

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Safe Drinking Water

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TITLE: Laboratory Reporting Instructions for Total Coliform and *E. coli* Bacteria in Public Water Systems

AUTHORITY: Pennsylvania's Safe Drinking Water Act (35 P.S. §721.1 *et seq.*) and regulations at 25 Pa. Code Chapter 109.

EFFECTIVE DATE: Upon publication of notice as final in the *Pennsylvania Bulletin*

POLICY: It is the policy of the Department of Environmental Protection (DEP) to provide accredited laboratory directors and public water suppliers with the information necessary to properly report coliform and *E. coli* bacteria analytical compliance monitoring data under the Safe Drinking Water Program.

PURPOSE: The purpose of this document is to establish uniform instructions and protocol for implementing the drinking water reporting requirements for Total Coliform and *E. coli* bacteria analytical data.

APPLICABILITY: This guidance will apply to all accredited laboratories and public water systems that are required to submit public drinking water Total Coliform or *E. coli* bacteria analytical data to DEP.

DISCLAIMER: The policies and procedures outlined in this guidance are intended to supplement existing requirements. Nothing in the policies or procedures shall affect regulatory requirements.

The policies and procedures herein are not an adjudication or a regulation. DEP does not intend to give this guidance that weight or deference. This document establishes the framework, within which DEP will exercise its administrative discretion in the future. DEP reserves the discretion to deviate from this policy statement if circumstances warrant.

PAGE LENGTH: 43 pages

DEFINITIONS: See 25 Pa. Code Chapter 109

Commonwealth of Pennsylvania



LABORATORY REPORTING INSTRUCTIONS FOR TOTAL COLIFORM AND E. COLI BACTERIA IN PUBLIC WATER SYSTEMS

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SECTION 1: INTRODUCTION

This manual provides guidance on the reporting of drinking water monitoring results for Total Coliform, and *E. coli* bacteria to the Department of Environmental Protection (DEP), as required by the *Revised Total Coliform Rule (RTCR)* and the *Groundwater Rule (GWR)*. The RTCR replaces the previous Total Coliform Rule (TCR). This manual replaces the previous Laboratory Reporting Instructions for Total and Fecal Coliform Bacteria in Public Water Systems technical guidance, document number 383-3301-102, published in 2008.

BACKGROUND

The *RTCR* was published in the *Pennsylvania Bulletin* on September 24, 2016. [46 Pa.B. 6005] The RTCR requires that all public water systems (PWSs) in Pennsylvania to monitor for coliform bacteria in the distribution system. [25 Pa. Code § 109.301(3)] In addition, the RTCR also requires all Bottled, Vended, Retail and Bulk Water Haulers (BVRB) to monitor for coliform bacteria in each finished product (i.e., at each entry point). [25 Pa. Code § 109.1003] The RTCR further establishes a maximum contaminant level (MCL) for *E. coli* in drinking water distribution systems. The MCL is based on the *presence* or *absence* of *E. coli* detected in the samples collected each month. [25 Pa. Code § 109.202]

The RTCR uses the presence of Total Coliform and *E. coli* bacteria to initiate a “find and fix” approach to address fecal contamination that could enter into the distribution system. The rule requires Public Water Systems (PWSs) to perform assessments to identify sanitary defects and subsequently take action to correct them. PWSs are required to collect coliform samples based on the water system size (i.e., population served) and water system type to ensure the data are representative of the water supplied to every customer. [25 Pa. Code § 109.202(c)]

The *GWR* was published in the *Pennsylvania Bulletin* on December 26, 2009. [39 Pa.B. 7279] The purpose of *GWR* triggered source water monitoring is to evaluate whether the presence of Total Coliform in the distribution system is due to fecal contamination in a groundwater source; *E. coli* is a better indicator of bacteria from human or animal gut than fecal coliforms. The *GWR* requires all PWSs using groundwater to collect at least one sample from each groundwater source that is connected to the distribution system within 24 hours of notification of a total coliform-positive routine sample collected under the RTCR. [25 Pa. Code § 109.1303] The source water sample, referred to as a triggered source water sample, must be collected prior to any treatment and be tested for the presence of *E. coli*. If a triggered source water sample tests positive for *E. coli*, the PWS needs to issue Tier 1 Public Notification. [25 Pa. Code § 109.408(a)(8)] PWSs providing 4-log treatment of viruses for their sources are not required to collect triggered source water samples.

SUMMARY OF MONITORING AND REPORTING INFORMATION

The monitoring and reporting requirements described in this manual are in addition to other routine monitoring and reporting requirements for public water systems, and do not supersede them.

The results of monitoring conducted under RTCR and GWR are reported to DEP each month by entering results into DEP’s Drinking Water Electronic Lab Reporting (DWELR) system. Instructions for registering and reporting through *DWELR* are available on DEP’s website at www.dep.pa.gov; enter “DWELR” in the search window. (Also see [Section 3](#) in this manual for more information about DWELR.)

The **SDWA 1 - Bacteriological/ Residual Disinfectant/Turbidity/DBP Analysis** form is used for reporting RTCR and GWR results. (See [Section 4](#) Reporting Results on the SDWA-1 Form in this manual for details of the reporting procedures.)

More information about MCL compliance determinations and monitoring/reporting requirements is detailed in this manual in [Section 5](#) Requirements and Codes for Reporting Monitoring Results and in [Section 6](#) Monitoring Frequency Requirements.

The laboratory's assistance is critical in regard to the **accurate** and **prompt** reporting of data.

Laboratories should be aware of some aspects of the rules including but not limited to the following:

- Only the **presence or absence** of Total Coliform (TC) and *E. coli* bacteria is reported for RTCR and GWR. Density (enumeration) of bacteria is **not** reported for the RTCR.
- TC-positive samples need to be tested for *E. coli*.
- For each TC-positive sample, DEP requires the testing and reporting of three check samples: one at the original location; one within five service connections upstream of the original location; one within five service connections downstream of the original location. [25 Pa. Code § 109.301(3)(ii)]
- For sources where 4-log treatment of viruses is not provided, each TC-positive sample requires the testing of triggered source water samples. [25 Pa. Code § 109.1303(a)]
- It is essential that triggered source water samples be analyzed by an *E. coli* method.
- Under certain circumstances, samples may be Invalidated. (See [Section 6](#), in this manual for details.)

Please read the instructions in this document carefully. Failure to monitor, analyze, and report coliform results correctly may result in the water supplier incurring a violation of the Safe Drinking Water Regulations.

The drinking water analysis results entered into DWELR are uploaded into the Pennsylvania Drinking Water Information System (PADWIS), the computerized electronic data management system used by DEP to track drinking water monitoring results. An effective drinking water surveillance program requires prompt follow-up to MCL and monitoring violations for the protection of public health.

Note: Distribution chlorine residual measurements taken in conjunction with the RTCR samples must be reported separately from the coliform results and according to the Distribution Requirements Rule (DRR) **Sample Siting Plan**. The DRR sample results are also reported on the SDWA-1 form. Refer to 25 Pa. Code § 109.701(a)(8).

SECTION 2: RESPONSIBILITIES OF THE LABORATORY

Under the provisions of Chapter 109, Safe Drinking Water Regulations, under the authority of the PA Safe Drinking Water Act, it is the responsibility of the accredited laboratory to:

1. Submit the results of analyses performed by the laboratory under the Safe Drinking Water Regulations to DEP in an electronic format acceptable to DEP. [25 Pa. Code § 109.810(a)]
2. Report the results within either the first 10 days following the month in which the result is determined or the first 10 days following the end of the required monitoring period as stipulated by DEP, whichever is shorter. [25 Pa. Code 810(a)(1)] Failure to report as required will result in the water supplier incurring a violation for failure to monitor.
3. Obtain and maintain the DEP and County Health Department (CHD) current after-hours emergency response telephone numbers for each applicable DEP regional and CHD office. DEP and CHD routine business hours and DEP emergency phone numbers are located online at: www.depgreenport.state.pa.us/elibrary; click on the “Technical Guidance Final Documents” folder, and enter “3930-FM-BSDW0560” into the search window.
4. Establish and maintain a standard operating procedure to provide the information needed to report a violation listed below to DEP. This procedure should be verified at least annually.
5. Under 25 Pa. Code Chapters 109 and 252, notify customers served by the laboratory within 72 hours of the following:
 - a. Failure to renew or DEP denial of renewal of existing accreditation for a category of laboratory accreditation.
 - b. Revocation of accreditation by DEP for the environmental laboratory conducting testing or analysis of drinking water under 25 Pa. Code Chapter 109.

Whenever a MCL, a maximum residual disinfectant level (MRDL), or a treatment technique performance requirement is exceeded or a sample result requires the collection of check samples, the laboratory is required to:

1. Notify the public water supplier by telephone within 1 hour of the laboratory’s determination. If the supplier cannot be reached within 1 hour, notify DEP by telephone within 2 hours of the determination. [25 Pa. Code § 109.810(b)(1)(i)]. If the PWS is regulated under a CHD, the appropriate Health Department office needs to be notified.
 - a. If it is necessary for the laboratory to contact DEP or CHD after the agency’s routine business hours, the laboratory needs to contact the appropriate agency’s after-hours emergency response telephone number. See www.depgreenport.state.pa.us/elibrary; click on the “Technical Guidance Final Documents” folder and enter “3930-FM-BSDW0560” into the search window.
 - b. If the appropriate DEP or CHD emergency number cannot be reached, the laboratory needs to notify the appropriate DEP office by telephone within 1 hour of the beginning of the next business day.

The laboratory should provide information regarding the occurrence, the name of a laboratory contact person and the telephone number where that individual may be reached in the event further information is needed. The information regarding the PWS relayed to DEP or CHD, if appropriate, should include, but is not limited to:

- PWSID number of the system.
- Public water system's name.
- Contaminant involved in the occurrence.
- Level of the contaminant found.
- Where the sample was collected.
- Dates and times that the sample was collected and analyzed.
- Name and identification number of the accredited laboratory.
- Name and telephone number of a contact person at the laboratory.
- Steps the laboratory took to contact the PWS before calling DEP.

2. Notify the appropriate DEP district office in writing within 24 hours of the laboratory's determination. See www.depgreenport.state.pa.us/elibrary for phone numbers and addresses; enter *DEP Office* in the search window. For the purposes of determining compliance with this requirement, the postmark-if the notice is mailed-or the date the notice is received, whichever is earlier, will be used by DEP. Upon approval by DEP, the notice may be made electronically to DEP if the information is received within the 24-hour deadline per 25 Pa. Code § 109.810(b)(2).

Information recording who collected and analyzed the samples is to be documented and retained by the laboratory. [25 Pa. Code § 252.401] For the samples that were collected by water system personnel rather than laboratory personnel, it is required that the laboratory retain a copy of the chain of custody.

Additionally, laboratories should retain records, including original handwritten data that would allow reconstruction of all laboratory activities associated with the testing or analysis of environmental samples for a minimum of 5 years and as required under 25 Pa. Code §§ 109.701 and 252.706. The records should be complete enough so that assessors can reconstruct the entire analysis and all the activities related to generating the final result using the laboratory's records.

Records of analyses must also be kept by the PWSs as required per 25 Pa. Code § 109.701.

Note: Proper laboratory reporting and notification of analytical results to DEP is a condition of a laboratory's accreditation. Failure to properly report results may lead to the revocation of accreditation in addition to any enforcement actions which may be taken under the Safe Drinking Water Act. An effective surveillance program requires prompt follow-up to MCL, MRDL, treatment techniques, and monitoring violations for the protection of public health. Your assistance is critical in regard to accurate and prompt data reporting.

SECTION 3: ELECTRONIC ASSISTANCE TOOLS

The following electronic assistance tools are available from DEP.

SUBSECTION A: DEP DRINKING WATER ELECTRONIC REPORTING (DWELR)

To report electronically, accredited laboratories and public water systems must use DEP *DWELR*, in accordance with 25 Pa. Code § 109.810. Reporting and notification requirements. This system is a DEP internet web application for accredited laboratories and public water suppliers to upload sample files and/or enter sample results using a web screen entry form. Detailed instructions are contained in the DWELR web application. Entities choosing to upload their data can retrieve the data formats from within DWELR.

The electronic system features allow accredited laboratories or PWSs to:

- Submit data via either upload or data entry.
- Preview the data entered. A submitting entity is allowed to edit and view only the data that it submitted.
- Submit the data *until the 10th (up until midnight)* of the month. On the 11th of each month, all data is cleared from DWELR and passed to PADWIS for monthly compliance processing.
- View error reports. Upon submittal, the data is checked and an error report is generated that can be used to correct data.
- Correct data and resubmit.

Access is via DEP Greenport: www.depgreenport.state.pa.us. The DWELR registration form and instructions are available on-line at www.depgreenport.state.pa.us/elibrary; click on “Forms” and then on “Safe Drinking Water”. Scroll down to Drinking Water Electronic Laboratory Reporting (DWELR) for the registration form and instructions. Please contact the DEP Greenport Helpdesk at 717-787-HELP (717-787-4357) if you need further information about setting up a user account. In addition, contact the DEP Bureau of Safe Drinking Water, Operations and Monitoring Division, PADWIS Section, at 717-787-9633 or 717-772-4018 or ra-padwis@pa.gov, for more information about DWELR.

When reporting electronically, the laboratory should also provide the laboratory results to the water supplier. The format used to report these results to the supplier is a decision to be determined mutually by the laboratory and the water supplier.

SUBSECTION B: DWRS AND CONSUMER CONFIDENCE REPORTING SYSTEM

DEP provides the following assistance tools; the tools can be found on the DEP website at www.drinkingwater.state.pa.us:

- **Drinking Water Reporting System (DWRS):** Provides dynamic reports on *inventory*, *violations* and *sample* information for water systems from PADWIS. System *monitoring* calendars may also be accessed in DWRS. Instructions on how to use DWRS can be accessed from the DEP webpage.
- **Consumer Confidence Reporting System:** Provides *detection* and *violation* information from PADWIS to assist community water systems with the preparation of the annual Consumer Confidence Reports.

SECTION 4: REPORTING RTCR RESULTS ON THE SDWA-1 FORM

Total Coliform (TC) and *E. coli* bacteria results are reported on the SDWA-1 form. Report the following **Samples** on the SDWA-1 form:

- Any routine distribution (sample type “D”) or entry point (sample type “E”) sample results, including entry point results for Bottled, Vended, Retail, Bulk (BVRV) water sampling.
- Individual check (sample type “C”) sample results.
- Seasonal startup distribution samples (sample type “A”).
- Individual triggered source water samples under the GWR (sample type “R”).
- Special samples (sample type “S”).

Each TC-positive sample is required to be analyzed for the **presence** of *E. coli* bacteria. If a PWS forgoes *E. coli* testing, then any TC-positive sample will be presumed to be *E. coli*-positive. **Presence** or **absence** of coliforms must be reported for RTCR, and GWR. It is essential that the correct presence/absence **Result** codes be reported to indicate the presence or absence of TC or *E. coli* as follows:


- PRESENCE Code = 1
- ABSENCE Code = 0

To go online to the **DWELR** reporting forms, select **DEP Greenport**, and enter “**DWELR**”; then find the Main Menu, and click “**Add New Records**”. From the screen that follows, select the SDWA form that you would like to use.

SAFE DRINKING WATER ACT


SDWA 1 BACTERIOLOGICAL/RESIDUAL DISINFECTANT/TURBIDITY/DBP ANALYSIS

Safe Drinking Water Act



SDWA-1 Bacteriological / Residual Disinfectant / Turbidity / DBP Analysis
SDWA-4 Chemical / Radiological Data
SDWA-4U Unregulated Inorganic / Organic Data
SDWA-5 Monthly Filter Plant Performance Data
SDWA-S Summarized Analysis Data
Cryptosporidium Oocysts Data

Choose from the list of SDWA forms



SDWA 1 - BACTERIOLOGICAL / RESIDUAL DISINFECTANT / TURBIDITY / DBP ANALYSIS

SDWA-1													
Current Lab Certifications			Contaminants not Requiring Certification										
	PWSID	PWS Name	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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Fill in the SWDA-1 form; remember to press the data submit button.

Note: For detailed instructions about DWELR registration to use DWELR, see the previous [Section 3: Electronic Assistance Tools](#).

**SDWA 1 BACTERIOLOGICAL/RESIDUAL
DISINFECTANT/TURBIDITY/DBP ANALYSIS FORM
DESCRIPTION AND INSTRUCTIONS FOR COLIFORM REPORTING**

DATA FIELD	DESCRIPTION
PWS ID	<p>Enter the 7-digit identification number of the public water system to which these samples apply. FAILURE TO ENTER THE CORRECT PWS ID WILL RESULT IN THE WATER SUPPLIER NOT RECEIVING CREDIT FOR CONDUCTING THE REQUIRED MONITORING.</p> <p>Note: Once the data is submitted, the PWSID number entered cannot be changed. If an incorrect PWSID has been entered, the data will need to be resubmitted under the correct PWSID. Any incorrect entries may need to be deleted from the system. (See Section 8: Instructions for SDWA Correction Forms.) If you do not know the PWSID, the DEP or CHD office will be able to assist you with the PWSID number. All PWSID numbers are assigned by the local DEP or CHD office.</p>
PWS NAME	The system automatically enters the PWS name.
CONTAMINANT (PARAMETER) ID	<p>Enter the correct 4-digit contaminant identification code for Presence/Absence: Total Coliform (TC) is 3100; <i>E. coli</i> is 3114.</p> <p><i>E. coli</i> and TC results are reported on the electronic SDWA-1 form.</p>
ANALYSIS METHOD	<p>Enter the 3-digit code of the approved analysis method used to analyze the samples. The laboratory must be accredited to perform the method indicated, or the results will be rejected by PADWIS. [25 Pa. Code § 109.801] Acceptable method codes are listed in Section 5: Laboratory Method Codes for Reporting TC and <i>E. coli</i> in this document.</p>
ANALYSIS RESULT	<p>If a presence or absence method was used, enter the correct Result code to indicate the status: for presence, use code '1' and for absence, use code '0'. The enumeration (total counts/numbers) is not an acceptable form of reporting for either RTCR or GWR. The correct presence/absence codes must be reported to indicate the presence or absence of TC or <i>E. coli</i> bacteria.</p>
ANALYSIS DATE MMDDYY	<p>Enter the date (MMDDYY) on which the sample analysis was performed, or if the analysis spanned more than 1 day, the date on which the sample analysis result was obtained.</p> <p>Example: For April 15, 2018, enter 041518.</p>

**SDWA 1 BACTERIOLOGICAL/RESIDUAL
DISINFECTANT/TURBIDITY/DBP ANALYSIS FORM
DESCRIPTION AND INSTRUCTIONS FOR COLIFORM REPORTING (CONTINUED)**

DATA FIELD	DESCRIPTION
LOCATION ID1	<p>Enter the unique 3-digit number that identifies the location where the sample was collected. For distribution system sample locations, the ID must be between 700 and 999. Samples must be taken at regular intervals throughout the monitoring period at sites that are representative of water throughout the distribution system and according to a written RTCR Sample Siting Plan. The RTCR Sample Siting Plan must be submitted by the water supplier within 30 days of notification by DEP or by April 1, 2016, as required by the Federal RTCR, whichever is earlier.</p> <p>Enter the appropriate sample or entry point location ID (e.g., 101) assigned by DEP (or the CHD) to the product line, machine, vehicle, or dispenser for BVRB systems.</p> <p>For triggered source water samples, enter the appropriate source ID (e.g., 001) assigned by DEP.</p> <p>Contact the water supplier, if the correct sample location, entry point ID, or source ID was not provided with the sample.</p> <p>Each <i>E. coli</i> analysis result, done as a follow-up to a TC-positive routine or check sample, must be identified with the Same Location code as the original TC-positive sample that induced the analysis.</p> <p>All Check samples for repeat monitoring, following a TC-positive sample, must be identified with the SAME LOCATION as the original TC-positive sample site even though some check samples are sampled at different taps (within five service connections). This is important so that check samples will be LINKED to the routine positive sample that triggered the check samples.</p>
LOCATION ID2	BVRB Systems can use this field to enter a three-character identification value that will help distinguish specific sampling locations.
SAMPLE DATE MMDDYY	<p>Enter the date on which the sample was collected.</p> <p>Example: For a sample collected on August 5, 2018, enter 080518.</p>

**SDWA 1 BACTERIOLOGICAL/RESIDUAL
DISINFECTANT/TURBIDITY/DBP ANALYSIS FORM
DESCRIPTION AND INSTRUCTIONS FOR COLIFORM REPORTING (CONTINUED)**

DATA FIELD	DESCRIPTION
SAMPLE TYPE	<p>Enter the appropriate letter code which corresponds to the type of sample collected as follows:</p> <p>D = Distribution: Routine RTCR samples taken in the distribution system are “D” samples.</p> <p>E = Entry Point: Routine RTCR samples for BVRB systems are “E” samples.</p> <p>C = Check: Samples taken in response to coliform-positive routine RTCR samples are “C” samples.</p> <p>S = Special: A supplier may wish to collect and have analyzed special samples to meet their own needs or may be required by DEP or the CHD to take samples to fulfill a special requirement. For example, a PWS may be ordered to take delinquent samples <u>after</u> a monitoring period has ended or the system may need samples to lift a boil water advisory. Such samples need to be coded as “S” samples.</p> <p>A = Seasonal System Start-up distribution RTCR samples.</p> <p>R = Raw (source) water: Triggered source water samples taken in response to coliform-positive routine samples are “R” samples. A supplier may also wish to collect, and have analyzed, samples of raw water to meet their own particular need, such as new source sampling-such samples will not be credited toward routine RTCR monitoring requirements.</p>
SAMPLE TIME	<p>Enter the time of day at which the sample was collected. All times should be in military time. The sample day runs from 0000 to 2359. (This means the last time that may be reported for a given day is for 2359 not 2400. 2400, midnight, would be reported as 0000 on the next day.) This field needs to be completed for the results to be accepted. If the exact time is not known, enter an approximate time.</p> <p>Example: For 2:30 p.m., enter 1430.</p>
LAB ID	<p>Enter the 5-digit PA Laboratory Identification Number (ID) assigned to the laboratory that analyzed the samples. The ID number needs to be entered for results to be accepted. Do not use dashes or symbols to enter the ID number.</p>
SAMPLE ID	<p>Enter the unique laboratory sample identification.</p>

The following information related to RTCR reporting should be noted:

- All results required as part of the RTCR and GWR should be received **before midnight on the 10th day of the month** following the month that the samples were taken for monthly reporting. Failure to submit the sample results as required may cause the water supplier to receive monitoring violations.
- All routine sample (D, E, A) results and all check (C) sample results are entered as detailed records. This is done by using the **SDWA-1 form**.
- The **RTCR Sample Siting Plan** should be followed for the **TCR Sample Point locations**.
- As specified in § 109.701(a)(8), beginning April 28, 2018, **the PWS's Sample Siting Plan for disinfection residuals may be combined with the Sample Siting Plan for coliform bacteria**. In addition, the Sample Siting Plan must include information on whether the sample location is also used as a coliform, disinfection by-products, or lead and copper sample location.
- The sampling location IDs of the **check samples need to match the sampling location ID of the positive** routine (D or E) sample reported, even if the check samples are collected at a different sampling point.
- The **location IDs** of triggered source water samples **need to match** the source IDs assigned by DEP.
- The analysis date reported on the SDWA-1 form is the date that the sample analysis was performed (i.e., the result is read), not the date the analysis was started.
- Any result that has been determined to be invalid (by the laboratory or by DEP) cannot be used for compliance determinations and should not be reported to DEP. Replacement samples should be collected within the same monitoring period or the system will receive a monitoring violation.

SECTION 5: LABORATORY METHOD CODES FOR REPORTING TC AND E. COLI

Table 1: Laboratory Method Codes for Reporting Total Coliform and *E. coli* Results

Parameter Name	Parameter ID	EPA Analysis Method	DEP Method Code	Applies to	
				RTCR	GWR
Two-Step Process – Determine presence of Total Coliform (TC); if TC is present, determine presence of <i>E. coli</i>					
<i>E. coli</i> (Total Coliform)	3114 (3100)	Membrane Filtration with m-Endo SM 9222B + SM 9222G* or SM 9221F* verification	323	✓	✓
		Multiple Tube Fermentation SM 9221B + SM 9221F* verification	327	✓	✓
		Presence-Absence with P-A broth SM 9221D+ SM 9221F* verification	329	✓	✓
Simultaneous Detection of Total Coliform (TC) and <i>E. coli</i>					
<i>E. coli</i>	3114	Membrane Filtration with MI Agar (EPA 1604)	324	✓	✓
		MMO-MUG (Colilert®/Colilert-18®) SM 9223B	331	✓	✓
		Colisure® (SM 9223 B)	332	✓	✓
		m-ColiBlue24®	333	✓	✓
		E*Colite®	334	✓	✓
		Readycult® Coliforms 100 Presence/Absence Test	337	✓	✓
		Membrane Filter using Chromocult® Coliform Agar	338	✓	✓
		Modified Colitag®	339	✓	✓
		TECTA™ EC/TC	340	✓	✓
Simultaneous Detection of Total Coliform (TC) and <i>E. coli</i>					
Total Coliform	3100	Membrane Filtration with MI Agar (EPA 1604)	324	✓	
		MMO-MUG (Colilert®/Colilert-18®) SM 9223B	331	✓	
		Colisure® (SM 9223 B)	332	✓	
		m-ColiBlue24®	333	✓	
		E*Colite®	334	✓	
		Readycult® Coliforms 100 Presence/Absence Test	337	✓	
		Membrane Filter using Chromocult® Coliform Agar	338	✓	
		Modified Colitag®	339	✓	
		TECTA™ EC/TC	340	✓	

RTCR = Revised Total Coliform Rule; **GWR** = Groundwater Rule

* **GWR requires NA+MUG for 9222G and EC+MUG for SM 9221F**

Notes:

‘Two-Step Process’ methods: Methods with a two-step procedure require that the sample first be analyzed for 3100 Total Coliform (TC). For RTCR distribution sample compliance, if the first step is negative, only 3100 (TC) is reported. If the result of step one of the two-step process shows that 3100 (TC) is positive, the lab should continue with step-two. For RTCR distribution sample compliance, both the 3100 (TC) positive and the 3114 (EC) result needs to be reported. Labs that use a two-step process should be certain to report the correct method code (323, 327 or 329).

‘Simultaneous Detection’ methods: For RTCR distribution sample compliance, report only 3100 (TC) unless 3100 (TC) is positive; in that case, report both 3100 (TC) and 3114 (EC) results.

For GWR raw water source samples, for either type of method process, report only 3114 (EC). For this rule, 3100 (TC) can be reported, but will be ignored by the compliance program.

SECTION 6: MONITORING SAMPLE NUMBER AND FREQUENCY REQUIREMENTS

SUBSECTION A: RTCR MONITORING SAMPLE NUMBER REQUIREMENTS

All PWSs are required to monitor for total coliform bacteria each month when water is available for public consumption. [25 Pa. Code § 109.301(3) (i)] The minimum number of samples is determined by the average daily population served for each month. (See Table 2: RTCR Monitoring Requirements below.) More samples than the minimum number may be required based on system configuration on a case-by-case basis.

Table 2: Number of RTCR Samples Required Based on Population

RTCR Monitoring: Monthly Distribution Samples			
Population Served	Minimum # of Samples	Population Served	Minimum # of Samples
1 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	3,960,001 or more	480

An exception to population-based monitoring is that 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. [25 Pa. Code § 109.1003(a)(1)(i)]

Additional Requirement for PWSs using Unfiltered Surface Water or GUDI Sources

Note: It is required that the PWS collect at least 1 additional distribution system (D) sample for total coliform analysis within 24 hours of each day that the turbidity level in the source water exceeds 1.0 NTU. [25 Pa. Code § 109.301(3)(i)(B)] This additional sample needs to be collected at a point after disinfection but near the first service connection. The 24-hour collection limit may be extended to 72 hours if the PWS adequately demonstrates a logistical problem in having the sample analyzed within 30 hours of collection. These sample results are included RTCR compliance determinations, so the results need to be reported as part of the routine RTCR compliance monitoring.

SUBSECTION B: REPEAT MONITORING AND CHECK SAMPLE REPORTING

For each TC-positive sample, 3 check samples need to be taken in addition to the required routine samples and according to 25 Pa. Code § 109.301(3)(ii).

Rules for Check Samples; When and Where:

Repeat monitoring is required when a routine sample (and in some cases a check sample) tests positive for total coliform. [25 Pa. Code § 109.301(3)(ii)] 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, any location within 5 taps upstream of the routine location and any 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. DEP recognizes that it may be possible for a location greater than 5 service connections from the routine sample location to better represent a pathway for contamination. Therefore, a PWS may request that an alternate repeat monitoring location in their Sample Siting Plan be approved by DEP prior to use. [25 Pa. Code § 109.701(a)(5)]

Additionally, if an upstream or downstream repeat monitoring location identified in the Sample Siting Plan is not available during the time frame required for collecting check samples (for example, total coliform positive is triggered on a weekend), then upstream or downstream samples may be collected from locations within reasonable proximity to the routine monitoring location. It is essential that DEP be notified when this occurs. [25 Pa. Code § 109.301(3)(ii)(F)]

Given the time sensitivity for collecting check samples, if the PWS has notified DEP using the appropriate after-hours 24/7 phone number but has not yet received a response, then the PWS should proceed with collecting upstream and downstream samples from these locations within reasonable proximity to the routine monitoring location rather than waiting for a response from DEP. This may be particularly important on weekends when such a response may not be received within the required time frame for repeat monitoring.

At a minimum, one set of three check samples is required for each routine sample that tests positive for total coliform. [25 Pa. Code § 109.301(3)(ii)(A)] PWSs collecting fewer than 40 samples per month that have a positive check sample will trigger an assessment and cease repeat monitoring. [25 Pa. Code § 109.202(c)(4)(i)(B)]

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. [25 Pa. Code § 109.301(3)(ii)(D)]

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.

SUBSECTION C: REQUIRED SOURCE WATER SAMPLES

When 4-log treatment of viruses is not provided for groundwater sources, it is essential that the PWS collect at least one sample from each groundwater source that is connected to the distribution system following notification of a TC-positive routine sample collected under RTCR.

Rules for Triggered Source Samples

When:

Sampling is required to be performed, within 24 hours of a PWS being notified of a TC-positive sample. DEP may extend this 24-hour collection limit on a case-by-case basis to a maximum of 72 hours if the system adequately demonstrates a logistical problem outside the water system's control in having the sample analyzed within 30 hours of collection. [25 Pa. Code § 109.301(3)(i)(B)]

Where:

Collect a sample at a location prior to any treatment, from each well where 4-log treatment of viruses is not provided.

Reporting:

Report all triggered source water sample results on an SDWA-1 form. The location ID of triggered source water samples must match the source ID number assigned by DEP.

SUBSECTION D: INVALIDATION OF TOTAL COLIFORM SAMPLES

Under certain conditions, RTCR samples may be invalidated by the laboratory or TC-positive samples may be invalidated by DEP.

Samples Invalidated by the Laboratory

- A laboratory may invalidate a TC sample if no total coliforms are detected and one of the following three situations occurs:
 1. The sample produces a turbid culture;
 2. Confluent growth is evident; or
 3. Results are too-numerous-to-count.
- If one of the above interferences occurs, and if coliforms can be detected, the samples should be reported as any other coliform-positive sample. If coliforms cannot be detected (i.e., no gas production or no identification of distinguishable sheen colonies), then such samples need not be reported to DEP. However, the laboratory needs to notify the water system within 1 business day to collect a replacement sample from the same location as the original sample within 24 hours, and have it analyzed for the presence of total coliforms. In such cases, it is recommended that media less prone to interference from heterotrophic bacteria be used to analyze replacement samples. If necessary, resampling should continue until valid results are obtained. DEP may extend this 24-hour collection limit on a case-by-case basis to a maximum of 72 hours if the

system adequately demonstrates a logistical problem outside the system's control in having the sample analyzed within 30 hours of collection. [25 Pa. Code § 109.301(3)(i)(B)]

Samples Invalidated by DEP

DEP may invalidate a TC-positive sample if:

- The laboratory establishes that improper sample analysis caused the TC-positive result.
- A water system with more than 1 service connection determines that a domestic or other non-distribution system plumbing problem exists limited to a specific service connection. Such a determination shall be based on a TC-positive check sample at the same tap as the original TC-positive sample and all other check samples within 5 service connections being TC-negative.
- The water system determines that a TC-positive sample is due to a circumstance or condition which does not reflect water quality in the distribution system.

In order for DEP to invalidate samples for any of the reasons described above, the laboratory or water supplier should submit a written request to the appropriate DEP district or CHD supervisor. A condition is that the request state the specific cause of the TC-positive sample and what action is being taken to correct the problem. Such potentially invalid samples and associated check samples need to be reported as valid samples. DEP will then review the invalidation request and render a decision regarding the invalidation of such samples and any associated MCL violation. If it is suspected that a sample or samples might be invalidated by DEP for any of the reasons noted, additional samples should be taken and reported to avoid the possibility of a violation for failure to take the required number of samples.

Additional Information About Invalid Samples

- Invalidated samples do not count toward the minimum number of samples required per monitoring period.
- Invalidated samples do not count toward MCL or treatment technique compliance calculations.
- DEP invalidation of TC-positive samples invalidates subsequent *E. coli*-positive results on the same sample.
- All laboratory invalidated samples require replacement samples within the same monitoring period.

SUBSECTION E: *E. COLI* PRIMARY MCL AND COLIFORM TRIGGER POINTS

The MCL for *E. coli* is based on **presence** or **absence** (rather than enumeration) of *E. coli*, as previously described. In addition to this MCL, there are treatment technique trigger points related to presence of Total Coliform (TC) and/or *E. coli*, which requires a water supplier to conduct an assessment. The following Table 3: Level 1 and Level 2 Assessments describes the conditions where an assessment would be generated.

Table 3: Level 1 and Level 2 Assessments

Number of Samples / Month	Level 1 Assessment Triggers	Level 2 Assessment Triggers
PWSs That Collect < 40 Samples	2 or More are TC-Positive	<i>E. coli</i> MCL Violation
	Failure to Take All Required Check Samples	2nd Level 1 Assessment Triggered in a Rolling 12 Month Period*
PWSs That Collect > or = 40 Samples	> 5% are TC-Positive	<i>E. coli</i> MCL Violation
	Failure to Take All Required Check Samples	2nd Level 1 Assessment Triggered in a Rolling 12 Month Period*

*If DEP has determined a likely reason that the samples that caused the first Level 1 assessment were TC-positive and has established that the system has corrected the problem, then only another Level 1 assessment is triggered.

Note: For more information about violations and assessments, refer to the DEP *Revised Total Coliform Guidance* (Document ID number 393-2129-001) located in the DEP e-library online at: www.depgreenport.state.pa.us/elibrary; click on the “Technical Guidance Final Documents” folder, and then the “Safe Drinking Water Folder” or enter *Total Coliform* in the search window.

It is essential that the laboratory notify the public water supplier by telephone within 1 hour of the laboratory obtaining a positive result for the original distribution sample. If the supplier cannot be reached within that time, the laboratory needs to notify DEP by telephone within 2 hours of the determination. The laboratory also needs to notify the local DEP or CHD office in writing within 24 hours of discovery of the coliform-positive samples. [25 Pa. Code § 109.810(b)] The water supplier is required, in turn, to notify the local DEP or CHD office within 1 hour of knowledge of the coliform-positive samples. [25 Pa. Code § 109.701(a)(3)(iii)]

The following Table 4 RTCR Requirements for PWS Reporting to DEP shows the required timeframe for Public Water System (PWS) reporting to DEP when violations and assessments occur:

Table 4: RTCR Requirements for PWS Reporting to DEP

PWS Reports to DEP:	
Requirements	Timing
<i>E. coli</i> MCL violation, or <i>E. coli</i> 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

Note: For more information, refer to the DEP *Revised Total Coliform Guidance* (Document ID number 393-2129-001) located online at: www.depgreenport.state.pa.us/elibrary; click on the “Technical Guidance Final Documents” folder, and then the “Safe Drinking Water Folder”.

SECTION 7: FLOW CHARTS-RTCR MONITORING/REPORTING AND VIOLATIONS

Figure 7.1: RTCR Monitoring/Reporting Flow Chart

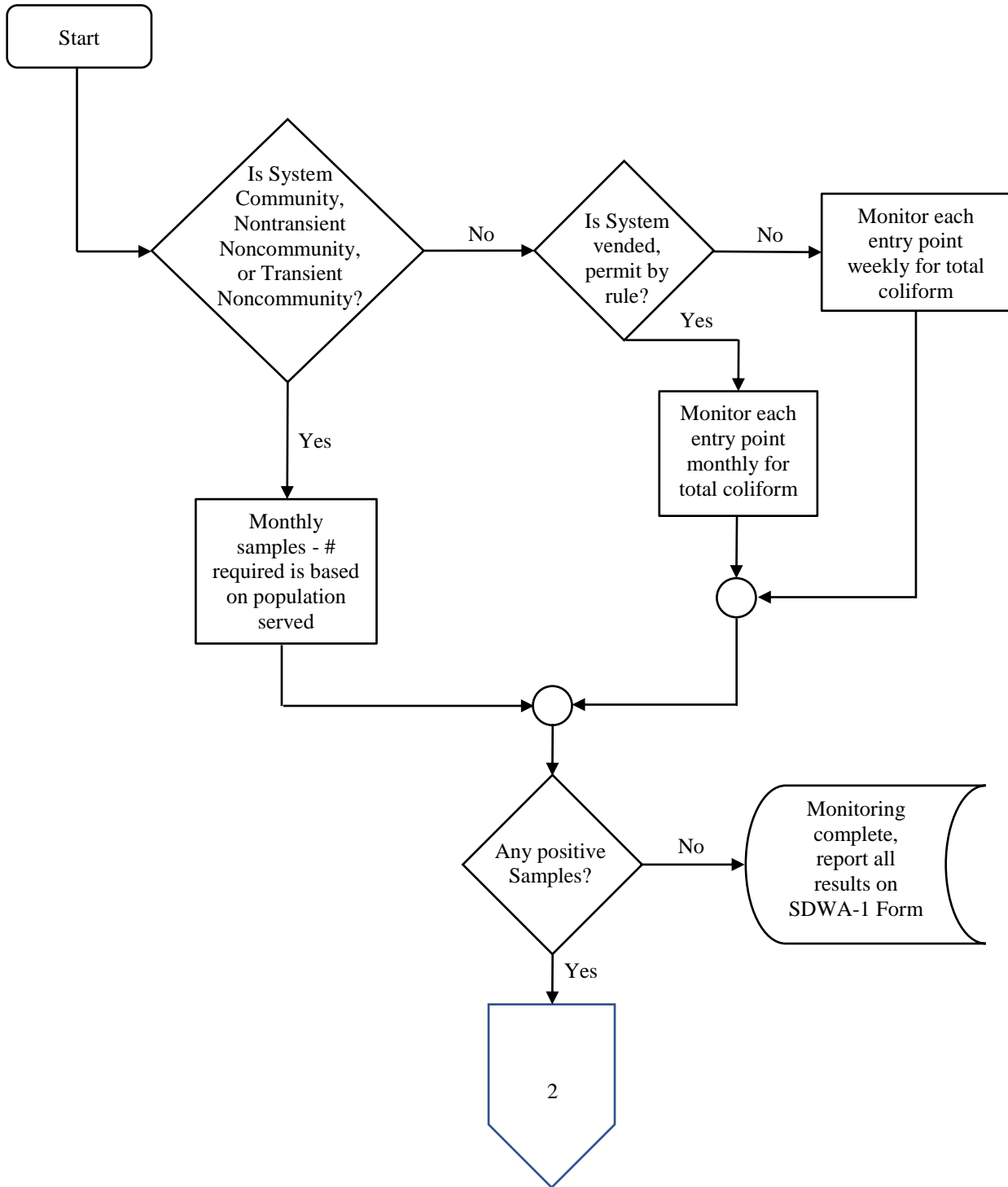


Figure 7.1: RTCR Monitoring/Reporting Flow Chart (continued from the previous page)

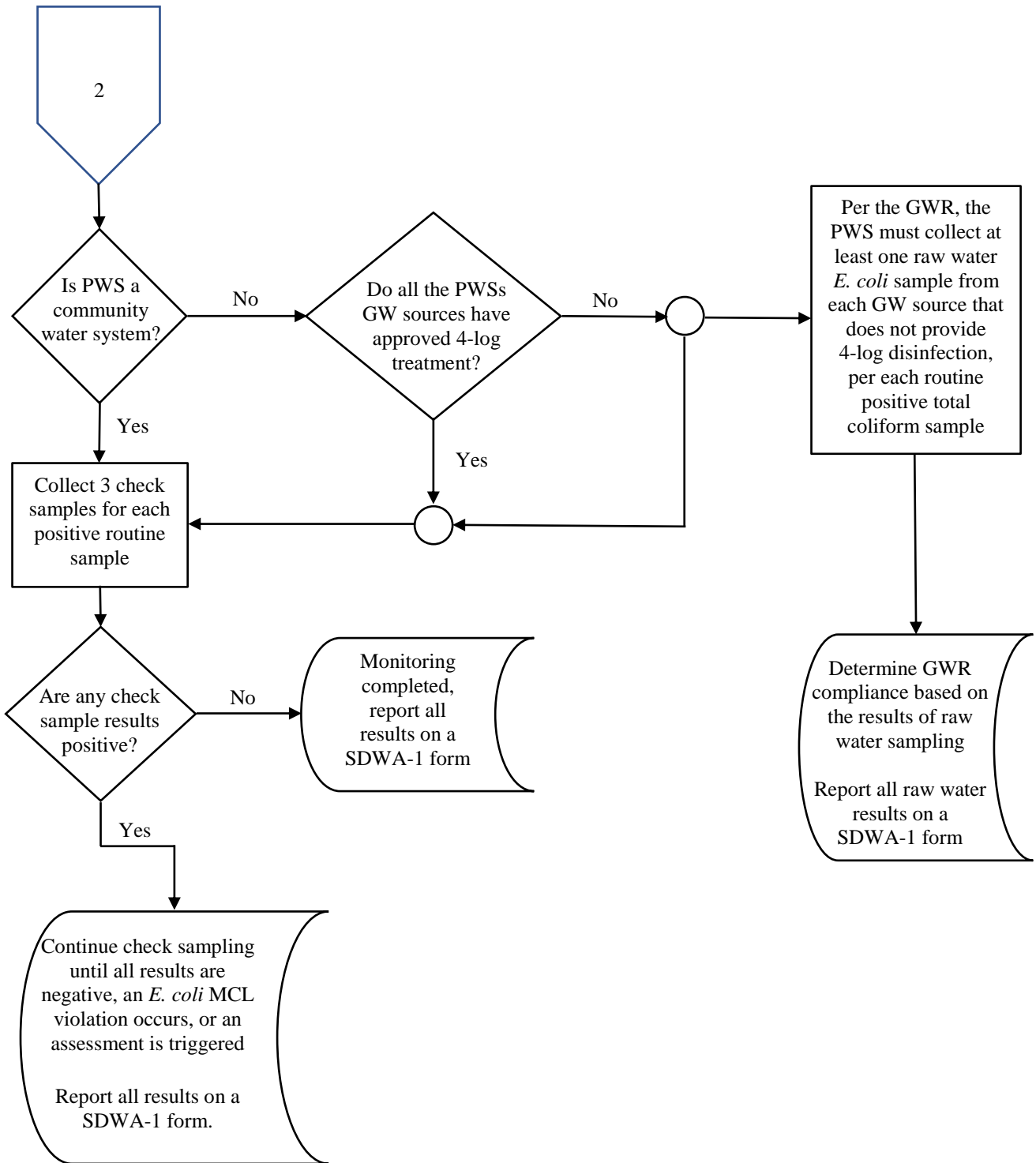


Figure 7.2: RTCR Violations Flow Chart

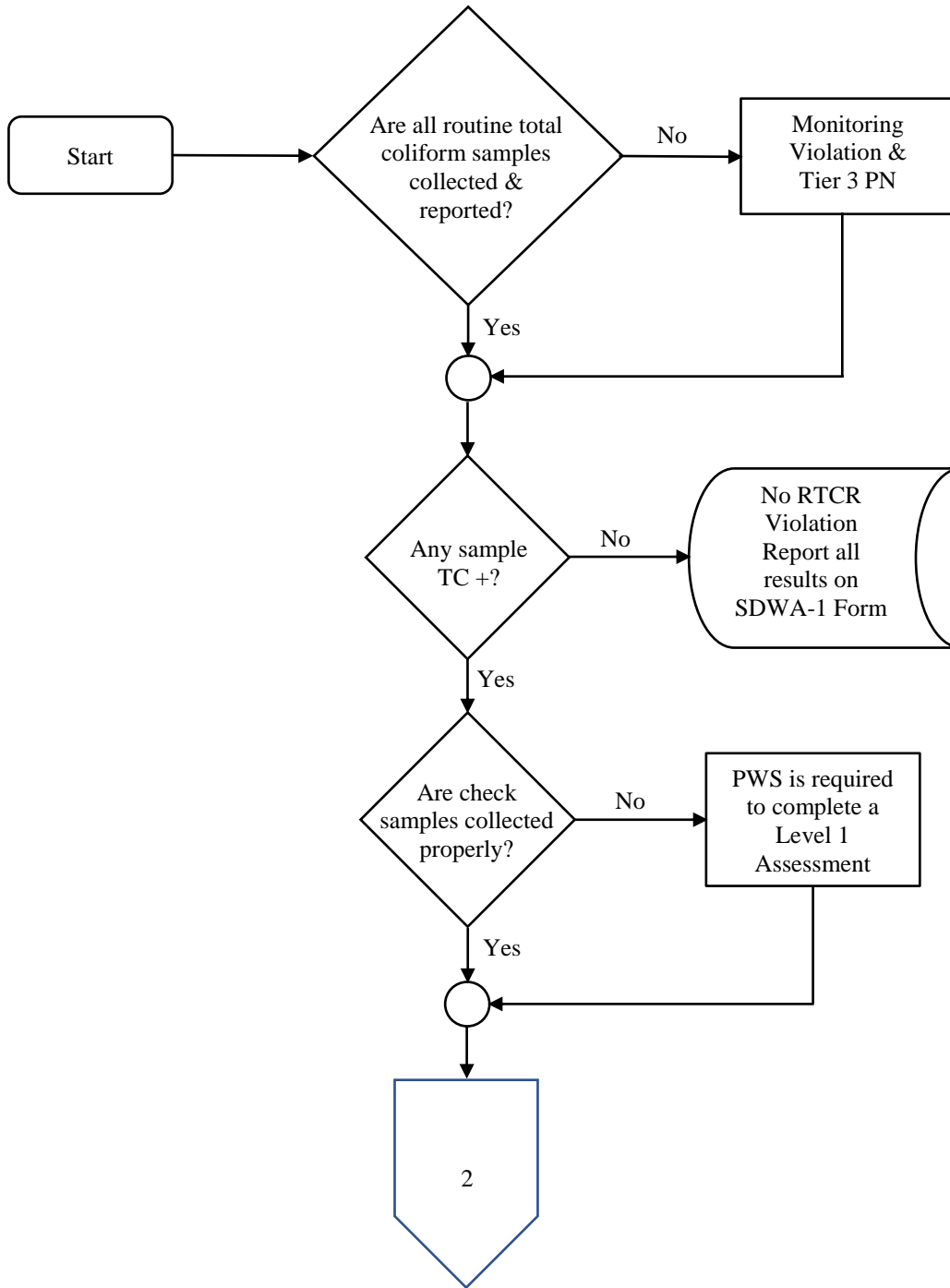
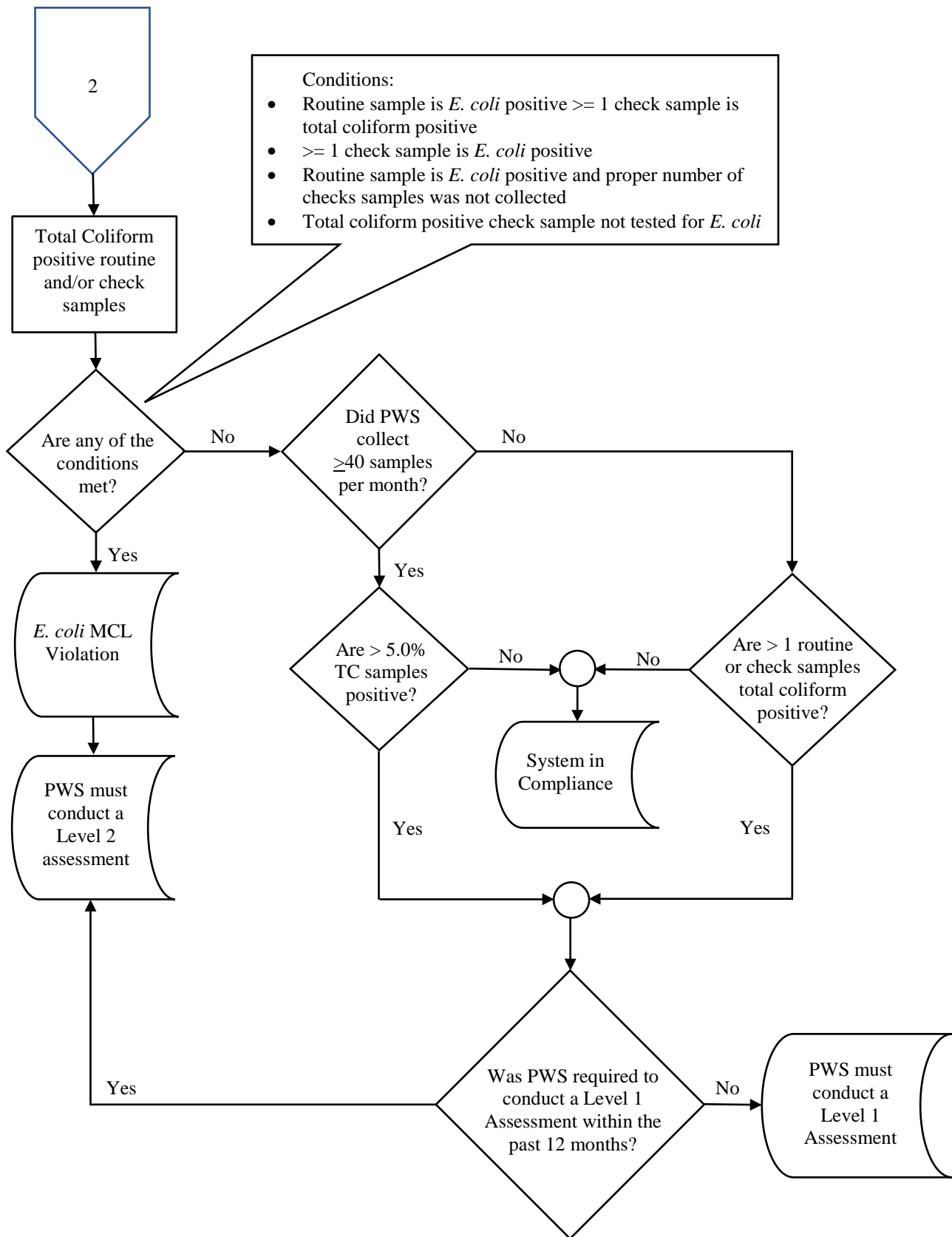


Figure 7.2: RTCR Violations Flow Chart (continued from the previous page)



SECTION 8: INSTRUCTIONS FOR SDWA CORRECTION FORMS

Data are entered electronically into DWELR via the SDWA forms. Refer to [Section 3](#) in this manual for more information. Laboratory reporting instructions are available at www.depgreenport.state.pa.us/elibrary. Click on “Forms” folder. Search for “SDWA Corrections”.

The SDWA corrections forms are for the *correction of previously submitted data* no longer in DWELR. Omitted sample results and summary forms should be submitted through DWELR.

The two permitted methods to correct previously submitted data are as follows:

1. *A copy of a DWELR printed report of the original submission* may also be used for corrections. If using a DWELR printout, strikeout the incorrect information and write the correct information on the report; initial and date the correction. (**Note:** Do not strikeout the incorrect information heavily so that the original information cannot be read or faxed. Do not use a highlighter on forms to be faxed or copied.)

The following information should be included:

- The reason for the correction
 - The name of the laboratory, the authorizing personnel and the date of the corrected submission
2. *SDWA Correction forms* are shown in the [Appendix](#) in this document (examples only). To download the forms, click on the form numbers ([3900-FM-BSDW0143](#) and [3900-FM-BSDW0147](#)). The SDWA Correction forms are for the correction of previously submitted data.

Distribute SDWA corrections forms as follows:

ORIGINAL COPY - Send a copy to DEP’s central office at the following mailing or direct carrier service (UPS, FED Ex) address:

USPS

PA DEP SDWA MONITORING DATA
10TH FLOOR RCSOB
PO BOX 8467
HARRISBURG PA 17105-8467

UPS or FED Ex

PA DEP SDWA MONITORING DATA
10TH FLOOR RCSOB
400 MARKET STREET
HARRISBURG PA 17101

Corrections may be submitted by fax if requested by DEP Safe Drinking Water central office or field personnel. Obtain the fax number directly from them. Only upon specific request by DEP field personnel should corrections be sent directly to the field office instead of the central office. In this case, a copy does not need to be sent to central office.

SECOND COPY - Send a copy to the water supplier.

THIRD COPY - Retain a copy for the laboratory’s records.

SECTION 9: CASE STUDIES

Case #1: Noncommunity System-No Violation

The “Pizza Delight” restaurant (PWS ID 1234301) is a groundwater noncommunity system is required to collect 1 routine RTRC sample per month. The restaurant is in compliance for this month because the sample was Total coliform (TC)-negative. This system does not provide 4-log treatment of viruses for its one well (Source ID 001, in this example). Because the routine sample was TC-negative, triggered source water samples are not required.

By the DEP Analysis Method Code 323, the following result was obtained for September 2016.

<u>Sample Date</u>	<u>Analysis Date</u>	<u>Sample Type</u>	<u>TC Result</u>	<u>E. coli Result</u>
09/12/16	09/13/16	D (Distribution)	0	Not Needed


DEP Analysis Method Code 323 is a “two-step” method or an analysis that requires an additional step be performed should an *E. coli* analysis be required. TC contaminant ID # 3100 is reported; if *E. coli* analysis is required due to a TC-positive result, contaminant ID # 3114 would be reported in addition.

To report to DWELR for this example, add a new record through the DWELR SDWA-1 form. The entry should look like the following:

Case #1/Example Screenshots:

SDWA-1 Bacteriological/Residual Disinfectant/Turbidity/DBP Analysis

Safe Drinking Water Act



SAFE DRINKING WATER ACT

VIEW and EDIT RECORDS

[Click here for a Printer Friendly Version](#)

[View a Monitoring Calendar](#)

SDWA-1

Current Lab Certifications					Contaminants not Requiring Certification								
<input type="checkbox"/>	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
	Sort			Sort	Sort			Sort			Sort		
<input type="checkbox"/>	1234301	3100	323	0.0	091316	700		091216	D	0800	12345	PR	STUDENTE_602

Case #2: Noncommunity System-Positive Routine Sample but No Violation

The “Healthy Crust” restaurant (PWS ID 1234303) is a groundwater noncommunity system that collects 1 routine RTCR sample per month. This system does not provide 4-log treatment of viruses for its single well (Source ID# 001, in this case). Using the analysis method, DEP Analysis Method Code 327, the following results were obtained for the month of November 2016; method 327 is a “two-step” method:

<u>Sample Date</u>	<u>Analysis Date</u>	<u>Sample Type</u>	<u>TC Result</u>	<u><i>E. coli</i> Result</u>
11/10/16	11/11/16	D	1	0
11/11/16	11/12/16	C	0	Not Needed
11/12/16	11/13/16	C	0	Not Needed
11/13/16	11/14/16	C	0	Not Needed
11/11/16	11/12/16	R (001)	Reporting Not Needed*	0

* Per the GWR, only *E.coli* needs to be reported. *E. coli* is presumed absent when total coliform is not present, per the 2-step method.


Note the following for this case:

- **Because there are no positive check sample results, there is no acute MCL violation.** If the *E. coli* analysis had not been performed and reported in association with the routine total coliform (TC)-positive “D” sample, then DEP would automatically consider the sample to be *E. coli*-positive. However, there would still be no acute violation because none of the check samples were total coliform-positive. In addition, because this system does not provide 4-log treatment of viruses for its well, 1 triggered source water sample is required, due to the TC-positive sample. This is a noncommunity system with a single service connection; therefore, if multiple taps are not available, the check samples may be taken on a single day at least 15 minutes apart or consecutively over a 3-day period.
- **A Level 1 Assessment was not triggered because only 1 sample was TC-positive.** If 1 or more of the check samples had also been TC-positive, then a Level 1 Assessment would need to be conducted within 30-days of the analysis date of the sample that triggered the assessment (in this case the positive check sample). If any of the check samples had not been taken and reported, a Level 1 Assessment would also need to be conducted within 30-days of the analysis date of the routine RTCR positive sample.
- **Notifications by the laboratory: It is a requirement that the laboratory notify the public water supplier by telephone within 1 hour of the laboratory obtaining a positive result for the original RTCR distribution sample.** If the water supplier cannot be reached within that time, the laboratory needs to notify DEP by telephone within 2 hours of the determination with the information listed above. The laboratory needs to also notify the local DEP or CHD office in writing within 24 hours of discovery of the coliform-positive samples. [25 Pa. Code § 109.810(b)] The water supplier needs to, in turn, notify the local DEP or CHD office within 1 hour of knowledge of the coliform-positive samples. [25 Pa. Code § 109.701(a)(3)(iii)]

Case #2/Example Screenshots:

The System Does Not Provide 4-Log Treatment of Viruses for the Groundwater Well.

SDWA-1 Bacteriological/Residual Disinfectant/Turbidity/DBP Analysis (Printer Friendly) View and Edit Screen (Analysis Method Code 327):

Safe Drinking Water Act														
SAFE DRINKING WATER ACT														
VIEW and EDIT RECORDS														
Click here for a Printer Friendly Version														
View a Monitoring Calendar														
SDWA-1														
Current Lab Certifications					Contaminants not Requiring Certification									
<input type="checkbox"/>	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID	
<input type="checkbox"/>	Sort			Sort Entry Point Chlorine				Sort			Sort			
<input type="checkbox"/>	1234303	3100	327	1.0	111116	701		111016	D	0800	68801	PR1	STUDENTE_215	
<input type="checkbox"/>	1234303	3100	327	0.0	111216	701		111116	C	1245	68801	PR2	STUDENTE_216	
<input type="checkbox"/>	1234303	3100	327	0.0	111216	701		111116	C	1300	68801	PR3	STUDENTE_217	
<input type="checkbox"/>	1234303	3100	327	0.0	111216	701		111116	C	1330	68801	PR4	STUDENTE_218	
<input type="checkbox"/>	1234303	3114	327	0.0	111116	701		111016	D	0800	68801	PR6	STUDENTE_220	

One (1) Triggered Source Water Sample 'R' is Required, Per the GWR, Because the System Does Not Provide 4-Log Treatment of Viruses for the Groundwater Well; therefore, additional reporting is required on the SDWA-1 form.

VIEW and EDIT RECORDS														
Click here for a Printer Friendly Version														
View a Monitoring Calendar														
DWA-1														
Current Lab Certifications					Contaminants not Requiring Certification									
<input type="checkbox"/>	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID	
<input type="checkbox"/>	Sort			Sort Entry Point Chlorine				Sort			Sort			
<input type="checkbox"/>	1234303	3114	331	0.0	111216	001		111116	R	1800	68801	PR1	STUDENTD_	

Case #3: Noncommunity System-Acute MCL Violation and Level 1/Level 2 Assessments

The “Shady Run Motel” (PWS 1234302) is a groundwater noncommunity system that collects 1 routine RTRC sample per month. This system does not provide 4-log treatment of viruses for the single well in use, Source ID# 001 in this example. Using the DEP Analysis Method Code 331, the following results were obtained.

<u>Sample Date</u>	<u>Analysis Date</u>	<u>Sample Type</u>	<u>TC Result</u>	<u>E. coli Result</u>
09/30/16	10/01/16	D	1	1
10/01/16	10/02/16	C (Check)	0	N/A*
10/01/16	10/02/16	C (Check)	1	0
10/01/16	10/02/16	C (Check)	1	1
10/01/16	10/02/16	R (001)	**	1

* N/A = Not applicable. The TC results were negative; therefore, no further testing was required.

** Per the GWR, only *E. coli* needs to be reported; TC results can be reported but will not be included in compliance.

Note the following for this case:

- **Three check samples are required when the routine RTRC sample is TC-positive.** If the routine TC-positive sample was collected at location ID 701 (unit #8, in this example), then 1 check sample should be taken at location ID 701, and the other 2 check samples should be taken within 5 units on both sides of location 701. **All the check samples need to be identified with the same location code ID** as the routine sample as a means of associating these check samples with the appropriate routine sample.
- **Assessments are generated:** In this case, the routine sample was TC-positive and *E. coli*-positive. At least 1 of the check samples was also TC-positive. This PWS would, therefore, have an acute MCL violation because a Distribution (D) sample was both TC-positive and *E. coli*-positive, and at least 1 of the associated check samples was TC-positive. In addition to the *E. coli* MCL violation the PWS should also conduct a Level 2 Assessment within 30-days after the date that triggered the assessment. A Level 1 assessment would also be generated due to 2 or more TC-positive sample results in this month.
- **No repeat check samples:** Additional check samples would *not* be required because the system is in violation of the RTRC MCL.
- **One (1) triggered source water sample (“R”) is required** because the system does not provide 4-Log treatment of viruses for the groundwater well. The triggered source water sample needs to be collected from a raw water tap and identified with the proper DEP-assigned source ID (001), in this case.

Case #3/Example Screenshots:

SDWA-1 Printer Friendly View and Edit Screen (Analysis Method Code 331):

SAFE DRINKING WATER ACT													
VIEW and EDIT RECORDS													
Click here for a Printer Friendly Version													
View a Monitoring Calendar													
SDWA-1													
Current Lab Certifications					Contaminants not Requiring Certification								
<input type="checkbox"/>	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
<input type="checkbox"/>	Sort			Sort	Sort Entry Point Chlorine			Sort			Sort		
<input type="checkbox"/>	1234302	3100	331	1.0	100116	701		093016	D	1100	23455	PR1	STUDENTE_206
<input type="checkbox"/>	1234302	3100	331	0.0	100216	701		100116	C	1310	23455	PR3	STUDENTE_208
<input type="checkbox"/>	1234302	3100	331	1.0	100216	701		100116	C	1315	23455	PR4	STUDENTE_209
<input type="checkbox"/>	1234302	3100	331	1.0	100216	701		100116	C	1320	23455	PR5	STUDENTE_210
<input type="checkbox"/>	1234302	3114	331	1.0	100116	701		093016	D	1100	23455	PR6	STUDENTE_211
<input type="checkbox"/>	1234302	3114	331	0.0	100216	701		100116	C	1315	23455	PR7	STUDENTE_212
<input type="checkbox"/>	1234302	3114	331	1.0	100216	701		100116	C	1320	23455	PR8	STUDENTE_213
<input type="checkbox"/>	1234302	3114	331	1.0	100216	001		100116	R	1345	23445	PRR1	STUDENTE_601

In this example, the laboratory notified the department within 24 hours of obtaining the positive result.

Notifications by the Laboratory: It is a requirement that the laboratory notify the public water supplier by telephone within 1 hour of the laboratory obtaining a positive result for the original distribution sample and again within 1 hour of the laboratory obtaining a positive *E. coli* result for the triggered source water sample. If the supplier cannot be reached within that time, the laboratory needs to notify DEP by telephone within 2 hours of the determination with the information listed above. The laboratory needs to also notify the local DEP or CHD office in writing within 24 hours of discovery of the coliform-positive samples. The water supplier needs to, in turn, notify the local DEP or CHD office within 1 hour of knowledge of the coliform-positive samples and *E. coli*-positive triggered source water sample.

Note: For more information about violations and assessments, refer to the DEP *Revised Total Coliform Guidance* (Document ID number 393-2129-001) located in the DEP e-library online at: www.depgreenport.state.pa.us/elibrary; click on the “Technical Guidance Final Documents” folder, and then the “Safe Drinking Water Folder”.

Case #4: Noncommunity System-Positive Routine Sample but No Violation; Positive Triggered Source Water Sample

The Country Campground (PWS ID 1234304) is a groundwater noncommunity system that needs to collect 1 routine sample per month for total coliform analysis. This system does not provide 4-log treatment of viruses for its two wells (Source ID# 001 and 002). Using the DEP Analysis Method Code 323, the following results were obtained for the month of August 2016.

<u>Sample Date</u>	<u>Analysis Date</u>	<u>Sample Type</u>	<u>TC Result</u>	<u>E. coli Result</u>
08/10/16	08/11/16	D	1	0
08/11/16	08/12/16	C	0	Not Needed
08/11/16	08/12/16	C	0	Not Needed
08/11/16	08/12/16	C	0	Not Needed
08/11/16	08/12/16	R (001)	*	0
08/11/16	08/12/16	R (002)	*	1**

- * Per the GWR, only *E. coli* needs to be reported; TC results can be reported but will not be included in compliance.
- ** Triggered source water samples are **not** used to determine compliance with an MCL; however, because a triggered source water sample was *E. coli*-positive, an acute situation exists that requires **timely notification and Tier 1 Public Notification.**

Note the following for this case:

- **Three check samples are required when the routine RTCR sample is TC-positive.** Three check samples were taken, in this case.
- **No MCL violations or coliform treatment technique triggers:** Because only the routine distribution sample was determined to be total coliform positive, in this case, there are no MCL violations or coliform treatment technique triggers.
- **Notifications by the Laboratory:** In this example, the laboratory notified the department within 24 hours of obtaining the positive results. It is essential that the laboratory notify the public water supplier by telephone within 1 hour of the laboratory obtaining a positive result for the original distribution sample and again within 1 hour of the laboratory obtaining a positive *E. coli* result for the triggered source water sample. If the supplier cannot be reached within that time, the laboratory needs to notify DEP by telephone within 2 hours of the determination with the information listed above. The laboratory needs to also notify the local DEP or CHD office in writing within 24 hours of discovery of the coliform-positive sample. The water supplier needs to, in turn, notify the local DEP or CHD office within 1 hour of knowledge of the coliform-positive and *E. coli*-positive samples.

Case #4/Example Screenshots:

SDWA-1 View/Edit Screen (Analysis Method Code 323):

SAFE DRINKING WATER ACT													
VIEW and EDIT RECORDS													
Click here for a Printer Friendly Version													
View a Monitoring Calendar													
SDWA-1													
Current Lab Certifications							Contaminants not Requiring Certification						
<input type="checkbox"/>	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
Sort													
Sort Entry Point Chlorine													
<input type="checkbox"/>	1234304	3100	323	1.0	081116	701		081016	D	0800	68801	PRD1	STUDENTE_148
<input type="checkbox"/>	1234304	3100	323	0.0	081216	701		081116	C	1245	68801	PR3	STUDENTE_149
<input type="checkbox"/>	1234304	3100	323	0.0	081216	701		081116	C	1300	68801	PR4	STUDENTE_150
<input type="checkbox"/>	1234304	3100	323	0.0	081216	701		081116	C	1315	68801	PR5	STUDENTE_151
<input type="checkbox"/>	1234304	3114	323	0.0	081116	701		081016	D	0800	68801	PRD1	STUDENTE_153
<input type="checkbox"/>	1234304	3114	323	0.0	081216	001		081116	R	1345	68801	PRR1	STUDENTE_154
<input type="checkbox"/>	1234304	3114	323	1.0	081216	002		081116	R	1400	68801	PRR2	STUDENTE_155

One (1) triggered source water sample is required per well because the PWS does not provide 4-Log Treatment of viruses for the two groundwater wells. (Source locations are 001 and 002, in this case.)

Case #5: Community System-No Violation

Crystal Clear Water Co (PWS ID 1234004) serves a population of 6,200 and needs to collect 7 routine samples from its distribution system per month for total coliform analysis. This system provides 4-log treatment of viruses for its groundwater sources. By the Analysis Method Code 323, the following results were obtained for the month of August 2016.

<u>Sample Date</u>	<u>Analysis Date</u>	<u>Sample Type</u>	<u>TC Result</u>	<u>E. coli Result</u>
08/01/16	08/02/16	D	0	Not Needed
08/05/16	08/06/16	D	0	Not Needed
08/12/16	08/13/16	D	0	Not Needed
08/14/16	08/15/16	D	0	Not Needed
08/19/16	08/20/16	D	0	Not Needed
08/21/16	08/22/16	D	0	Not Needed
08/22/16	08/23/16	D	0	Not Needed

Because all of the required samples were taken and were TC-negative, no *E. coli* analysis or check samples were required. If reported correctly, this PWS would be in compliance for the month of August. A completed **SDWA-1 form** for this example is shown below.

Case #5/Example Screenshots:

SDWA-1 View/Edit Screen (Analysis Method Code 323):

SAFE DRINKING WATER ACT													
VIEW and EDIT RECORDS													
Click here for a Printer Friendly Version													
View a Monitoring Calendar													
SDWA-1													
Current Lab Certifications						Contaminants not Requiring Certification							
<input type="checkbox"/>	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
<input type="checkbox"/>	Sort			Sort Entry Point Chlorine				Sort			Sort		
<input type="checkbox"/>	1234004	3100	323	0.0	080216	702		080116	D	0800	30323	PR1	STUDENTE_543
<input type="checkbox"/>	1234004	3100	323	0.0	080616	702		080516	D	0810	30323	PR2	STUDENTE_544
<input type="checkbox"/>	1234004	3100	323	0.0	081316	702		081216	D	0800	30323	PR3	STUDENTE_545
<input type="checkbox"/>	1234004	3100	323	0.0	081516	702		081416	D	0815	30323	PR4	STUDENTE_546
<input type="checkbox"/>	1234004	3100	323	0.0	082016	702		081916	D	0805	30323	PR5	STUDENTE_547
<input type="checkbox"/>	1234004	3100	323	0.0	082216	702		082116	D	0820	30323	PR6	STUDENTE_548
<input type="checkbox"/>	1234004	3100	323	0.0	082316	702		082216	D	0825	30323	PR7	STUDENTE_549

Case #6: Community System-Level 1 Assessment Generated

The Great Aquifer Water Company (PWS ID 1234005) serves a population of 12,750. See [Table 2](#) for the required number of RTCR samples.) It is essential that the PWS collect and analyze 10 routine total coliform samples from locations within the distribution system per month. This system provides 4-log treatment of viruses for its groundwater sources. The following results were obtained by the laboratory for the month of September 2016 by the Analysis Method Code 327:

<u>Sample Date</u>	<u>Analysis Date</u>	<u>Sample Type</u>	<u>TC Result</u>	<u>E. coli Result</u>
09/01/16	09/02/16	D	0	Not Needed
09/03/16	09/04/16	D	0	Not Needed
09/05/16	09/06/16	D	1	0
09/07/16	09/08/16	C	0	Not Needed
09/07/16	09/08/16	C	0	Not Needed
09/07/16	09/08/16	C	1	0
09/09/16	09/10/16	D	0	Not Needed
09/12/16	09/13/16	D	0	Not Needed
09/14/16	09/15/16	D	0	Not Needed
09/15/16	09/16/16	D	1	0
09/17/16	09/18/16	C	0	Not Needed
09/17/16	09/18/16	C	0	Not Needed
09/17/16	09/18/16	C	0	Not Needed
09/19/16	09/20/16	D	0	Not Needed
09/21/16	09/22/16	D	0	Not Needed
09/22/16	09/23/16	D	0	Not Needed

Two distribution samples, 09/05/16 and 09/15/16, were TC-positive. Both samples were found, in the second step of the method, to be *E. coli*-negative. Three check samples were analyzed in response to each of the positive distribution samples. One of the check samples taken on 09/07/16 was found to be TC-positive, but *E. coli*-negative. Because this PWS took less than 40 samples and 3 samples were found to be TC-positive, this PWS is required to conduct a Level 1 Assessment. The positive check sample on 09/07/16 is included in determining compliance with this requirement.

Normally, the PWS staff would be required to take 3 additional check samples in response to the total coliform-positive check sample on 09/07/16. However, because 2 TC-positive samples (1 routine and 1 check) had been analyzed and a Level 1 Assessment has already been triggered, the additional check samples in response to the positive check sample are not necessary.

The PWS is **not**, however, exempt from taking 3 check samples in response to the positive distribution sample on 09/15/16. **Check samples need to be taken in response to all positive routine distribution samples. If *E. coli* bacteria was detected in any of the check samples, the PWS would also have an acute violation in addition to triggering an assessment.** The following pages show the properly completed SDWA-1 form as they would appear in DWELR.

Case #6/Example Screenshots:

Notification: It is essential that the laboratory notify the public water supplier by telephone within 1 hour of the laboratory obtaining a positive result for the original distribution sample. If the supplier cannot be reached within that time, the laboratory needs to notify DEP by telephone within 2 hours of the determination with the information listed above. The laboratory needs to also notify the local DEP or CHD office in writing within 24 hours of discovery of the coliform-positive samples. It is also essential that the water supplier, in turn, notify the local DEP or CHD office within 1 hour of knowledge of the coliform-positive samples.

SDWA-1 View and Edit Records screen (Analysis Method Code 327):

SAFE DRINKING WATER ACT													
VIEW and EDIT RECORDS													
Click here for a Printer Friendly Version													
View a Monitoring Calendar													
SDWA-1													
Current Lab Certifications Contaminants not Requiring Certification													
<input type="checkbox"/>	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
	Sort				Sort Entry Point Chlorine			Sort			Sort		
<input type="checkbox"/>	1234005	3100	327	0.0	090216	701		090116	D	1100	12345	pr01	STUDENTE_550
<input type="checkbox"/>	1234005	3100	327	0.0	090416	702		090316	D	1110	12345	pr02	STUDENTE_551
<input type="checkbox"/>	1234005	3100	327	1.0	090616	703		090516	D	1050	12345	pr03a	STUDENTE_552
<input type="checkbox"/>	1234005	3114	327	0.0	090616	703		090516	D	1050	12345	pr03b	STUDENTE_553
<input type="checkbox"/>	1234005	3100	327	0.0	090816	703		090716	C	1050	12345	pr04	STUDENTE_554
<input type="checkbox"/>	1234005	3100	327	0.0	090816	703		090716	C	1100	12345	pr05	STUDENTE_555
<input type="checkbox"/>	1234005	3100	327	1.0	090816	703		090716	C	1110	12345	pr06a	STUDENTE_556
<input type="checkbox"/>	1234005	3114	327	0.0	090816	703		090716	C	1110	12345	pr06b	STUDENTE_557
<input type="checkbox"/>	1234005	3100	327	0.0	091016	704		090916	D	0800	12345	pr07	STUDENTE_558
<input type="checkbox"/>	1234005	3100	327	0.0	091316	705		091216	D	0810	12345	pr08	STUDENTE_559
<input type="checkbox"/>	1234005	3100	327	0.0	091516	706		091416	D	0750	12345	pr09	STUDENTE_560
<input type="checkbox"/>	1234005	3100	327	1.0	091616	707		091516	D	0800	12345	pr10a	STUDENTE_561
<input type="checkbox"/>	1234005	3114	327	0.0	091616	707		091516	D	0800	12345	pr10b	STUDENTE_562
<input type="checkbox"/>	1234005	3100	327	0.0	091816	707		091716	C	0900	12345	pr11	STUDENTE_563
<input type="checkbox"/>	1234005	3100	327	0.0	091816	707		091716	C	0910	12345	pr12	STUDENTE_564
<input type="checkbox"/>	1234005	3100	327	0.0	091816	707		091716	C	0800	12345	pr13	STUDENTE_565
<input type="checkbox"/>	1234005	3100	327	0.0	092016	708		091916	D	1310	12345	pr14	STUDENTE_566
<input type="checkbox"/>	1234005	3100	327	0.0	092216	709		092116	D	1250	12345	pr15	STUDENTE_567
<input type="checkbox"/>	1234005	3100	327	0.0	092316	710		092216	D	1300	12345	pr16	STUDENTE_568

Note: The last Sample Date entry appears at the bottom, in this example; Sample Dates and Entry Points can be sorted as needed.

Case #7: Community System-Positive Routine and Check Total Coliform Samples No Violation

The Urban Consolidated Water Authority (PWS ID 1234006) serves a population of 122,000 and needs to collect 100 routine samples from its distribution system per month for total coliform analysis. (See [Table 2](#) in this manual for the required number of RTCR samples.) This system uses surface water sources. By the *presence/absence* method (Method Code 329), all routine distribution samples for the month of October 2016 were negative except for 3 samples. The results of the 3 TC-positive samples and the associated check samples are shown below:

<u>Sample Date</u>	<u>Analysis Date</u>	<u>Sample Type</u>	<u>TC Result</u>	<u>E. coli Result</u>
10/07/16	10/08/16	D	1	0
10/09/16	10/10/16	C	0	Not Needed
10/09/16	10/10/16	C	1	0
10/09/16	10/10/16	C	0	Not Needed
10/11/16	10/12/16	C	0	Not Needed
10/11/16	10/12/16	C	0	Not Needed
10/11/16	10/12/16	C	0	Not Needed
10/07/16	10/08/16	D	1	0
10/09/16	10/10/16	C	0	Not Needed
10/09/16	10/10/16	C	0	Not Needed
10/09/16	10/10/16	C	0	Not Needed
10/08/16	10/09/16	D	1	0
10/11/16	10/12/16	C	0	Not Needed
10/11/16	10/12/16	C	0	Not Needed
10/11/16	10/12/16	C	0	Not Needed

A total of 112 samples were taken - 100 routine samples plus 12 check samples. There were a total of 4 total coliform-positive samples; 3 routine samples plus 1 check sample. According to the calculation below, 3.6 percent of the samples were total coliform-positive:

$$[4 \text{ (positive samples)} \div 112 \text{ (total samples)}] \times 100 = 3.57\% \text{ (which rounds to 3.6\%)}$$

For a PWS taking 40 or more samples per month, if *more than* 5.0 percent of all the samples taken are total coliform-positive then a Level 1 Assessment is triggered. (See [Table 3](#) Level 1 and 2 Assessments, in this manual.) In this example, only 3.6 percent of the samples taken were total coliform-positive. Therefore, an assessment is not required.

The following pages show a portion of the properly completed SDWA-1 form as they would appear in DWELR.

Notification: It is essential that the laboratory notify the public water supplier by telephone within 1 hour of the laboratory obtaining a positive result for the original distribution sample. If the supplier cannot be reached within that time, the laboratory needs to notify DEP by telephone within 2 hours of the determination with the information listed above. The laboratory needs to also notify the local DEP or CHD office in writing within 24 hours of discovery of the coliform-positive samples. It is also essential that the water supplier, in turn, notify the local DEP or CHD office within 1 hour of knowledge of the coliform-positive samples.

SDWA-1 View and Edit Records screen (Analysis Method Code 329):

SAFE DRINKING WATER ACT													
VIEW and EDIT RECORDS													
Click here for a Printer Friendly Version													
View a Monitoring Calendar													
SDWA-1													
Current Lab Certifications													
Contaminants not Requiring Certification													
<input type="checkbox"/>	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
	Sort				Sort Entry Point Chlorine			Sort			Sort		
<input type="checkbox"/>	1234006	3100	329	1.0	100916	722		100716	D	0745	68000	7223TC2+	STUDENTE_580
<input type="checkbox"/>	1234006	3100	329	0.0	101016	722		100916	C	1045	68000	72211TC2+C	STUDENTE_581
<input type="checkbox"/>	1234006	3100	329	0.0	101016	722		100916	C	1100	68000	72212TC2+C2	STUDENTE_582
<input type="checkbox"/>	1234006	3100	329	0.0	101016	722		100916	C	1115	68000	72213TC2+C3	STUDENTE_583
<input type="checkbox"/>	1234006	3114	329	0.0	100916	722	329	100716	D	0745	68000	7224FC2-	STUDENTE_584
<input type="checkbox"/>	1234006	3100	329	1.0	100916	725		100816	D	0900	68000	7255TC3+	STUDENTE_585
<input type="checkbox"/>	1234006	3100	329	0.0	101216	725		101116	C	1030	68000	72514TC3+3	STUDENTE_586
<input type="checkbox"/>	1234006	3100	329	0.0	101216	725		101116	C	1045	68000	72515TC3+C2	STUDENTE_587
<input type="checkbox"/>	1234006	3100	329	0.0	101216	725		101116	C	1015	68000	72516TC3+C3	STUDENTE_588
<input type="checkbox"/>	1234006	3114	329	0.0	100916	725	329	100816	D	0900	68000	7256FC3-	STUDENTE_589
<input type="checkbox"/>	1234006	3100	329	1.0	100816	721		100716	D	0830	68000	7211TC+	STUDENTE_590
<input type="checkbox"/>	1234006	3100	329	0.0	101016	721		100916	C	1100	68000	7217TC+C	STUDENTE_591
<input type="checkbox"/>	1234006	3100	329	1.0	101016	721		100916	C	1115	68000	7218TC+C2	STUDENTE_592
<input type="checkbox"/>	1234006	3100	329	0.0	101016	721	329	100916	C	1130	68000	72110TC+C3	STUDENTE_593
<input type="checkbox"/>	1234006	3114	329	0.0	100816	721		100716	D	0830	68000	7212FC-	STUDENTE_594
<input type="checkbox"/>	1234006	3100	329	0.0	101216	721		101116	C	1100	68000	7212C1C	STUDENTE_598
<input type="checkbox"/>	1234006	3100	329	0.0	101216	721		101116	C	1115	68000	7212C2C	STUDENTE_599
<input type="checkbox"/>	1234006	3100	329	0.0	101216	721		101116	C	1130	68000	7212C3C	STUDENTE_600

Note: The last Sample Date entry appears at the bottom, in this example; Sample Dates and Entry Points can be sorted as needed.

Case #8: Community System-Acute MCL Violation and Level 2 Assessment (Failure to Analyze for *E. coli*)

The Bull Run Water Company (PWS ID 1234007) serves a population of 7,500. The PWS needs to take 8 monthly RTCR samples. (See [Table 2](#) in this manual for the required number of RTCR samples.) This system provides 4-log treatment of viruses for its groundwater sources. Using the DEP Method Code 329 (2-step procedure method), the following results were obtained for the month of December 2016:

<u>Sample Date</u>	<u>Analysis Date</u>	<u>Sample Type</u>	<u>TC Result</u>	<u><i>E. coli</i> Result</u>
12/02/16	12/03/16	D	0	Not Needed
12/05/16	12/06/16	D	0	Not Needed
12/09/16	12/10/16	D	1	Not Reported*
12/11/16	12/12/16	C	1	Not Reported*
12/11/16	12/12/16	C	0	Not Needed
12/11/16	12/12/16	C	0	Not Needed
12/12/16	12/13/16	D	0	Not Needed
12/16/16	12/17/16	D	0	Not Needed
12/19/16	12/20/16	D	0	Not Needed
12/23/16	12/24/16	D	0	Not Needed
12/26/16	12/27/16	D	0	Not Needed

* - Sample results for *E. coli* was not reported by the laboratory.

The routine distribution system sample taken on December 09, 2016 was TC-positive, but either the PWS asked the laboratory not to analyze for *E. coli* or the laboratory failed to analyze for *E. coli*. **In this case, DEP assumes that the TC-positive sample is also *E. coli*-positive.**

One of the check samples (taken on December 11, 2016) was also TC-positive, but no *E. coli* analysis results was reported. **It, too, is assumed to be *E. coli*-positive. This combination of events results in an acute violation for the water supplier.** In addition to the acute violation the PWS is required to conduct a Level 2 Assessment within 30 days of the analysis of the sample that triggered the assessment (in this case the assessment should be completed by 1/11/17).

Notification: It is essential that the laboratory notify the public water supplier by telephone within 1 hour of the laboratory obtaining a positive result for the original distribution sample. If the supplier cannot be reached within that time, the laboratory needs to notify DEP by telephone within 2 hours of the determination with the information listed above. The laboratory needs to also notify the local DEP or CHD office in writing within 24 hours of discovery of the coliform-positive samples. It is also essential that the water supplier, in turn, notify the local DEP or CHD office within 1 hour of knowledge of the coliform-positive samples.

Case #8/Example Screenshots:

SDWA-1 View and Edit Records screen (Analysis Method Code 329):

SAFE DRINKING WATER ACT													
VIEW and EDIT RECORDS													
Click here for a Printer Friendly Version													
View a Monitoring Calendar													
SDWA-1													
Current Lab Certifications													
Contaminants not Requiring Certification													
<input type="checkbox"/>	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
<input type="checkbox"/>	Sort			Sort Entry Point Chlorine				Sort			Sort		
<input type="checkbox"/>	1234007	3100	329	1.0	121016	704		120916	D	1010	01888	3PRTC+	STUDENTE_187
<input type="checkbox"/>	1234007	3100	329	1.0	121216	704		121116	C	0945	01888	9PRTC+C+	STUDENTE_188
<input type="checkbox"/>	1234007	3100	329	0.0	121216	704		121116	C	1000	01888	10PRTC+C-	STUDENTE_189
<input type="checkbox"/>	1234007	3100	329	0.0	121216	704		121116	C	1020	01888	11PRTC+C2-	STUDENTE_190
<input type="checkbox"/>	1234007	3100	329	0.0	121316	704		121216	D	1000	01888	4PRTC	STUDENTE_571
<input type="checkbox"/>	1234007	3100	329	0.0	121716	705		121616	D	0830	01888	5PRTC	STUDENTE_572
<input type="checkbox"/>	1234007	3100	329	0.0	122016	705		121916	D	0845	01888	6PRTC	STUDENTE_573
<input type="checkbox"/>	1234007	3100	329	0.0	122416	706		122316	D	0915	01888	7PRTC	STUDENTE_574
<input type="checkbox"/>	1234007	3100	329	0.0	122716	706		122616	D	0930	01888	8PRTC	STUDENTE_575
<input type="checkbox"/>	1234007	3100	329	0.0	120316	703		120216	D	0800	01888	1PRTC	STUDENTE_576
<input type="checkbox"/>	1234007	3100	329	0.0	120616	703		120516	D	0810	01888	2PRTC	STUDENTE_577

Note: The required follow-up *E. coli* analyses were missed for both TC-positive samples. Both the distribution and one of the check samples were positive for total coliform. Therefore, it is assumed that both samples are also *E. coli* positive!

Case #9: Community System-Monitoring Violation and Level 1 Assessment

The Executive Estates Water Company (PWS ID 1234008) has 2 wells serving 4,500 people and is required to take 5 monthly total coliform samples. (See [Table 2](#) in this manual for the required number of RTCR samples.) This system provides 4-log treatment of viruses for its groundwater sources. By the membrane filter *E. coli* method (Method Code 323), the following results were reported for the month of October 2016.

<u>Sample Date</u>	<u>Analysis Date</u>	<u>Sample Type</u>	<u>TC Result</u>	<u><i>E. coli</i> Result</u>
10/07/16	10/08/16	D	0	Not Needed
10/14/16	10/15/16	D	0	Not Needed
10/21/16	10/22/16	D	1	0
10/23/16	10/24/16	C	0	Not Needed
10/23/16	10/24/16	C	0	Not Needed

Monitoring Violation and Level 1 Assessment Requirement:

Only 3, instead of 5, routine distribution system sample results were reported. Therefore, a monitoring violation exists. In addition, 1 of the samples was TC-positive, and only 2, instead of 3 check samples were reported. Therefore, the PWS is also required to conduct a Level 1 Assessment within 30 days after the date that triggered the check samples (in this case the trigger date is 10/23/16). The following page show the properly completed SDWA-1 form as they would appear in DWELR.

The laboratory should have notified the public water supplier by telephone within 1 hour of the laboratory obtaining a positive result for the original distribution sample. If the supplier cannot be reached within that time, the laboratory needs to notify DEP by telephone within 2 hours of the determination with the information listed above. The laboratory needs to also notify the local DEP or CHD office in writing within 24 hours of discovery of the coliform-positive samples. It is essential that the water supplier, in turn, notify the local DEP or CHD office within 1 hour of knowledge of the coliform-positive samples.

Case 9/Example Screenshots:

SDWA-1 View and Edit Records screen (Analysis Method Code 323):

SAFE DRINKING WATER ACT													
VIEW and EDIT RECORDS													
Click here for a Printer Friendly Version													
View a Monitoring Calendar													
SDWA-1													
Current Lab Certifications					Contaminants not Requiring Certification								
<input type="checkbox"/>	PWSID	Contam ID	Analysis Method	Result	Analysis Date	Location ID 1	Location ID 2	Sample Date	Sample Type	Sample Time	Lab ID	Sample ID	Record ID
<input type="checkbox"/>	Sort				Sort Entry Point Chlorine			Sort			Sort		
<input type="checkbox"/>	1234008	3100	323	0.0	101516	703		101416	D	0830	30223	2PRTC-	STUDENTE_192
<input type="checkbox"/>	1234008	3100	323	0.0	102416	703		102316	C	1100	30223	1PRTC+C	STUDENTE_193
<input type="checkbox"/>	1234008	3100	323	0.0	102416	703		102316	C	1200	30223	2PRTC+C2	STUDENTE_194
<input type="checkbox"/>	1234008	3113	323	0.0	102216	703		102116	D	0815	30223	3PRFC-	STUDENTE_195
<input type="checkbox"/>	1234008	3100	323	1.0	102216	703		102116	D	0815	30223	3PRTC+	STUDENTE_578
<input type="checkbox"/>	1234008	3100	323	0.0	100816	703		100716	D	0800	30223	1PRTC-	STUDENTE_579

APPENDIX: SDWA-1 DATA CORRECTION FORM

Click on the form number to download [3900-FM-BSDW0143](#). (Click on the link to the left; do not use the form below-it is only an example.)



COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF SAFE DRINKING WATER

**BACTERIOLOGICAL / RESIDUAL DISINFECTANT /
TURBIDITY / DBP ANALYSIS**

**SDWA-1
CORRECTION**

Reason for Correction: _____

White Areas: Enter the complete information with the correct information. **Shaded Areas:** Enter the information which was reported incorrectly. Enter only the data which needs to be changed.

PWS Name: _____	Reported PWS Name: _____	CONTAMINANT NAME	
Address: _____	Address: _____		
Phone: _____	Phone: _____		
PWS ID: _____	PWS ID: _____	CONTAM ID: _____	CONTAM ID: _____

	ANALYSIS			LOCATION ID 1	LOCATION ID 2	SAMPLE			
	METHOD	RESULT (Incl. Decimal)	MMDDYY	(Loc, EP or Plant)	(Individual Filter)	MMDDYY	TYPE	TIME	SAMPLE ID
CORRECT DATA									
SUBMITTED DATA									
CORRECT DATA									
SUBMITTED DATA									
CORRECT DATA									
SUBMITTED DATA									
CORRECT DATA									
SUBMITTED DATA									

LAB. NAME: _____

PHONE: _____

APPROVED BY: _____

DATE: _____

LAB ID	