

Proposed Action on Regulations

Transmittal Sheet PROPOSED OR REPROPOSED Actions on Regulations	Date Filed with AELR Committee	TO BE COMPLETED BY DSD
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		Document Number
		Date of Publication in MD Register

1. Desired date of publication in Maryland Register: 4/15/2016

2. COMAR Codification

Title Subtitle Chapter Regulation

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3. Name of Promulgating Authority

Department of the Environment

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6. Check applicable items:

- New Regulations

- Amendments to Existing Regulations

Date when existing text was downloaded from COMAR online: 1/11/16.

Repeal of Existing Regulations

Recodification

Incorporation by Reference of Documents Requiring DSD Approval

Reproposal of Substantively Different Text:

: Md. R

(vol.) (issue) (page nos) (date)

Under Maryland Register docket no.: --P.

7. Is there emergency text which is identical to this proposal:

Yes - No

8. Incorporation by Reference

Check if applicable: Incorporation by Reference (IBR) approval form(s) attached and 18 copies of documents proposed for incorporation submitted to DSD. (Submit 18 paper copies of IBR document to DSD and one copy to AELR.)

9. Public Body - Open Meeting

OPTIONAL - If promulgating authority is a public body, check to include a sentence in the Notice of Proposed Action that proposed action was considered at an open meeting held pursuant to General Provisions Article, §3-302(c), Annotated Code of Maryland.

OPTIONAL - If promulgating authority is a public body, check to include a paragraph that final action will be considered at an open meeting.

10. Children's Environmental Health and Protection

Check if the system should send a copy of the proposal to the Children's Environmental Health and Protection Advisory Council.

11. Certificate of Authorized Officer

I certify that the attached document is in compliance with the Administrative Procedure Act. I also certify that the attached text has been approved for legality by Nancy Young, Assistant Attorney General, (telephone #410-537-3042) on 3/4/16. A written copy of the approval is on file at this agency.

Name of Authorized Officer

Ben Grumbles

Title

Secretary

Telephone No.

410-537-3084

Date

3/11/16

Title 26 DEPARTMENT OF THE ENVIRONMENT

Subtitle 04 REGULATION OF WATER SUPPLY, SEWAGE DISPOSAL, AND SOLID WASTE

Chapter 01 Quality of Drinking Water in Maryland

Authority: Environment Article, Title 9, Subtitles 2 and 4

Annotated Code of Maryland

Notice of Proposed Action

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The Secretary of the Environment proposes to amend Regulation **.01, .01-1, .03, .04, .10, .11, .11-1, .11-2, .19, .20, .20-2, and .21**, and to adopt Regulation **.11-4 under COMAR 26.04.01 Quality of Drinking Water in Maryland**.

Statement of Purpose

The purpose of this action is to adopt federal regulations under the Safe Drinking Water Act for the Revised Total Coliform Rule (RTCR), which were finalized by EPA in February 2013, and to adopt a minor revision to the Stage 2 Disinfection Byproduct Rule monitoring requirements (COMAR 26.04.01.15-2).

The RTCR eliminates the specific drinking water standards for total coliform bacteria and fecal coliform bacteria while increasing other monitoring and reporting requirements that will increase oversight of public water systems. The RTCR establishes a maximum contaminant level (MCL) for *E.coli* and uses the presence of *E.coli* or total coliform to initiate a “find and fix” approach to address contamination that could enter into the distribution system. *E.coli* is a more specific indicator of fecal contamination than fecal coliform, which was the indicator under the Total Coliform Rule (TCR) which was adopted in 1989. EPA also replaced the MCL for total coliforms with a treatment technique (TT) requirement for total coliforms in the RTCR.

Under the RTCR all PWSs that confirm total coliform bacteria in the drinking water must complete a Level 1 assessment of the PWS. A Level 1 assessment is an evaluation to identify the presence of sanitary defects, defects in distribution system coliform monitoring practices, and the probable causes for the assessment. It is conducted by the system operator or owner. PWSs would be required to submit a report identifying sanitary defects detected, corrective actions completed, and a timetable for any corrective actions not already completed.

Under the RTCR all PWSs experiencing ongoing total coliform contamination, or *E. coli* contamination must receive a Level 2 assessment. A Level 2 assessment provides a more detailed examination of the system (including the systems monitoring and operational practices) than the Level 1 assessment through the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices. It is conducted by the State or a third party approved by the State. The State may also direct expedited actions in the case of an *E.coli* violation. Additionally, as part of the Level 2 assessment, PWSs must submit to the State a report identifying sanitary defects detected, corrective actions completed, and a timetable for completion of any corrective actions that are not already completed.

All PWSs must comply with the RTCR requirements starting April 1, 2016. PWSs include all Community Water Systems (CWSs) Non-Transient Non-Community water Systems (NTNCWSs), and Transient Non-Community Water Systems (TNCWSs).

Background

The Safe Drinking Water Act (SDWA) requires EPA to review and revise, as appropriate each existing National Primary Drinking Water Regulation (NPDWR) at least once every six years. In 2003, EPA completed its review of the TCR. The purpose of the review was to identify new health risk assessments and changes in technology or other factors that would support a regulatory revision that would maintain or improve public water protection. The EPA published the RTCR in the Federal Register on February 13, 2013 (78 FR 10269) and minor corrections on February 26, 2014 (79 FR 10665). The RTCR upholds the purpose of the 1989 TCR to protect public health by ensuring the integrity of the drinking water distribution system and monitoring for the presence of microbial contamination. The RTCR, as with the TCR, is the only microbial drinking water regulation that applies to all PWSs.

Comparison to Federal Standards

There is a corresponding federal standard to this proposed action; the proposed regulation is not more restrictive or stringent.

Estimate of Economic Impact

I. Summary of Economic Impact. Changes to the existing Total Coliform Rule will have a direct effect on the issuing agency by increasing the cost of its regulatory program, and on suppliers of water by increasing the costs for report preparation. Changes to the requirements for testing will have a negligible impact. A benefit to the public, the issuing agency, and the local government, though not quantifiable, will result in improved maintenance and treatment of the water system since the focus will be on identifying potential contamination sources, and correcting the sanitary defect. Changes to the affected industries will have a negligible impact. The estimated changes in cost from the 1989 TCR to the RTCR are related to 7 categories: Rule Implementation and Annual Administration, Revision of Sample Siting Plans, Monitoring, Annual Site Visits, Assessments, Corrective Actions and Public Notification. The estimated economic impacts for these categories are summarized in the

table shown in the Assumptions Section under D. for other industries and trade groups, they cost is calculated by adding the totals for all three PWS types (total - \$286,400). The basis for the cost estimates was provided with the final rule in the Federal Register, and are annualized.

RTCR Rule Implementation and Annual Administration: Under the RTCR all PWSs would incur one-time costs that include training employees on rule requirements. All PWSs are subject to additional transitional implementation activities. The State and local agencies will incur administrative costs to implement the RTCR. These implementation costs are necessary to ensure that the provisions of the RTCR are properly carried out. The State will need to allocate time for staff to establish and maintain the programs necessary to comply with the RTCR, including adopting state regulations, developing new report forms, and modifying data management systems to track the new PWS reports to the State.

Revision of Sample Siting Plans: Under the RTCR, all PWSs subject to the RTCR would incur one-time costs to revise existing sample siting plans to identify sampling locations and collection schedules that are representative of water throughout the distribution system. System sample siting plans must include routine and repeat sample sites and any sampling points necessary to meet Ground Water Rule (GWR) and the Stage 1 Disinfection Byproduct Rule requirements. Under the RTCR, the State is expected to incur one-time costs to review and approve sample siting plans for PWSs. State costs are based on the number of PWSs submitting revised sample siting plans each year.

Monitoring: Monitoring costs for PWSs are calculated by multiplying the total numbers of routine, additional routine, and repeat samples required under the 1989 TCR and RTCR by the monitoring costs per sample as provided by the September 2012 Economic Analysis for the Final RTCR.

Annual Site Visits: Under the RTCR, any PWS on an annual monitoring schedule would be required to also have an annual site visit conducted by the State or State-designated third party. A voluntary Level 2 assessment, or a sanitary survey can also satisfy the annual site visit requirement.

Assessments: Under the RTCR all PWSs experiencing a Level 1 trigger must complete a Level 1 assessment, and all PWSs experiencing a Level 2 trigger must complete a Level 2 assessment. The labor as provided by the September 2012 Economic Analysis for the Final RTCR are used to generate Level 1 and Level 2 assessment unit costs by PWS size and type. Labor hours are assumed to include time for reporting and recordkeeping activities. Under the RTCR, the State would incur burden to review the assessment forms from the PWSs and to conduct Level 2 assessments. State costs are based on the number of PWSs submitting assessment reports. The State labor rate as provided by the September 2012 Economic Analysis for the Final RTCR provided by EPA and estimates of labor hours are used to generate State Level 1 and Level 2 assessment unit costs.

Corrective Actions: Under the RTCR all PWSs are required to correct sanitary defects found through the performance of Level 1 or Level 2 assessments. For modeling purposes, EPA estimated only the net change in the number of corrective actions performed under the RTCR compared to the 1989 TCR. Based on discussions with state representatives, EPA estimates that additional corrective actions would be performed for only 10% of the assessments undertaken as a result of the RTCR. The State of Maryland already engages in corrective actions with systems, so no extra costs are expected.

Public Notification: Public notification (PN) for exceeding a maximum contaminant level or treatment technique requirement are assumed to be comparable to the existing level of effort, so there is no increased expense. Public notification for monitoring and reporting violations will be increased due to the complexity of the RTCR. For Community Water Systems, they will use the annual Consumer Confidence Report to provide the notification. Estimates of PWS unit costs for PN are derived by multiplying PWS labor rates as provided by the September 2012 Economic Analysis for the Final RTCR.

II. Types of Economic Impact.

	Revenue (+) Expense (-)	Magnitude
A. On issuing agency:	(-)	approx. \$171,222
B. On other State or local agencies:	(-)	approx. \$76,250
C. On regulated industries or trade groups:	(-)	approx. \$286,400
D. On other industries or trade groups:	(0)	None
E. Direct and indirect effects on the public:	(-)	Minimal

III. Assumptions.

A. The proposed amendments will replace the current regulations for monitoring bacteriological quality of drinking water. The equivalent of three new permanent Natural Resource Planner II positions are needed to cover the additional compliance and enforcement activities, and responsibilities associated with implementing the new regulations for public water systems.

B. Local governments will be affected by the proposed action since they own and operate PWSs. There are 470 total PWSs that are locally owned. There are 207 CWSs, 163 NTNCs and 101 TNCs. Using the totals of the cost impacts for the different PWS types estimated in the table in section D, the estimates for local government owned systems were calculated as a percentage of the estimated cost. The estimated costs for local government owned CWSs is \$56,781, for NTNCWSs is \$10,633 and for

TNCWSs is \$8,836. The total estimated costs for all local government owned PWSs is \$76,250. In addition, seventeen County Health Departments have accepted delegation agreements from the State to implement regulations for transient noncommunity systems.

C. Public water systems are the regulated industry that will be most affected by the proposed action. The cost model provided by EPA for the changes in cost between the Total Coliform Rule and the Revised Total Coliform Rule for public water systems was used to calculate the increased costs for public water systems. The cost of the annual impact of the RTCR per PWS generally increases with PWS size, the range of the costs is expected to be fairly wide and some individual PWSs may be more heavily impacted than others. The total estimated cost for Public Water Systems in Maryland is \$286,400, which is the total of the three system type costs. Based on a total population of 5 million persons, the estimated cost of this rule is less than 10 cents per person. The table below includes the number of PWSs as of November 2015:

Public Water Systems and the Estimated Cost Impact

Population	CWS			NTNC			TNC		
	Number of Systems	Cost/system	Cost Impact	Number of Systems	Cost/system	Cost Impact	Number of Systems	Cost/system	Cost Impact
<500	292	\$23	\$6,716	451	\$18	\$8,118	2,212	\$80	\$176,960
500 - 3,300	113	\$40	\$4,520	84	\$116	\$9,744	117	\$164	\$19,188
3,301 - 10,000	38	\$377	\$14,326	1	\$563	\$563	2	\$611	\$1,222
10,001 - 50,000	22	\$1,453	\$31,966	0	-	\$0	0	-	\$0
>50,000	9	\$1,453	\$13,077	0	-	\$0	0	-	\$0
Totals	474		\$70,605	536		\$18,425	2,331		\$197,370

D. Other industries are not expected to be directly impacted by these regulations.

E. Some Community Water Systems may choose to increase the rates they charge their consumers to pass on their increased costs as a result of the proposed action.

Economic Impact on Small Businesses

The proposed action has a minimal economic impact on small business. Small businesses include public water systems that are privately-owned, and serve population of 500 or less consumers. Using EPA's figures, the estimated economic impact on these public water systems would be \$173,145.

Impact on Individuals with Disabilities

The proposed action has minimal or no economic impact on individuals with disabilities.

Opportunity for Public Comment

Comments may be sent to Nancy Reilman, Division Chief, Water Supply Program, Maryland Department of the Environment, 1800 Washington Boulevard, Suite 450, Baltimore, Maryland 21230, or call 410-537-3729, or e-mail to nancy.reilman@maryland.gov, or fax to 410-537-3157. Comments will be accepted through April 15, 2016. A public hearing has not been scheduled.

01 Definitions.

A. In this chapter, the following terms have the meanings indicated.

B. Terms Defined.

(1) "Action level" means the concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

(2) "Approving Authority" means the Secretary of the Environment or his designee.

(3) "Best available technology (BAT)" means the best technology, treatment techniques, or other means which the approving authority finds available, after examination for efficacy under field conditions and not solely under laboratory conditions, taking cost into consideration.

(4) "Board" means the State Board of Waterworks and Waste Systems Operators as described in Environment Article, Title 12, Annotated Code of Maryland.

(5) "Clean compliance history" is, for the purposes of subpart Y of 40 CFR § 141, a record of no MCL violations under § 141.63; no monitoring violations under § 141.21 or subpart Y; and no coliform treatment technique trigger exceedances or treatment technique violations under subpart Y.

([4-1]6) "Combined distribution system" means the interconnected distribution system consisting of the distribution systems of wholesale systems and of the consecutive systems that receive finished water.

([5]7) "Community water system" means a public water system which serves at least 15 service connections used by year-round residents, or regularly serves at least 25 year-round residents.

([6] 8) "Compliance cycle" means the 9-year calendar year cycle during which public water systems will monitor. Each compliance cycle consists of three 3-year compliance periods. The first calendar year cycle begins January 1, 1993 and ends December 31, 2001, the second begins January 1, 2002 and ends December 31, 2010, the third begins January 1, 2011 and ends December 31, 2019.

([7]9) "Compliance period" means a 3-year calendar period within a compliance cycle. Each compliance cycle has three 3-year compliance periods. Within the third compliance cycle, the first compliance period runs from January 1, 2011 to December 31, 2013, the second from January 1, 2014 to December 31, 2016, the third compliance period from January 1, 2017 to December 31, 2019.

([7-1]10) "Comprehensive performance evaluation (CPE)" means a thorough review and analysis of a treatment plant's performance-based capabilities and associated administrative, operation, and maintenance practices.

([7-2]11) "Consecutive system" means a public water system that receives some or all of its finished water from one or more wholesale systems. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

([8]12) "Construction permit" means a permit issued by the Department of the Environment under Environment Article, §9-204, Annotated Code of Maryland, to authorize installation of a water system.

([9]13) "Contaminant" means any physical, chemical, biological, or radioactive substance in drinking water.

([9-1]14) "Conventional filtration treatment" means a series of processes including coagulation, flocculation, sedimentation, and filtration resulting in substantial particulate removal.

([10]15) "Coverage ratio" means the ratio of the sum of the annual net operating profit for 5 years to the sum of the annual debt service requirements for 5 years.

([10-1]16) Direct Filtration.

(a) "Direct filtration" means a series of processes resulting in substantial particulate removal.

(b) "Direct filtration" includes coagulation and filtration.

(c) "Direct filtration" does not include sedimentation.

([11]17) "Disinfectant" means any oxidant, including but not limited to chlorine, chlorine dioxide, chloramines, and ozone, added to the water in any part of the treatment or distribution process, that is intended to inactivate pathogenic microorganisms.

([11-1]18) "Disinfection profile" means a graphical representation of a water system's level of *Giardia lamblia* or virus inactivation measured during the course of a year.

([12]19) "Dose-equivalent" means the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (ICRU).

([12-1]20) "Enhanced coagulation" means the addition of sufficient coagulant for improved removal of disinfection byproduct precursors by conventional filtration treatment.

([12-2]21) "Enhanced softening" means the improved removal of disinfection byproduct precursors by precipitative softening.

([12-3]22) "Filter profile" means a graphical representation of individual filter performance, based on continuous turbidity measurements or total particle counts versus time for an entire filter run, from startup to backwash inclusive, that includes an assessment of filter performance while another filter is being backwashed.

([12-4]23) "GAC10" means granular activated carbon filter beds with an empty-bed contact time of 10 minutes based on average daily flow and a carbon reactivation frequency of every 180 days, except that the reactivation frequency for GAC10 used as a best available technology for compliance with Regulation .15-2 of this chapter shall be 120 days.

([12-5]24) "GAC20" means granular activated carbon filter beds with an empty-bed contact time of 20 minutes based on average daily flow and a carbon reactivation frequency of every 240 days.

([13]25) "Gross alpha particle activity" means the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample exclusive of the contribution, if any, due to radon and uranium.

([14]26) "Gross beta particle activity" means the total radioactivity due to beta particle emission as inferred from measurements on a dry sample exclusive of the contribution, if any, due to potassium-40 and other naturally occurring radionuclides.

([15]27) "Ground water under the direct influence of surface water (GWUDI)" means any water beneath the surface of the ground with:

(a) Significant occurrence of insects or other macroorganisms, algae, or large diameter pathogens such as *Giardia lamblia* or *Cryptosporidium*; or

(b) Significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH which closely correlate to climatological or surface water conditions.

([15-1]28) "Haloacetic acids (five) (HAA5)" mean the sum of the concentrations in milligrams per liter of the haloacetic acid compounds (monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid, rounded to 2 significant figures after addition.

([16]29) "Halogen" means one of the chemical elements chlorine, bromine, or iodine.

([17]30) "Initial compliance period" means the first full 3-year compliance period which begins at least 18 months after promulgation of a regulation under 40 CFR § 141, with the exception that for contaminants listed in Regulations .06A(1), (5), (8), (11), and (16) and .07D(19)—(21) and E(16)—(30) of this chapter, the initial compliance period means January 1, 1993—December 31, 1995 for systems with 150 or more service connections, and January 1, 1996—December 31, 1998 for systems having fewer than 150 service connections.

([17-1]31) "Lead-free" means:

(a) Solders and flux containing not more than 0.2 percent lead;

(b) Pipes and pipe fittings containing not more than 8.0 percent lead; and

(c) Pipe fittings and fixtures intended by the manufacturer to dispense water for human ingestion that are in compliance with plumbing standards established in accordance with 42 U.S.C. §300g-6(e).]

(a) *Containing not more than a weighted average of 0.25 percent lead when used with respect to the wetted surface of pipes, pipe fitting, plumbing fittings, and fixtures; and*

(b) *Not containing more than 0.2 percent lead when used with respect to solder and flux.*

(32) "Level 1 assessment" is an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment. It is conducted by the system operator or owner. Minimum elements include review and identification of a typical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a ground water system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The system must conduct the assessment consistent with any State directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

(33) "Level 2 assessment" is an evaluation to identify the possible presence of sanitary defects, defects in distribution system coliform monitoring practices, and (when possible) the likely reason that the system triggered the assessment. A Level 2 assessment provides a more detailed examination of the system (including the system's monitoring and operational practices) than does a Level 1 assessment through the use of more comprehensive investigation and review of available information, additional internal and external resources, and other relevant practices. It is conducted by an individual approved by the State, which may include the system operator. Minimum elements include review and identification of atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., whether a ground water system is disinfected); existing water quality monitoring data; and inadequacies in sample sites, sampling protocol, and sample processing. The system must conduct the assessment consistent with any State directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system. The system must comply with any expedited actions or additional actions required by the State in the case of an *E. coli* MCL violation.

([18]34) "Man-made beta particle and photon emitters" means all radionuclides emitting beta particles and/or photons listed in Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure, NBS Handbook 69, except the daughter products of thorium-232, uranium-235, and uranium-238.

([19]35) "Maximum contaminant level (MCL)" means the maximum permissible level of a contaminant in water which is delivered to the users of a public water system. In the case of turbidity, the maximum permissible level is measured at the point of entry to the distribution system. Materials added to the water under circumstances controlled by the consumer are excluded from this definition. Materials resulting from corrosion of piping and plumbing caused by water quality are not excluded from this definition.

([20]36) "Maximum contaminant level goal (MCLG)" means the maximum level of a contaminant in drinking water at which no known or anticipated adverse effects on the health of persons would occur, and which allows an adequate margin of safety. Maximum contaminant level goals are nonenforceable health goals.

([20-1]37) "Maximum residual disinfectant level (MRDL)" means a level of a disinfectant added for water treatment that may not be exceeded at the consumer's tap without an unacceptable risk of adverse health effects. The disinfectants include chlorine, chloramines, and chlorine dioxide.

([20-2]38) "Maximum residual disinfectant level goal (MRDLG)" means the maximum level of a disinfectant added for water treatment at which no known or anticipated adverse effect on the health of individuals occurs, and which allows an adequate margin of safety. MRDLGs are nonenforceable health goals and do not reflect the benefit of the addition of the chemical for control of water-borne microbial contaminants.

([21]39) "Maximum total trihalomethane potential (MTP)" means the maximum concentration of total trihalomethanes produced in a given water sample containing a halogen disinfectant residual after 7 days at a temperature of 25°C or above.

([22]40) "Near the first service connection" means within the first 20 percent of connections that receive finished water from the treatment plant, as measured by water transport time within the distribution system.

([23]41) "Net operating profit" means the total of the operating profit and the nonoperating revenue.

([24]42) "New system" means a community water system or a nontransient noncommunity water system that commences operation after October 1, 1999.

([25]43) "Noncommunity water system" means a public water system that does not meet the requirements of §B(7) of this regulation. These systems serve motels, hotels, medical facilities, restaurants, schools, industrial plants, and similar facilities not connected to a community water system.

([26]44) "Nontransient noncommunity water system (NTNCWS)" means a public water system that is not a community water system and that regularly serves at least 25 of the same individuals over 6 months per year.

([27]45) "Operating profit" means the total of the operating revenue minus operating expenses.

([28]46) "Operating ratio" means the ratio of the sum of the annual operating revenues for 5 years to the sum of the annual operating, maintenance, and replacement expenses for 5 years.

([29]47) "Person" means the State, a federal agency, county, municipality, partnership, corporation, cooperative, company, sanitary district, sanitary commission, authority, institution, or individual.

([30]48) "Picocurie (pCi)" means that quantity of radioactive material producing 2.22 nuclear transformations per minute.

([31]49) "Plan for compliance" means a schedule of actions that is submitted by the violator and is approved by the Approving Authority.

([32]50) "Point-of-entry treatment device (POE)" is a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the water distributed throughout the house or building.

([33]51) "Point-of-use treatment device (POU)" is a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap.

([34]52) Public Water System.

(a) "Public water system" means a system that provides water for human consumption to the public through pipes or other constructed conveyances, if the system has at least 15 service connections or regularly serves at least 25 individuals daily at least 60 days out of the year.

(b) "Public water system" includes:

(i) Any collection, treatment, storage, and distribution facilities under control of the operator of the system, and used primarily in conjunction with the system; and

(ii) Any collection or pretreatment storage facilities not under that control which are used primarily in connection with the system.

(c) "Public water system" does not include any special irrigation districts as defined in 40 CFR §141.2.

([35]53) "Rem" means the unit of dose-equivalent from ionizing radiation to the total body or any internal organ or organ system. A millirem (mrem) is 1/1000 of a rem (0.001 rem).

([36]54) "Repeat compliance period" means any subsequent compliance period after the initial compliance period.

([37]55) "Reportable incident" means any occurrence in the operation, maintenance, repair, or extension of a water supply system or its appurtenances that causes a permanent or temporary change that may adversely affect the quality or quantity of water supplied to the users of the system.

([38]56) "Sampling point" means each entry point to the distribution system which is representative of each well after treatment where ground water sources are used, or, where surface water sources are used, each entry point to the distribution system after any application of treatment or a point in the distribution system which is representative of each source after treatment.

(57) *"Sanitary defect" is a defect that could provide a pathway of entry for microbial contamination into the distribution system or that is indicative of a failure or imminent failure in a barrier that is already in place.*

([39]58) "Sanitary survey" means an on-site review of the water source, facilities, equipment, operation and maintenance of a public water system for the purpose of evaluating the adequacy of the system for producing and distributing safe drinking water.

(59) *"Seasonal system" is a non-community water system that is not operated as a public water system on a year-round basis and starts up and shuts down at the beginning and end of each operating season.*

([40]60) Service Connection.

(a) "Service connection" means a connection to a water system.

(b) "Service connection" does not include a connection to a system that delivers water by a constructed conveyance other than a pipe if:

(i) The water is used exclusively for purposes other than residential uses, consisting of drinking, bathing, cooking, or other similar uses;

(ii) The State determines that alternative water to achieve the equivalent level of public health protection provided by the national primary drinking water regulations is provided for residential or similar uses for drinking and cooking; or

(iii) The State determines that the water provided for residential or similar drinking, cooking, and bathing is centrally treated or treated at the point of entry by the provider, a pass-through entity, or the user to achieve the equivalent level of protection provided by the applicable national primary drinking water regulations.

([41]61) "Standard sample" means the aliquot of finished drinking water that is examined for the determination of the maximum contaminant level.

([41-1]62) "Subpart H systems" means public water systems using surface water or ground water under the direct influence of surface water as a source that are subject to the requirements of Subpart H of 40 CFR §141.

([42]63) "Superintendent" means an individual employed or appointed in accordance with Environment Article, Title 12, Annotated Code of Maryland, and certified by the Board to be in responsible charge of the operation of a water supply system.

([43]64) "Supplier of water" means any person who owns or operates a public water system.

([43-1]65) "SUVA" means specific ultraviolet absorption at 254 nanometers (nm), an indicator of the humic content of water. It is a calculated parameter obtained by dividing a sample's ultraviolet absorption at a wavelength of 254 nm (UV254) (in m-1) by its concentration of dissolved organic carbon (DOC) in milligrams per liter (mg/l).

([44]66) "Too numerous to count" means that the total number of bacterial colonies exceeds 200 on a 47-millimeter diameter membrane filter used for coliform detection.

([44-1]67) "Total organic carbon (TOC)" means total organic carbon in milligrams per liter (mg/l) measured using heat, oxygen, ultraviolet irradiation, chemical oxidants, or combinations of these oxidants that convert organic carbon to carbon dioxide, rounded to 2 significant figures.

([45]68) "Total trihalomethanes (TTHM)" means the sum of the concentrations in milligrams per liter of the trihalomethane compounds trichloromethane (chloroform), dibromochloromethane, bromodichloromethane, and tribromomethane (bromoform), rounded to two significant figures.

([46]69) "Transient noncommunity water system (TWS)" means a noncommunity water system that does not regularly serve at least 25 of the same individuals over 6 months per year.

([47]70) "Treatment technique" means a required process intended to reduce the level of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

([48]71) "Trihalomethane (THM)" means a family of organic compounds, derived from methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure.

([48-1]72) "Uncovered finished water storage facility" means a tank, reservoir, or other facility used to store water that will undergo no further treatment to reduce microbial pathogens, except residual disinfection, and is directly open to the atmosphere.

([49]73) "Variance" means a legal change issued by the Approving Authority in the requirements for a public water system to comply with an MCL to a supplier of water because of the following:

(a) The poor quality of raw water and the lack of a suitable alternative supply;

(b) The treatment methods generally available have not resulted in compliance with an MCL; and

(c) All other reasonable technological, economic, and legal efforts to comply with an MCL have been made.

([50]74) "Virus" means a virus of fecal origin which is infectious to humans by waterborne transmission.

([51]75) "Waterborne disease outbreak" means the significant occurrence of acute infectious illness, epidemiologically associated with the ingestion of water from a public water system which is deficient in treatment, as determined by the Approving Authority.

([52]76) "Wholesale system" means a public water system that treats source water as necessary to produce finished water and then delivers some or all of that finished water to another public water system. Delivery may be through a direct connection or through the distribution system of one or more consecutive systems.

01-1 Incorporation by Reference.

A. In this chapter, the following documents are incorporated by reference.

B. Documents Incorporated. Code of Federal Regulations (CFR) — 40 CFR §§ 141 and 142 [(July 1, 2009)] (*July 1, 2014*):

(1) Surface Water Treatment Rule (40 CFR §§141.70—141.76, Subpart H) June 8, 2001, January 14, 2002, October 23, 2002, [and] October 29, 2002, and *February 13, 2013* revisions.

(2) Interim Enhanced Surface Water Treatment Rule (40 CFR §[Part] 141, Subpart P, §§141.170—141.175), January 14, 2002, revision;

([2-1]3) Long Term 1 Enhanced Surface Water Treatment Rule (40 CFR §§141.500—141.570, Subpart T), January 14, 2002;

([2-2]4) Long Term 2 Enhanced Surface Water Treatment Rule (40 CFR §§141.700—141.723, Subpart W), January 5, 2006, January 30, 2006, and February 6, 2006.

([3]5) Bottled Water (21 CFR §165.110);

([4]6) Best Available Technology (40 CFR §§ 141.61—141.[65] 66, *Subpart G*) *February 13, 2013 revisions*[revised January 16, 2001];

([5]7) Lead and Copper Rule (40 CFR §§141.80—141.91, *Subpart I*) revised January 12, 2000 and October 10, 2007;

([7]Sampling and Analytical Methods:)] (8) *Monitoring and Analytical Methods* (40 CFR §§141.21 – 141.29, *Subpart C*) *February 13, 2013 revisions*;

([6]a) [Total Coliform Rule]*Coliform Bacteria* (40 CFR §141.21) [October 23, 2002, and October 29, 2002, revisions]*November 21, 2006 and February 13, 2013 revisions*;

([a]b) Inorganics (40 CFR §141.23) October 23, 2002, October 29, 2002, and March 25, 2003 revisions;

([b]c) Organics (40 CFR §141.24) October 23, 2002, and October 29, 2002, revisions; and

([c]d) Radionuclides (40 CFR §§141.25-141.26) December 7, 2000, and October 23, 2002, revision.
 ([8]9) Method Detection Limit (40 CFR §[Part] 136), October 23, 2002, revision;
 ([9]10) Public Notification of Drinking Water Violations (40 CFR §[Part] 141, Subpart Q; 40 CFR §§141.201—141.211, [January 14, 2002, November 27, 2002, and March 25, 2003, January 4, 2006, January 6, 2006, and]November 8, 2006, *February 13, 2013, and February 26, 2014* revisions;
 ([10]11) Consumer Confidence Report (40 CFR [Part]§§ 141.151 -141.155, Subpart O), January 14, 2002, November 27, 2002, March 25, 2003, January 4, 2006, [and]November 8, 2006, *February 13, 2013, and February 26, 2014* revisions;
 ([11]12) Disinfectant Residuals, Disinfection Byproducts, and Disinfection Byproduct Precursors:
 (a) Stage 1 Disinfection Byproduct Rule (40 CFR §[Part] 141, Subpart L; 40 CFR §§141.130—141.144, Subpart L, §141.65), December 16, 1998, January 16, 2001, [and] January 4, 2006, *and February 13, 2013* revisions; and
 (b) Stage 2 Disinfection Byproduct Rule (40 CFR [Part]§§ 141, Subpart U §§141.600—141.605, Subpart V §§141.606—141.629), January 4, 2006, January 27, 2006, and June 29, 2009, revisions;
 ([12]13) Arsenic Rule (40 CFR §§141.6, 141.51, 141.60, 141.62, 141.65, 142.61, 142.62) March 25, 2003 revision;
 [(13) Radionuclides Rule (40 CFR §§ 141.26, 141.55, 141.66, 142.65)-December 7, 2000;]
 (14) Definitions (40 CFR §141.2) January 14, 2002, January 4, 2006, [and]January 5, 2006, *and February 13, 2013* revisions;
 (15) Unregulated Contaminant Monitoring Regulation (40 CFR §141.40), March 12, 2002, October 29, 2002, [and] January 4, 2007, *and May 2, 2012* revisions; [and]
 (16) Ground Water Rule (40 CFR §§ 141.21, 141.28, 141.153, 141.202, 141.203, 141.400-141.405, 142.14-142.16) — November 8, 2006, [and] November 21, 2006, *and February 13, 2013* revisions[.]; *and*
 (17) *Revised Total Coliform Rule (40 CFR §§ 141.4, 141.52, 141.63, 141.71, 141.74, 141.132, §§141.851-141.861, Subpart Y, and 142.15-142.16, 142.63) – February 13, 2013, and February 26, 2014* revisions.

.03 Requirements for a Variance, Granting a Variance, and Public Hearings.

A. The Approving Authority may grant to a supplier of water a variance or variances from certain requirements of this chapter. The requirements for obtaining variances are as follows:

- (1) The Approving Authority may issue a variance based on the condition that the supplier of water installs the best technology, treatment techniques, or other means, which the Approving Authority finds are available when taking costs into consideration, and based upon an evaluation that indicates that alternative sources of water are not reasonably available;
- (2) The Approving Authority may issue a variance to a supplier of water after documentation and consideration of findings set in 40 CFR §142.20;
- (3) The Approving Authority may issue to systems serving fewer than 10,000 persons a variance from a maximum contaminant level, or a treatment technique in accordance with 40 CFR §§142.301-142.313, Subpart K, [Variances for Small Systems.]*except for microbial contaminants that are included in subparts H, P, S, T, W, and Y of the 40 CFR §[Part] 141.*
- (4) Variances from the treatment technique requirements of 40 CFR §[Part] 141, Subpart H, may not be granted;
- (5) Variances from the total coliform *and E. coli* maximum contamination levels may not be granted; *beginning April 1, 2016 the total coliform maximum contaminant level is no longer effective;*
- (6) Variances from a maximum contaminant level for any synthetic organic chemical may only be granted if the:
 - (a) Conditions of §A(4) of this regulation are met; and
 - (b) Requirements of Regulation .03-1 of this chapter are met;
- (7) Except as otherwise provided in this regulation, variances from a maximum contaminant level may be granted if the Approving Authority finds that:
 - (a) Characteristics of the raw water sources (which are reasonably available to the system) are such that the system cannot meet the requirements respecting the maximum contaminant levels of this regulation when application has been made of the best technology, treatment techniques, or other means, which the Approving Authority finds are generally available, taking costs into consideration; and
 - (b) The granting of a variance does not result in an unreasonable risk to the health of persons served by the system;
- (8) Variances for a treatment technique other than treatment technique requirements of 40 CFR §[Part] 141, Subpart H, may be granted if the Approving Authority finds that the supplier of water applying for the variance has demonstrated that the treatment technique is not necessary to protect the health of persons because of the nature of the raw water source of the system.

B. – L. (text unchanged)

.04 Requirements for an Exemption, Granting an Exemption, and Public Hearings.

A. The Approving Authority may grant exemptions to public water systems, after documentation and consideration of findings, as specified in 40 CFR §§142.20 and 142.50. The Approving Authority may not issue an exemption to a public water system granted a variance under §1415(e) of the Safe Drinking Water Act. [Exemptions may not be granted for the maximum contaminant level for total coliform.]*Exemptions may not be granted for the maximum contaminant level for total coliforms, and E. coli.* The Approving Authority may exempt any supplier of water from any other requirement respecting a maximum contaminant level or treatment technique requirement, or both, of this regulation, upon a finding that:

- (1) Due to compelling factors, which may include economic factors, the supplier of water is unable to:
 - (a) Comply with the contaminant level requirement or treatment technique requirement; or
 - (b) Implement measures to develop an alternative source of water supply;

- (2) The public water system was in operation on the effective date of the contaminant level requirement or treatment technique requirement or, for a water system that was not in operation by the effective date, a reasonable alternative source of drinking water is not available;
 - (3) The granting of the exemption will not result in an unreasonable risk to health; and
 - (4) Management or restructuring changes cannot reasonably be made that will result in compliance with the regulation, or improve the quality of the drinking water if compliance cannot be achieved.
- B. – G. (text unchanged)

.10 Maximum Contaminant Levels for Microbiological Contaminants in Drinking Water.

A. *Until March 31, 2016, t*[T]he maximum contamination level of *total coliform* is based on the presence or absence of total coliform in each sample, *rather than coliform density*. The maximum contaminant level for coliform bacteria is exceeded if:

- (1) More than 5 percent of the samples collected in any month are positive for total coliform for any supplier of water that collects 40 or more samples a month;
- (2) Two or more samples collected in any month are positive for total coliform for any supplier of water that collects less than 40 samples a month;
- (3) A total coliform repeat sample is positive following a fecal coliform-positive or *E.coli*-positive routine sample; or
- (4) Any repeat sample is positive for fecal coliform or *E.coli*.

B. A supplier of water shall determine compliance with §A of this regulation in each month it is required to monitor total coliform by using:

- (1) All routine samples required by Regulation .11A of this chapter;
- (2) All repeat samples required by Regulation.11A and B of this chapter;
- (3) Any routine or repeat samples not invalidated under Regulation .11-2C of this chapter; and
- (4) All samples taken in compliance with Regulation .11B(1) of this chapter.

C. Special purpose samples, such as those taken to determine whether disinfection practices follow pipe replacement or repair have been sufficient, may not be used to determine compliance with §A of this regulation.

D. *Until March 31, 2016, the b*[B]est technology, treatment techniques, or other means of achieving compliance with §A of this regulation are:

- (1) Protection of wells from contamination by appropriate placement and construction;
- (2) Maintenance of a disinfectant residual throughout the distribution system;
- (3) Proper maintenance of the distribution system including pipe replacement, main flushing programs, proper operation of storage tank and reservoirs, and continual maintenance of positive water pressure in the distribution system;
- (4) Filtration and disinfection of surface and ground water as described in 40 CFR §[Part] 141, Subpart H; and
- (5) The implementation of a local wellhead protection program under the approval of the Approving Authority.

E. *Until March 31, 2016, any fecal coliform-positive repeat sample or E. coli-positive routine sample, or any total coliform-positive repeat sample following a fecal coliform-positive or E. coli-positive routine sample, the system is in violation of the MCL for total coliforms. This is a violation that may pose an acute risk to health.*

F. *Beginning April 1, 2016, a system is in violation of the MCL for E. coli for samples taken under the requirements of Regulation .11-4 of this chapter when any of the conditions below occur. A violation of the MCL for E. coli may pose an acute risk to health.*

- (1) *The system has an E. coli-positive repeat sample following a total coliform-positive routine sample.*
- (2) *The system has a total coliform-positive repeat sample following an E. coli-positive routine sample.*
- (3) *The system fails to take all required repeat samples following an E. coli-positive routine sample.*
- (4) *The system fails to test for E. coli when any repeat sample tests positive for total coliform.*

G. *Until March 31, 2016, a supplier of water shall determine compliance with §§A – B of this regulation for each month in which it is required to monitor for total coliforms. Beginning April 1, 2016, a supplier of water shall determine compliance with the MCL for E. coli in accordance with §F of this regulation for each month in which it is required to monitor for total coliforms.*

H. *Beginning April 1, 2016, the best technology, treatment techniques, or other means of achieving compliance with the maximum contaminant level for total coliforms in §§A - B of this regulation, and for achieving compliance with the maximum contaminant level for E. coli in §F of this regulation are:*

- (1) *Protection of wells from fecal contamination by appropriate placement and construction;*
- (2) *Maintenance of a disinfectant residual throughout the distribution system;*
- (3) *Proper maintenance of the distribution system including appropriate pipe replacement and repair procedures, main flushing programs, proper operation and maintenance of storage tank and reservoirs, cross connection control, and continual maintenance of positive water pressure in the distribution system;*
- (4) *Filtration and/or disinfection of surface water, as described in subparts H, P, T, and W of 40 CFR § 141, or disinfection of ground water, as described in subpart S of 40 CFR § 141, using strong oxidants such as chlorine, chlorine dioxide, or ozone; and*
- (5) *For systems using ground water, compliance with the requirements of a Wellhead Protection Program developed and implemented under section 1428 of the SDWA.*
- (6) *Pursuant to section 1412 of the SDWA, the technology, treatment techniques, or other means available identified in this section are affordable technology treatment techniques, or other means available to systems serving 10,000 or fewer people for achieving compliance with the maximum contaminant level for total coliforms in §§A and B of this regulation and for achieving compliance with the maximum contaminant level for E. coli in §F of this regulation.*

.11 Microbiological Contaminant Sampling and Analytical Requirements for Total Coliform.

A. Routine Monitoring for Total Coliform of Community and Noncommunity Water Supply Systems *Until March 31, 2016.*

(1) – (6) (text unchanged)

B. Alternative Routine Monitoring Frequency for Total Coliform *Until March 31, 2016.*

(1) – (4) (text unchanged)

C. Analytical Requirements for Total Coliform Analysis *Until March 31, 2016.*

(1) – (2) (text unchanged)

D. (text unchanged)

.11-1 Microbiological Contaminant Sampling and Analytical Requirements for Fecal Coliform *Until March 31, 2016.*

A. - B. (text unchanged)

11-2 Frequency of Repeat Sampling and Sample Invalidation for Total Coliform, and Triggered Source Water Monitoring.

A. Frequency of Repeat Sampling for Total Coliform *Until March 31, 2016.*

(1) – (6) (text unchanged)

B. Repeat Sampling the Next Month *Until March 31, 2016.*

(1) – (2) (text unchanged)

C. Invalidation of Total Coliform Samples *Until March 31, 2016.*

(1) – (2) (text unchanged)

D. Triggered Source Water Monitoring for Ground Water Supplies.

(1) General Requirements *until March 31, 2016.* A ground water supplier subject to Regulation .05-5 of this chapter shall conduct triggered source water monitoring pursuant to 40 CFR §141.402(a) if the following conditions exist:

(a) The supplier does not provide at least 4-log treatment of viruses, using inactivation, removal, or a combination of 4-log virus inactivation and removal approved by the Approving Authority, before or at the first customer for each ground water source; and
(b) The supplier is notified that a sample collected under Regulation .11A of this chapter is total coliform-positive and the sample is not invalidated under Regulation .11-2C of this chapter *until March 31, 2016.*

(2) Sampling Requirements *until March 31, 2016.* A groundwater supplier shall collect, within 24 hours of notification of the routine total coliform-positive sample, at least one ground water source sample from each ground water source in use at the time that the total coliform-positive sample was collected under Regulation .11 of this chapter *until March 31, 2016.*, except as provided in §D(2)(b) of this regulation.

(a) The Approving Authority may extend the 24-hour time limit on a case-by-case basis if the supplier cannot collect the ground water source water sample within 24 hours due to circumstances beyond its control. In the case of an extension, the Approving Authority must specify how much time the supplier has to collect the sample.

(b) If approved by the Approving Authority, suppliers with more than one ground water source may meet the requirements of §D(2) of this regulation by sampling a representative ground water source or sources. If directed by the Approving Authority, suppliers shall submit for approval a triggered source water monitoring plan. The plan shall include a sampling siting plan developed in accordance with Regulation .11A(5) of this chapter, and shall identify one or more ground water sources that are representative of each monitoring site in the supplier's sample siting plan *until March 31, 2016.* and that the supplier intends to use for representative sampling under §D(2) of this regulation.

(c) A ground water supplier serving 1,000 people or fewer may use a repeat sample collected from a ground water source to meet the requirements of §A of this regulation and to satisfy the monitoring requirements of §D(2) of this regulation for that ground water source. If the repeat sample collected from the ground water source is E. coli positive, the supplier shall comply with §D(3) of this regulation.

(3) Additional Requirements *until March 31, 2016.* If the Approving Authority does not require corrective action under Regulation .05-5C of this chapter for a fecal indicator-positive source water sample collected under §D of this regulation that is not invalidated under §G of this regulation, the supplier shall collect five additional source water samples from the same source within 24 hours of being notified of the fecal indicator-positive sample.

(4) Consecutive and Wholesale Systems *until March 31, 2016.*

(a) In addition to the other requirements of §D of this regulation, a consecutive ground water supplier that has a total coliform-positive sample collected under Regulation .11 of this chapter *until March 31, 2016.* shall notify the wholesale supplier or suppliers within 24 hours of being notified of the total coliform positive sample.

(b) In addition to the other requirements of §D of this regulation, a wholesale ground water supplier shall comply with the following:

(i) A wholesale ground water supplier that receives notice from a consecutive supplier it serves that a sample collected under Regulation .11 of this chapter *until March 31, 2016.* is total coliform positive shall, within 24 hours of being notified, collect a sample from its ground water source(s) under §D(2) of this regulation and analyze it for a fecal indicator under §F of this regulation.

(ii) If the sample collected under §D(4)(b)(i) of this regulation is fecal indicator-positive, the wholesale ground water supplier shall notify all consecutive suppliers served by that ground water source of the fecal indicator source water positive within 24 hours of being notified of the ground water source sample monitoring result and shall meet the requirements of this §D(3) of this regulation.

(5) Exceptions to the Triggered Source Water Monitoring Requirements *until March 31, 2016*. A ground water supplier is not required to comply with the source water monitoring requirements of §D of this regulation if either of the following conditions exists:

(a) *Until March 31, 2016*, [T]he Approving Authority determines, and documents in writing, that the total coliform-positive sample collected under Regulation .11 of this chapter is caused by a distribution system deficiency; or

(b) *Until March 31, 2016*, the total coliform-positive sample collected under Regulation .11 of this chapter, [had been] is collected at a distribution system location or under conditions that the Approving Authority [had] determined *will cause total-coliform-positive samples*. [is unrelated to the raw water quality, or that the total coliform-positive sample had been invalidated.]

(6) *General Requirements beginning April 1, 2016*. A ground water supplier subject to Regulation .05-5 of this chapter shall conduct triggered source water monitoring pursuant to 40 CFR §141.402(a) if the following conditions exist:

(a) *The supplier does not provide at least 4-log treatment of viruses, using inactivation, removal, or a combination of 4-log virus inactivation and removal approved by the Approving Authority, before or at the first customer for each ground water source; and*

(b) *The supplier is notified that a sample collected under Regulations .11-4 D through .11-4G of this chapter is total coliform-positive and the sample is not invalidated under Regulation .11-4C(3) beginning April 1, 2016.*

(7) *Sampling Requirements beginning April 1, 2016*. A groundwater supplier shall collect, within 24 hours of notification of the routine total coliform-positive sample, at least one ground water source sample from each ground water source in use at the time that the total coliform-positive sample was collected under Regulations .11-4 D through .11-4G of this chapter beginning April 1, 2016, except as provided in §D(7)(b) of this regulation.

(a) *The Approving Authority may extend the 24-hour time limit on a case-by-case basis if the supplier cannot collect the ground water source water sample within 24 hours due to circumstances beyond its control. In the case of an extension, the Approving Authority must specify how much time the supplier has to collect the sample.*

(b) *If approved by the Approving Authority, suppliers with more than one ground water source may meet the requirements of §D(7) of this regulation by sampling a representative ground water source or sources. If directed by the Approving Authority, suppliers shall submit for approval a triggered source water monitoring plan. The plan shall include a sampling siting plan developed in accordance with Regulation .11-4(C) of this chapter, and shall identify one or more ground water sources that are representative of each monitoring site in the supplier's sample siting plan developed in accordance with Regulation .11-4C beginning April 1, 2016, and that the supplier intends to use for representative sampling under §D(7) of this regulation.*

(c) *Beginning April 1, 2016, a groundwater system serving 1,000 or fewer people may use a repeat sample collected from a ground water source to meet both the requirements of Regulation 11-4 of this chapter and to satisfy the monitoring requirements of paragraph § (D)(2) of this regulation for that ground water source only if the Approving Authority approves the use of E. coli as a fecal indicator for source water monitoring under § (D) of this regulation and approves the use of a single sample for meeting both the triggered source water monitoring requirements in § (D) of this regulation and the repeat monitoring requirements in Regulation .11-4H of this chapter. If the repeat sample collected from the ground water source is E. coli-positive, the system must comply with § .11-2(D)(3) of this regulation.*

(8) *Additional Requirements beginning April 1, 2016*. If the Approving Authority does not require corrective action under Regulation .05-5C of this chapter for a fecal indicator-positive source water sample collected under §D of this regulation that is not invalidated under §G of this regulation, the supplier shall collect five additional source water samples from the same source within 24 hours of being notified of the fecal indicator-positive sample.

(9) *Consecutive and Wholesale Systems beginning April 1, 2016*.

(a) *In addition to the other requirements of §D of this regulation beginning April 1, 2016, a consecutive ground water supplier that has a total coliform-positive sample collected under Regulations .11-4 D through .11-4G of this chapter shall notify the wholesale supplier or suppliers within 24 hours of being notified of the total coliform positive sample.*

(b) *In addition to the other requirements of §D of this regulation, a wholesale ground water supplier shall comply with the following:*

(i) *Beginning April 1, 2016, a wholesale ground water supplier that receives notice from a consecutive supplier it serves that a sample collected under Regulations .11-4 D through .11-4G of this chapter is total coliform positive shall, within 24 hours of being notified, collect a sample from its ground water source(s) in accordance with §D(7) of this regulation and analyze it for a fecal indicator in accordance with §F of this regulation.*

(ii) *If the sample collected under §D(4)(b)(i) of this regulation is fecal indicator-positive, the wholesale ground water supplier shall notify all consecutive suppliers served by that ground water source of the fecal indicator source water positive result within 24 hours of being notified of the ground water source sample monitoring result and shall meet the requirements of §D(3) of this regulation.*

(10) *Exceptions to the Triggered Source Water Monitoring Requirements beginning April 1, 2016*. A ground water supplier is not required to comply with the source water monitoring requirements of §D of this regulation if either of the following conditions exists:

(a) *The Approving Authority determines, and documents in writing, that the total coliform-positive sample collected under Regulations .11-4 D through .11-4G of this chapter beginning April 1, 2016 is caused by a distribution system deficiency; or*

(b) *The total coliform-positive sample collected under Regulations .11-4 D through .11-4G of this chapter beginning April 1, 2016 is collected at a distribution system location or under conditions that the Approving Authority determined will cause total-coliform-positive samples.*

E. *Assessment Source Water Monitoring*. If directed by the Approving Authority, ground water suppliers shall conduct assessment source water monitoring. A ground water supplier conducting assessment source water monitoring may use a

triggered source water sample collected under §D(1) of this regulation to meet the assessment source water monitoring. If assessment source water monitoring is required by the Approving Authority, the monitoring shall include:

- (1) Collection of a total of 12 ground water source samples that represent each month the supplier provides ground water to the public;
- (2) Collection of samples from each well unless the supplier obtains written approval from the Approving Authority to conduct monitoring at one or more wells within the ground water system that are representative of multiple wells used by that supplier and that draw water from the same hydrogeologic setting;
- (3) Collection of a standard sample volume of at least 100 mL for fecal indicator analysis regardless of the fecal indicator or analytical method used;
- (4) Analysis of all ground water source samples using one of the analytical methods listed in 40 CFR §141.402(c)(2) for the presence of *E. coli* [enterococci, or coliphage];
- (5) Collection of ground water source samples at a location prior to any treatment of the ground water source unless the Approving Authority approves a sampling location after treatment; and
- (6) Collection of ground water source samples at the well itself unless the system's configuration does not allow for sampling at the well itself and the Approving Authority approves an alternate sampling location that is representative of the water quality of that well.

F. – J. (text unchanged)

.11-4 Microbiological Contaminant Monitoring and Reporting Requirements

A. Applicability

- (1) *This regulation applies to all public water systems.*
- (2) *Suppliers of water shall comply with the provisions of this regulation beginning April 1, 2016, unless otherwise specified.*
- (3) *Suppliers of water that fail to comply with the applicable requirements of 40 CFR §§ 141.851 through 141.861, are in violation of the regulation.*

B. Analytical Methods and Laboratory Certification.

(1) Analytical methodology.

- (a) *The standard sample volume required for analysis, regardless of analytical method used, is 100 ml.*
- (b) *The samples shall be analyzed for the presence or absence of total coliforms and *E. coli*; a determination of density is not required.*
- (c) *The time from sample collection to initiation of test medium incubation may not exceed 30 hours. Suppliers are encouraged but not required to hold samples below 10 deg. C during transit.*
- (d) *If drinking water having residual chlorine (measured as free, combined, or total chlorine) is to be analyzed, sufficient sodium thiosulfate ($\text{Na}_2\text{S}_2\text{O}_3$) shall be added to the sample bottle before sterilization to neutralize any residual chlorine in the water sample.*
- (e) *Analyses shall be conducted for total coliform and *E. coli* analyses in accordance with an EPA approved analytical method, which is incorporated by reference.*

(2) *Laboratory certification. Suppliers shall have all compliance samples required under this regulation analyzed by a laboratory certified by the EPA, or the Approving Authority to analyze drinking water samples. The laboratory used by the supplier shall be certified for each method, and associated contaminants used for compliance monitoring analyses under this regulation.*

C. General Monitoring Requirements for All Public Water Systems.

(1) Sample siting plans.

(a) *No later than March 31, 2016, suppliers shall develop a written sample siting plan, which identifies sampling sites and includes a sample collection schedule and which shall be representative of water throughout the distribution system. These plans are subject to review by the Approving Authority and revision as needed. Suppliers shall collect total coliform samples according to the written sample siting plan. Monitoring required by this regulation may take place at a customer's premise, dedicated sampling station, or other designated compliance sampling location. Routine and repeat sample sites and any sampling points necessary to meet the requirements of Regulation .11-2 shall be included in the sampling plan.*

(b) *Suppliers shall collect samples at regular time intervals throughout the month, except that suppliers that use only ground water and serve 4,900 or fewer people may collect all required samples on a single day if they are taken from different sites.*

(c) *Suppliers shall take at least the minimum number of required samples even if the system has had an *E. coli* MCL violation or has exceeded the coliform treatment technique triggers in §I(1) of this regulation.*

(d) *A supplier may conduct more compliance monitoring than is required by this regulation to investigate potential problems in the distribution system and use monitoring as a tool to assist in uncovering problems. A supplier may take more than the minimum number of required routine samples and shall include the results in calculating whether the coliform treatment technique trigger in § I(1)(a) of this regulation has been exceeded if the samples are taken in accordance with the existing sample siting plan and are representative of water throughout the distribution system.*

(e) *Suppliers shall identify repeat monitoring locations in the sample siting plan according to the requirements of 40 CFR §141.853(a) which is incorporated by reference.*

(2) *Special purpose samples. Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, may not be used to determine whether the coliform treatment*

technique trigger has been exceeded. Repeat samples taken according to § H of this regulation are not considered special purpose samples, and shall be used to determine whether the coliform treatment technique trigger has been exceeded.

(3) Invalidation of total coliform samples. A total coliform-positive sample invalidated under this section does not count toward meeting the minimum monitoring requirements of this regulation.

(a) The Approving Authority may invalidate a total coliform-positive sample if the one of the following conditions are met:

(i) The laboratory establishes that improper sample analysis caused the total coliform-positive result.

(ii) The Approving Authority, on the basis of the results of repeat samples collected as required under § H of this regulation, determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing problem.

The Approving Authority cannot invalidate a sample on the basis of repeat sample results unless all repeat sample(s) collected at the same tap as the original total coliform-positive sample are also total coliform-positive, and all repeat samples collected at a location other than the original tap are total coliform-negative.

(iii) The Approving Authority has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition that does not reflect water quality in the distribution system. In this case, the supplier shall still collect all repeat samples required under § H of this regulation, and use them to determine whether a coliform treatment technique trigger in § I of this regulation has been exceeded.

(b) A laboratory shall invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using an analytical method where gas formation is examined (e.g., the Multiple-Tube Fermentation Technique), produces a turbid culture in the absence of an acid reaction in the Presence-Absence (P-A) Coliform Test, or exhibits confluent growth or produces colonies too numerous to count with an analytical method using a membrane filter (e.g., Membrane Filter Technique). If a laboratory invalidates a sample because of such interference, the supplier shall collect another sample from the same location as the original sample within 24 hours of being notified of the interference problem, and have it analyzed for the presence of total coliforms. The supplier shall continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The Approving Authority may waive the 24-hour time limit on a case-by-case basis. Alternatively, the Approving Authority may implement criteria for waiving the 24-hour sampling time limit to use in lieu of case-by-case extensions.

D. Routine Monitoring Requirements for Non-Community Water Systems Serving 1,000 or Fewer People Using Only Ground Water

(1) General.

(a) This section applies to non-community water systems using only ground water (except ground water under the direct influence of surface water, as defined in Regulation .01 of this Chapter) and serving 1,000 or fewer people.

(b) Following any total coliform-positive sample taken under the provisions of this section, suppliers shall comply with the repeat monitoring requirements and E. coli analytical requirements in § H of this regulation.

(c) Once all monitoring required by this section and § H of this regulation for a calendar month has been completed, suppliers shall determine whether any coliform treatment technique triggers specified in § I of this regulation have been exceeded. If any trigger has been exceeded, suppliers shall complete assessments as required by § I of this regulation.

(2) Monitoring frequency for total coliforms. Suppliers shall monitor each calendar quarter that the system provides water to the public, except for seasonal systems or as provided under subsections (3) through (8) and (10) of this section. Seasonal systems shall meet the monitoring requirements of subsection (9) of this section.

(3) Transition .

(a) Systems, including seasonal systems, shall continue to monitor according to the total coliform monitoring schedules under Regulation .11(A)(5) that were in effect on March 31, 2016, unless any of the conditions for increased monitoring in subsection (6) of this section are triggered on or after April 1, 2016, or unless otherwise directed by the Approving Authority.

(b) Beginning April 1, 2016, the Approving Authority shall perform a special monitoring evaluation during each sanitary survey to review the status of the system, including the distribution system, to determine whether the system is on an appropriate monitoring schedule in accordance with 40 CFR §141.853(c) .

(4) Annual site visits. Beginning no later than January 1, 2017, systems on annual monitoring, including seasonal systems, shall have an initial and recurring annual site visit by the Approving Authority that is equivalent to a Level 2 assessment or an annual voluntary Level 2 assessment that meets the criteria in § I (2) of this regulation in order to remain on annual monitoring.

(5) Criteria for annual monitoring. Beginning April 1, 2016, the Approving Authority may reduce the monitoring frequency for a well-operated ground water system from quarterly routine monitoring to no less than annual monitoring, if the system demonstrates that it meets the criteria for reduced monitoring in paragraphs (5)(a) through (5)(c) of this section, except for a system that has been on increased monitoring under the provisions of subsection (6) of this section. A system on increased monitoring under subsection (6) of this section shall meet the provisions of subsection (7) of this section to go to quarterly monitoring and shall meet the provisions of subsection (8) of this section to go to annual monitoring.

(a) The system has a clean compliance history for a minimum of 12 months;

(b) The most recent sanitary survey shows that the system is free of sanitary defects or has corrected all identified sanitary defects, has a protected water source, and meets approved construction standards; and

(c) The Approving Authority has conducted an annual site visit within the last 12 months and the supplier has corrected all identified sanitary defects. The supplier may substitute a Level 2 assessment that meets the criteria in § I (2) for the annual site visit.

(6) Increased Monitoring Requirements for systems on quarterly or annual monitoring. A system on quarterly or annual monitoring that experiences any of the events identified in paragraphs (6)(a) through (6)(d) of this section shall begin monthly

monitoring the month following the event. A system on annual monitoring that experiences an event identified in paragraphs (6)(e) of this section shall begin quarterly monitoring the quarter following the event. The supplier shall continue monthly or quarterly monitoring until the requirements in subsection (7) of this section for quarterly monitoring or subsection (8) of this section for annual monitoring are met. A system on monthly monitoring for reasons other than those identified in paragraphs (6)(a) through (6)(d) of this section is not considered to be on increased monitoring for the purposes of subsections (7) and (8) of this section.

(a) The system triggers a Level 2 assessment or two Level 1 assessments under the provisions of § I of this regulation in a rolling 12-month period,

(b) The system has an *E. coli* MCL violation,

(c) The system has a coliform treatment technique violation,

(d) The system has two monitoring violations under this regulation, or one monitoring violation under this regulation and one Level 1 assessment under the provisions of § I of this regulation in a rolling 12-month period for a system on quarterly monitoring, or

(e) The system has one monitoring violation under this regulation for a system on annual monitoring.

(7) Requirements for returning to quarterly monitoring. The Approving Authority may reduce the monitoring frequency for a system on monthly monitoring triggered under subsection (6) of this section to quarterly monitoring if the system meets the criteria in paragraphs (7)(a) and (7)(b) of this section.

(a) Within the last 12 months, the system shall have a completed sanitary survey or a site visit by the Approving Authority or by its designee or a voluntary Level 2 assessment by a party approved by the Approving Authority, be free of sanitary defects, and have a protected water source; and

(b) The system shall have a clean compliance history for a minimum of 12 months.

(8) Requirements for systems on increased monitoring to qualify for annual monitoring. The Approving Authority may reduce the monitoring frequency for a system on increased monitoring under subsection (6) of this section if the system meets the criteria in subsection (7) of this section plus the criteria in paragraphs (8)(a) and (8)(b) of this section.

(a) An annual site visit by the Approving Authority and correction of all identified sanitary defects. The supplier may substitute a voluntary Level 2 assessment by a party approved by the Approving Authority for the annual site visit in any given year.

(b) The supplier shall have in place or adopt one or more additional enhancements to the water system barriers to contamination in paragraphs (8)(b)(i) through (8)(b)(v) of this section.

(i) An approved cross connection control plan.

(ii) An operator certified by the Board of Waterworks and Waste Systems Operators or regular visits by a circuit rider certified by the Board of Waterworks and Waste Systems Operators.

(iii) Continuous disinfection entering the distribution system and a residual in the distribution system in accordance with criteria specified by the Approving Authority.

(iv) Demonstration of maintenance of at least a 4-log removal or inactivation of viruses as provided for under 40 CFR §141.403(b)(3).

(v) Other equivalent enhancements to water system barriers as approved by the Approving Authority.

(9) Seasonal systems.

(a) Beginning April 1, 2016, all seasonal systems shall demonstrate completion of an approved start-up procedure, which may include a requirement for startup sampling prior to serving water to the public.

(b) Beginning April 1, 2016 a seasonal system shall monitor every month that it is in operation unless it meets the criteria in subparagraphs (9)(b)(i) through (iii) of this section to be eligible for monitoring less frequently than monthly, except as provided under subsection (3) of this section.

(i) Seasonal systems monitoring less frequently than monthly shall have an approved sample siting plan that designates the time period for monitoring based on site-specific considerations (e.g., during periods of highest demand or highest vulnerability to contamination). Seasonal systems shall collect compliance samples during this time period.

(ii) To be eligible for quarterly monitoring, the system shall meet the criteria in subsection (7) of this section.

(iii) To be eligible for annual monitoring, the system shall meet the criteria under subsection (8) of this section.

(c) The Approving Authority may exempt any seasonal system 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, except that systems that monitor less frequently than monthly shall monitor during the vulnerable period designated by the Approving Authority.

(10) Additional routine monitoring the month following a total coliform-positive sample. Suppliers collecting samples on a quarterly or annual frequency shall conduct additional routine monitoring the month following one or more total coliform-positive samples (with or without a Level 1 treatment technique trigger). Suppliers shall collect at least three routine samples during the next month, except that the Approving Authority may waive this requirement if the conditions of 40 CFR §141.854(j) are met. Suppliers may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. Suppliers shall use the results of additional routine samples in coliform treatment technique trigger calculations under § I of this regulation.

E. Routine Monitoring Requirements for Community Water Systems Serving 1,000 or Fewer People Using Ground Water

(1) General.

(a) This section applies to community water systems using only ground water (except ground water under the direct influence of surface water, as defined in Regulation .01 of this Chapter) and serving 1,000 or fewer people.

(b) Following any total coliform-positive sample taken under the provisions of this section, suppliers shall comply with the repeat monitoring requirements and E. coli analytical requirements in §H of this regulation.

(c) Once all monitoring required by this section and § H of this regulation for a calendar month has been completed, suppliers shall determine whether any coliform treatment technique triggers specified in §I of this regulation have been exceeded. If any trigger has been exceeded, suppliers shall complete assessments as required by §I of this regulation.

(2) Monitoring frequency for total coliforms. The monitoring frequency for total coliforms is one sample/month, except as provided for under subsections (3) through (6) of this section.

(3) Transition.

(a) All suppliers shall continue to monitor according to the total coliform monitoring schedules under Regulation .11(A)(5) that were in effect on March 31, 2016, unless any of the conditions in subsection (5) of this section are triggered on or after April 1, 2016, or unless otherwise directed by the Approving Authority.

(b) Beginning April 1, 2016, the Approving Authority shall perform a special monitoring evaluation during each sanitary survey to review the status of the system, including the distribution system, to determine whether the system is on an appropriate monitoring schedule in accordance with 40 CFR §141.855(b)(2).

(4) Criteria for reduced monitoring. The Approving Authority may reduce the monitoring frequency from monthly monitoring to no less than quarterly monitoring if the system is in compliance with operator certification provisions and demonstrates that it meets the criteria in paragraphs (4)(a) through (4)(c) of this section. A system that loses its certified operator shall return to monthly monitoring the month following that loss.

(a) The system has a clean compliance history for a minimum of 12 months.

(b) The most recent sanitary survey shows the system is free of sanitary defects, or that the system is in compliance with an approved plan and schedule to correct the sanitary defects. The sanitary survey must also show that the system has a protected water source and meets approved construction standards.

(c) The system meets at least one of the following criteria:

(i) An annual site visit by the Approving Authority that is equivalent to a Level 2 assessment or an annual Level 2 assessment by a party approved by the Approving Authority and correction of all identified sanitary defects (or an approved plan and schedule to correct them and is in compliance with the plan and schedule).

(ii) An approved cross connection control plan.

(iii) Continuous disinfection entering the distribution system and a residual in the distribution system in accordance with criteria specified by the Approving Authority.

(iv) Demonstration of maintenance of at least a 4-log removal or inactivation of viruses as provided for under 40 CFR §141.403(b)(3).

(v) Other equivalent enhancements to water system barriers as approved by the Approving Authority.

(5) Return to routine monthly monitoring requirements. Systems on quarterly monitoring that experience any of the events in paragraphs (5)(a) through (5)(d) of this section shall begin monthly monitoring the month following the event. The supplier shall continue monthly monitoring until it meets the reduced monitoring requirements in subsection (4) of this section.

(a) The system triggers a Level 2 assessment or two Level 1 assessments in a rolling 12-month period.

(b) The system has an E. coli MCL violation.

(c) The system has a coliform treatment technique violation.

(d) The system has two monitoring violations under this regulation in a rolling 12-month period.

(6) Additional routine monitoring the month following a total coliform-positive sample. Suppliers collecting samples on a quarterly frequency shall conduct additional routine monitoring the month following one or more total coliform-positive samples (with or without a Level 1 treatment technique trigger). Suppliers shall collect at least three routine samples during the next month, except that the Approving Authority may waive this requirement if the conditions of paragraph (6)(a), (b), or (c) of this section are met. Suppliers may either collect samples at regular time intervals throughout the month or may collect all required routine samples on a single day if samples are taken from different sites. Suppliers shall use the results of additional routine samples in coliform treatment technique trigger calculations.

(a) The Approving Authority may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Approving Authority, or an agent approved by the Approving Authority, performs a site visit before the end of the next month in which the system provides water to the public. Although a sanitary survey need not be performed, the site visit shall be sufficiently detailed to allow the Approving Authority to determine whether additional monitoring and/or any corrective action is needed. The Approving Authority cannot approve an employee of the system to perform this site visit, even if the employee is an agent approved by the Approving Authority to perform sanitary surveys.

(b) The Approving Authority may waive the requirement to collect three routine samples the next month in which the system provides water to the public if the Approving Authority has determined why the sample was total coliform-positive and has established that the supplier has corrected the problem or will correct the problem before the end of the next month in which the supplier serves water to the public. In this case, the Approving Authority shall document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by the supervisor of the Approving Authority official who recommends such a decision, and make this document available to the EPA and the public. The written documentation shall describe the specific cause of the total coliform-positive sample and what action the supplier has taken and/or will take to correct this problem.

(c) The Approving Authority may not waive the requirement to collect three additional routine samples the next month in which the supplier provides water to the public solely on the grounds that all repeat samples are total coliform-negative. If the

Approving Authority determines that the supplier has corrected the contamination problem before the supplier takes the set of repeat samples required in 40 CFR § 141.858, and all repeat samples were total coliform-negative, the Approving Authority may waive the requirement for additional routine monitoring the next month.

F. Routine Monitoring Requirements for Subpart H Public Water Systems Serving 1,000 or Fewer People.

(1) General.

(a) This section applies to subpart H public water systems, as defined in Regulation .01 of this Chapter, serving 1,000 or fewer people.

(b) Following any total coliform-positive sample taken under the provisions of this section, suppliers shall comply with the repeat monitoring requirements and E. coli analytical requirements in §H of this regulation.

(c) Once all monitoring required by this section and §H of this regulation for a calendar month has been completed, suppliers shall determine whether any coliform treatment technique triggers specified in §I of this regulation have been exceeded. If any trigger has been exceeded, suppliers shall complete assessments as required by §I of this regulation.

(d) Seasonal systems.

(i) Beginning April 1, 2016, all seasonal systems shall demonstrate completion of an approved start-up procedure, which may include a requirement for start-up sampling prior to serving water to the public.

(ii) The Approving Authority may exempt any seasonal system 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.

(2) Routine monitoring frequency for total coliforms. Subpart H systems of this regulation (including consecutive systems) shall monitor monthly. Systems may not reduce monitoring.

(3) Unfiltered subpart H systems. A subpart H system of this Chapter that does not practice filtration in compliance with subparts H, P, T, and W of 40 CFR § 141 shall collect at least one total coliform sample near the first service connection each day the turbidity level of the source water, measured as specified in 40 CFR §141.74(b)(2), exceeds 1 NTU. When one or more turbidity measurements in any day exceed 1 NTU, the supplier shall collect this coliform sample within 24 hours of the first exceedance, unless the Approving Authority determines that the supplier, for logistical reasons outside the supplier's control, cannot have the sample analyzed within 30 hours of collection and identifies an alternative sample collection schedule. Sample results from this coliform monitoring shall be included in determining whether the coliform treatment technique trigger in §I of this regulation has been exceeded.

G. Routine Monitoring Requirements for Public Water Systems Serving More Than 1,000 People.

(1) General.

(a) This section applies to public water systems serving more than 1,000 persons.

(b) Following any total coliform-positive sample taken under the provisions of this section, suppliers shall comply with the repeat monitoring requirements and E. coli analytical requirements in §H of this regulation.

(c) Once all monitoring required by this section and §H of this regulation for a calendar month has been completed, suppliers shall determine whether any coliform treatment technique triggers specified in §I of this regulation have been exceeded. If any trigger has been exceeded, suppliers shall complete assessments as required by §I of this regulation.

(d) Seasonal systems.

(i) Beginning April 1, 2016, all seasonal systems shall demonstrate completion of a Approving Authority-approved start-up procedure, which may include a requirement for start-up sampling prior to serving water to the public.

(ii) The Approving Authority may exempt any seasonal system 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.

(2) Monitoring frequency for total coliforms. The monitoring frequency for total coliforms is based on the population served by the system, as follows:

<i>Population served</i>	<i>Minimum number of samples per month</i>
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40
41,001 to 50,000	50

50,001 to 59,000	60
59,001 to 70,000	70
70,001 to 83,000	80
83,001 to 96,000	90
96,001 to 130,000	100
130,001 to 220,000	120
220,001 to 320,000	150
320,001 to 450,000	180
450,001 to 600,000	210
600,001 to 780,000	240
780,001 to 970,000	270
970,001 to 1,230,000	300
1,230,001 to 1,520,000	330
1,520,001 to 1,850,000	360
1,850,001 to 2,270,000	390
2,270,001 to 3,020,000	420
3,020,001 to 3,960,000	450
3,960,001 or more	480
<i>Total Coliform Monitoring Frequency for Public Water Systems Serving More Than 1,000 People</i>	

(3) *Unfiltered subpart H systems. A subpart H system of this part that does not practice filtration in compliance with subparts H, P, T, and W of 40 CFR 141 shall collect at least one total coliform sample near the first service connection each day the turbidity level of the source water, measured as specified in § 141.74(b)(2), exceeds 1 NTU. When one or more turbidity measurements in any day exceed 1 NTU, the supplier shall collect this coliform sample within 24 hours of the first exceedance, unless the Approving Authority determines that the supplier, for logistical reasons outside the supplier's control, cannot have the sample analyzed within 30 hours of collection and identifies an alternative sample collection schedule. Sample results from this coliform monitoring shall be included in determining whether the coliform treatment technique trigger in §I of this regulation has been exceeded.*

(4) *Reduced monitoring. Suppliers may not reduce monitoring, except for non-community water systems using only ground water (and not ground water under the direct influence of surface water) serving 1,000 or fewer people in some months and more than 1,000 persons in other months. In months when more than 1,000 persons are served, the suppliers shall monitor at the frequency specified in subsection (1) of this section. In months when 1,000 or fewer people are served, the Approving Authority may reduce the monitoring frequency, in writing, to a frequency allowed under §D of this regulation for a similarly situated system that always serves 1,000 or fewer people, taking into account the provisions in §D(1) through (7).*

H. Repeat Monitoring and E. coli Requirements

(1) Repeat monitoring.

(a) *If a sample taken under §§D - G of this regulation is total coliform-positive, the supplier shall collect a set of repeat samples within 24 hours of being notified of the positive result. The supplier shall collect no fewer than three repeat samples for each total coliform-positive sample found. The Approving Authority may extend the 24-hour limit on a case-by-case basis if the supplier has a logistical problem in collecting the repeat samples within 24 hours that is beyond its control. Alternatively, the Approving Authority may implement criteria for the supplier to use in lieu of case-by-case extensions. In the case of an extension, the Approving Authority shall specify how much time the supplier has to collect the repeat samples. The Approving Authority cannot waive the requirement for a supplier to collect repeat samples in paragraphs (a) through (c) of this section.*

(b) *The supplier shall collect all repeat samples on the same day, except that the Approving Authority may allow a supplier with a single service connection to collect the required set of repeat samples over a three-day period or to collect a larger volume repeat sample(s) in one or more sample containers of any size, as long as the total volume collected is at least 300 ml.*

(c) *The supplier shall collect an additional set of repeat samples in the manner specified in paragraphs (a) through (c) of this section if one or more repeat samples in the current set of repeat samples is total coliform-positive. The supplier shall collect the additional set of repeat samples within 24 hours of being notified of the positive result, unless the Approving Authority extends the limit as provided in paragraph (a) of this section. The supplier shall continue to collect additional sets of repeat samples until either total coliforms are not detected in one complete set of repeat samples or the supplier determines that a coliform treatment technique trigger specified in §I(1) has been exceeded as a result of a repeat sample being total coliform-positive and notifies the Approving Authority. If a trigger identified in §I is exceeded as a result of a routine sample being total coliform-positive, suppliers are required to conduct only one round of repeat monitoring for each total coliform-positive routine sample.*

(d) *After a supplier collects a routine sample and before it learns the results of the analysis of that sample, if it collects another routine sample(s) from within five adjacent service connections of the initial sample, and the initial sample, after analysis, is found to contain total coliforms, then the supplier may count the subsequent sample(s) as a repeat sample instead of as a routine sample.*

(e) *Results of all routine and repeat samples taken under §§ D-G of this regulation not invalidated by the Approving Authority shall be used to determine whether a coliform treatment technique trigger specified in §I of this regulation has been exceeded.*

(2) Escherichia coli (E. coli) testing.

(a) If any routine or repeat sample is total coliform-positive, the supplier shall analyze that total coliform-positive culture medium to determine if *E. coli* are present. If *E. coli* are present, the supplier shall notify the Approving Authority by the end of the day when the supplier is notified of the test result, unless the supplier is notified of the result after the Approving Authority office is closed and the Approving Authority does not have either an after-hours phone line or an alternative notification procedure, in which case the supplier shall notify the Approving Authority before the end of the next business day.

(b) The Approving Authority has the discretion to allow a supplier, on a case-by-case basis, to forgo *E. coli* testing on a total coliform-positive sample if that supplier assumes that the total coliform-positive sample is *E. coli*-positive. Accordingly, the supplier shall notify the Approving Authority as specified in paragraph (2)(a) of this section and the provisions of 40 CFR §141.63(c) apply.

I. Coliform Treatment Technique Triggers and Assessment Requirements for Protection Against Potential Fecal Contamination

(1) *Treatment technique triggers.* Suppliers shall conduct assessments in accordance with subsection (2) of this section after exceeding treatment technique triggers in paragraphs (1)(a) and (1)(b) of this section.

(a) *Level 1 treatment technique triggers.*

(i) For suppliers taking 40 or more samples per month, the system exceeds 5.0% total coliform-positive samples for the month.

(ii) For suppliers taking fewer than 40 samples per month, the system has two or more total coliform-positive samples in the same month.

(iii) The system fails to take every required repeat sample after any single total coliform-positive sample.

(b) *Level 2 treatment technique triggers.*

(i) An *E. coli* MCL violation, as specified in 40 CFR §141.860(a).

(ii) A second Level 1 trigger as defined in paragraph (1)(a) of this section, within a rolling 12-month period, unless the Approving Authority has determined a likely reason that the samples that caused the first Level 1 treatment technique trigger were total coliform-positive and has established that the supplier has corrected the problem.

(iii) For systems with approved annual monitoring, a Level 1 trigger in two consecutive years.

(2) *Requirements for assessments.*

(a) Suppliers shall 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 shall be conducted by parties approved by the Approving Authority.

(b) When conducting assessments, suppliers shall ensure that the assessor evaluates minimum elements that include review and identification of inadequacies in sample sites; sampling protocol; sample processing; atypical events that could affect distributed water quality or indicate that distributed water quality was impaired; changes in distribution system maintenance and operation that could affect distributed water quality (including water storage); source and treatment considerations that bear on distributed water quality, where appropriate (e.g., small ground water systems); and existing water quality monitoring data. The supplier shall conduct the assessment consistent with any Approving Authority directives that tailor specific assessment elements with respect to the size and type of the system and the size, type, and characteristics of the distribution system.

(3) *Level 1 Assessments.* A supplier shall conduct a Level 1 assessment consistent with Approving Authority requirements if the system exceeds one of the treatment technique triggers in paragraph (1)(a) of this section.

(a) The supplier shall complete a Level 1 assessment as soon as practical after any trigger in paragraph (1)(a) of this section. In the completed assessment form, the supplier shall 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 supplier shall submit the completed Level 1 assessment form to the Approving Authority within 30 days after the supplier learns that it has exceeded a trigger.

(b) If the Approving Authority reviews the completed Level 1 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), the Approving Authority shall consult with the supplier. If the Approving Authority requires revisions after consultation, the supplier shall submit a revised assessment form to the Approving Authority on an agreed-upon schedule not to exceed 30 days from the date of the consultation.

(c) Upon completion and submission of the assessment form by the supplier, the Approving Authority shall determine if the supplier has identified a likely cause for the Level 1 trigger and, if so, establish if the supplier has corrected the problem, or has included a schedule acceptable to the Approving Authority for correcting the problem.

(4) *Level 2 Assessments.* A supplier shall ensure that a Level 2 assessment consistent with Approving Authority requirements is conducted if the supplier exceeds one of the treatment technique triggers in paragraph (1)(b) of this section. The supplier shall comply with any expedited actions or additional actions required by the Approving Authority in the case of an *E. coli* MCL violation.

(a) The supplier shall ensure that a Level 2 assessment is completed as soon as practical after any trigger in paragraph (1)(b) of this section. The supplier shall submit a completed Level 2 assessment form to the Approving Authority within 30 days after the supplier learns that it has exceeded a trigger. The assessment form shall 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.

(b) The supplier may conduct Level 2 assessments if the supplier has staff or management with the certification or qualifications specified by the Approving Authority unless otherwise directed by the Approving Authority.

(c) If the Approving Authority reviews the completed Level 2 assessment and determines that the assessment is not sufficient (including any proposed timetable for any corrective actions not already completed), the Approving Authority shall consult with

the supplier. If the Approving Authority requires revisions after consultation, the supplier shall submit a revised assessment form to the Approving Authority on an agreed-upon schedule not to exceed 30 days.

(d) Upon completion and submission of the assessment form by the supplier, the Approving Authority shall determine if the supplier has identified a likely cause for the Level 2 trigger and determine whether the supplier has corrected the problem, or has included a schedule acceptable to the Approving Authority for correcting the problem.

(5) *Corrective Action.* Suppliers shall correct sanitary defects found through either Level 1 or 2 assessments conducted under subsection (2) of this section. For corrections not completed by the time of submission of the assessment form, the supplier shall complete the corrective action(s) in compliance with a timetable approved by the Approving Authority in consultation with the supplier. The supplier shall notify the Approving Authority when each scheduled corrective action is completed.

(6) *Consultation.* At any time during the assessment or corrective action phase, either the water supplier or the Approving Authority may request a consultation with the other party to determine the appropriate actions to be taken. The supplier may consult with the Approving Authority on all relevant information that may impact on its ability to comply with a requirement of this subpart, including the method of accomplishment, an appropriate timeframe, and other relevant information.

J. Violations of the Revised Total Coliform Rule

(1) *E. coli MCL Violation.* A system is in violation of the MCL for *E. coli* when any of the conditions identified in paragraphs (1)(a) through (1)(d) of this section occur.

(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) *Treatment technique violation.*

(a) A treatment technique violation occurs when a system exceeds a treatment technique trigger specified in §I(1) of this regulation and then fails to conduct the required assessment or corrective actions within the timeframe specified in §I(2) and §I(3) of this regulation.

(b) A treatment technique violation occurs when a seasonal system fails to complete an Approving Authority-approved start-up procedure prior to serving water to the public.

(3) *Monitoring violations.*

(a) Failure to take every required routine or additional routine sample in a compliance period is a monitoring violation.

(b) Failure to analyze for *E. coli* following a total coliform-positive routine sample is a monitoring violation.

(4) *Reporting violations.*

(a) Failure to submit a monitoring report or completed assessment form after a system properly conducts monitoring or assessment in a timely manner is a reporting violation.

(b) Failure to notify the Approving Authority following an *E. coli*-positive sample as required by 40 CFR §141.858(b)(1) in a timely manner is a reporting violation.

(c) Failure to submit certification of completion of Approving Authority-approved start-up procedure by a seasonal system is a reporting violation.

.15-2 Disinfection Byproducts Sampling and Analytical Requirements.

A.– H. (text unchanged)

I. Stage 2 Disinfectant Byproducts Requirements.

(1) – (2) (text unchanged)

(3) Monitoring and Compliance.

(a) – (f) (text unchanged)

(g) Increased Monitoring

(i) A supplier of water shall increase monitoring to include dual sample sets once per quarter at all locations if a TTHM sample is greater than 0.080 milligram per liter or an HAA% sample is greater than 0.060 milligram per liter at any location. There shall be [at least] 90 days between the [quarterly] samples. *The approved sample period is based on the month that includes the peak historical month for the water system. Sample periods may include: 1) January, April, July, October; 2) February, May, August, November; or 3) March, June, September, December.*

(ii) – (iii) (text unchanged)

(h) (text unchanged)

(4) – (5) (text unchanged)

J. (text unchanged)

.19 Reporting Requirements.

A. When the supplier of water uses the services of a laboratory certified by the Approving Authority, the supplier of water shall report within 10 days following a sample analysis, analytical data required by this chapter to the Water Management Administration. Report forms shall be supplied by the Water Management Administration.

B. Except when specified in §D of this regulation, the supplier of water shall report to the Approving Authority:

(1) Within 48 hours the failure to comply with this chapter, including failure to comply with all monitoring and testing schedules that are required by the Approving Authority; and

(2) Within 24 hours, information related to Tier 1 violations or situations, or Tier 2 turbidity violations.

C. The supplier of water is not required to report analytical results to the Approving Authority in cases where a laboratory certified by the Approving Authority performs the analysis and reports the results to the Approving Authority.

D. Reporting Requirements for Total *Coliform*, [and] Fecal Coliform, and *E.coli*.

(1) A supplier of water which has exceeded the maximum contamination level for total coliform under Regulation .10 of this chapter shall report the violation to the Approving Authority before the end of the next business day after the supplier of water was notified of the violation *until March 31, 2016*.

(2) When fecal coliform or *E. coli* are detected, or when a supplier of water assumes a total coliform-positive sample is positive for fecal coliform or *E. coli*, the supplier of water shall notify the Approving Authority by the end of the business day on which the supplier of water was notified of the results. If the supplier of water was notified of the fecal or *E. coli* result after the end of the business day, the supplier of water shall notify the Approving Authority by the end of the next business day *until March 31, 2016*.

(3) A supplier of water which has failed to comply with a coliform monitoring or sanitary survey requirement shall report the violation to the Approving Authority within 10 days after the supplier of water discovers the violation.

(4) Reporting for E.coli after April 1, 2016.

(a) A supplier shall notify the Approving Authority by the end of the day when the supplier learns of an E. coli MCL violation, unless the supplier learns of the violation after the Approving Authority office is closed and the Approving Authority does not have either an after-hours phone line or an alternative notification procedure, in which case the supplier shall notify the Approving Authority before the end of the next business day, and notify the public in accordance with subpart Q of 40 CFR § 141.

(b) A supplier shall notify the Approving Authority by the end of the day when the supplier is notified of an E. coli- positive routine sample, unless the supplier is notified of the result after the Approving Authority office is closed and the Approving Authority does not have either an after-hours phone line or an alternative notification procedure, in which case the supplier shall notify the Approving Authority before the end of the next business day.

(5) A supplier that has violated the treatment technique for coliforms in Regulation .11-4I of this chapter shall report the violation to the Approving Authority no later than the end of the next business day after it learns of the violation, and notify the public in accordance with subpart Q of 40 CFR § 141.

(6) A supplier required to conduct an assessment under the provisions of Regulation .11-4I of this chapter shall submit the assessment report within 30 days. The supplier shall notify the Approving Authority in accordance with Regulation .11-4I of this chapter when each scheduled corrective action is completed for corrections not completed by the time of submission of the assessment form.

(7) A supplier that has failed to comply with a coliform monitoring requirement shall report the monitoring violation to the Approving Authority within 10 days after the supplier discovers the violation, and notify the public in accordance with subpart Q of 40 CFR § 141.

(8) A seasonal system shall certify, prior to serving water to the public, that it has complied with the Approving Authority-approved start-up procedure.

[(4)] (9) In addition to the requirements of 40 CFR §141.31, a ground water supplier regulated under 40 CFR §141 Subpart S shall provide the following information to the Approving Authority:

(a) A ground water supplier conducting compliance monitoring under Regulation .11D of this chapter shall notify the Approving Authority any time the system fails to meet any requirements specified by the Approving Authority including, but not limited to, minimum residual disinfectant concentration, membrane operating criteria or membrane integrity, and alternative treatment operating criteria, if operation in accordance with the criteria or requirements is not restored within four hours. The ground water supplier shall notify the Approving Authority as soon as possible, but in no case later than the end of the next business day.

(b) After completing any corrective action under Regulation .05-5C of this chapter, a ground water supplier shall notify the Approving Authority within 30 days of completion of the corrective action.

(c) If a ground water supplier subject to the requirements of Regulation .11-2D of this chapter does not conduct source water monitoring under Regulation .11-2D(5)(b) of this chapter, the supplier shall provide documentation to the Approving Authority within 30 days of the total coliform positive sample that the sample is not representative of the water in the distribution system and that the sample is subject to invalidation by the Approving Authority.

E. Unless stated otherwise by the Approving Authority, the supplier of water shall perform all monitoring, reporting, and public notification responsibilities under this regulation.

F. The supplier of water, within 10 days of each public notification required under 40 CFR § 141, Subpart Q, shall:

(1) Submit to the Approving Authority a representative copy of the initial public notice and any repeat notices; and
(2) Submit a certification that the public information requirements have been met and include a representative copy of each type of notice distributed, published, posted, and made available to individuals served by the water system and the media.

G. Reporting Requirements for Lead and Copper.

(1) Suppliers of water that monitor for lead shall comply with the reporting requirements set forth in 40 CFR §141.90, including the following:

- (a) Source water monitoring reporting requirements pursuant to 40 CFR §141.88;
- (b) Corrosion control treatment reporting requirements pursuant to 40 CFR §§141.81—141.82,
- (c) Source water treatment reporting requirements pursuant to 40 CFR §141.83;
- (d) Public education program reporting requirements pursuant to 40 CFR §141.85; and
- (e) Reporting of additional monitoring data associated with 40 CFR §§141.86, 141.87 and 141.88; and

(f) Reporting requirements for tap water monitoring for lead and copper and for water quality parameter monitoring required by 40 CFR §§141.81, 141.86 and 141.87.

(i) Water suppliers shall report the 90th percentile lead and copper concentrations measured from among all lead and copper tap water samples collected during each monitoring period (calculated in accordance with 40 CFR §141.80(c)(3)), except if the Approving Authority provides those calculations in accordance with 40 CFR §141.90(h), and the system has provided the information required by 40 CFR §141.90(h)(2) by the date set forth in 40 CFR §141.90(h)(1).

(ii) Prior to the addition of a new source or any long-term change in water treatment, water suppliers deemed to have optimized corrosion control under 40 CFR §141.81(b)(3), water suppliers subject to reduced monitoring pursuant to 40 CFR §141.86(d)(4), or water suppliers subject to a monitoring waiver pursuant to 40 CFR §141.86(g), shall submit documentation describing the change(s) proposed in accordance with 40 CFR §141.90 (a) for review and approval by the Approving Authority.

(2) If a system exceeds the lead action level, the water supplier shall submit written documentation of material evaluation that identifies the initial number of lead service lines in the distribution system at the time the action level is exceeded. This documentation shall be provided to the Approving Authority within 12 months after the end of the monitoring period in which the exceedance occurred.

.20 Public Notification of Variances, Exemptions, and Noncompliance with Standards.

A. – B. (text unchanged)

C. Tier 2 Public Notice.

(1) (text unchanged)

(2) Manner of Tier 2 Notice. A supplier of water shall:

(a) (text unchanged)

(b) Repeat the notice every 3 months as long as the violation or situation persists, unless the Approving Authority determines that appropriate circumstances warrant a different repeat notice frequency. In no circumstances may the repeat notice be given less frequently than once per year. The Approving Authority may not allow less frequent repeat notice for an MCL or treatment technique violation under Regulation .11-4 of this chapter or a treatment technique violation under Regulation .05-2 of this chapter. The Approving Authority may not allow less frequent repeat notice for a Tier 2 repeat notice. Approving Authority determinations that allow repeat notices to be given less frequently than once every three months must be in writing [issues written permission for a different repeat notice frequency, which notice frequency may not be less often than once a year];

(c) – (d) (text unchanged)

(3) – (4) (text unchanged)

(a) – (b) (text unchanged)

D. Tier 3 Public Notice.

(1) The violation categories and other situations requiring Tier 3 notices are specified in 40 CFR §141.204 and include:

(a) Monitoring violations under 40 CFR § 141 except if Tier 1 notice is required or the Approving Authority determines that Tier 2 notice is required;

(b) Failure to comply with a testing procedure except if Tier 1 notice is required or the Approving Authority determines that Tier 2 notice is required;

(c) Operating under a variance or an exemption;

(d) Results are available for unregulated contaminant monitoring; [and]

(e) Exceedance of the fluoride secondary maximum contaminant level; *and* [.]]

(f) Reporting and recordkeeping violations under subpart Y of 40 CFR § 141.

(2) (text unchanged)

E. (text unchanged)

.20-2 Consumer Confidence Reports.

A. – D. (text unchanged)

E. Content of the Report.

(1) An annual report issued under this regulation shall provide a report that contains the information specified in 40 CFR §§141.153, 141.154, and 141.211. The report does not replace the function of the Public Notice requirements under Regulation .20 of this chapter. This information includes, but is not limited to, the requirements in §E(2)—(9) of this regulation.

(2) –(3) (text unchanged)

(4) Definitions for the following shall be included in the report:

(a) – (f) (text unchanged)

(g) For a report that contains information regarding a Level 1 or Level 2 assessment required by Regulation .11-4 of this chapter, Level 1 assessment and Level 2 assessment, as applicable.

(5) Information on Detected Contaminants.

(a) (text unchanged)

(b) For detected regulated contaminants, the table or tables shall contain:

(i) The highest contaminant level used to determine compliance and the range of [test results] detected levels from monitoring for contaminants subject to an MCL, except turbidity, total coliform, fecal coliform and E. coli;

(ii) The MCL for that contaminant;

(iii) The MCLG for that contaminant expressed in the same units as the MCL;

(iv) A treatment technique, or specify the action level, applicable to that contaminant.

(c) (text unchanged)

(6) - (9) (text unchanged)

(10) *Any system required to comply with a Level 1 or Level 2 assessment requirement under Regulation .11-4 of this chapter that is not due to an E. coli MCL violation shall include the information specified in 40 CFR §141.153(h)(7).*

F. - (I) (text unchanged)

.21 Record Maintenance.

A. - G. (text unchanged)

H. In addition to the previous requirements of this regulation, a ground water supplier subject to 40 CFR §141 Subpart S shall maintain information in its records, including the following:

(1) - (3) (text unchanged)

(4) For consecutive systems, documentation of notification to the wholesale system(s) of total-coliform positive samples that are not invalidated under 40 CFR §141.21(c) *until March 31, 2016, or under 40 CFR §141.853 beginning April 1, 2016.*

Documentation shall be kept for a period of not less than 5 years.

(5) (text unchanged)

I. *In addition to §A of this regulation, a public water supplier subject to 40 CFR § 141, Subpart Y shall maintain information in its records, including the following:*

(1) The supplier shall maintain any assessment form, regardless of who conducts the assessment, and documentation of corrective actions completed as a result of those assessments, or other available summary documentation of the sanitary defects and corrective actions taken under Regulation .11-4H of this chapter for Approving Authority review. This record shall be maintained by the supplier for a period not less than five years after completion of the assessment or corrective action.

(2) The supplier shall maintain a record of any repeat sample taken that meets Approving Authority criteria for an extension of the 24-hour period for collecting repeat samples as provided for under Regulation .11-4H(1)(a) of this chapter.