Pre-Draft Rule Guidance TAC Meeting 12/17/2015

RTCR Reference Guide

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Acronyms

CWS – Community Water System

DEP –Department of Environmental Protection

EPA – Environmental Protection Agency

FR – Federal Register

PWS – Public Water System

RTCR – Revised Total Coliform Rule

TCR – Total Coliform Rule

Section 1: Introduction

This manual has been developed to provide guidance on revisions to Pennsylvania's Chapter 109 Safe Drinking Water regulations, which were made to conform to the federal Revised Total Coliform Rule (RTCR). This manual focuses on changes to existing regulations and new mandates relating to assessments and seasonal water systems. One or more provisions of the RTCR may apply to all public water systems (PWSs). For more information on existing requirements relating to the Total Coliform Rule which have not changed, refer to *Laboratory Reporting Instructions for Total & Fecal Coliform Bacteria in Public Water Systems* (383-3301-102).

Section 2: Revised Total Coliform Rule Background and Purpose

In February 2013, the Environmental Protection Agency (EPA) adopted regulations to implement the RTCR. The effective date of the federal RTCR is April 1, 2016. According to the EPA, the goal of the RTCR is to increase public health protection through the reduction of potential pathways of entry for fecal contamination into the distribution system (78 FR 10276). Fecal contamination may contain waterborne pathogens including bacteria, viruses, and parasitic protozoa. Therefore, a decrease in fecal contamination should reduce the risk from all of these pathogens.

This revised rule maintains the objectives of the 1989 TCR, which include: evaluating the effectiveness of treatment, determining the integrity of the distribution system, and signaling the possible presence of fecal contamination. The RTCR also aims for greater public health protection than the 1989 TCR in a cost-effective manner by:

- Using the optimal indicator for the intended objectives. In other words, use total coliforms as an indicator of system operation and condition rather than an immediate public health concern. *E. coli* is then used as an indicator of fecal contamination and more immediate public health concern.
- Requiring systems that may be vulnerable to contamination, as indicated by the nature of their operation, to have in place procedures that will minimize the incidence of contamination. Namely, seasonal water systems are required to document and follow start-up procedures prior to serving water each operating season.

Since the RTCR has a more preventive approach to identifying and fixing problems that affect or may affect public health, the EPA anticipates greater public health protection under the RTCR compared to the 1989 TCR. (78 FR 10272 – 10273).

For more information on the federal RTCR, visit:
http://water.epa.gov/lawsregs/rulesregs/sdwa/tcr/regulation_revisions.cfm

Section 3: Monitoring

Frequency

All PWSs are required to monitor for total coliform bacteria each month in which water is available for consumption. The minimum number of samples required to be collected each month is determined by the average daily population served for each month. More samples than the minimum number may be required based on system configuration on a case by case basis. However, bottled water systems, vended water systems (except for permit-by-rule vended water systems), retail water facilities and bulk water hauling systems are required to collect one sample per entry point per week for the presence of total coliform.

RTCR Monitoring: Monthly Distribution Samples			
Population Served	**Min. # of samples per month**	**Population Served**	**Min. # of samples per month**
25 to 1,000	1	59,001 to 70,000	70
1,001 to 2,500	2	70,001 to 83,000	80
2,501 to 3,300	3	83,001 to 96,000	90
3,301 to 4,100	4	96,001 to 130,000	100
4,101 to 4,900	5	130,001 to 220,000	120
4,901 to 5,800	6	220,001 to 320,000	150
5,801 to 6,700	7	320,001 to 450,000	180
6,701 to 7,600	8	450,001 to 600,000	210
7,601 to 8,500	9	600,001 to 780,000	240
8,501 to 12,900	10	780,001 to 970,000	270
12,901 to 17,200	15	970,001 to 1,230,000	300
17.201 to 21,500	20	1,230,001 to 1,520,000	330
21,501 to 25,000	25	1,520,001 to 1,850,000	360
25,001 to 33,000	30	1,850,001 to 2,270,000	390
33,001 to 41,000	40	2,270,001 to 3,020,000	420
41,001 to 50,000	50	3,020,001 to 3,960,000	450
50,001 to 59,000	60	3,960,000 or more	480

Repeat Monitoring

Repeat monitoring is required when a routine sample (and in some cases a check sample) tests positive for total coliform. For all PWSs, repeat monitoring consists of collecting three check samples as specified in the sample siting plan. Check samples should be collected from the same tap as the routine location which tested positive, a location within 5 taps upstream of the routine location and a location within 5 taps downstream of the routine location. If a downstream location does not exist, PWSs should select a separate location within 5 taps upstream of the routine location.

At a minimum, one set of three check samples is required for each routine sample that tests positive for total coliform. PWSs collecting less than 40 samples per month that have a positive check sample trigger an assessment and cease repeat monitoring.

PWSs which collect 40 or more samples per month that have a positive check sample are required to collect an additional set of three check samples from the same locations. These PWSs shall continue to collect check samples until a set is negative or an assessment has been triggered.

For PWSs with one service connection and only one available tap from which to collect check samples, the PWS should space the check samples at least 15 minutes apart. Alternatively, PWSs with one service connection may collect a check sample on three consecutive days.

Population

PWSs should estimate the average daily population that they serve by accounting for:

- Residential users
- Nontransient users, which are individuals that have regular access to the water, such as employees or students, but do not live within the system's service area
- Transient users, which are individuals that have access to the water but neither live nor work within the system's service area, such as someone passing through town that stops at a local restaurant

The EPA recognizes in its *RTCR State Implementation Guidance* the importance of considering the entire population served by a PWS by providing the following example:

> "For PWSs that serve year-round residents and a transient population (e.g., a casino resort with both live-in residents and visitors), the size of the transient population may or may not affect how the population of the PWS is determined and the associated RTCR required monitoring frequency. For CWSs, in most cases the transient population is small and will not affect the monitoring frequency. However, when there are PWSs where the resident population is relatively small in comparison to the transient population (e.g., a casino with 500 employees that live nearby, but with 10,000 visitors to the facility per day) then the PWS population for determining monitoring requirements is generally considered the average number of individuals served per day, both resident and transient. Like these combination resident and transient population systems, seasonal systems can also have varying populations throughout the year."[1]

In most cases, PWSs will only be able to estimate their population and no single formula can be applied to every system. Therefore, DEP recommends that PWSs first quantify the number of residential customers. If there is no other available data, then estimating the residential customer base by multiplying the number of residential connections X 2.58 is acceptable[2].

[1] EPA "The Revised Total Coliform Rule (RTCR) State Implementation Guidance- Interim Final", September 2014 p. 12

[2] U.S. Census Bureau "Households and Families: 2010", 2010 Census Briefs

Next, PWSs should consider their nontransient population. To obtain this population, they should contact schools (including colleges and universities) and businesses to see if they have data regarding how many students and employees they have that live within the community versus the number of individuals that commute from outside the PWS's service area. The US Census Bureau has also started collecting data on commuters which may be useful.

Finally, for the transient population, DEP recommends identifying the number of businesses and facilities which provide water for consumption such as restaurants and community parks. In the absence of additional data for each of these facilities, DEP recommends that PWSs use a population of 25 individuals per facility. For example, a PWS which serves water to 4 restaurants would add 100 individuals to their total population. For higher use facilities such as fairgrounds or entertainment venues, PWSs may ask the venue for specific average daily attendance data.

Since population for the month is derived from the average daily population, a single day event where water is available to a significantly higher population than during the rest of the month will not necessarily increase the minimum number of samples required for the month. Examples of single day events include concerts, fairs, and sporting events. For these situations, however, PWSs may collect more samples than the minimum required by the average daily population during that month. Another option is to collect a routine sample, as specified in the sample siting plan, before the large event at a tap representative of that portion of the distribution system.

If a PWS has a multiple day event when the population spikes (or multiple single day events), the estimated population for each day of the event(s) should be added together and divided by the total number of days in the month. That average should then be added to the system's population, which provides an estimate of the average daily population for the month and should be used to determine the minimum number of routine coliform samples required to be collected in that month. For example, a PWS that serves a town with a population of 500 people has a 7-day fair each November. Approximately 10,000 people attend the fair each day. In this situation, the PWS should multiply 7 days by 10,000 people per day which equals an extra 70,000 people served for November. To calculate the effect on the average daily population for November, divide 70,000 people per month by 30 days in the month, which equals an additional 2,333 people per day. The PWS should then add the 2,333 people per day to the existing population of 500 individuals per day to determine that in November the PWS serves an average population of 2,833 individuals. Therefore, in November, the PWS should collect a minimum of 3 samples instead of 1. Further, the PWS should identify the November population fluctuation in its sample siting plan and collect at least 2 additional samples in the vicinity of the fair before and/or during the fair week.

Coliform Sample Siting Plan

All total coliform samples collected for compliance are required to be taken in accordance with a written sample siting plan developed by the PWS.

When determining where to collect samples for RTCR compliance there are three recommended steps that PWSs can follow:

1. Determine the minimum number of routine samples required per month based on population using the chart on page 3.
2. Consult the PWS's distribution map or plumbing diagram to decide which locations are representative of water throughout the distribution system. Examples of representative locations can be found in the table below.

Examples of Representative Locations	
Dead Ends	Finished Water Storage Facilities
First Service Connection	Interconnections with other PWS
Areas of High Water Age	Areas with Previous Coliform Detections

3. Determine the number of sample locations, which may be greater than or less than the minimum number of samples required each month.

A PWS may identify more locations in their sample siting plan than the minimum number of samples they are required to collect each month. One reason for this would be to ensure that representative sampling occurs in all areas of the distribution system and to ensure that a PWS is sampling at all of their vulnerable locations and pressure zones. In this case, a system may choose to rotate between sampling locations each month. Additionally, PWSs with split distribution systems may have more locations than the minimum number of required monthly samples. PWSs that have physically separated distribution systems may be required by DEP to collect more samples per month than the minimum number dictated by the population they serve. For example, consider a campground that has two wells and two physically separated sections of their distribution system. One well supplies water to the campground's general store and swimming pool. The second well supplies water to the campground's camping sites and bathhouse. The PWS serves a maximum population of 700 individuals. However, instead of sampling only one time per month, the PWS may be required to sample two times per month at locations that are representative of each separate distribution system in order to show that safe and potable water is being supplied to all users of the PWS. DEP may make these determinations during a special monitoring evaluation that occurs during a sanitary survey at the PWS and will notify the PWS in writing if it determines that additional routine samples are required.

PWSs may use a monitoring location more than once during a month, but consideration should be given to make sure the entire distribution system is being monitored representatively. PWSs required to collect a greater number of samples per month than the number of vulnerable locations and pressure zones that exist in their distribution system can consider sampling at multiple times during the month at the same locations. In the coliform sample siting plan, PWSs demonstrate that the location and the frequency at which those locations are used for routine monitoring are representative of their entire system.

After identifying sampling locations, a PWS must determine a sampling schedule. For PWSs that collect more than one sample per month, the samples must be collected at regular time intervals throughout the monitoring period. To ensure regular time intervals, PWSs should space collection of samples evenly throughout the month. For example, a PWS required to collect 8 samples per month can satisfy this requirement by collecting two samples in each full week of the month. However, PWSs using only groundwater sources that serve less than or equal to 4,900 persons may conduct all of the monitoring for the month on a single day if all of the samples are collected from different monitoring locations in the distribution system. For PWSs that only collect one sample per month, the sample should always be collected during the same week to ensure that there is never more than one month in between sample collection. In all cases, communication with the laboratory conducting the analysis is imperative to ensure that the sampling schedule indicated on the PWS's sample siting plan is consistent with the laboratory's workload capabilities.

For more information on creating coliform sample siting plans to meet requirements under the RTCR, refer to templates and instructions that DEP has created, which can be found at: http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-12438

Section 4: Seasonal Water Systems

Definition

PWSs are considered to be seasonal systems if the entire distribution system that is available to the public is not operated on a year round basis, more specifically if the system is shut down for a timeframe greater than 30 days. Although distribution lines are not required to be de-watered for a PWS to be classified as seasonal, if a PWS does drain their distribution system, regardless of how many days they remain closed, they will be considered seasonal. For example, if a restaurant closes down for two weeks at the beginning of each year to go on vacation but their pipes remain pressurized they would not be considered a seasonal PWS. However, if the same restaurant were to dewater their pipes to avoid freezing during the two weeks that they are gone they would be considered a seasonal system. To further clarify this definition, consider the following two examples:

Example #1: If a PWS consists of a campground closed during the winter and a general store open year-round, it is not designated as a seasonal water system. However, DEP recommends that the PWS create and implement a written start-up procedure for the seasonal component (i.e. the campground distribution system) of its system and keep this on file.

Example #2: If a PWS consists of a school that is closed through the summer except for one or two administrative or maintenance personnel (the school is not open to the public/students and there are no other events through the summer), this type of PWS is considered a seasonal water system. However, schools which have the potential to provide water to 25 or more individuals on any given day because of athletic camps, band camp, or other events would not be classified as seasonal water system.

Seasonal water systems that have limited water available for employees during the offseason, such as the school described in example #2 above, should notify potential users that the water system is not maintained and the water quality is not tested during the offseason.

Start-up Procedure

Seasonal water systems must develop a start-up procedure to be submitted to DEP for approval. Following receipt of Department approval, a seasonal water system must implement the start-up procedure at the beginning of each operating season prior to serving water to the public. If revisions are made to an approved start-up procedure, then the PWS should submit them to DEP for review prior to the next operation season. The EPA explains in in the *RTCR State Implementation Guidance* that "seasonal systems represent a special case in that the shutdown and start-up of these water systems present additional opportunities for contamination to enter or spread through the distribution system."[3] Therefore, seasonal water systems should develop a site specific procedure that addresses:

- Protection of the PWS water sources
- Maintenance of the PWS treatment equipment or shock chlorination of the PWS well where no chlorine disinfection treatment is present
- Flushing the distribution system with disinfected water to rid the system of stagnant water and kill any bacteria that may have accumulated
- Maintenance of PWS storage facilities
- Coliform sampling to confirm that the distribution system is free of bacteria

[3] EPA "The Revised Total Coliform Rule (RTCR) State Implementation Guidance- Interim Final", September 2014 p. 31-32

For more information on drafting a start-up procedure and certifying to DEP that the procedure has been completed each year, refer to: http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-12500

PWSs that operate on a year round basis but have seasonal portions of their distribution system, such as described in Example #1 above, should effectively operate and maintain all portions of the PWS as required under § 109.4. Implementing a start-up procedure such as disinfection of lines, flushing of lines, and special coliform sampling should be completed prior to opening the seasonal portion of their system.

Seasonal water systems in the process of completing the start-up procedure should post notice at taps where water may be available indicating that the PWS is closed and the start-up procedure has not yet been completed. Providing this notice eliminates potential consumption of non-potable water by employees that may have access to the water during this period.

Annual Certification

PWSs are required to complete a start-up procedure and submit a form certifying completion of this procedure before the start of each operating season. Seasonal water systems should not open their

facilities until completing their approved start-up procedure and submitting the certification form to DEP.

The last step to be completed before sending in the certification to DEP is the collection of at least one set of coliform samples and confirming that the set of samples is absent of total coliform. If any samples from a set are found to be positive for total coliform, the PWS should consider repeating some of their start-up procedure. For example, a PWS may perform additional flushing throughout the system. PWSs are not required to contact DEP after learning of a positive start-up sample; however, consultation with the local DEP office may help PWSs determine which steps in their start-up procedure should be repeated. Regardless of whether the PWS repeats the entire start-up procedure or just a portion of it, an additional set of samples must be collected. The PWS may not open until a set of samples is determined to be absent of coliform.

Routine Monitoring

A seasonal water system that remains open later in the year than indicated in its DEP-approved start-up procedures should notify the local DEP office and continue to conduct routine monthly total coliform sampling in accordance with its sample siting plan.

If a seasonal system is open at all during a calendar month, routine coliform monitoring is required for that month. For example, a community pool that is open from May 20 to September 10 is required to conduct routine monitoring in May, June, July, August, and September. The routine sample for May is required in addition to the start-up sample required prior to opening. Also, in this example, even if the PWS identifies the third week of the month for their sampling schedule, a routine sample is required for the month of September before the system closes for the season.

Section 5: Sample Invalidation

DEP may invalidate a coliform sample if:

- The laboratory establishes that improper sample analysis caused the total coliform positive result.
- DEP determines from repeat sample results that the total coliform positive result was caused by a domestic or other non-distribution system plumbing problem
- DEP finds that the total coliform positive result is a result of something that does not reflect water quality in the distribution system.

Invalidated samples cannot be used to determine if the PWS had an *E. coli* MCL violation or triggered an assessment. If a sample is invalidated, the PWS must collect a replacement sample from the same location within 24 hours of being notified.

Section 6: Assessments

Background

The RTCR requires all PWSs to complete a Level 1 or Level 2 Assessment in response to the triggers summarized in Table 1 below.

Table 1: Level 1 & 2 Assessment Triggers

Number of Samples/Month	Level 1 Assessment Triggers	Level 2 Assessment Triggers
PWSs that Collect <40 samples	2 or more samples are Total Coliform positive	E. coli MCL violation
	Failure to take all required check samples	2nd Level 1 Assessment Triggered in a rolling 12 month period
PWSs that Collect ≥40 samples	>5% of samples are Total Coliform positive	E. coli MCL violation
	Failure to take all required check samples	2nd Level 1 Assessment Triggered in a rolling 12 month period

The purpose of both a Level 1 and Level 2 Assessment is to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices. However, the Level 2 Assessment provides a more detailed examination of the PWS than a Level 1 Assessment.

Sanitary Defects

A sanitary defect is an issue 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. If a sanitary defect is identified during an assessment, the Assessor must describe the sanitary defect, describe what corrective actions were completed, and propose a timetable for corrective actions not yet completed. If a defect in the coliform monitoring practices is discovered, the Assessor should describe the problem and indicate how future issues will be prevented. Defects in monitoring practices such as improper sample collection procedures are not sanitary defects; however, PWSs should correct poor sampling practices in order to obtain sample results indicative of the water in the distribution system. For more information on coliform sample collection, refer to Appendix B of the EPA's *A Small Systems Guide to the Total Coliform Rule* at: http://www.epa.gov/safewater/disinfection/tcr/pdfs/guide_tcr_smallystemsguide.pdf

Table 2 lists issues that may be identified during an assessment which can be considered sanitary defects. This table is not an exhaustive list of sanitary defects, because PWSs may uncover situations not shown below which meet the definition of a sanitary defect. Further, some situations on the table list may not always meet the definition of a sanitary defect depending on the circumstances. For example, a PWS using a well that is constructed in a pit may determine that the source construction is

not the likely cause of contamination, because the well pit has a water tight lid, the well pit is always dry and free of vermin and there is no record of previous source water coliform positive samples.

Table 2: Examples of Sanitary Defects

PWS Subfacility	Sanitary Defect
Source	The well is located in a pit.
Source	The well does not have a sanitary seal well cap.
Source	Manure is running into stream immediately upstream of intake.
Treatment	Chlorine day tank had been empty.
Treatment	Failed to provide 4-log treatment of viruses.
Distribution System	A water main break causing negative pressure was identified.
Distribution System	A chlorine residual was not detected.
Storage Tank	A screen is missing on an overflow pipe.

Conducting an Assessment

For assistance with proper completion of a Level 1 or Level 2 Assessment, a PWS should consult the EPA's *Revised Total Coliform Rule Assessments and Corrective Actions Guidance Manual* which can be obtained at the following link:
http://water.epa.gov/lawsregs/rulesregs/sdwa/tcr/upload/epa815r14006.pdf

Assessments should be conducted using the Assessment and Corrective Action Forms developed by DEP. There are two separate forms, each with corresponding instructions, The *Level 1 Assessment and Corrective Action Form (3930-FM-BSDWXXXX)* and the *Level 2 Assessment and Corrective Action Form (3930-FM-BSDWXXXX)*. Both of these forms and instructions can be found on *eLibrary* at the following link: _____.

A Level 1 Assessment must be conducted by personnel qualified to operate and maintain the PWS's facilities. This should be an individual who is familiar with and normally operates the PWS such as the owner, a professional plumber or water services company, or a certified operator.

A Level 2 Assessment must be conducted by an operator(s) properly certified for the technologies of the PWS being assessed. This does not necessarily need to be the certified operator for the PWS; however the Assessor must hold certification for all of the appropriate classes and subclasses for the portion of the PWS that they are assessing.

When using the forms to conduct an assessment, the Assessor should answer the questions based on conditions in the system at the time of the positive sample, not what normally occurs or what has occurred in the past. The purpose of the assessment questions is to determine the reason for the

positive sample; answering a question with a focus on the status of the PWS a year ago will not help determine the current problem if conditions have since changed.

If at any time during completion of the assessment, the Assessor is unsure of what is being asked he/she may contact the local DEP office for further assistance. If the question is understood, however the answer is unknown, the PWS should investigate further to determine the appropriate answer prior to submitting the Assessment to the DEP. It is essential that all questions on the assessment form are answered correctly and completely; failure to do so may result in the PWS being in violation.

For PWSs with multiple service connections (in particular, large systems with multiple pressure zones), when investigating the distribution system, the Assessor may choose to only look at distribution components in the vicinity of the positive sample. For example, if the positive sample occurred in one pressure zone it may not be necessary to look at fire hydrants and valves located on the other side of town in another pressure zone. In depth knowledge of the distribution system is critical to make this determination. If pressure zones and distribution system specifics are unknown by the Assessor the entire distribution system should be assessed.

Assessment Submission

Assessments must be submitted to DEP within 30 days of when the assessment was triggered. If upon review, DEP determines that the assessment is insufficient, DEP will send the PWS written notification. The PWS is required to consult with DEP within 14 days of receiving notification of an insufficient assessment.

PWSs that are required to consult with DEP in response to an insufficient assessment or at any time while conducting an assessment or taking a corrective action, have three primary options. PWSs may arrange a meeting with its local DEP office, or consult with the local DEP office by phone or email. Contact information for each DEP office can be found on final pages of the instructions to the Level 1 and Level 2 assessment forms.

Following the consultation, a PWS has an additional 30 days to resubmit its corrected assessment. If the PWS fails to submit a revised assessment on time or if the second submission remains insufficient the PWS incurs a treatment technique violation and will be required to issue a Tier 2 public notice.

Section 7: Reporting

The following table summarizes PWS reporting requirements under the RTCR:

PWSs must report to DEP:	
REQUIREMENT	**TIMING**
E. coli MCL violation, or *E. coli* positive routine sample	1 hour
Treatment technique violation	1 hour
Level 1 or Level 2 assessment report	Within 30 days of learning that PWS has exceeded an assessment trigger
Coliform monitoring violation	48 hours
Completion of corrective action, if occurring after submittal of an assessment report	When each corrective action is completed
Seasonal water system certification of compliance with approved start-up procedures	Prior to serving water to the public for the new operating season

Section 8: Violations

Violations under the RTCR consist of:

- *E. coli* MCL violation
- Treatment Technique violations
- Monitoring violations
- Reporting violations

A PWS is in violation of the *E. coli* MCL when any of these conditions occur:

***E. coli* MCL Violation Occurs with Any of These Sampling Result Combinations**	
ROUTINE	**REPEAT**
E. coli Positive	Total Coliform Positive
E. coli Positive	Any Missing Check Sample
Total Coliform Positive	*E. coli* Positive
Total Coliform Positive	Total Coliform Positive but *E. coli* not analyzed

A PWS is in violation of the RTCR treatment technique when any of the following occur:

- Failure to conduct a Level 1 or Level 2 assessment within 30 days of learning of the assessment trigger
- Failure to correct all sanitary defects from a Level 1 or Level 2 assessment within 30 days of learning of the trigger or in accordance with a schedule approved by DEP

- Failure of a seasonal water system to complete an approved start-up procedure prior to serving water to public

The following two types of monitoring failures are monitoring violations:

- Failure to take routine total coliform sample
- Failure to analyze for *E. coli* following a total coliform-positive routine sample

Reporting Violations for the RTCR include:

- Failure to submit monitoring report or completed assessment form
- Failure to notify the state of a routine or repeat *E. coli*-positive sample in a timely manner
- Failure to report completion of corrective action
- Failure by a seasonal water system to submit certification of completion of start-up procedures

Section 9: Public Notification

The following table summarizes the public notification requirements of the RTCR. For more information on issuing public notice, refer to DEP's Safe Drinking Water public notification web page at:
http://www.portal.state.pa.us/portal/server.pt/community/public_drinking_water/21162/public_notification/1258843

TIER	VIOLATION
1	Exceeding the *E. coli* MCL
2	Failure to perform a Level 1 or Level 2 assessment or corrective action
	Failure of a seasonal water system to complete approved start-up procedure prior to serving water to the public
3	Failure to take every required routine sample.
	Failure to analyze for *E. coli* following a total coliform-positive routine sample.
	Failure to submit a monitoring report or completed assessment form after a PWS properly conducts monitoring or an assessment in a timely manner.
	Failure to notify DEP within 1 hour of being notified of an *E. coli*-positive sample.
	Failure to submit certification of completion of approved start-up procedure by a seasonal water system.

Section 10: Recordkeeping

The following table summarizes the RTCR's recordkeeping requirements for PWSs:

PWSs must retain records	
REQUIREMENT	**TIMING**
Records of action taken by the PWS to correct violations of primary drinking water regulations	3 years
Public notices issued & certifications made	3 years
Records of microbiological analysis	5 years
Copies of monitoring plans	As long as analyses are required
Level 1 or 2 assessment forms	5 years
Documentation of corrective actions	5 years
Other available summary documentation of sanitary defects & corrective actions	5 years
Records of any repeat samples taken that meet DEP's criteria for an extension of the 24-hour period for collecting repeat samples.	5 years