

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Safe Drinking Water

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TITLE: Key Requirements for Transient Noncommunity Water Systems

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

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

POLICY: Department of Environmental Protection (DEP) staff will follow the policies and procedures presented in this document to direct and support implementation of transient noncommunity water systems activities under the Safe Drinking Water Program.

PURPOSE: The purpose of this document is to establish a rational and reasonable basis for staff decisions which will promote quality, timely, and consistent service to the public and regulated community.

APPLICABILITY: This guidance will apply to all transient noncommunity water systems.

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

The policies and procedures herein are not an adjudication or a regulation. There is no intent on the part of the Department to give these rules 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: 24 Pages

DEFINITIONS: See 25 Pa. Code Chapter 109

ACRONYMS

BDF – Brief Description Form

CWS – Community Water System

DEP – Department of Environmental Protection

EC – *Escherichia coli* or *E. coli*

GUDI – Groundwater Under the Direct Influence of Surface Water

GWR – Groundwater Rule

MCL – Maximum Contaminant Level

mg/L – Milligrams per Liter

MRDL – Maximum Residual Disinfectant Level

NTNCWS – Nontransient Noncommunity Water System

PN – Public Notice

PWS – Public Water System

PWSID – Public Water System Identification Number

RTCR – Revised Total Coliform Rule

SMCL – Secondary Maximum Contaminant Level

TC – Total Coliform

TNCWS – Transient Noncommunity Water System

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DEFINING A PUBLIC WATER SYSTEM

Pennsylvania’s Safe Drinking Water Act (35 P.S. §721.1 et seq.) (Act) and regulations at Title 25 Pa. Code Chapter 109 require the regulation of public water systems (PWS). **This guidance document has been developed to assist you in identifying the requirements specifically for a Transient Noncommunity Water System (TNCWS).**

Definition of a PWS:

A PWS is a system that provides water to the public for human consumption, and which has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year. The term includes collection (i.e., drinking water sources), treatment, storage, and distribution facilities.

Types of PWSs:

There are different types of PWSs; their criteria and examples are listed in the table below. Please note that the list of examples for each PWS type is not an all-inclusive list.

Table 1: PWS Types

PWS Types	Criteria	Examples of PWSs
Community Water System (CWS)	Serves at least 15 service connections or 25 year-round residents.	Manufactured housing communities, municipal water systems, personal care homes and housing developments
Nontransient Noncommunity Water System (NTNCWS)	Not a CWS; but regularly serves at least 25 of the <u>same</u> persons over 6 months per year.	Schools, day care centers, hospitals, office buildings and factories
Transient Noncommunity Water System	Not a CWS or NTNCWS; but regularly serves at least 25 persons.	Restaurants, golf courses, campgrounds, and churches

PUBLIC WATER SYSTEM APPROVAL PROCESS

DEP uses a system of authorizations involving permits, licenses, certifications, registrations, and approvals to provide for the health and safety of Pennsylvania's citizens through a cleaner environment. All TNCWSs must obtain approval through DEP before serving water to the public. Approval can be granted using the Brief Description Form (BDF) described below. For more complicated PWSs, a permit application may be required.

Brief Description Form

A TNCWS using groundwater and only using non-4-log disinfection as a treatment process to provide water quality that meets the primary Maximum Contaminant Levels (MCLs) required for that PWS, may submit a BDF for approval.

Requirements for TNCWS Approval with a BDF

To apply for TNCWS approval, the applicant must submit:

- (1) a brief description of the system

The brief description of the system shall be completed on the BDF provided by DEP. Amendments to the system description shall be filed when a substantial modification is made to the system. The BDF shall be submitted to and approved by DEP prior to construction.

- (2) Raw source water quality data

Water quality analysis shall be conducted by a laboratory accredited by DEP. The raw water source quality data must include analysis of the following:

- Nitrate (as nitrogen) and nitrite (as nitrogen)
- Turbidity
- Total coliform concentration and, if total coliform-positive, analyze for *E. coli*
NOTE: 3 total coliform samples must be collected, 15 minutes apart.
- Any other contaminant which DEP determines to be necessary

The TNCWS can complete the BDF or permit application using the documents provided by DEP and listed in the "Helpful Links" section on the next page.

Permit Application

Any TNCWSs that does not meet the description for the BDF approval or is deemed by DEP as requiring a permit, must complete a permit application. The permit application must be submitted under the seal of a Professional Engineer registered to practice in Pennsylvania.

*NOTE: TNCWSs should adhere to the design standards set forth in DEP's *Public Water Supply Manual*.*

Public Water System Helpful Links

More information and DEP forms can be obtained by clicking the links below or inputting the document number in the search area of the DEP online e-library at <http://www.elibrary.dep.state.pa.us/dsweb/HomePage>

New Source Sampling Requirements for Transient Noncommunity Groundwater Sources (393-3130-308)
<http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-98301/393-3130-308.pdf>

Noncommunity System Design Standards (383-2128-108)
<http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-107193/383-2128-108.pdf>

Public Water Supply Permit Application (3900-PM-BSDW0002)
<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-11404>

PWS Inventory and BDF (3900-FM-BSDW0033)
<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-10723>

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REPORTING REQUIREMENTS

PWSs must report results of test measurements and analysis to DEP within either the first 10 days following month in which the results were received or within the first 10 days following the end of the monitoring period, whichever is shorter. This process is usually done by the accredited laboratory determining sample results, but it is the PWS' responsibility to ensure the results are reported on time. Results must be reported electronically through DEP's Drinking Water Electronic Lab Reporting System (DWELR). The following information is required to be reported with the sample result:

- Name, address, and PWS Identification number (PWSID)
- Name, address, and ID number for the lab performing analysis
- Results of analytical methods
- Contaminants
- Analytical method used
- Date of the sample
- Date of analysis
- Sample location

Individuals may request view only access to DWELR to see sample results submitted for their PWS by a submitting entity. Viewing results in DWELR is a useful means for confirming that DEP is receiving the sample results on time.

PWSs must report the following situations to DEP within one hour of discovery:

Exceedance of a Primary MCL or Maximum Residual Disinfectant Residual (MRDL).

Violation of Treatment Technique Requirements.

Sample results that require the collection of check samples.

Circumstances exist that may affect the quality or quantity of the water.

Waterborne Disease Outbreak.

Failure/Interruption in key water treatment processes.

Natural disaster that disrupts the water supply.

Chemical Spill.

Unexpected loading of pathogens into the source water increasing contamination risks.

Overfeed of treatment chemicals that exceed a published maximum value.

Situations involving a loss of positive pressure in the distribution system.

Lack of resources (i.e. staff shortages, power outages, or depletion of chemical inventories).

Any sample result that is *E. coli* positive.

Common Reasons that Require One Hour Notice to DEP

- Your laboratory calls you to report a positive coliform bacteria sample.
- Your laboratory calls you to report a positive *E. coli* sample.
- Your laboratory calls you to report a nitrate result greater than 10 mg/L.
- You discover that your water treatment equipment is not working.
- You lose power and as a result you lose water service.
- You discover that your well has been damaged or your well cap has been removed.

If any of these situations or something similar occurs at your PWS, call your local DEP office (see contact numbers on page 23) within one hour of discovery.

Reporting Requirements Helpful Links

More information can be obtained by clicking the links below:

DEP DWELR Webpage

<http://www.dep.pa.gov/Citizens/My-Water/PublicDrinkingWater/Pages/Electronic-Reporting-System.aspx>

REVISED TOTAL COLIFORM RULE

All PWSs are required to comply with the Revised Total Coliform Rule (RTCR). Monitoring requirements of the RTCR include the following:

- All PWSs must have an up-to-date sample siting plan and have it available for review.
- All PWSs must collect routine total coliform samples per their sample siting plan.
- If any routine monthly coliform samples test positive for total coliform (i.e., TC+), then at least three check samples must be collected within 24 hours of the PWS being notified of each TC+ result. Check samples must be collected in accordance with the sample siting plan.
- If any routine or check total coliform sample is TC+, the laboratory must also analyze that sample for *E. coli*.
- The acute MCL violation is based on the presence of *E. coli* (i.e., EC+) as part of the specific sample result circumstances defined in Table 4 on page 9.
- Based on results of RTCR monitoring, a PWS may meet a threshold referred to as a “Treatment Technique (TT) Trigger”, these triggers are identified in table 4 on page 9 below. If a PWS experiences a TT trigger, it is are required to conduct either a Level 1 or a Level 2 assessment and complete corrective actions to address sanitary defects identified during the assessment.

RTCR Sample Siting Plan

PWSs shall submit a sample siting plan for routine and repeat coliform sampling to DEP prior to serving water to the public. This sample siting plan must include:

- The population served by the PWS.
- A list of sample site locations in the distribution system to be used for routine monitoring.
- The name of the company or individual collecting the samples.
- A sample collection schedule.
- Available check sample locations for each of the routine sampling locations. Two check sample locations must be identified for each routine location, one should be located within 5 connections upstream and one within 5 connections downstream of the routine location.
- Triggered source water monitoring locations.
- A description of the accessibility of the sample sites.
- The beginning and ending dates of each operating season (for seasonal systems).

Determining where to collect samples in the Sample Siting Plan:

When determining where to collect samples for the sample siting plan, there are three recommended steps that PWSs can follow:

- 1) Determine the minimum number of routine samples required per month based on population using Table 2 on page 7.

NOTE: PWSs that have multiple sources with distinct distribution systems may increase the number of samples required.

Table 2: RTCR Monitoring Requirements

RTCR Monitoring: Monthly Distribution Samples	
Population Served	Min. # of samples per month
25 to 1,000	1
1,001 to 2,500	2
2,501 to 3,300	3
3,301 to 4,100	4
4,101 to 4,900	5
4,901 to 5,800	6
5,801 to 6,700	7
6,701 to 7,600	8
7,601 to 8,500	9
8,501 to 12,900	10

NOTE: If the population served is greater than 12,900 refer to Subchapter C. of the Chapter 109 Safe Drinking regulations to determine the minimum number of samples per month.

- 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 Table 3 below.

Table 3: Example Representative Locations for RTCR Monitoring

Examples of Representative Locations	
Dead Ends	Finished Water Storage Facilities
First Service Connection (should only be used after all other options are exhausted)	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 the minimum number of samples required each month.

Determining a Sampling Schedule in the Sample Siting Plan

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.

TNCWSs that use groundwater and serve 4,900 persons or less may collect all samples in one day if they are from different sampling sites in the distribution system.

RTCR Repeat Monitoring

Repeat monitoring occurs when a PWS is notified of a total-coliform-positive sample result. Requirements for check samples collected under repeat monitoring include:

- Collection of three check samples within 24 hours of being notified of any routine sample that is total coliform-positive.
 - Check sample locations must be identified on the sample siting plan.
 - One of the three required check samples must be collected from the routine sample location that tests positive for total coliform.
 - One check sample must be collected from any location within 5 taps upstream of the routine location and one check sample must be collected from any location within 5 taps downstream of the routine location.

NOTE: If a downstream location doesn't exist, the PWS should select an additional location within 5 taps upstream of the routine location.

- 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 or collect a check sample on three consecutive days.
- If the PWS has a positive check sample, an assessment has been triggered and repeat monitoring should cease.

RTCR Assessments

Table 4: Level 1 and Level 2 Assessment Triggers

The RTCR requires a **Level 1 Assessment** to be conducted when:

- 1) A PWS fails to collect at least three check samples within 24 hours for each routine sample that tested positive for total coliform (TC+);

Or

- 2) A PWS that collects less than 40 samples per month has two or more TC+ samples (including both routine and check sample results) in one month.

The Level 1 Assessment can be conducted by the PWS.

The RTCR requires a **Level 2 Assessment** to be conducted when:

- 1) A PWS incurs an *E. coli* (EC+) MCL violation under any of the following situations:

Sample Result Type: ROUTINE	Sample Result Type: CHECK
TC+ & EC+	TC+
TC+ & EC+	Any missing check sample
TC+ & EC-	EC+
TC+ & EC-	TC+ (but not analyzed for <i>E. coli</i>)

Or

- 2) A PWS triggers two Level 1 Assessments in a rolling 12-month period.

A Level 2 Assessment must be conducted by a certified operator with the appropriate class and subclass certifications for the PWS being assessed.

Assessment Purpose

The purpose of the Level 1 and Level 2 Assessment is to identify the possible presence of sanitary defects and defects in distribution system coliform monitoring practices.

Definition of a Sanitary Defect

A sanitary defect can provide a pathway of entry for microbial contamination into the distribution system or can indicate an imminent failure in an existing barrier (e.g., cracked storage tank, low disinfectant level, or leaks).

Conducting an RTCR Assessment

A PWS that triggers an assessment should:

- ✓ Call your DEP Sanitarian or local DEP office (see contact numbers on page 23) and verify the appropriate party to conduct the assessment.
- ✓ Ask DEP for the Level 1 or Level 2 Assessment Form and verify the process for submission.
- ✓ Ensure the assessment is completed by an appropriate party and submitted to your local DEP office within 30 days of triggering the assessment.
- ✓ Fix ALL sanitary defects prior to submitting the completed assessment form to DEP, or propose a corrective action schedule for fixing them and obtain DEP approval. It is recommended that you consult with DEP prior to taking a corrective action to be sure the action is appropriate and that other approvals or permits are not needed.
- ✓ After completing each scheduled corrective action, you must notify DEP.
- ✓ Your PWS or DEP may consult with each other at any time to discuss progress or the corrective action(s) identified.

- *NOTE:* If upon review, DEP determines that the assessment is insufficient, DEP will notify the PWS in writing and the PWS will be required to consult with DEP within 14 days. Following the consultation, a PWS has an additional 30 days to resubmit its corrected assessment. Failure to submit a sufficient assessment on time will incur a treatment technique violation and the PWS will be required to issue a Tier 2 public notice.

Violations of RTCR

Table 5: Violations of the *E. coli* MCL

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

Violations of the RTCR Treatment Technique

- 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 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 the public.

Violations of the RTCR Monitoring Requirements

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

Violations of the RTCR Reporting Requirements

- Failure to submit a monitoring report or completed assessment form.
- Failure to notify DEP 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 startup procedures.

RTCR Compliance for Seasonal Water Systems

PWSs are 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 PWS 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 its distribution system, regardless of how many days they remain closed, the system will be considered seasonal.

PWSs that shut down their water system each season but do not physically close their facility, must ensure that the public has no access to the water prior to completing the start-up procedure each season.

Start-up Procedure

Seasonal water systems must develop a start-up procedure to be submitted to DEP for approval (including modifications to an existing 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.

PWSs are required to complete a start-up procedure and submit a form certifying completion of this procedure to DEP before opening their facilities to the public. The last step to be completed before sending in the certification to DEP is the collection of total coliform samples at each of the routine monitoring locations for the PWS (i.e. a set), and confirming that the set of samples is absent of total coliform. If any samples are found to be positive for total coliform, the PWS should consider repeating some of its start-up procedure. The PWS is not required to contact DEP if there is a positive total coliform start-up sample, but may wish to consult with the local DEP office to determine which steps in the start-up procedure should be repeated.

Following completion of the repeated start-up steps, another set of samples for total coliform must be collected and analyzed. The PWS may not open until a set of samples is determined to be absent of total coliform. Results of this coliform sampling should be attached to the season start-up certification form.

A PWS that fails to complete the start-up procedure prior to serving water to the public will incur a Treatment Technique violation requiring the PWS to issue a Tier 2 Public Notice as soon as possible, but no later than 30 days after having opened.

RTCR Helpful Links

More information and DEP forms can be obtained by clicking the links below or inputting the document number into the search area of the DEP online e-library at <http://www.elibrary.dep.state.pa.us/dsweb/HomePage>

Form 1 Coliform Sample Siting Plan for Noncommunity Water Systems Collecting One Sample Per Month (3930-FM-BSDW0524) <http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-12439>

Form 3 Coliform Sample Siting Plan for Public Water Systems Collecting Two or More Samples Per Month (3930-FM-BSDW0526) <http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-12441>

Noncommunity Public Water System Responses to *E. coli* in Your Well Water (3930-FS-DEP4753)
<http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-116573/3930-FS-DEP4753.pdf>

Level 1 Assessment and Corrective Action Form and Instructions (3930-FM-BSDW0537)
<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-12860>

Level 1 Assessment Video Tutorial
https://www.youtube.com/watch?v=1yHJ7f1WhWM&feature=youtu.be&list=PLPQ13DBHtN03uiKjOBJa3q-0_ii-cMQIT

Level 2 Assessment and Corrective Action Form and Instructions (3930-FM-BSDW0538)
<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-12852>

RTCR Sample Siting Plan Video Tutorial
<https://www.youtube.com/watch?v=mf8GrfnaKxI>

Safe Drinking Water Resource: Contracting a Certified Water Operator (3910-BK-DEP4033)
<http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-116230/3910-BK-DEP4647.pdf>

Seasonal Systems Start-up Procedure Form and Instructions (3930-FM-BSDW0528)
<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-12502>

Seasonal Start-up Annual Certification Form (3930-FM-BSDW0532)
<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-12503>

GROUNDWATER RULE

The Groundwater Rule (GWR) applies to all PWSs using a groundwater source of water. These types of PWSs may be susceptible to fecal contamination and are therefore at risk of providing water that contains disease-causing microorganisms. The purpose of the GWR is to reduce disease incidence related to these microorganisms in drinking water.

Pennsylvania's GWR has the following five components:

Triggered Monitoring

The purpose of Triggered Monitoring is to rule out source water (raw water) contamination as a possible cause of distribution system contamination that is indicated by a total coliform-positive sample.

Triggered Monitoring samples are:

- Source water samples that must be collected in response to a RTCR sample that tests positive for total coliform.
- Tested for the presence of *E. coli* as an indicator of fecal contamination.
- Only required for sources where 4-log treatment of viruses is not provided.

Responding to each RTCR sample testing positive for total coliform:

- The PWS has 24 hours to collect a sample from each source.
- Each sample must be collected upstream of all treatment; i.e. a raw water sample.

EXAMPLE: A PWS with 2 wells that has a routine RTCR sample testing positive for total coliform, is required to collect a raw water sample representative of each well in addition to the 3 RTCR check samples.

Responding to an *E. coli* Positive Triggered Monitoring Sample, the PWS must:

- Notify DEP within 1 hour of learning of the positive sample.
- Issue Tier 1 Public Notice (PN) within 24 hours of learning of the positive sample. Certify to DEP that PN Requirements have been met within 10 days.
- Perform a corrective action to fix the issue. Consult with DEP within 30 days of notification of the *E. coli* positive sample and implement the corrective action within 120 days of notification of the *E. coli* positive sample. This includes one of the following options:
 - Abandon the contaminated water source and connect to another approved PWS or drill a new well.
 - Eliminate the source of contamination.
 - Permanently provide DEP-approved 4-log treatment of viruses.

Assessment Monitoring

Assessment Monitoring is used to identify groundwater sources that are vulnerable to fecal contamination. Assessment Monitoring Samples are:

- Required only for TNCWS sources identified as “at risk” by DEP. At risk sources include those sources located in karst geology or located near sources of fecal contamination such as malfunctioning on lot septic systems, or those sources with a history of positive coliform samples.

- Source water samples collected monthly over a 12-month period. (Seasonal Systems collect 12 samples evenly distributed over the operational period).
- Tested for the presence of *E. coli* as an indicator of fecal contamination.

When an Assessment Monitoring sample is *E. coli* positive, the PWS should follow the steps outlined for an *E. coli* positive Triggered Monitoring sample as outlined on the previous page.

Treatment Technique Requirements

TNCWSs may choose to obtain a permit to install 4-log treatment and conduct compliance monitoring prior to triggering under the GWR. TNCWSs that do not install 4-log treatment must follow the triggered monitoring requirements, including the corrective action requirements for any source water sample that is *E. coli* positive.

Definition of 4-log Treatment

4-log Treatment is a measure of total treatment effectiveness in which the raw water is treated by physical or chemical means. Log removal for the GWR relates to the percentage of viruses removed and/or inactivated from the water in which case “4-log” simply means 99.99% removal and/or inactivation of viruses. 4-log treatment must be approved through a permit from DEP.

For most PWSs, 4-log can be achieved with:

- 0.40 mg/L free chlorine.
- 20 minutes of effective contact time.

Compliance Monitoring

Compliance monitoring only applies to TNCWSs that installed 4-log:

- Compliance monitoring results must be reported to DEP monthly.
- Most PWS’ compliance monitoring will consist of daily monitoring for free chlorine residual at the entry point. (Contact DEP for alternative treatment technologies).

TNCWSs that have 4-log treatment or want to install 4-log treatment may contact their local DEP office or find more information using the links provided in the “GWR Helpful Links” section on the next page.

Sanitary Surveys

Sanitary surveys are a full inspection conducted by DEP at least every 5 years in which the DEP Sanitarian will review the following 8 essential components:

- Source
- Treatment
- Distribution System
- Finished Water Storage
- Pumps, Pump Facilities, and Controls
- Monitoring, Reporting, and Data Verification
- System Management and Operation
- Operator Compliance with DEP Requirements

GWR Helpful Links

More information and DEP forms can be obtained by clicking the links below or inputting the document number into the search area of the DEP online e-library at <http://www.elibrary.dep.state.pa.us/dsweb/HomePage>

DEP Groundwater Rule Webpage

<http://www.dep.pa.gov/Business/Water/BureauSafeDrinkingWater/DrinkingWaterMgmt/Regulations/Pages/Ground-Water-Rule.aspx>

4-Log Treatment of Viruses Demonstration Guidance (394-2125-002)

<http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-114148/394-2125-002.pdf>

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NITRATE AND NITRITE MONITORING

Nitrates and nitrites are not generally an immediate health concern to adults and children older than six months but are harmful to infants aged six months or younger. Nitrates and nitrites cause a condition known as methemoglobinemia (blue baby syndrome) due to the infant's inability to process these chemicals. It is important for the PWS to monitor for these chemicals to prevent illness and possibly death in young infants.

All TNCWSs must initially monitor for nitrates and nitrites by taking an annual sample beginning within the calendar year in which the PWS becomes regulated or an entry point associated with a new source begins supplying water. Nitrate and nitrite samples are to be collected from each entry point tap in the PWS. The entry point is a tap acceptable to DEP at which finished water representative of each source enters the distribution system and is generally the first available tap after water treatment and associated storage.

If initial analytical results for nitrate and nitrite are both less than 50% of the MCL, PWSs continue collecting samples on an annual frequency during the calendar quarter which previously resulted in the highest analytical result, unless DEP determines that a different monitoring quarter should be used. If analytical results show either nitrate or nitrite to be equal to or greater than 50% of the MCL, then the PWS must begin monitoring for both nitrate and nitrite on a quarterly frequency. The PWS is required to start quarterly monitoring in the calendar quarter following the detection. The following table shows the MCL and the value representing 50% of the MCL for nitrate and nitrite:

Table 9: Nitrate and Nitrite MCLs

Contaminant	MCL	50% of the MCL
Nitrate	10 mg/L	4.5 mg/L
Nitrite	1 mg/L	0.45 mg/L

Example: A PWS monitoring for nitrate and nitrite on an annual frequency collects samples in May and the results are: Nitrate = 4.8 mg/L and Nitrite = 0.11 mg/L. Because the nitrate value is greater than or 50% of the MCL, the PWS must begin monitoring for nitrate and nitrite on a quarterly basis starting in the third quarter (July – September).

Responding to Results greater than the MCL

When nitrate or nitrite sample results are above the MCL, the water supplier must notify DEP within one hour and take a confirmation sample with 24 hours of receiving the original sample result.

A water supplier that cannot comply with the 24-hour sampling requirement must notify the persons served by the PWS by issuing a Tier 1 Public Notice and collect the confirmation sample within 2 weeks of receiving the original sample result. Once the result of the confirmation sample is received, this result is averaged with the original result to determine compliance with the MCL.

Example: A PWS collects a routine nitrate sample and the result equals 11.0-mg/L, which exceeds the MCL. The PWS collects a confirmation sample and the result of the confirmation sample equals 8.0-mg/L. The average of the two results equals 9.5-mg/L, which is less than the nitrate MCL. Therefore, the PWS does not incur an MCL violation in this example.

Returning to Annual Monitoring

After four consecutive, quarterly samples at an entry point for a PWS indicate nitrate and nitrite levels in each sample are reliably and consistently below the MCL, the PWS may reduce the required compliance monitoring to one sample per year at the entry point. Reliably and consistently below the MCL is defined as each sample being less than 50% of the MCL for four consecutive quarters. Annual monitoring shall be conducted during the quarter which previously resulted in the highest analytical result.

Installing Treatment to Remove Nitrate and Nitrite

When a PWS exceeds the nitrate or nitrite MCL in 2 quarters over the course of a year, the PWS will be required to obtain a permit to install nitrate and nitrite treatment or take an alternative corrective action. PWSs will receive notice from DEP that treatment is required and should not install any equipment or make any changes to the system without first contacting DEP.

SECONDARY CONTAMINANTS

All PWSs in Pennsylvania, must supply drinking water that complies with the secondary maximum contaminant levels (SMCLs) established by the EPA in the National Secondary Drinking Water Regulations 40 CFR 143.3. Secondary contaminants, although not usually health threatening, may be displeasing to consumers. These contaminants may cause:

Aesthetic Effects: odors, tastes, colors, and foaming that are displeasing to the consumer.

Cosmetic Effects: effects such as skin and tooth discoloration that do not damage the body.

Technical Effects: corrosivity, scaling, and sedimentation that damages equipment and/or the effectiveness of the treatment of other contaminants.

Table 13: Secondary Maximum Contaminant Levels

Contaminant	Secondary MCL	Noticeable Effects above the Secondary MCL
Aluminum	0.2 mg/L	Colored water
Chloride	250 mg/L	Salty taste
Color	15 color units	Visible tint
Corrosivity	Non-corrosive	Metallic taste; corroded pipe
Foaming Agents	0.5 mg/L	Frothy, cloudy, bitter taste, odor
Iron	0.3 mg/L	Rusty color, sediment, metallic taste, red or orange staining
Manganese	0.05 mg/L	Black to brown color, staining, bitter metallic taste
Odor	3 TON (threshold odor number)	“rotten-egg”, musty, or chemical smell
pH*	6.5 – 8.5	Low pH = metallic taste, corrosion High pH: slippery feel, soda taste, deposits
Silver	0.1 mg/L	Skin discoloration; graying of the white part of eye
Sulfate	250 mg/L	Salty taste
Total Dissolved Solids (TDS)	500 mg/L	Hardness, deposits, colored water, staining, salty taste
Zinc	5 mg/L	Metallic taste

* The SMCL for pH represents a reasonable goal for drinking water quality.

Secondary Contaminants Helpful Links

More information and DEP forms can be obtained by clicking the links below or inputting the document number into the search area of the DEP online e-library at <http://www.elibrary.dep.state.pa.us/dsweb/HomePage>

EPA Secondary Drinking Water Standards: Guidance for Nuisance Chemicals
<https://www.epa.gov/dwstandardsregulations/secondary-drinking-water-standards-guidance-nuisance-chemicals>

PUBLIC NOTIFICATION

The Public Notification (PN) Rule was established to ensure that consumers are aware when there is a problem with their drinking water and allow them to take the appropriate actions to protect themselves from risks associated with the following:

- Water that does not meet drinking water standards.
- Water that the PWS failed to test.
- Other situations that adversely affect the quality or quantity of finished water.

Requirements of Public Notification

Public Notices are separated into three Tiers and have different requirements for each Tier as listed in Table 14 below:

Table 14: Public Notification Requirements

Tier	Classification of Situation	Time allowed to be issued	Delivery Method to Consumer
Tier 1	Required in situations where adverse health effects can occur as a result of short-term exposure	24 Hours	Hand delivery, electronic mail, posting the notice in conspicuous locations throughout the area served by the PWS, another form of delivery approved in writing by DEP
Tier 2	Required when there is a potential for chronic health effects as a result of long term exposure	30 days	Posting the notice in conspicuous locations throughout the area served by the PWS, or by mail or other direct delivery to each customer
Tier 3	Required when the situation causes no health effects	1 year	Posting the notice in conspicuous locations throughout the area served by the PWS, or by mail or other direct delivery to each customer
<p>Notes: PWSs issuing a Tier 1 PN must initiate consultation with DEP within 24 hours and issue a “Problem Corrected” notice within 24 hours of correcting the problem. All Tier 1 and Tier 2 PNs should be issued as soon as possible.</p>			

Steps to take when a PN is required to be issued:

- Determine the Tier of the violation or situation.
- Report to DEP within 1 hour (Tier 1 violation/situation or Tier 2 involving an MCL, MRDL, or TT violation).
- Consult with DEP within 24 hours (Tier 1 violation/situation).
- Determine appropriate method of delivery.
- Develop the notice using templates provided by DEP.
- Provide the notice as soon as possible and within the required timeframe.
- Provide a “problem corrected” notice within 24 hours (Tier 1 violation/situation).
- Send a copy of each notice to DEP within 10 days with a certification that all PN requirements have been met using the DEP certification form.

Public Notification Helpful Links

More information and DEP forms can be obtained by clicking the links below or inputting the document number into the search area of the DEP online e-library at <http://www.elibrary.dep.state.pa.us/dsweb/HomePage>

DEP Public Notification Webpage (Including templates for Tier 1, 2, and 3 PNs)
<http://www.dep.pa.gov/Citizens/My-Water/PublicDrinkingWater/Pages/Public-Notification.aspx>

Public Notification -PN- Certification Form (3930-FM-BSDW0076)
<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-8799>

Standard Health Effects Language for Public Notification
<http://www.elibrary.dep.state.pa.us/dsweb/View/Collection-12685>

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RECORD MAINTENANCE

The water supplier must retain the following record types on or near the premises:

Table 15: Record Maintenance Requirements

Record Type	Required Time to Retain the Record
Bacteriological Analysis	5 years
Turbidity Analysis	5 years
Chemical Analysis	12 years
Lowest daily chlorine concentration and records of the date and duration of any failure to maintain the DEP-prescribed minimum residual disinfectant concentration for more than 4 hours	5 years
Actions taken to correct MCL, MRDL, or Treatment Technique violations	3 years
Sanitary Survey reports and written communications	12 years
Variances or exemptions granted to the PWS	5 years following expiration of variance or exemption
Plans, specifications, and permits for the PWS	Life of the system
Public Notifications and certifications to PA DEP	5 years
Assessment forms and documentation of corrective actions	5 years

DEP OFFICE AND COUNTY HEALTH DEPARTMENT CONTACT INFORMATION

To determine the contact information and mailing address of your local DEP office, follow this link:
<http://www.elibrary.dep.state.pa.us/dsweb/Get/Document-117310/3930-FM-BSDW0560.pdf>

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