1, 2012 must revert to routine monitoring until the system meets the reduced monitoring requirements below.

1. Systems must monitor during the month of the highest DBP concentrations.

2. Systems on quarterly monitoring must take dual samples sets every 90 days at each monitoring location.

3. The minimum number of samples, location of samples and sampling frequency are based upon the system's population and are in the following table. The sample locations must be at the locations identified in the system's Distribution System Evaluation (DSE) Report and cannot be moved without written approval from the Department. Systems that did not complete a DSE must monitor at the locations indicated in the system's monitoring plan. Systems must monitor according to the dates listed in the DSE Report or monitoring plan. In addition, surface water or ground water under the influence of surface water must collect one sample from the effluent of each treatment plant, prior to the first customer, at the same time the system conducts its DBP monitoring under this rule.

	Distribution System Monitoring Location

Source Water Type [1]	Population	Monitor Frequency	Total per monitor period	Highest TTHM Locations	Highest HAA5 Locations	Stage 1 Locations
Surface Water Or Ground Water Under the Influence of Surface Water	< 10,000	per quarter	2	1	1	
	10,000-49,999	per quarter	4	2	1	1
	50,000-249,999	per quarter	8	3	3	2
	250,000-999,999	per quarter	12	5	4	3
	1,000,000-4,999,999	per quarter	16	6	6	4
	> 5,000,000	per quarter	20	8	7	5
Ground Water	<500	per year	2	1	1	
	500-9,999	per year	2	1	1	
	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

[1]Systems that receive both surface water and ground water must use the surface water section of the table to determine monitoring requirements.

4. Systems may reduce monitoring to the level specified in the following table any time the LRAA is =0.040 mg/L for TTHM and =0.030 mg/L for HAA5 at all monitoring locations. Systems may only use monitoring data collected under this rule or rule 335-7-2-.11 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 under the influence of surface water.

Reduced Monitoring Frequency

Source Type	Population	Monitoring Frequency 1	Distribution System Monitoring Location per Monitoring Period
Surface Water or Ground Water Under the Influence of Surface Water	< 10,000	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
	10,000-49,999	per quarter	2 dual sample sets at the locations with the highest TTHM and highest HAA5 LRAAs
	50,000-249,999	per quarter	4 dual sample sets - at the locations with the two highest TTHM and two highest HAA5 LRAAs
	250,000-999,999	per quarter	6 dual sample sets - at the locations with the three highest TTHM and three highest HAA5 LRAAs

Source Type	**Population**	**Monitoring Frequency 1**	**Distribution System Monitoring Location per Monitoring Period**
	1,000,000-4,999,999	per quarter	8 dual sample sets - at the locations with the four highest TTHM and four highest HAA5 LRAAs
	> 5,000,000	per quarter	10 dual sample sets - at the locations with the five highest TTHM and five highest HAA5 LRAAs
Ground Water	<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; 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

Source Type	**Population**	**Monitoring Frequency 1**	**Distribution System Monitoring Location per Monitoring Period**
			TTHM single measurement, one 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
	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

[1]Systems on quarterly monitoring must take dual sample sets every 90 days.

5. Systems may remain on reduced monitoring as long as the TTHM LRAA is =0.040 mg/L and the HAA5 LRAA is =0.030 mg/L at each monitoring location for systems on quarterly reduced monitoring or each TTHM sample is =0.060 mg/L and each HAA5 LRAA is =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 under the influence of surface water. Systems must return to routine monitoring if any of the levels are exceeded. The Department may return any system to routine monitoring at its discretion.

6. The following TOC monitoring requirements apply to systems qualifying for or on reduced TTHM and HAA5 monitoring. If a system is required to monitor for TOC per subparagraph 335-7-2-.11(i)8., monthly samples shall be taken every 30 days.

7. If a system is required to monitor annually or less the system must increase monitoring to dual samples sets once per quarter (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. A system is in violation of the MCL when the LRAA exceeds the MCLs based upon 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. Systems may return to routine monitoring once the systems has conducted increased monitoring for at least four consecutive quarters and the LRAA for every monitoring location is =0.060 mg/L for TTHM and is =0.045 mg/L for HAA5.

8. If a system fails to collect any required sample, the system has incurred a monitoring violation. The system will receive a monitoring violation for each quarter in which the missed monitoring result would have been used to determine compliance.

9. Systems on increased monitoring under rule 335-7-2-.11 must remain on increased monitoring until the system meets the requirements of this rule for returning to routine monitoring.

10. Systems that are required to monitor quarterly must calculate LRAAs for TTHM and HAA5 using monitoring results collected under this rule and determine that each LRAA does not exceed the MCL. If the system does not collect four consecutive quarters of monitoring, the system must calculate compliance with the MCL based on the average of the available data from the most recent four quarters. If the system takes more than one sample

per quarter at a monitoring location, they must average all samples taken in the quarter at that location to determine a quarterly average to be used in the LRAA calculation.

11. Systems that are required to monitor yearly or less frequently must determine that each sample taken is less than the MCL. If no sample exceeds the MCL, the sample result is considered the LRAA and the system is in compliance. If any sample exceeds the MCL the system is not in violation but must begin increased monitoring as outlined in this rule.

12. A system that is required to conduct quarterly monitoring must make compliance calculations at the end of the fourth 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.

(i) Systems that monitor less frequently than quarterly must determine compliance beginning with the first compliance sample taken after the compliance date.

(ii) Upon exceeding the MCL, the system will be required to submit a schedule to either establish a treatment process using the EPA approved best available technology to achieve compliance with the MCL or cease using the source of supply in conjunction with a Department issued compliance schedule.

13. Systems that did not complete a DSE must develop and implement a monitoring plan for TTHMs and HAA5s. The monitoring plan must be submitted to the Department by the applicable date in rule 335-7-2-.13. Systems must identify and justify all monitoring locations.

(b) Wholesale systems (with the exception of systems with only ground water sources) shall submit the results of TTHM and HAA5 sampling at or near all points of delivery to consecutive systems. Consecutive systems who also sell to other consecutive systems shall submit the results of TTHM and HAA5 sampling at or near all points of delivery to other consecutive systems. These results shall be submitted with the routine sample results required by paragraph (a) of this rule.

1. The number of sample locations can be reduced by submitting justification to the Department that the point of delivery is not contributing to elevated TTHM and/or HAA5 levels in the downstream consecutive system(s).

2. If all consecutive systems served by the wholesale system are in compliance with the TTHM and/or HAA5 MCLs in accordance with paragraph 335-7-2-.12(a) of this rule for four consecutive quarters, then the systems can request a reduction or end of the monitoring.

Author: Dennis D. Harrison
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
History: **New Rule:** Filed December 18, 2007; effective January 22, 2008. **Amended:** Filed August 21, 2012; effective September 25, 2012. **Amended:** Filed October 21, 2014; effective November 25, 2014. **Amended:** Filed June 21, 2016; effective August 5, 2016.

335-7-2-.13 Distribution System Evaluation.

This rule establishes monitoring and other requirements for identifying compliance monitoring locations for use under rule 335-7-2-.12.

(a) This rule applies to:

1. Community water systems that use a primary or residual disinfectant other than ultraviolet light (UV) or deliver water that has been chemically treated with a primary or residual disinfectant;

2. Nontransient noncommunity water systems that serve at least 10,000 people and use a primary or residual disinfectant other than UV or deliver water that has been chemically treated by a primary or residual disinfectant.

(b) Systems must use a Distribution System Evaluation (DSE) to determine locations with high TTHM and HAA5 concentrations throughout the system's distribution system unless the system qualifies for one of the following exemptions:

1. If all TTHM and HAA5 samples collected under rule 335-7-2-.11 during an eight consecutive calendar quarter period beginning no earlier than the dates listed in the table below did not exceed 0.040 mg/L for TTHM and 0.030 mg/L for HAA5.

(i) 40/30 Certification Date Table

40/30 Certification Due	**Beginning date of eligible TTHM and HAA5 Data**
October 1, 2006	January 2004
April 1, 2007	January 2004
October 1, 2007	January 2005
April 1, 2008	January 2005

(ii) If a system is on reduced monitoring under rule 335-7-2-.11 and was not required to monitor during the period listed in the 40/30 Certification Date Table above, the system's eligibility must be based on compliance samples taken during the 12 months preceding the date listed in the table.

(iii) Systems must certify to the Department that every individual compliance sample taken under rule 335-7-2-.11 during the specified period in subparagraph 1.(i) of this paragraph were = 0.040 mg/L for TTHM and = 0.030 mg/L for HAA5 and that the system has not had a monitoring violation for TTHMs or HAA5s.

(iv) The Department may require the system to conduct a DSE under this rule even if the system meets the 40/30 certification requirements.

(v) Systems must retain a complete copy of their certification submitted under this rule for 10 years after the date it was submitted.

(vi) The certification, all data upon which the certification is based, and any Department notifications must be available for review by the Department or the public.

(vii) The 40/30 certification must be submitted to the Department by the applicable date listed in subparagraph (2)(a)1. of this rule.

2. A system that serves fewer than 500 people (<167 customers) and has at least one year of monitoring under rule 335-7-2-.11 is not required to conduct a DSE as outlined under this rule unless notified by the Department. Systems serving a population fewer than 500 people that have not monitored for at least 1 year under rule 335-7-2-.11 must complete a DSE as required under this rule.

(c) Systems must comply with the requirements of this rule based upon the schedule in the following table. Systems that are a part of a combined distribution system must comply with the schedule in the table below based upon the population of the largest system in the combined distribution system as defined by the Department.

System Population	**Date to submit monitoring plan1 , system specific study, 40/30 certification or very small system waiver:**	**Standard monitoring plan or system specific study must be complete by:**	**Submit DSE report or monitoring plan to the Department by:2**
= 100,000	October 1, 2006	September 30, 2008	January 1, 2009
50,000 - 99,999	April 1, 2007	March 31, 2009	July 1, 2009
10,000 - 49,999	October 1, 2007	September 30, 2009	January 1, 2010
< 10,000	April 1, 2008	March 31, 2010	July 1, 2010

[1]If, within 12 months after the date identified in this column, the system does not receive notification from the Department that plan submitted has been reviewed and accepted, the system must consider the plan as submitted approved and conduct its monitoring accordingly.

[2]If, within 3 months after the date listed in this column, the Department has not notified the system that its DSE report has been approved, the system may consider the report approved as submitted and must implement the recommended monitoring as required in rule 335-7-2-.12.

(d) Systems must complete a standard monitoring plan that meets the requirements in rule 335-7-2-.14 or a system specific study that meets the requirements in rule 335-7-2-.15 unless the system meets one of the exemption criteria in subparagraphs (b)1. and 2. of this rule.

(e) DSE results will not be used for the purpose of determining compliance with the MCLs. However, the system must report the results of the DSE in the system's CCR.

(f) Systems must conduct a DSE every 9 years if the system does not meet the exemption criteria in subparagraph (b) of this rule. Systems must conduct a DSE if any of the criteria listed in subparagraphs (f)1. through 5. of this rule are met after the initial DSE report is submitted.

1. The system adds a new surface water or ground water under the influence of surface water source or treatment plant that does not have the same entry point as another water plant.

2. The system adds a new well or spring that is not considered in the same aquifer as the system's existing water sources.

3. The system adds a new connection to another system that is going to be used more than 60 days a year or starts using an existing connection for more than 60 days a year, unless the water quality is similar to water already being purchased from the source system.

4. The system consolidates with another water system. The resulting water system shall be responsible for conducting the DSE as required under this rule.

5. The Department requires the system to conduct another DSE.

(g) DSE reports must include the systems recommendations and justification for where and during what month(s) TTHM and HAA5 monitoring under rule 335-7-2-.12 should be conducted. The recommendations must be based on the following criteria:

1. Systems must select the number of monitoring locations specified in rule 335-7-2-.12. Systems will use these recommended locations as routine compliance monitoring locations under rule 335-7-2-.12 unless informed by the Department otherwise. The locations should be distributed throughout the distribution system to the extent possible.

2. Systems must recommend compliance monitoring locations based on standard monitoring results, system specific study results, and monitoring conducted under rules 335-7-2-.11 or rule 335-7-2-.12. Systems must use the following protocol when making a determination concerning the compliance monitoring sites. Systems that are required to monitor at more than eight locations must repeat the protocol as necessary. Systems that do not have monitoring results under rule 335-7-2-.11 or do not have enough existing compliance monitoring locations under rules 335-7-2-.11 or 335-7-2-.12, must repeat the protocol below, skipping subparagraphs (g)2.(iii) through (vii) of this rule as necessary until the system has identified the required number of monitoring locations.

(i) Location with the highest TTHM LRAA not previously selected as a compliance monitoring location.

(ii) Location with the highest HAA5 LRAA not previously selected as a compliance monitoring location.

(iii) Existing average residence time compliance monitoring location (maximum residence time compliance monitoring location for ground water systems) with the highest HAA5 LRAA not previously selected as a compliance monitoring location.

(iv) Location with the highest TTHM LRAA not previously selected as a compliance monitoring location.

(v) Location with the highest TTHM LRAA not previously selected as a compliance monitoring location.

(vi) Location with the highest HAA5 LRAA not previously selected as a compliance monitoring location.

(vii) Existing average residence time compliance monitoring location (maximum residence time compliance monitoring location for ground water systems) with the highest TTHM LRAA not previously selected as a compliance monitoring location.

(viii) Location with the highest HAA5 LRAA not previously selected as a compliance monitoring location.

3. Systems may recommend locations other than those specified in subparagraph (b) of this rule if the system includes a rationale for selecting other locations. Once the locations are approved by the Department, systems must monitor at these locations to determine compliance under rule 335-7-2-.12.

4. The recommended compliance monitoring schedule must include the compliance monitoring during the month with historical peak concentrations for TTHM and HAA5, unless another month is approved by the Department. Once the peak historical month has been identified and the system is required to conduct routine monitoring at least quarterly, the system must schedule compliance monitoring under rule 335-7-2-.12.

Author: Dennis D. Harrison
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
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335-7-2-.14 Standard Monitoring Plan.

(1) The system's standard monitoring plan (SMP) must comply with the following subparagraphs. Systems must prepare and submit a standard monitoring plan to the Department according to the schedule in rule 335-7-2-.13.

(a) The SMP must include a schematic of the distribution system (including distribution system entry points and their sources, storage facilities, and any point of disinfectant addition), with notes indicating locations and dates of all projected standard monitoring and all projected compliance monitoring under rules 335-7-2-.11 or 335=7-2-.12.

(b) The SMP must include justification of standard monitoring location selection and a summary of data that was used to justify the selection.

(c) The SMP must specify the population served and system type (ground water, surface water or ground water under the influence of surface water).

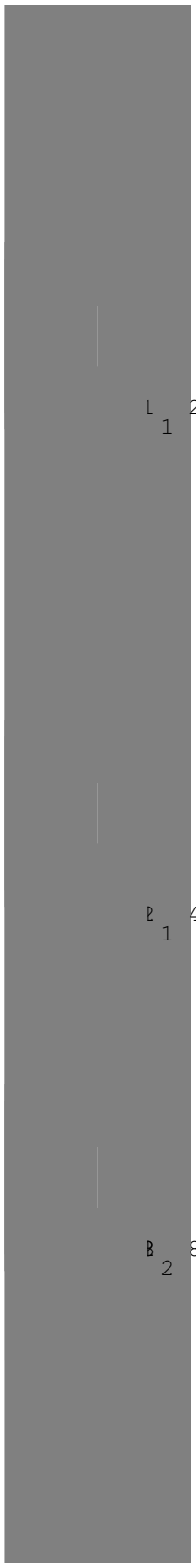
(d) Systems must retain a complete copy of the SMP submitted under this rule, including any modifications required by the Department, for 10 years after the system submitted the SMP to the Department.

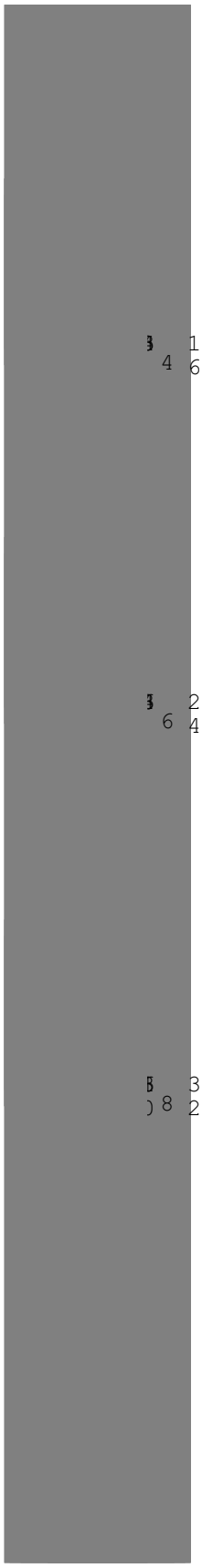
(2) Standard Monitoring.

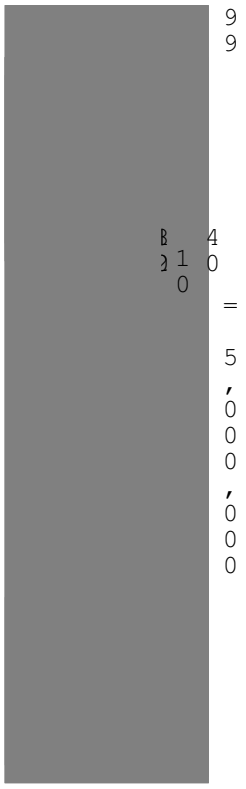
(a) Systems must monitor as indicated in the following table. Systems must collect dual sample sets at each location. Systems must conduct one monitoring period during the peak historical month for TTHM levels or HAA5 levels or the month with the warmest water temperature. A review of available compliance, study, or operational data must be conducted to determine the peak historical month for TTHM or HAA5 levels or the warmest water temperature.

SMP Monitoring Requirements

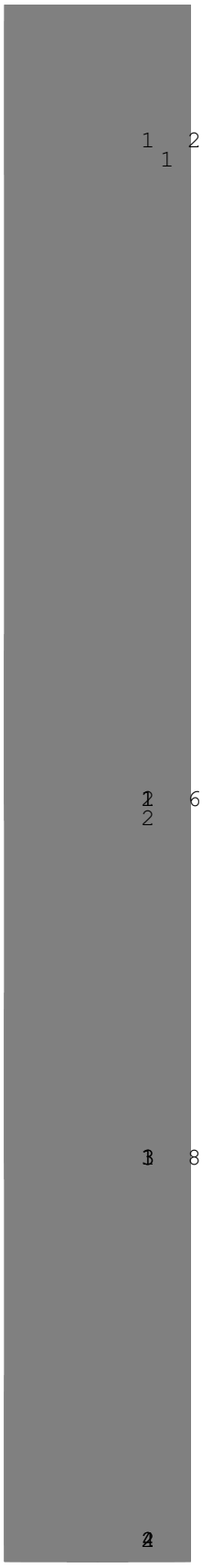
Distribution System Monitoring Locations[1]

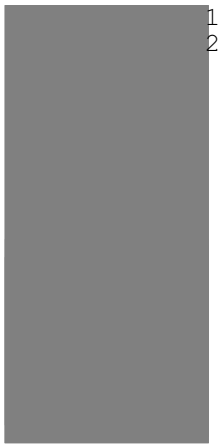



60 days)
31 46
50,000249,999
32 64
250,000999,999
38 2
1,000,000,000
4,999,999,9




1 2
Organoleptic Tests (Human Panel Test)
Monthly (2)
1 2
< 500
nonconsecutive systems





[1]A dual sample set must be taken at each monitoring location during each monitoring period.

[2]The peak historical month is the month with the highest TTHM or HAA5 levels or the warmest water temperature.

(b) Systems must take samples at locations other than the existing monitoring locations used under rule 335-7-2-.11. Monitoring locations must be distributed throughout the distribution system.

(c) 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, 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, systems must take samples at entry points to the distribution system having the highest annual water flow.

(d) Each system must monitor at the number of locations in paragraph (2) of this rule. This monitoring cannot be reduced or combined with another system's monitoring.

(e) In addition to the minimum number of samples in subparagraph (2)(a) of this rule, one sample must be taken at a maximum residence time representing each source of water at the frequency listed in the above SMP Monitoring Requirements table. Wells in the same aquifer may be reduced to one sample at a maximum residence time with Department approval.

(3) The DSE Report must be submitted to the Department by the appropriate deadline in paragraph 335-7-2-.13(c). The system's DSE report must include the following elements:

(a) All TTHM and HAA5 analytical results from compliance monitoring conducted under rules 335-7-2-.11 or 335-7-2-.12 and all standard monitoring conducted during the period of the DSE as individual analytical results and LRAAs presented in a table or spreadsheet acceptable to the Department.

(b) Include a schematic of the distribution system, population served, and water system type if it has changed from the SMP submitted under this section.

(c) An explanation of any deviations from the approved SMP.

(d) Recommended compliance monitoring locations for use under rule 335-7-2-.12 and the justification that was used to select the monitoring locations.

(4) The system must retain a complete copy of the DSE report submitted under this rule for 10 years after the date that the report was submitted. The system must also keep a copy of any modifications to the compliance monitoring locations required by the Department or any alternate monitoring locations approved by the Department for 10 years. The DSE report and any notification from the Department must be available for review by the Department or the public.

Author: Dennis D. Harrison

Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.

History: **New Rule:** Filed December 18, 2007; effective January 22, 2008. **Amended:** Filed June 21, 2016; effective August 5, 2016.

335-7-2-.15 System Specific Study.

(1) A system specific study plan must be based on either existing monitoring results as required under subparagraph (1)(a) of this rule or modeling as required under subparagraph (1)(b) of this rule. The system specific study plan must be submitted to the Department according to the schedule in paragraph 335-7-2-.13(c).

(a) Systems may comply by submitting monitoring results collected before the system is required to begin monitoring under paragraph 335-7-2-.13(c). The monitoring results must meet the following criteria:

1. TTHM and HAA5 results must be based on samples collected and analyzed in accordance with EPA approved procedures. Samples must be collected no earlier than five years prior to the study plan submission date.

2. The monitoring locations and frequency must meet the conditions identified in this subparagraph. Each location

must be sampled once during the peak historical month for TTHM levels or HAA5 levels or the month with the warmest water temperature for every 12 months of data submitted for that location. Monitoring results must include all monitoring conducted under rules 335-7-2-.11 or 335-7-2-.12 plus additional monitoring results as necessary to meet the minimum sample requirements listed in the following table.

Source Water Type	System Population	Number of Monitoring Locations	Number of Samples	
			TTHM	HAA5
Surface Water or Ground Water Under the Influence of Surface Water	= 3,300	3	18	18
	3,301-9,999	6	36	36
	10,000-49,999	12	72	72
	50,000-249,999	24	144	144
	250,000-999,999	36	216	216
	1,000,000-4,999,999	48	288	288
	= 5,000,000	60	360	360
Ground Water	< 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

3. In addition to the minimum number of samples in the table above, one sample must be taken at a maximum residence time representing each source of water. Wells in the same aquifer may be reduced to one sample at a maximum residence time with Department approval.

4. Systems must report the following information when submitting monitoring results.

(i) 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 monitoring result conducted under rules 335-7-2-.11 or 335-7-2-.12.

(ii) Certify that the samples were representative of the entire distribution system and that treatment, and the distribution system have not changed significantly since the samples were collected.

(iii) Schematic of 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.

(iv) Population served and system type (surface, ground water under the influence of surface water, or ground water).

(v) A complete copy of the system specific study plan including any modifications by the Department must be retained for 10 years.

(vi) If the system submits previously collected data that fully meet the number of samples required under subparagraph (1)(a)2. of this rule and the Department rejects some of the data, the system must conduct additional monitoring to replace the rejected data on a schedule approved by the Department or conduct a standard monitoring plan.

(b) Systems may comply through analysis of an extended period simulation hydraulic model. The extended period simulation hydraulic model and analysis must meet the following criteria:

1. The model must simulate 24-hour variations in demand and show a consistently repeating 24-hour pattern of residence time.

2. The model must represent the following:

(i) 75% of pipe volume;

(ii) 50% of all pipe length;

(iii) All pressure zones;

(iv) All 12-inch diameter and larger pipes;

(v) All 8-inch and larger pipes that connect pressure zones, influence zones from different sources, storage facilities, major demand areas, pumps, and control valves, or are known or expected to be significant conveyors of water;

(vi) All 6-inch and larger pipes that connect remote areas of a distribution system to the main portion of the system;

(vii) All storage facilities with standard operations represented in the model;

(viii) All active pump stations with controls represented in the model; and

(ix) All active control valves.

3. The model must be calibrated, or have calibration plans, for the current configuration of the distribution system during the period of high TTHM formation potential. All storage facilities must be evaluated as part of the calibration process. All required calibration must be completed no later than 12 months after plan submission.

(c) Reporting modeling. The specific study plan must include the following:

1. Tabular or spreadsheet data demonstrating that the model meets the requirements of subparagraph (1)(b)1. of this rule.

2. A description of all calibration activities undertaken, and if calibration is complete, a graph of predicted tank levels versus measured tank levels for the storage facility with the highest residence time in each pressure zone, and a time series graph of the residence time at the longest residence time storage facility in the distribution system showing the predictions for the entire simulation period (i.e., from time zero until the time it takes to for the model to reach a consistently repeating pattern of residence time).

3. Model output showing preliminary 24-hour average residence time predictions throughout the distribution system.

4. Timing and number of samples representative of the distribution system planned for at least one monitoring period of TTHM and HAA5 dual sample monitoring at a number of locations no less than would be required for the system under paragraph 335-7-2-.14(2) during the historical month of high TTHM. These samples must be taken at locations other than existing compliance monitoring locations.

5. Description of how all requirements will be completed no later than 12 months after the system specific study plan was submitted.

6. Schematic of the 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 compliance monitoring.

7. Population served and system type.

8. The system must retain a completed copy of the system specific study plan including any Department modification for 10 years.

(d) If the model submitted does not fully meet the requirements of this rule, the system must correct the deficiencies and respond to Department inquiries concerning the model. If the deficiencies are not corrected or the system fails to respond to inquires about the model to the Department's satisfaction, the system must conduct a standard monitoring plan.

(2) The DSE report must include the following elements in subparagraphs (2)(a) – (2)(g) of this rule. The DSE report must be submitted according to the schedule in paragraph 335-7-2-.13(c).

(a) The DSE report must include all TTHM and HAA5 analytical results from 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 the system specific study plan submitted under paragraph (1) of this rule is changed, the DSE report must also include a schematic of the distribution system, the population served; and system type.

(b) If the modeling provision was used, the system must include final information for the elements described in subparagraph (1)(b)2. of this rule, and a 24-hour time series graph of residence time for each compliance monitoring location selected for use under rule 335-7-2-.12.

(c) The system must recommend and justify compliance monitoring locations and timing for use under subparagraph 335-7-2-.13(g)2.

(d) The DSE report must include an explanation of any deviations from the approved system specific study plan.

(e) The DSE report must include the basis (analytical and modeling results) and justification that was used to select

the recommended compliance monitoring locations for use under rule 335-7-2-.12.

(f) The system may submit the DSE report in lieu of the system specific study plan on the schedule identified in paragraph 335-7-2-.13(c) for submission of the system specific study plan if the system believes that it has the necessary information by the time the system specific study plan is due. If this approach is chosen, the DSE report must also include all information required under paragraph (1) of this rule.

(g) The system must retain a completed copy of the DSE report submitted under this rule for 10 years after the date that it was submitted. The system must keep any correspondence related to the DSE report including any correspondence that modifies monitoring locations for 10 years. The DSE report and any Department correspondence must be available for review by the Department or the public.

Author: Dennis D. Harrison
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
History: **New Rule:** Filed December 18, 2007; effective January 22, 2008. **Amended:** Filed June 21, 2016; effective August 5, 2016.

335-7-2-.16 Operational Evaluation Level.

(1) 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, 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, exceeds 0.060 mg/L.

(2) If the operational evaluation level has been exceeded, 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.

(3) 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.

(4) The system may request to limit the scope of the evaluation if the system is able to identify the cause of the operational

evaluation level exceedance. The request to limit the scope of the evaluation does not extend the schedule in paragraph (2) of this rule for submitting the written report. The Department must approve this limited scope of evaluation in writing and the system must keep that approval with the completed report.

(5) If a consecutive system exceeds the TTHM and/or the HAA5 MCLs per paragraph 335-7-2-.12(a) then the following applies:

(i) A joint operational evaluation must be completed which includes the wholesale system that supplies water to the site where the exceedance occurred, and any consecutive system that conveys the water where the exceedance occurred.

(ii) The joint operational evaluation must be signed by responsible officials from each wholesale and consecutive system

(iii) Representatives from all systems involved shall meet quarterly to evaluate the effectiveness of the measures implemented based on the operational evaluation.

(I) An attendance list and meeting minutes shall be submitted to the Department within 30 days of the meeting.

(II) Once the consecutive system complies with the TTHM and/or HAA5 MCLs, then the quarterly meeting will no longer be required.

Author: Dennis D. Harrison
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
History: **New Rule:** Filed December 18, 2007; effective January 22, 2008. **Amended:** Filed August 21, 2012; effective September 25, 2012.

335-7-2-.17 Cryptosporidium Monitoring And Compliance.

The requirements of the following subparagraphs apply to all community, NTNC TNC water systems utilizing surface water and/or ground water under the direct influence of surface water.

(a) Wholesale systems must comply with the requirements of this rule based on the population of the largest system in the combined distribution system.

(b) Systems must conduct the following monitoring on the schedule listed in subparagraph (d) of this rule unless the system will provide a total of at least 5.5-1og of treatment for *Cryptosporidium*:

1. Systems serving 10,000 or more people must sample their source water for *Cryptosporidium*, *E. coli*, and turbidity at least monthly for 24 consecutive months.

2. Systems serving fewer than 10,000 people must sample their source water for *E. coli* at least once every two weeks for 12 consecutive months unless the system notifies the Department that it will monitor for *Cryptosporidium* as described in the subparagraph (b)3. of this rule. 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.

3. Systems serving fewer than 10,000 people must sample their source water for *Cryptosporidium* at least twice per month for 12 consecutive months or at least monthly for 24 months if they meet one of the following conditions based on the *E. coli* monitoring conducted:

(i) For systems using lake/reservoir sources, the annual mean *E. coli* concentration is greater than 10 *E. coli*/100 mL.

(ii) For systems using flowing stream sources, the annual mean *E. coli* concentration is greater than 50 *E. coli*/100 mL.

(iii) The system does not conduct *E. coli* monitoring as described in subparagraph (b)2. of this rule.

(iv) Systems using ground water under the influence of surface water must comply with the requirements of subparagraph (b)3. of this rule based on the *E. coli* level that applies to the nearest surface water body or the system must comply based on the requirements that apply to systems using lake/reservoir sources.

(c) Systems may sample more frequently than required under this rule if the sampling frequency is evenly spaced throughout the monitoring period.

(d) Systems must begin the monitoring required in this rule no later than the month beginning with the date listed in this table:

Population	**Begin first round of monitoring by:**	**Begin second round of monitoring by:**
= 100,000	October 1, 2006	April 1, 2015
50,000 to 99,999	April 1, 2007	October 1, 2015
10,000 to 49,999	April 1, 2008	October 1, 2016
< 10,000 monitor for *E. Coli*	October 1, 2008	October 1, 2017
	April 1, 2010	April 1, 2019

Population	**Begin first round of monitoring by:**	**Begin second round of monitoring by:**
< 10,000 & monitor for *Cryptosporidium* *		

*Applies to systems that meet the conditions of subparagraph (2) (c) of this rule.

(e) After completion of the second round of source water monitoring, systems must conduct another round of source water monitoring as outlined in this rule every 9 years.

(f) If a system chooses to provide at least 5.5-1og treatment for *Cryptosporidium*, rather than start source water monitoring, the system must notify the Department in writing no later than the date the system is otherwise required to submit a sampling schedule for monitoring under this rule. Alternatively, a system may choose to stop sampling at any point after it has initiated monitoring if it notifies the Department in writing that it will provide at least 5.5-1og treatment. Systems must install and operate technologies to provide this level of treatment by the applicable treatment compliance date in rule 335-7-6-.20.

(g) Systems with water plants operating only part of the year must conduct source water monitoring in accordance with this rule, but with the following modifications:

1. Systems must sample their source water only during the months that the plant is in operation unless the Department specifies another monitoring period based on plant operational practices.

2. Systems with plants that operate less than six months per year and that monitor for *Cryptosporidium* must collect at least six *Cryptosporidium* samples per year during each of two years of monitoring. Samples must be evenly spaced throughout the period that the plant is in operation.

(h) A system that begins using a new source of surface water or ground water under the influence of surface water or has a ground water source redesignated as ground water under the influence of surface water must begin monitoring according to subparagraph (b) of this rule within 3 months of using the new source or within 3 months of having a ground water source redesignated as under the influence of surface water. These requirements apply to any surface water or ground water under the influence of surface water system that begins operation after the monitoring start date applicable to the system's size in subparagraph (d) of this rule. The water system must

begin a second round of source water monitoring no later than six years following the initial bin classification or determination of the mean *Cryptosporidium* level. After the second round of monitoring the water system must begin monitoring required in subparagraph (e) of this rule.

(i) Failure to collect any source water sample required under this rule in accordance with the sampling schedule, sampling location, analytical method, approved laboratory, and reporting requirements is a monitoring violation.

(j) Systems may use monitoring data collected prior to the applicable monitoring start date in paragraph (d) of this rule to meet the initial source water monitoring requirements in this rule. This data may be substituted for an equivalent number of months at the end of the monitoring period. All data submitted under this subparagraph must meet the following requirements:

1. The sample results and analysis must have been done according to EPA approved methods and be accepted by the Department.

2. The sampling location must meet the conditions in paragraphs (r) through (u) of this rule.

3. A system may submit previously collected samples to meet the requirements of paragraph (d) of this rule even though corresponding *E. coli* and turbidity samples are not available. A system that submits *Cryptosporidium* samples without *E. coli* and turbidity samples is not required to collect additional *E. coli* and turbidity samples when the system completes the requirements for *Cryptosporidium* monitoring.

4. Previously collected *Cryptosporidium* sample data must have been collected no less frequently than each calendar month on a regular schedule, beginning no earlier than January 1999. Sample collection intervals may vary for the conditions specified in paragraph (n) of this rule if the system provides documentation of the condition when reporting monitoring results.

5. The Department may approve previously collected data where there are time gaps in the sampling frequency if the system conducts additional monitoring, specified by the Department, to ensure that the data used to comply with the initial source water monitoring requirements of paragraph (d) of this rule are seasonally representative and unbiased.

6. Systems may submit previously collected data where the sampling frequency within each month varied. If the

Cryptosporidium sampling frequency varied, systems must follow the monthly averaging procedure in subparagraph (x)5. of this rule, as applicable, when calculating the bin classification.

7. Systems that request the use of previously collected monitoring results must report the following information by the applicable dates listed below. Systems serving at least 10,000 people must report this information to EPA and to the Department. Systems serving fewer than 10,000 people must report this information to the Department.

(i) Systems must report that they intend to submit previously collected monitoring results for use. This report must specify the number of previously collected results the system will submit, the dates of the first and last sample, and whether a system will conduct additional source water monitoring to meet the requirements of this rule. Systems must report this information no later than the date the sampling schedule under paragraph (d) of this rule is required.

(ii) Systems must report previously collected monitoring results, along with the associated documentation listed below no later than two months after the applicable date listed in subparagraph (d) of this rule for the first round of monitoring.

(I) For each sample result, systems must report the applicable data elements in paragraph (w) of this rule.

(II) Systems must certify that the reported monitoring results include all results the system generated during the time period beginning with the first reported results and ending with the final reported result. This applies to samples that were collected from the sampling location specified for source water monitoring under this rule, not spiked, and analyzed using the laboratory's routine process for the analytical methods using an EPA approved method.

(III) Systems must certify that the samples were representative of a plant's source water(s) and the source water(s) have not changed. Systems must report a description of the sampling location(s), which must address the position of the sampling location in relation to the system's water source(s) and treatment processes, including points of chemical addition and filter backwash recycle.

(IV) For *Cryptosporidium* samples, the laboratory or laboratories that analyzed the samples must provide a letter certifying that the quality control criteria specified in the methods were met for each sample batch associated with the reported results. Alternately, the laboratory may provide bench sheets and sample examination report forms for each field, matrix spike, initial precision and recovery (IPR), ongoing precision and recovery standard (OPR), and method blank sample associated with the reported results.

(iii) If the Department determines that a previously collected data set submitted for use was generated during source water conditions that were not normal for the system, such as a drought, the Department may disapprove the data. Alternately, the Department may approve the previously collected data if the system reports additional source water monitoring data, as determined by the Department, to ensure that the data set used under paragraphs (x) and (y) of this rule represents average source water conditions for the system.

(iv) If a system submits previously collected data that fully meets the number of samples required for initial source water monitoring under paragraph (b) of this rule and some of the data are rejected due to not meeting the requirements of this rule. The system must conduct additional monitoring to replace rejected data on a schedule approved by the Department. A system is not required begin this additional monitoring until two months after notification that data have been rejected and additional monitoring is necessary.

8. Analytical Methods:

(i) *E. coli* sample analysis. The analysis of *E. coli* samples must meet the analytical method and approved laboratory requirements of 40 CFR 141.704 through 141.705.

(ii) *Cryptosporidium* sample analysis. The analysis of *Cryptosporidium* samples must meet the criteria in 40 CFR 141.707(c).

(k) Following the completion of initial source water monitoring under this rule and each subsequent round of source water monitoring, a system that plans to make a change to its disinfection practice must create a disinfection profile and benchmark as outlined in the rule 335-7-6-.11 and submit the

proposed changes along with the disinfection profile to the Department for approval.

1. In lieu of conducting new monitoring for disinfection profiling, systems, with Department approval, may elect to meet the following requirements:

(i) Systems that have at least one year of existing data that is substantially equivalent to data collected under the provisions of rule 335-7-6-.11 may use this data to develop disinfection profiles if the system has neither made a significant change to its treatment practice nor changed sources since the data were collected. Systems may develop disinfection profiles using up to three years of existing data.

(ii) Systems may use disinfection profile(s) previously developed under rule 335-7-6-.11 in lieu of developing a new profile if the system has neither made a significant change to its treatment practice nor changes sources since the profile was developed. Systems that have not developed a virus profile must develop a virus profile using the same monitoring data on which the Giardia lamblia profile is based.

(l) Systems required to conduct source water monitoring under this section must submit a sampling schedule that specifies the calendar dates when the system will collect each required sample.

1. Systems must submit sampling schedules no later than three months prior to the applicable date listed in subparagraph (d) of this rule for each round of required monitoring and three months prior to monitoring required under subparagraph (e) of this rule.

2. Systems serving at least 10,000 people must submit their sampling schedule for the initial round of source water monitoring under subparagraph (d) of this rule to EPA electronically. If a system is unable to submit the sampling schedule electronically to EPA, the system may use an alternative approach for submitting the sampling schedule that is approved by EPA.

3. All sampling schedules must be submitted to the Department.

4. If EPA or the Department does not respond to a system regarding its sampling schedule, the system must sample at the reported schedule.

(m) Systems must collect samples within two days before or after the dates indicated in their sampling schedule (i.e.

within a five day period around the schedule date) unless one of the following conditions applies:

1. If an extreme condition or situation exists that may pose danger to the sample collector, or that cannot be avoided and causes the system to be unable to sample in the scheduled five-day period, the system must sample as close to the scheduled data as is feasible unless the Department approves an alternative sampling date. The system must submit an explanation for the delayed sampling date to the Department concurrent with the shipment of the sample to the laboratory.

2. If a system is unable to report a valid analytical result for a scheduled sampling date due to equipment failure, loss of or damage to the sample, failure to comply with analytical method requirements, including the quality control requirements or the failure of an approved laboratory to analyze the sample, then the system must collect a replacement sample.

(n) Any replacement samples must be collected no later than 21 days after receiving information that an analytical result cannot be reported for the scheduled date unless the system demonstrates that collecting a replacement sample within this time frame is not feasible or the Department approves an alternative resampling date. The system must submit an explanation for the delayed sampling date to the Department concurrent with the shipment of the sample to the laboratory.

(o) Systems that fail to meet the criteria of subparagraph (n) of this rule for any source water sample required to be collected must revise their sampling schedules to add dates for collecting all missed samples. Systems must submit the revised schedule to the Department for approval.

(p) Systems required to conduct source water monitoring for *Cryptosporidium* must collect samples from each plant that treats surface water or ground water under the influence of surface water. When multiple plants draw from the same influent, such as the same pipe or intake, the Department may approve one set of monitoring results to be used to satisfy the monitoring requirements for all plants.

(q) Systems must collect source water samples prior to chemical treatment, such as coagulants, oxidants, and disinfectants, unless it is not feasible to collect the sample before chemical addition and the chemical treatment is unlikely to have a significant effect on the analysis of the sample, the system may request to collect the sample after chemical addition. The system must receive written approval before taking the samples after chemical addition.

(r) Systems that recycle filter backwash water must collect source water samples prior to the point of filter backwash water addition.

(s) Systems that use bank filtration as pretreatment to a filtration plant must collect source water samples from the well (i.e., after bank filtration). Use of bank filtration during monitoring must be consistent with routine operational practices. Systems collecting samples after a bank filtration process may not receive treatment credit for the bank filtration under rule 335-7-6-.22.

(t) Systems with plants that use multiple water sources, including multiple surface water sources and blended surface water and ground water sources must collect samples as specified below. The use of multiple sources during monitoring must be consistent with routine operational practice.

1. If a sampling tap is available where the sources are combined prior to treatment, systems must collect samples from this tap.

2. If a sampling tap where the sources are combined prior to treatment is not available, systems must collect samples at each source near the intake on the same day and must comply with one of the following for sample analysis:

(i) Systems may composite samples from each source into one sample prior to analysis. The volume of sample from each source must be weighted according to the proportion of the source in the total plant flow at the time the sample is collected.

(ii) Systems may analyze samples from each source separately and calculate a weighted average of the analysis results for each sampling date. The weighted average must be calculated by multiplying the analysis result for each source by the fraction the source contributed to the total plant flow at the time the sample was collected and then summing these values.

(u) A description of the sampling location must be submitted to the Department with the sampling schedule. This description must address the position of the sampling location in relation to the system's water source(s) and treatment processes, including pretreatment, points of chemical treatment, and filter backwash recycle. If the Department does not respond to a system regarding sampling location(s), the system must sample at the reported location(s).

(v) Systems must report results from the source water monitoring required under this rule to the Department no later than 10 days after the end of the first full month when the sample is collected.

1. All systems serving a population of at least 10,000 must report the results from the initial source water monitoring to EPA electronically no later than 10 days after the end of the month when the sample is collected. If a system is unable to report monitoring results electronically, the system may use an alternative approach that is approved by EPA.

2. Systems must report the following data elements for each *Cryptosporidium* analysis: Data Element

Data Element
1. PWS ID
2. Facility ID
3. Sample collection date
4. Sample type (field or matrix spike)
5. Sample volume filtered (L), to the nearest ¼ L
6. Was 100% of the filtered volume examined
7. Number of oocysts

(i) For matrix spike samples, systems must also report the sample volume spiked and estimated number of oocysts spiked. These data are not required for field samples.

(ii) For samples in which less than 10 liters is filtered or less than 100% of the sample volume is examined, systems must also report the number of filters used and the packed pellet volume.

(iii) For samples in which less than 100% of sample volume is examined, systems must also report the volume of resuspended concentrate and volume of this resuspension processed through immunomagnetic separation.

3. Systems must report the following data elements for each *E. coli* analysis: Data Element

Data Element
1. PWS ID

2. Facility ID
3. Sample collection date
4. Analytical method number
5. Method type
6. Source type (flowing stream, lake/reservoir, GWUDI)
7. *E. coli* 100 ml
8. Turbidity

* *Systems serving fewer than 10,000 people that are not required to monitor for turbidity under subparagraph (b)2. of this rule are not required to report turbidity with their *E. coli* results.

(w) Following each round of source water monitoring required under this rule, systems must calculate a *Cryptosporidium* bin concentration for each plant for which monitoring was required. Calculation of the bin concentration must use the *Cryptosporidium* results reported under this rule and must follow the following procedures:

1. For systems that collect a total of at least 48 samples, the bin concentration is equal to the arithmetic mean of all sample concentrations.

2. For systems that collect a total of at least 24 samples, but not more than 47 samples, the bin concentration is equal to the highest arithmetic mean of all sample concentrations in any 12 consecutive months during which *Cryptosporidium* samples were collected.

3. For systems serving a population less than 10,000 that monitor for *Cryptosporidium* for only one year (i.e., collect 24 samples in 12 months), the bin concentration is equal to the arithmetic mean of all sample concentrations.

4. For systems with plants operating only part of the year that monitor fewer than 12 months per year, the bin concentration is equal to the highest arithmetic mean of all sample concentrations during any year of *Cryptosporidium* monitoring.

5. If the monthly *Cryptosporidium* sampling frequency varies, systems must first calculate a monthly average for each month of monitoring. Systems must then use these monthly average concentrations, rather than individual sample concentrations, in the applicable calculation for bin classification in subparagraphs (x)1. through 4. of this rule.

(x) Systems must determine their bin concentration using the following table and the *Cryptosporidium* bin concentration calculated under subparagraphs (x)1. through 4. of this rule:

For systems that are	**Concentration**	**Bin Classification**
Required to monitor for *Cryptosporidium*	Cryptosporidium *<0.075* oocysts/L	Bin 1
	0.075 oocysts/L = *Cryptosporidium* < 1.0 oocysts/L	Bin 2
	1.0 oocysts/L = *Cryptosporidium* < 3.0 oocysts/L	Bin 3
	Cryptosporidium = 3.0 oocysts/L	Bin 4
Serving <10,000 population and NOT required to monitor for *Cryptosporidium*	NA	Bin 1

(y) Systems must report each bin classification as required by this rule to the Department for approval no later than 6 months after the system is required to complete source water monitoring based on the schedule in this rule. The bin classification report to the Department must include a summary of source water monitoring data and the calculation procedure used to determine bin classification. Failure to comply with this paragraph is treatment technique violation.

(z) Systems must provide the level of additional treatment for *Cryptosporidium* specified in rule 335-7-6-.19 for the bin classification as determined under this rule and according to the schedule in rule 335-7-6-.20. Systems must provide the level of treatment required in rule 335-7-6-.19 based upon the highest bin classification determined in any round of source water monitoring. Systems that make significant changes to their watershed to lower *Cryptosporidium* levels in the source water, and are not utilizing the watershed control program to meet treatment requirements, may request to be placed in a lower bin classification if additional monitoring is conducted to ensure the lower bin classification is warranted. The bin reclassification must be based upon monitoring conducted in accordance with subparagraph (b) of this rule. Department approval is required for a system to be placed into a lower bin classification.

(aa) Analytical Methods: Analysis of all samples of *Cryptosporidium*, *E. coli* and turbidity for requirements contained in this rule shall comply with the approved EPA methodology found in 40 CFR 141.704 and by a laboratory certified by EPA or the Department.

Author: Dennis D. Harrison
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
History: **New Rule:** Filed December 18, 2007; effective January 22, 2008. **Amended:** Filed April 21, 2009; effective May 26, 2009. **Amended:** Filed December 14, 2010; effective January 18, 2011. **Amended:** Filed June 21, 2016; effective August 5, 2016.

335-7-2-.18 Monitoring Requirements Of Consecutive Systems.

When a public drinking water system obtains water from another public water system, the Department may modify the monitoring requirements imposed by this chapter to the extent that the interconnection of the systems justifies treating them as a single system for monitoring purposes. Any modified monitoring shall be conducted pursuant to a schedule specified by the Department and acceptable to the EPA.
Author: Joe Alan Power, Thomas S. DeLoach, Edgar K. Hughes, Dennis D. Harrison
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
History: May 23, 1977; **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005. **Amended:** Filed December 18, 2007; effective January 22, 2008.

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335-7-2-.19 Monitoring Waiver Criteria.

Waivers to eliminate or reduce certain chemical monitoring requirements may be granted for the contaminants listed below, according to the criteria listed below. Statewide or regional waivers may be issued by ADEM without application submittal. Individual source or systems waivers may be issued after an application containing the provisions outlined in this rule is approved by the Department.

(a) No waivers will be granted for:

1. Microbiological contaminants

2. Nitrates and nitrites

3. Disinfection Byproducts

(b) Monitoring waivers may be granted for:

1. Inorganics except nitrates and nitrites

2. Dioxin

3. SOCs

4. VOCs

(c) All waiver applications must address the following:

1. Previous analytical results.

2. The proximity of a source to a potential point or non-point source of contamination.

3. The environmental persistence and transport of the contaminants.

4. How well the source is protected against contamination due to factors such as the depth of the source and well construction.

5. Elevated nitrate levels in the water supply source.

Author: Joe Alan Power, Thomas S. DeLoach, Edgar K. Hughes, Dennis D. Harrison
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
History: Repealed and Replaced: Filed November 28, 1995; effective January 2, 1996. **Amended:** Filed December 21, 1998; effective January 25, 1999. **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed November 7, 2005; effective December 12, 2005. **Amended:** Filed December 18, 2007; effective January 22, 2008.

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335-7-2-.20 Reporting Requirements.

(1) All persons subject to this chapter shall comply with the following:

(a) Except where a shorter reporting period is specified in these regulations, the supplier of water shall report to the Department the results of any test, measurement or analysis

within the first 10 days following the month in which the result is received or the first 10 days following the end of the required monitoring period as stipulated by the Department, whichever is shortest.

(b) The supplier of water shall report to the Department within 48 hours the failure to comply with any primary drinking water standards (including failure to comply with monitoring requirements) set forth in this chapter.

(c) The supplier of water is not required to report analytical results to the Department in cases where a State Laboratory performs the analyses and reports the results to the Department.

(d) Within ten days of completion of each public notification, a certification that the system has fully complied with the public notification regulations and a representative copy of each type of notice shall be submitted to the Department. This includes the notice distributed, published, posted or made available to the persons served by the system or to the media as directed by the Department.

(e) The suppliers of water shall submit to the Department within the time stated in the request copies of any records required to be maintained or copies of any documents then in existence which the Department is entitled to inspect.

Author: Joe Alan Power, Thomas S. DeLoach, Edgar K. Hughes, Dennis D. Harrison
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
History: May 23, 1977. **Repealed and Readopted:** January 4, 1989; October 31, 1990; effective December 5, 1990. **Amended:** Filed May 2, 2000; effective June 6, 2000. **Amended:** Filed December 24, 2003; effective January 28, 2004. **Amended:** Filed November 7, 2005; effective December 12, 2005. **Amended:** Filed December 18, 2007; effective January 22, 2008.

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335-7-2-.21 Public Notification.

(1) Any public water system which fails to comply with an applicable MCL or MRDL established in these regulations, is granted an exemption from an applicable MCL fails to comply with an applicable treatment process, fails to comply with the requirements of any schedule prescribed pursuant to an exemption, fails to collect any 3 months of *Cryptosporidium* monitoring as

required in rule 335-7-2-.17, or fails to determine the system's *Cryptosporidium* bin classification, fails to take corrective action, fails to maintain at least 4-1og treatment of viruses before or at the first customer as required in 335-7-5-.22(6)(a), or has a treatment technique violation or reporting violation according to paragraph 335-7-2-.07(7) shall notify persons served by the systems as follows:

(a) Community systems shall provide notification within 30 days by other methods to reach persons not being reached by direct notification. These methods must include publication in a daily newspaper of general circulation in the area served by the system. If the area served by a public water system is not served by a daily newspaper of general circulation, notice shall instead be given in a weekly newspaper of general circulation serving the area. Public notification shall also be made by distribution of multiple copies to customers that provide drinking water to others, by the Internet, by posting for seven days or by delivery to community organizations if directed by the Department.

(b) Community water systems shall provide notification by direct mail, inclusion with a water bill or by hand delivery, within 30 days after the violation or failure.

(c) Following the initial notice given under this rule, the water system must give notice at least once every three months for as long as the violation or failure exists, unless the Department determines that appropriate circumstances warrant a different repeat notice frequency. The repeat notice must be given a minimum of at least once per year. No reduction in repeat notice frequency will be given for microbial contaminant maximum contaminant level violations.

(d) NTNC water systems must post notice in places of public view or provide hand delivery to those using the system within 30 days of becoming aware of the violation. The notice shall remain posted for a minimum of seven days or as long as the failure continues, whichever is greater. A copy of the notice must also be furnished to a communications media that is most likely to serve the local area.

(e) Non-community water systems must post notice in places of public view instead of hand delivery within 30 days of becoming aware of the violation. The notice shall remain posted for a minimum of seven days or as long as the failure continues, whichever is greater. A copy of the notice must also be furnished to a communications media that is most likely to serve the local area.

(f) When violations of the MCL of contaminants that may pose an acute risk to human health occur, public notification must be provided by the system within 24 hours of the discovery of

the violation by either radio and television, posting of the notice in conspicuous locations throughout the area served by the water system or by hand delivery of the notice to persons served by the water system. The water system must also consult with the Department within 24 hours to determine additional public notification requirements. The following violations are considered to be acute risk to human health:

1. Violation of the E. coli maximum contaminant level as specified in paragraph 335-7-2-.07(1).

2. Violation of the MCL for nitrates, nitrites or total nitrates and nitrites.

3. Violation of the MCL for organic or inorganic chemicals at a level determined by the Department to be an acute risk to human health.

4. An acute violation of the MRDL for chlorine dioxide.

5. Other violations or situations with significant potential to have serious adverse effects on human health as a result of short term exposure, as determined by the Department either in its regulations or on a case by case basis.

(g) Other situations which require public notification within 24 hours are:

1. Exceedance of the maximum allowable turbidity limit if the Department is not notified within 24 hours of the violation or when the Department determines that an acute violation has occurred.

2. Occurrence of a waterborne disease outbreak or other emergency such as a natural disaster that disrupts water treatment, a chemical spill or unexpected high levels of possible pathogens in the source water.

3. Detection of E. coli, enterococci, or coliphage in source water samples as specified under 335-7-5-.22(5)(a) and 335-7-5-.22(5)(b).

(2) A community water system must give a copy of the most recent public notice for any outstanding violation of any maximum contaminant level, any maximum residual disinfectant level, any treatment technique requirement or variance or exemption schedule to all new billing units or new hookups prior to or at the time service begins.

(3) Notices given shall be written in a manner reasonably designed to inform fully the users of the system. The notice shall be conspicuous and shall not use unduly technical language, unduly

small print or other methods which would frustrate the purpose of the notice. The notice shall disclose all material facts regarding the subject including the contaminant of concern and if applicable the contaminant level, when the violation or situation occurred, any potential adverse health effects, the population at risk, reasonably available methods of mitigating known or potential contamination in drinking water, steps being taken by the water system to mitigate problems in drinking water, and the necessity for seeking alternative water supplies, if any. Each notice shall contain the name, business address, and telephone number of the water system's owner, operator or designee as an additional source of information regarding the notice. The notice must also include what the water system is doing to correct the violation or situation and when the system expects to return to compliance or resolve the situation. When appropriate, a clear statement that a primary drinking water standard has been violated and any preventive measures that should be taken by the public. Notices for all MCL, treatment technique, MRDL, and monitoring violations shall contain the specific language as written in Appendix C. Notices must also include the standard distribution language as written in Appendix C. For public water systems serving a large proportion of non-English speaking consumers, the public notice must contain information in the appropriate language 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 notice or to request assistance in the appropriate language.

(4) Any water system which fails to comply with an applicable testing procedure, fails to perform required monitoring, fails to maintain the required disinfectant residual, fails to notify of the availability of unregulated monitoring results, fails to notify of the exceedance of the secondary fluoride standard, fails to comply with reporting and recordkeeping requirements associated with microbial contaminants, or is granted an exemption shall notify persons served by the system as follows:

(a) Community water systems shall provide notification within one year of being notified of the violation by direct mail, inclusion with a water bill or by hand delivery. A copy of the notice must be furnished to a communications media that is most likely to serve the local area. Notification by mail or hand delivery must be made every three months following the initial newspaper notification for as long as the violation continues or exemption continues. Public notification shall also be made by distribution of multiple copies to customers that provide drinking water to others, by the internet, by posting for seven days or by delivery to community organizations if directed by the Department.

(b) In lieu of an individual notice, the public water system may use an annual report of monitoring violations or the CCR, as long as the method of delivery and content of the violation

notice meets the requirements of the regulations and the CCR or annual report is provided to persons served within twelve months after the system learns of the violation.

(c) NTNC water systems must post a notice in places of public view instead of hand delivery. The notice shall remain posted for a minimum of seven days or as long as the failure continues, whichever is greater. A copy of the notice must also be furnished to a communications media that is most likely to serve the local area. In lieu of an individual notice, the public water system may use an annual report of monitoring violations, as long as the method of delivery and content of the violation notice meets the requirements of the regulations.

(d) Non-community water systems must post a notice in places of public view instead of hand delivery. The notice shall remain posted for a minimum of seven days or as long as the failure continues, whichever is greater. A copy of the notice must also be furnished to a communications media that is most likely to serve the local area. In lieu of an individual notice, the public water system may use an annual report of monitoring violations, as long as the method of delivery and content of the violation notice meets the requirements of the regulations.

(5) Each community and NTNC water system shall issue notice when required by the Department to persons served by the system that may be affected by lead contamination of their drinking water. Such notification is required even if there is no violation of the primary drinking water standards for lead. The notice for lead shall include the specific language as written in Appendix C.

(6) Each water system required to perform monitoring for unregulated contaminants shall notify persons served by the water system of the availability of said monitoring results no later than twelve months after the monitoring results are known. Community water systems shall provide notification by direct mail, inclusion with a water bill or by hand delivery. Public notification shall also be made by publication in a local newspaper, distribution of multiple copies to customers that provide drinking water to others, by the internet, by posting for seven days or by delivery to community organizations if directed by the Department. NTNC water systems must post a notice in places of public view instead of hand delivery. The notice shall remain posted for a minimum of seven days. The notice shall identify the system’s owner, operator or designee and telephone number to contact for information on the monitoring results.

(7) Community water systems that exceed the fluoride secondary maximum contaminant level (SMCL) of 2 mg/l (determined by the last single sample), but do not exceed the MCL of 4 mg/l for fluoride, must provide the public notice in Appendix C to persons served by

the system. The public notice must be provided as soon as practical but no later than 12 months from the day the water system learns of the exceedance. A copy of the notice must also be sent to all new billing units and new customers at the time service begins and to the State public health officer. The public water system must repeat the notice at least annually for as long as the SMCL is exceeded. If the public notice is posted, the notice must remain in place for as long as the SMCL is exceeded, but in no case less than seven days even if the exceedance is eliminated. Community water systems shall provide notification by direct mail, inclusion with a water bill or by hand delivery. Public notification shall also be made by publication in a local newspaper, distribution of multiple copies to customers that provide drinking water to others, by the internet, by posting for seven days or by delivery to community organizations if directed by the Department.

(8) Public water systems that provide water to trailer parks, apartments, nursing homes, schools, businesses and other similar facilities must include in their notice the following language: Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.

(9) Public water systems that sell or otherwise provide drinking water to other public water systems are required to give public notice to the owner or operator of the consecutive system. The consecutive system shall provide public notice to the customers that it serves in accordance with this rule.

(10) If a public water system has a violation in a portion of the distribution system that is physically or hydraulically isolated from other parts of the distribution system, the Department may allow the system to limit distribution of the public notice to only customers served by that portion of the system which is out of compliance. Written permission is required from the Department before limiting distribution of the notice.

(11) For continuing violations, the Department may allow the water system to notify their customers once a year.

Author: Joe Alan Power, Thomas S. DeLoach, Edgar K. Hughes, Dennis D. Harrison

Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.

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2005; effective December 12, 2005. **Amended:** Filed December 18, 2007; effective January 22, 2008. **Amended:** Filed April 21, 2009; effective May 26, 2009. **Amended:** Filed October 21, 2014; effective November 25, 2014. **Amended:** Filed June 21, 2016; effective August 5, 2016.

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335-7-2-.22 Assessments.

(1) Systems must conduct assessments after exceeding treatment technique triggers listed below:

(a) Level 1 treatment technique triggers.

1. For systems collecting 40 or more samples per month, the system exceeds 5.0% total coliform-positive samples for the month.

2. For systems collecting fewer than 40 samples per month, the system has two or more total coliform-positive samples in the same month.

3. The system fails to collect every required repeat sample after any total coliform-positive sample.

(b) Level 2 treatment technique triggers.

1. An E. coli MCL violation.

2. A second Level 1 trigger within a rolling 12-month period, unless the Department has determined a likely reason for the total coliform positive samples that caused the first Level 1 treatment technique trigger and has established that the system has corrected the problem.

(2) Requirements for the assessments include the following:

(a) Systems must ensure that Level 1 and 2 assessments are conducted in order to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices. Level 2 assessments must be conducted by parties approved by the Department.

(b) When conducting assessments, the systems must ensure that the minimum elements are evaluated including review and identification of inadequacies in sample sites; sampling

protocol; sample processing; non typical events that could affect distribution water quality or indicate that distribution water quality was impaired; changes in distribution system maintenance and operation that could affect distribution water quality (including water storage); source and treatment considerations that bear on distribution water quality, where appropriate (e.g., small ground water systems); and existing water quality monitoring data. The system must conduct the assessment consistent with any Department directives that address specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

(c) The system must complete a Level 1 or 2 assessment as soon as practical after any trigger is exceeded. In the completed assessment form, the system must describe sanitary defects detected, corrective actions completed, and a proposed timetable for any corrective actions not already completed. The assessment form may also note that no sanitary defects were identified. The system must submit the completed Level 1 assessment form to the Department within 30 days after the system learns that it has exceeded a trigger.

(d) After the Department reviews the completed Level 1 or 2 assessment and determines that the assessment is not sufficient, revisions may be required to the assessment form. The system must submit a revised assessment form to the Department on an agreed-upon schedule not to exceed 30 days from the date of notification.

(e) A system must ensure that a Level 2 assessment consistent with Department requirements is conducted if the system exceeds one of the treatment technique triggers. The system must comply with any expedited or additional actions required by the Department in the case of an E. coli MCL violation.

(f) The system may conduct Level 2 assessments if the system has staff or management with the certifications or qualifications specified by the Department unless otherwise directed by the Department.

(3) Systems must correct sanitary defects found in either a Level 1 or 2 assessment. For corrective actions not completed by the time of submission of the assessment form, the system must complete the corrective action(s) in compliance with a timetable approved by the Department. The system must notify the Department when each scheduled corrective action is completed.

(4) A treatment technique violation occurs when a system exceeds a treatment technique trigger and then fails to conduct the required assessment or complete corrective actions within the timeframe specified in the assessment or by the Department.

(5) Failure to submit completed assessment form after a system properly conducts an assessment in a timely manner is a reporting violation.
Author: Thomas S. DeLoach
Statutory Authority: Code of Ala. 1975, §§22-23-33, 22-23-49, 22-22A-5, 22-22A-6.
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