COMMONWEALTH OF PUERTO RICO
DEPARTMENT OF HEALTH
ENVIRONMENTAL HEALTH DIVISION

4537

AMENDMENTS ADOPTED TO REGULATION OF THE SECRETARY OF HEALTH NUMBER 50 "Total Coliform Rule"

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No. 4537
Date: September 16, 1991 4:38 p.m.
Approved: Antonio J. Colorado
Secretary of State
By: [signature]
Assistant Secretary of State

COMMONWEALTH OF PUERTO RICO
DEPARTMENT OF HEALTH
ENVIRONMENTAL HEALTH DIVISION
SAN JUAN, PUERTO RICO

REGULATION NO. 75

AMENDMENTS ADOPTED TO REGULATION OF THE SECRETARY OF HEALTH NUMBER 50 APPROVED ON JUNE 20, 1983 AND FILED WITHIN THE DEPARTMENT OF STATE ON JUNE 21, 1983 FILE NO. 3,000

INTRODUCTION

This document contains the amendment adopted to Regulation of the Secretary of Health Number 50, June 20, 1983, related to the 1986 amendments to the "Safe Drinking Water Act of 1974", Public Law 93-523 as amended on December 16, 1974, Amendments of 1986, Public Law 99-939, 100 Stat. 642.

Said amendments include:

* Amendment to the current National Primary Drinking Water Regulations (NPDWR), including the maximum contaminant level, monitoring requirements and analytical requirements, for total coliforms, including fecal coliforms and Escherichia Coli (E. Coli).

* Maximum Contaminant Level goal of zero (0) for total coliforms, including fecal coliforms and E. Coli.

In Article II, the following new definitions are added and arranged alphabetically to read as follows:

ARTICLE II Definitions

1. "Confluent growth" means a continuous bacterial growth covering the entire filtration area of a membrane filter, or a portion thereof, in which bacterial colonies are not discrete.

2. "Domestic or other non-distribution system plumbing problem" means a coliform contamination problem in a public water system with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken.

3. "Near the first service connection" means at one of the 20 percent of all service connections in the entire system that are nearest the water supply treatment facility, as measured by water transport time within the distribution system.

4. "System with a single service connection" means a system which supplies drinking water to consumers via a single service line.

5. "Too numerous to count" means that the total number of bacterial colonies exceeds 200 on a 47-mm diameter membrane filter used for coliform detection.

Article X is revised to read as follows:

Article X Variances and exemptions

Variances or exemptions from certain provisions of these regulations may be granted pursuant to sections 1415

and 1416 of the Act by the entity with primary enforcement responsibility, except that variances or exemptions from the MCL for total coliforms and variances from any of the treatment technique requirements of Article VI B of this part may not be granted.

Article VI A 6) is removed.

Article VI A 7) is revised to read as follows:

7) Coliform sampling

(a) Routine monitoring.

1. Public water systems must collect total coliform samples at sites which are representative of water throughout the distribution system according to a written sample siting plan. These plans are subject to Secretary review and revision.

2. The monitoring frequency for total coliforms for community water systems is based on the population served by the system, as follows:

TOTAL COLIFORM MONITORING FREQUENCY FOR COMMUNITY WATER SYSTEMS

Population served	Minimum number of samples per month
25 to 1,000[1]	1
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

1 Includes public water systems which have at least 15 service connections, but serve fewer than 25 persons.

If a community water system serving 25 to 1,000 persons has no history of total coliform contamination in its current configuration and a sanitary survey conducted in the past five years shows that the system is supplied solely by a protected groundwater source and is free of sanitary defects, the Secretary may reduce the monitoring frequency specified above, except that in no case may the Secretary reduce the monitoring frequency to less than one sample per quarter. The Secretary must approve the reduced monitoring frequency in writing.

3. The monitoring frequency for total coliforms for non-community water systems is as follows:

(i) A non-community water system using only ground water (except ground water under the direct influence of surface water, as defined in Article 2) and serving 1,000 persons or fewer must monitor each calendar quarter that the system provides water to the public, except that the Secretary may reduce this monitoring frequency, in writing, if a sanitary survey shows that the system is free of sanitary defects. Beginning June 29, 1994, the Secretary cannot reduce the monitoring frequency for a non-community water system using only ground water (except ground water under the direct influence of surface water, as defined in Article II) and serving 1,000 persons or fewer to less than once/year.

(ii) A non-community water system using only ground water (except ground water under the direct influence of surface water, as defined in Article II) and serving more

than 1,000 persons during any month must monitor at the same frequency as a like-sized community water system, as specified in paragraph (a) 2 of this Article VI A 7) except the Secretary may reduce this monitoring frequency, in writing, for any month the system serves 1,000 persons or fewer. The Secretary cannot reduce the monitoring frequency to less than once/year. For systems using ground water under the direct influence of surface water, paragraph (a)3(iv) of this Article VI A7) applies.

(iii) A non-community water system using surface water, in total or in part, must monitor at the same frequency as a like-sized community water system, as specified in paragraph (a)2 of this Article VI A 7), regardless of the number of persons it serves.

(iv) A non-community water system using ground water under the direct influence of surface water, as defined in Article II, must monitor at the same frequency as a like-sized community water system, as specified in paragraph (a)2 of this Article VI A7) system must begin monitoring at this frequency beginning six months after the Secretary determines that the ground water is under the direct influence of surface water.

4. The public water system must collect samples at regular time intervals throughout the month, except that a system which uses only ground water (except ground water under the influence of surface water, as defined in Article II), and serves 4,900 persons or fewer, may collect all

required samples on a single day if they are taken from different sites.

5. A public water system that uses surface water or ground water under the direct influence of surface water, as defined in Article II, and does not practice filtration in compliance with Article VI B must collect at least one sample near the first service connection each day the turbidity level of the source water, measured as specified in Article VI 5)(B)2, exceeds 1 NTU. This sample must be analyzed for the presence of total coliforms. When one or more turbidity measurements in any day exceed 1 NTU, the system must collect this coliform sample within 24 hours of the first exceedance, unless the Secretary determines that the system, for logistical reasons outside the system's control, cannot have the sample analyzed within 30 hours of collection. Sample results from this coliform monitoring must be included in determining compliance with the MCL for total coliforms in Article VI 6).

6. Special purpose samples, such as those taken to determine whether disinfection practices are sufficient following pipe placement, replacement, or repair, shall not be used to determine compliance with the MCL for total coliforms in Article VI 6). Repeat samples taken pursuant to paragraph (b) of this Article VI A7) are not considered special purpose samples, and must be used to determine compliance with the MCL for total coliforms in Article VI 6).

(b) Repeat monitoring.

1. If a routine sample is total coliform-positive, the public water system must collect a set of repeat samples within 24 hours of being notified of the

positive result. A system which collects more than one routine sample/month must collect no fewer than three repeat samples for each total coliform- positive sample found. A system which normally collects one routine sample/ month or fewer must collect no fewer than four repeat samples for each total coliform-positive sample found. The Secretary may extend the 24-hour limit on a case-by-case basis if the system has a logistical problem in collecting the repeat samples within 24 hours that is beyond its control. In the case of an extension, the Secretary must specify how much time the system has to collect the repeat samples.

2. The system must collect at least one repeat sample from the sampling tap where the original total coliform-positive sample was taken, and at least one repeat sample at a tap within five service connections upstream and at least one repeat sample at a tap within five service connections downstream of the original sampling site. If a total coliform-positive sample is at the end of the distribution system, or one away from the end of the distribution system, the Secretary may waive the requirement to collect at least one repeat sample upstream or downstream of the original sampling site.

3. The system must collect all repeat samples on the same day, except that the Secretary may allow a system with a single service connection to collect the required set of repeat samples over a four-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 400 ml (300 ml for systems which collect more than one routine sample/month).

4. If one or more repeat samples in the set is total coliform-positive, the public water system must collect an additional set of repeat samples in the manner specified in paragraphs (b)1-3 of this Article VI A7). The additional samples must be collected within 24 hours of being notified of the positive result, unless the Secretary extends the limit as provided in paragraph (b)1 of this Article VI A7). The system must repeat this process until either total coliforms are not detected in one complete set of repeat samples or the system determines that the MCL for total coliforms in Article VI 6) has been exceeded and notifies the Secretary.

5. If a system collecting fewer than five routine samples/month has one or more total coliform-positive samples and the Secretary does not invalidate the sample(s) under paragraph (c) of this Article VI A7), it must collect at least five routine samples during the next month the system provides water to the public, except that the Secretary may waive this requirement if the conditions of paragraph (b)5(i) or (ii) are met of this Article VI A. The Secretary cannot waive the requirement for a system to collect repeat samples in paragraphs (b)1-4 of this Article VI A7).

(i) The Secretary may waive the requirement to collect five routine samples the next month the system provides water to the public if the Secretary, or an agent approved by the Secretary, performs a site visit before the end of the next month the system provides water to the

public. Although a sanitary survey need not be performed, the site visit must be sufficiently detailed to allow the Secretary to determine whether additional monitoring and/or any corrective action is needed. The Secretary cannot approve an employee of the system to perform this site visit, even if the employee is an agent approved by the Secretary to perform sanitary surveys.

(ii) The Secretary may waive the requirement to collect five routine samples the next month the system provides water to the public if the Secretary has determined why the sample was total coliform-positive and establishes that the system has corrected the problem or will correct the problem before the end of the next month the system serves water to the public. In this case, the Secretary must document this decision to waive the following month's additional monitoring requirement in writing, have it approved and signed by the supervisor of the Secretary official who recommends such a decision, and make this document available to the EPA and public. The written documentation must describe the specific cause of the total coliform-positive sample and what action the system has taken and/or will take to correct this problem. The Secretary cannot waive the requirement to collect five routine samples the next month the system provides water to the public solely on the grounds that all repeat samples are total coliform- negative. Under this paragraph, a system must still take at least one routine sample before the end of the next month it serves water to the public and use it to determine compliance with the MCL for total

coliforms in Article VI 6), unless the Secretary has determined that the system has corrected the contamination problem before the system took the set of repeat samples required in paragraphs (b)1-4, and all repeat samples were total coliform-negative.

6. After a system 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 system may count the subsequent sample(s) as a repeat sample instead of as a routine sample.

7. Results of all routine and repeat samples not invalidated by the Secretary must be included in determining compliance with the MCL for total coliforms in Article VI 6).

(c) Invalidation of total coliform samples. A total coliform-positive sample invalidated under this paragraph (c) does not count towards meeting the minimum monitoring requirements of this Article VI A7). 1. The Secretary may invalidate a total coliform-positive sample only if the conditions of paragraph (c)(i), (ii), or (iii) of Article VI A7) are met.

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

(ii) The Secretary, on the basis of the results of repeat samples collected as required by paragraphs (b)(1) through (4) of this Article VI A7), determines that the total coliform-positive sample resulted from a domestic or other non-distribution system plumbing problem. The

Secretary 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 within five service connections of the original tap are total coliform-negative (e.g., a Secretary cannot invalidate a total coliform-positive sample on the basis of repeat samples if all the repeat samples are total coliform-negative, or if the public water system has only one service connection).

(iii) The Secretary has substantial grounds to believe that a total coliform-positive result is due to a circumstance or condition which does not reflect water quality in the distribution system. In this case, the system must still collect all repeat samples required under paragraphs (b)(1) through (4) of this Article VI A7), and use them to determine compliance with the MCL for total coliforms in Article VI 6). To invalidate a total coliform-positive sample under this paragraph, the decision with the rationale for the decision must be documented in writing, and approved and signed by the supervisor of the Secretary official who recommended the decision. The Secretary must make this document available to EPA and the public. The written documentation must state the specific cause of the total coliform-positive sample, and what action the system has taken, or will take, to correct this problem. The Secretary may not invalidate a total coliform-positive sample solely on the grounds that all repeat samples are total coliform-negative.

2. A laboratory must invalidate a total coliform sample (unless total coliforms are detected) if the sample produces a turbid culture in the absence of gas production using and 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 system must 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 system must continue to re-sample within 24 hours and have the samples analyzed until it obtains a valid result. The Secretary may waive the 24-hour time limit on a case-by-case basis.

(d) Sanitary surveys. 1. (i) Public water systems which do not collect five or more routine samples/month must undergo an initial sanitary survey by June 29, 1994 for community public water systems and June 24, 1999 for non-community water systems. Thereafter, systems must undergo another sanitary survey every five years, except that non-community water systems using only protected and disinfected ground water, as defined by the Secretary, must undergo subsequent sanitary surveys at least every ten years after the initial sanitary survey. The Secretary must review the results of each sanitary survey to determine whether the

existing monitoring frequency is adequate and what additional measures, if any, the system needs to undertake to improve drinking water quality.

(ii) In conducting a sanitary survey of a system using ground water in a State having an EPA-approved wellhead protection program under section 1428 of the Safe Drinking Water Act, information on sources of contamination within the delineated wellhead protection area that was collected in the course of developing and implementing the program should be considered instead of collecting new information, if the information was collected since the last time the system was subject to a sanitary survey.

2. Sanitary surveys must be performed by the Secretary or an agent approved by the Secretary. The system is responsible for ensuring the survey takes place.

(e) Fecal coliforms/Escherichia coli (E. coli) testing.

1. If any routine or repeat sample is total coliform-positive, the system must analyze that total coliform-positive culture medium to determine if fecal coliforms are present, except that the system may test for E. coli in lieu of fecal coliforms. If fecal coliforms or E. coli are present, the system must notify the Secretary by the end of the day when the system is notified of the test result, unless the system is notified of the result after the Secretary office is closed, in which case the system must notify the Secretary before the end of the next business day.

2. The Secretary has the discretion to allow a public water system, on a case-by-case basis, to forgo fecal

coliform or E. coli testing on a total coliform-positive sample if that system assumes that the total coliform-positive sample is fecal coliform-positive or E. coli-positive. Accordingly, the system must notify the Secretary as specified in paragraph (e)1 of this Article VI A7) and the provisions of Article VI 6)(b) apply.

(f) Analytical methodology. 1. The standard sample volume required for total coliform analysis, regardless of analytical method used, is 100 ml.

2. Public water systems need only determine the presence or absence of total coliforms; a determination of total coliform density is not required.

3. Public water systems must conduct total coliform analyses in accordance with one of the following analytical methods:

(i) Multiple-Tube Fermentation (MTF) Technique, as set forth in Standard Methods for the Examination of Water and Wastewater, 1985, American Public Health Association et al., 16th edition, Method 908, 908A, and 908B -- pp. 870-878, except that 10 fermentation tubes must be used; or Microbiological Methods for Monitoring the Environment, Water and Wastes, U.S. EPA, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268 (EPA-600/8-78-017, December 1978, available from ORD Publications, CERI, U.S. EPA, Cincinnati, Ohio 45268), Part III, Section B.4.1 - 4.6.4, pp. 114-118 (Most Probable Number Method), except that 10 fermentation tubes must be used; or

(ii) Membrane Filter (MF) Technique, as set forth in Standard Methods for the Examination of Water and Wastewater,

1985, American Public Health Association et al., 16th edition, Method 909, 909A and 909B -- pp. 886-896; or Microbiological Methods for Monitoring the Environment, Water and Wastes, U.S. EPA, Environmental Monitoring and Support Laboratory, Cincinnati, Ohio 45268 (EPA-600/8-78-017, December 1978, available from ORD Publications, CERI, U.S. EPA, Cincinnati, Ohio 45268), Part III, Section B.2.1 - 2.6, pp. 108-112; or

(iii) Presence-Absence (P-A) Coliform Test, as set forth in Standard Methods for the Examination of Water and Wastewater, 1985, American Public Health Association et al., 16th edition, Method 908E -- pp. 882-886; or

(iv) Minimal Medium ONPG-MUG (MMO-MUG) Test, as set forth in the article "National Field Evaluation of a Defined Substrate Method for the Simultaneous Detection of Total Coliforms and Escherichia coli from Drinking Water: Comparison with Presence-Absence Techniques" (Edberg et al.), Applied and Environmental Microbiology, Volume 55, pp. 1003-1008, April 1989. (Note: The MMO-MUG Test is sometimes referred to as the Autoanalysis Colilert System.)

4. In lieu of the 10-tube MTF Technique specified in paragraph (f)3(i) of this Article VI A7), a public water system may use the MTF Technique using either five tubes (20-ml sample portions) or a single culture bottle containing the culture medium for the MTF Technique, i.e., lauryl tryptose broth (formulated as described in Standard Methods for the Examination of Water and Wastewater, 1985, American Public Health Association et al., 16th Edition, Method 908 A - pp. 872), as long as a 100-ml water sample is used in the analysis.

5. Public water systems must conduct fecal coliform analysis in accordance with the following procedure. When the MTF Technique or Presence-Absence (P-A) Coliform Test is used to test for total coliforms, shake the lactose-positive presumptive tube or P-A bottle vigorously and transfer the growth with a sterile 3-mm loop or sterile applicator stick into brilliant green lactose bile broth and EC medium to determine the presence of total and fecal coliforms, respectively. For EPA-approved analytical methods which use a membrane filter, remove the membrane containing the total coliform colonies from the substrate with a sterile forceps and carefully curl and insert the membrane into a tube of EC medium. (The laboratory may first remove a small portion of selected colonies for verification.) Gently shake the inoculated EC tubes to insure adequate mixing and incubate in a waterbath at 44.5 ± 0.2°C for 24 ± 2 hours. Gas production of any amount in the inner fermentation tube of the EC medium indicates a positive fecal coliform test. The preparation of EC medium is described in Standard Methods for the Examination of Water and Wastewater, American Public Health Association, 16th Edition, Method 908C -- pp. 879, paragraph 1a. Public water systems need only determine the presence or absence of fecal coliforms; a determination of fecal coliform density is not required.

6. These incorporations by reference were approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR Part 51. Copies of the analytical methods cited in Standard Methods for the Examination of

Water and Wastewater may be obtained from the American Health Association et al.; 1015 Fifteenth Street, NW; Washington, DC 20005. Copies of the methods set forth in Microbiological Methods for Monitoring the Environment, Water and Wastes may be obtained from ORD Publications, U.S. EPA, 26 Martin Luther King Drive, Cincinnati, Ohio 45268. Copies of the MMO-MUG Test as set forth in the article "National Field Evaluation of a Defined Substrate Method for the Simultaneous Enumeration of Total Coliforms and Escherichia coli from Drinking Water: Comparison with the Standard Multiple Tube Fermentation Method" (Edberg et al.) may be obtained from the American Water Works Association Research Foundation, 6666 West Quincy Avenue, Denver, CO 80235.

(g) Response to violation. 1. A public water system which has exceeded the MCL for total coliforms in Article VI 6) must report the violation to the Secretary no later than the end of the next business day after it learns of the violation, and notify the public in accordance with Article IX B.

(2) A public water system which has failed to comply with a coliform monitoring requirement, including the sanitary survey requirement, must report the monitoring violation to the Secretary within ten days after the system discovers the violation, and notify the public in accordance with Article IX B.

7. Section Article VII is amended by revising paragraph (b) to read as follows:

ARTICLE VII Reporting requirements

(b) Except where a different reporting period is specified in this regulation , the supplier of water must report to the Secretary within 48 hours the failure to comply with any national primary drinking water regulation (including failure to comply with monitoring requirements) set forth in this regulation.

Article IX-B is amended to add a new paragraph (1)(a)(iii)(C) and new paragraphs (5)(i) and (j) to read as follows:

ARTICLE IX-B Public Notification by Public Water Systems.

(C) Violation of the MCL for total coliforms, when fecal coliforms or E. coli are present in the water distribution system, as specified in Article VI 6)(b).

(i) Total coliforms (to be used when there is a violation of Article VI 6)(a), and not a violation of Article VI 6)(b)): The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the presence of total coliforms is a possible health concern. Total coliforms are common in the environment and are generally not harmful themselves. The presence of these bacteria in drinking water, however, generally is a result of a problem with water treatment or

the pipes which distribute the water, and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and any associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. EPA has set an enforceable drinking water standard for total coliforms to reduce the risk of these adverse health effects. Under this standard, no more than 5.0 percent of the samples collected during a month can contain these bacteria, except that systems collecting fewer than 40 samples/month that have one total coliform-positive sample per month are not violating the standard. Drinking water which meets this standard is usually not associated with a health risk from disease-causing bacteria and should be considered safe.

(j) Fecal Coliforms/E coli (to be used when there is a violation of Article VI 6)(b) or both Article VI 6)(a) and (b): The United States Environmental Protection Agency (EPA) sets drinking water standards and has determined that the presence of fecal coliforms or E. coli is a serious health concern. Fecal coliforms and E. coli are generally not harmful themselves, but their presence in drinking water is serious because they usually are associated with sewage or animal wastes. The presence of these bacteria in drinking water is generally a result of a problem with water treatment or the pipes which distribute the water, and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may

include diarrhea, cramps, nausea, and possibly jaundice, and associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. EPA has set an enforceable drinking water standard for fecal coliforms and E. coli to reduce the risk of these adverse health effects. Under this standard all drinking water samples must be free of these bacteria. Drinking water which meets this standard is associated with little or none of this risk and should be considered safe. State and local health authorities recommend that consumers take the following precautions: (To be inserted by the public water system, according to instructions from Secretary or local health authorities).

ARTICLE VI 6) is deleted and a new 6 is added to read as follows:

6) Maximum contaminant levels (MCLs) for microbiological contaminants.

(a) The MCL is based on the presence or absence of total coliforms in a sample, rather than coliform density.

1. For a system which collects at least 40 samples per month, if no more than 5.0 percent of the samples collected during a month are total coliform-positive, the system is in compliance with the MCL for total coliforms.

2. For a system which collects fewer than 40 samples/ month, if no more than one sample collected during a month

is total coliform-positive, the system is in compliance with the MCL for total coliforms.

(b) Any fecal coliform-positive repeat sample or E. coli-positive repeat sample, or any total coliform-positive repeat sample following a fecal coliform-positive or E. coli-positive routine sample constitutes a violation of the MCL for total coliforms. For purposes of the public notification requirements in Article IX-B, this is a violation that may pose an acute risk to health.

(c) A public water system must determine compliance with the MCL for total coliforms in paragraphs (a) and (b) of this Article VI 6) for each month in which it is required to monitor for total coliforms.

(d) The Administrator, pursuant to section 1412 of the Act, hereby identifies the following as the best technology, treatment techniques, or other means available for achieving compliance with the maximum contaminant level for total coliforms in paragraphs (a) and (b) of this Article VI 6): 1. protection of wells from contamination by coliforms 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 tanks and reservoirs, and continual maintenance of positive water pressure in all parts of the distribution system; 4) filtration and/or disinfection of surface water, as described in Article VI B, or disinfection of ground water using strong

oxidants such as chlorine, chlorine dioxide, or ozone; or

5. the development and implementation of an EPA-approved State Wellhead Protection Program under section 1428 of the SDWA.

(e) Maximum contaminant level goal (MCLG) for microbiological contaminants are as indicated:

CONTAMINANT	MCLG
Total Coliforms (including fecal coliforms and (*Escherichia coli*)	Zero

The amendments to Regulation of the Secretary of Health Number 50, June 20, 1983, when approved by the Secretary under the power granted by Public Law No. 5, of July 21, 1977, shall become effective immediately after being filed in the Department of State under the executive order signed by the Honorable Governor of the Commonwealth of Puerto Rico, under the Authority granted to him through Section II of Law Number 112, June 30, 1957, know as the Regulations Law of Puerto Rico.

Approved in San Juan, Puerto Rico this 9 day of September , 1991 .

Effective date

José Soler Zapata, M.D.
Secretary of Health

Filed within the Department of State, this day of , 19 .