



TCEQ REGULATORY GUIDANCE

Program Support and Environmental Assistance Division
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You're a Public Water System... Now What?

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Get started

Whether you have just realized you own or operate a public water system (PWS) or that your system is regulated by the Texas Commission on Environmental Quality (TCEQ), this guide will help you bring your system into compliance with TCEQ's rules and regulations. If you still have questions after reading, contact our Small Business and Local Government Assistance hotline at 800-447-2827 or email us at TexasEnviroHelp@tceq.texas.gov. Find this and other publications on our [Forms and Publications](#)¹ webpage.

This guidance strives to help you understand the basic regulations we require your PWS to follow. It is not a substitute for the public drinking water rules in [Title 30, Texas Administrative Code \(30 TAC\), Chapter 290](#).²

Becoming compliant and maintaining compliance can be complicated. You may need to hire a consultant, professional engineer, or licensed water operator to help.

Confirm you operate a PWS

PWSs serve water for human consumption to at least 15 connections or 25 people at least 60 days out of the year. If you have your own water source (such as a well) and supply water to other people or connections, your system may be a PWS. Human consumption is defined as uses by humans in which water can be ingested into or absorbed by the human body.³ Examples include:

- drinking
- bathing
- brushing teeth
- washing hands or dishes
- cooking or preparing foods

For instance, if you are not connected to an existing PWS and you employ 25 people or more at least 60 days a year, you are considered a PWS, even if you do not serve food or drinks to the public.

Adjacent systems controlled by the same owner

You may also be a PWS if you provide water to the public on two or more adjacent properties and the combined population served is at least 15 connections or at least 25 individuals for at least 60 days out of the year. For example, a property with a groundwater well serves eight rental homes. The same landowner owns an adjacent property with a well that provides water to seven additional rental homes. Because the adjacent properties are owned by the same entity, and the total number of connections is at least 15, the system is a PWS.

1. www.tceq.texas.gov/publications

2. [texreg.sos.state.tx.us/public/readtac\\$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=290](http://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=4&ti=30&pt=1&ch=290)

3. See 30 TAC Section 290.38 for this and other definitions.

Serving bottled water

Your water source and system must still be approved by TCEQ and meet requirements, even if you supply bottled water for drinking. You cannot use bottled water to achieve compliance with a maximum contaminant level (MCL).⁴

Running food establishments

All food establishments in Texas are regulated by the [Department of State Health Services](#)⁵ (DSHS). Water used for food preparation must also be approved by TCEQ and meet drinking water quality standards in [30 TAC Chapter 290, Subchapter F](#).⁶ For instance, if you own or operate a restaurant that uses well water, you must follow both TCEQ and DSHS rules.

Serving purchased treated water

Some people buy treated water and redistribute it. Sometimes, the water seller takes sanitary control of the buyer's system and is then responsible for ensuring that both systems meet requirements. Sanitary control means the buyer has plumbing restrictions and inspections set by the seller. If you buy and redistribute treated water, **you are responsible for following TCEQ regulations if any of the following are true:**

- Your water seller does not take sanitary control of your distribution system.
- You change the chemical nature of the water—for example, by adding more disinfectant.
- You sell water to your customers.

Determine what type of PWS you have

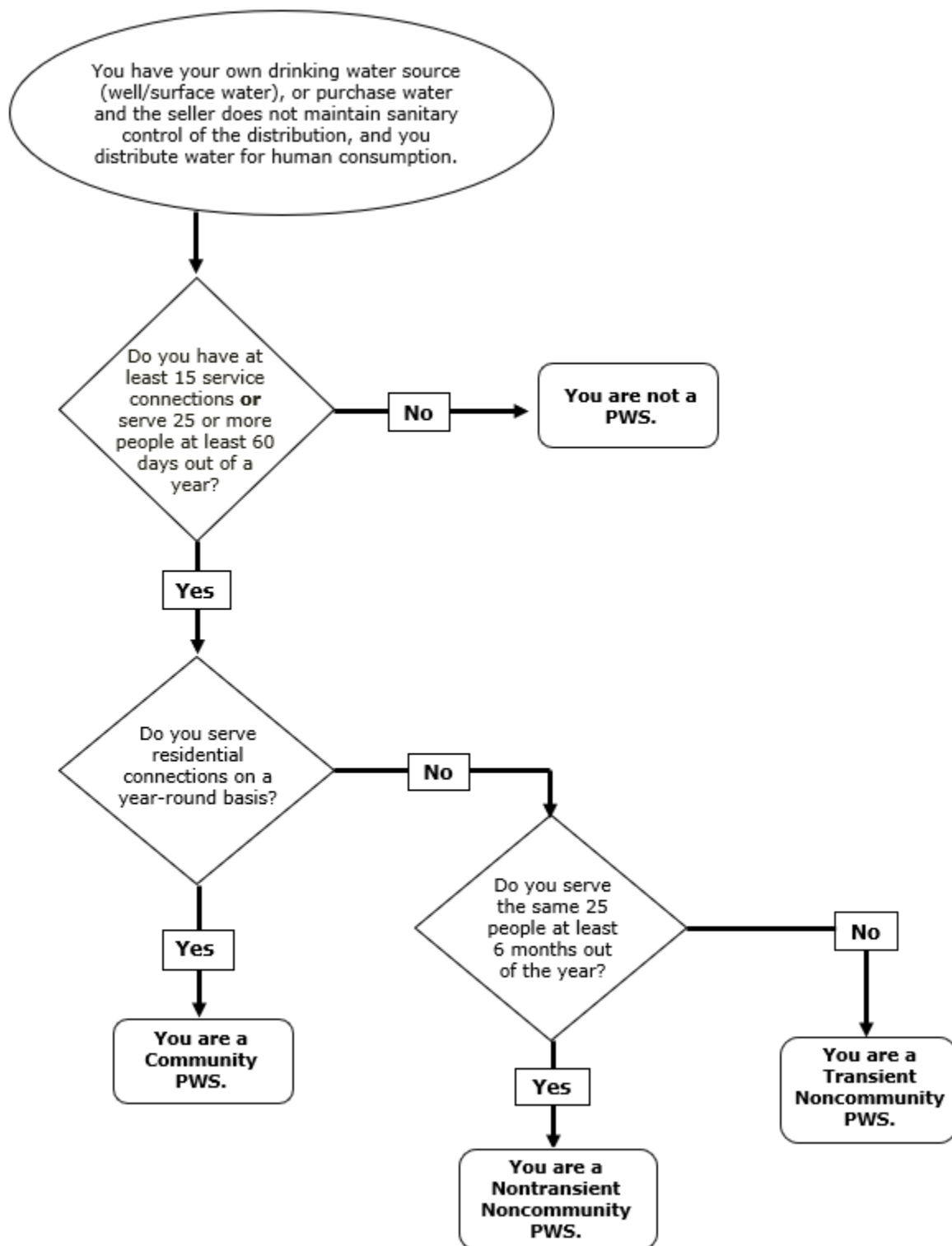
There are three main types of public water systems (see Figure 1 to find your type):

1. **Community water system (C)**—A public water system which has the potential to serve at least 15 residential service connections year-round or serves at least 25 residents year-round. Most municipalities and subdivisions are examples of community water systems.
2. **Nontransient, noncommunity water system (NTNC)**—A public water system that is not a community water system and regularly serves at least 25 of the same persons at least six months out of the year. Schools, day-care centers, factories, and other businesses are examples of NTNC water systems.
3. **Transient noncommunity water system (TNC)**—A public water system that is not a community water system and serves at least 25 persons at least 60 days out of the year, yet by its characteristics, does not meet the definition of a nontransient, noncommunity water system. Restaurants, parks, and truck stops are examples of TNC water systems.

4. See Title 40, Code of Federal Regulations (40 CFR) Section 141.101.

5. www.dshs.texas.gov/retail-food-establishments

6. [texreg.sos.state.tx.us/public/readtac\\$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=290&sch=F&rl=Y](http://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=290&sch=F&rl=Y)

Figure 1. Public Water System Classification Flowchart

Hire a licensed operator, if required

Except for TNC systems that use groundwater or buy treated water from another PWS, all public water systems must be operated under the direct supervision of trained and licensed water operators. A water operator may be an employee, contractor, or volunteer, but any individual who performs process control duties related to the production or distribution of drinking water must be licensed. The number and class of operators you need depends on your system. Table 1 shows the minimum requirements for small systems. Additional information on water system operators and operations companies can be found on the [Occupational Licenses](https://www.tceq.texas.gov/licensing/licenses/waterlic)⁷ website.

Table 1. Licensed-operator requirements for small systems

Type of System	Number of Connections	Minimum Number and Level of Operators Required	30 TAC Rule Citation
TNC (groundwater or treated purchased water)	N/A	None	290.46(e)(1)
C and NTNC (groundwater or treated purchased water)	250 or fewer	1 Class D licensed operator	290.46(e)(3)(A), 290.46(e)(4)(A)
Groundwater under the influence of surface water (GUI)	1,000 or fewer	1 Class C groundwater licensed operator ^{ab}	290.46(e)(5)(A), 290.46(e)(5)(C), 290.46(e)(5)(E), 290.46(e)(5)(F)
Surface water	1,000 or fewer	1 Class B surface water licensed operator ^c	290.46(e)(6)(A), 290.46(e)(6)(C), 290.46(e)(6)(D)

^a GUI systems using cartridge or membrane filters must use an operator with a Class C or higher groundwater license who has completed a 4-hour training course on monitoring and reporting requirements or an operator with a Class C or higher surface water license who has completed the Groundwater Production course. Surface Water Production I or II course can be supplemented for the 4-hour class.

^b GUI systems that use coagulant and direct filtration must use at least one operator with a Class C or higher surface water license who has completed the Groundwater Production course or a Class C or higher groundwater license and has completed a Surface Water Production I course. At least one operator must have completed the Surface Water I and II Production courses.

^c Part-time operators may be used to meet the licensing requirement if the operator is familiar with the design and operation of the plant and spends at least four consecutive hours at the plant at least once every 14 days and the PWS also uses an operator with a Class C surface water license. At least one operator must have completed the Surface Water I and II Production courses.

7. www.tceq.texas.gov/licensing/licenses/waterlic

Get your PWS approved

You must get your water source, distribution, storage, and treatment facilities approved by TCEQ **before you install or use them**. Engineered facilities like wells, pipes, pumps, and treatment units must meet our requirements for design and maintenance, including:

- plant design
- interconnections
- source water protection
- disinfection equipment
- well casing and location
- storage and pressure maintenance capacity

A Texas-licensed professional engineer (PE) must prepare a report and submit your plans and specifications.⁸ Use the [Texas Board of Professional Engineers](#)⁹ website to find licensed PEs in your area. **If you are operating an unapproved PWS**, a PE must submit as-built plans and specifications for your system.

Include in your engineering report¹⁰:

- **Who owns and operates the system?** Include emergency contact information.
- **Who do you serve water to?** Include present and future areas to be served, with population data.
- **What is your water source?** Include quantity and quality of water available and the location of all abandoned or inactive wells near any PWS wells.
- **Where is the system located?** Describe the facility's actual or proposed site and surroundings. Include a general map or plan of the area to be served.
- **What are the system's facilities?** Include type(s) of treatment, equipment, and capacities.
- **How much water does the system use?** Include basic design data, pumping capacities, and water storage.
- **How will the system operate?** Describe how it will operate under normal and emergency conditions.

See our website for more information about [establishing a new water system](#)¹¹ and [how to submit PWS plans for review](#).¹² If you have questions, call our Plan Review Team at 512-239-4691 early in the process.

8. See 30 TAC Subsection 290.39(d).

9. pels.texas.gov/

10. See 30 TAC Subsection 290.39(e).

11. www.tceq.texas.gov/assistance/water/pdws/community-systems/drinkingwater/newsystems.html

12. www.tceq.texas.gov/assistance/water/pdws/community-systems/drinkingwater/planrev.html

Finding your water source

Is your water supplied through a well or pumped from a lake? If you serve water sourced from a lake, spring, river, or rainwater from a catchment system, the risk of waterborne disease is much greater. These *surface water sources* are more easily contaminated than an aquifer that supplies groundwater to a well.

Water from rivers, streams, natural springs, creeks, tides, lakes, or bay areas is considered *state water*. If you use state water, you might be subject to [TCEQ water-rights permitting](#).¹³

Meeting PWS well requirements

Groundwater wells must be drilled by an individual licensed by the [Texas Department of Licensing and Regulation](#).¹⁴

Wells that supply public drinking water must meet our design standards and siting conditions in 30 TAC Subsection 290.41(c).

Enclose wells in a ventilated well house or protect them with an intruder-resistant fence with locked doors or gates to prevent trespassers or intentional contamination.

Keep wells away from certain activities or hazards, such as livestock grazing, septic tanks, abandoned wells, and other pollution sources. Table 2 describes well setback distances from some of these. See 30 TAC Subsection 290.41(c) for a complete list.

Table 2. Well setback distances from potential sources of contamination.

Well Setback Distances (in feet)	Sources of Potential Contamination
50	Septic tanks, sanitary sewers, storm sewers, cemeteries, livestock pastures
150	Septic tank drain fields, absorption or evapotranspiration beds, improperly constructed water wells, underground petroleum or chemical storage tanks, liquid transmission pipelines
300	Sewage wet wells, sewage pumping stations, drainage ditches containing industrial waste discharges or wastes from sewage treatment systems
500	Sewage treatment plants, animal feed lots, solid waste disposal sites, lands where sewage plant or septic tank sludge is applied, or lands irrigated with sewage plant effluent

13. www.tceq.texas.gov/permitting/water_rights/wr-permitting/wr_amiregulated.html

14. www.tdlr.texas.gov/wwd/wwd.htm

Converting existing wells for PWS

We have high standards for wells that supply water to the public.¹⁵ Domestic and irrigation wells are not drilled to those standards. If you want to use one of these wells for your public water supply, you need a PE to apply for our approval. You also need a well assessment to determine what parts of your system (gravel pack, casing, wellhead, etc.) need to be upgraded to meet standards. If your well cannot be upgraded to meet PWS standards, you may [request an exception](#) to rules in 30 TAC Chapter 290, Subchapter D.

Working with unidentified wells

If you do not know what type of well you have, use the online [Water Well Report Viewer](#)¹⁶ or the [Texas Water Development Board's Groundwater Data Viewer](#)¹⁷ to find it. If you cannot find it, you may need to request the well logs and driller information from your local [groundwater conservation district](#).¹⁸ Well logs help you find out if your well was drilled for domestic use or irrigation supply or if it meets the criteria for a PWS well.

Meeting storage, capacity, and distribution requirements

We have rules about the sizing, capacity, and flow rate of your tanks, pipes, and pumps. These rules make sure customers have enough drinking water.

Tanks and Pumps: Rules for sizing are in 30 TAC Section 290.45. The minimum capacity requirements are based on the size and type of your system.

Treatment Plants: Make treatment plants big enough to treat all water your system produces.¹⁹ For a well system, the chlorinator is considered a “treatment plant.” Disinfection equipment must be able to hold at least 50 percent more disinfectant than the highest expected dosage. The dosage is the amount of chemicals needed to treat the water effectively.²⁰

Distribution Systems: Your system must meet requirements for minimum pressure, pipe size, pipe material, interconnections, and backflow.²¹ For example, you must maintain a minimum pressure of 35 pounds per square inch (psi) throughout the distribution system under normal operating conditions.

Changes to the System: You must submit plans to us for wells, interconnections, or other significant changes that alter production, treatment, storage, or pressure maintenance capacity. All plans must be submitted by a Texas-licensed PE.²²

15. See 30 TAC Subsection 290.41(c).

16. www.tceq.texas.gov/gis/waterwellview.html

17. www3.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer

18. www.tceq.texas.gov/groundwater/groundwater-planning-assessment/districts.html

19. See 30 TAC Section 290.45.

20. See 30 TAC Subsection 290.42(e)(3)(A).

21. See 30 TAC Section 290.44.

22. See 30 TAC Subsection 290.39(j).

Requesting an exception to the rules

If any part of your system cannot meet requirements, you may request an exception to the rules in [30 TAC Chapter 290 Subchapter D](#).²³ For example, some wells cannot meet the setback distance requirements, and you can request a well setback exception. Exception requests are reviewed on an individual basis, and requests are not automatically approved. If your exception request is approved, you may have additional monitoring and sampling requirements. Find more information about [requesting an exception to rules and regulations for PWSs](#)²⁴ on our website.

Maintaining and operating your PWS

Keep an updated plant operations manual. It should describe procedures for routine maintenance and repair, emergency plans, and contact details.²⁵ It also helps you prepare a replacement schedule for equipment. The minimum requirements for operating a PWS are in 30 TAC Section 290.46.

In a well-maintained PWS:

- Pumps and sampling equipment are in good working condition.
- Well meters are accurate and calibrated periodically.
- Sampling reagents are not expired.
- Tanks are routinely inspected and cleaned out.
- Distribution mains are routinely flushed.
- Grass around wells and at the plants is regularly mowed.
- Sample sites are clean with no risk of contamination.
- Operations records are maintained.

To make changes to your contact information, facilities, and activity, email PWSINVEN@tceq.texas.gov, or call 512-239-4691 and ask for the PWS Inventory Group. You can also view information we have for your system on the [Drinking Water Watch](#)²⁶ website.

Sample your water

Sampling and analyzing the water you serve is critical to protecting public health. [How to Develop a Monitoring Plan for a Public Water System](#)²⁷ (RG-384) explains what samples to collect and how often. Public water systems may analyze some parameters, such as disinfectant residuals, with an instrument that uses an approved analytical method. To do so, the PWS must receive approval from TCEQ by submitting the

23. [texreg.sos.state.tx.us/public/readtac\\$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=290&sch=D&rl=Y](http://texreg.sos.state.tx.us/public/readtac$ext.ViewTAC?tac_view=5&ti=30&pt=1&ch=290&sch=D&rl=Y)

24. www.tceq.texas.gov/drinkingwater/trot/exception

25. See 30 TAC Subsection 290.42(l).

26. <http://www.tceq.texas.gov/goto/dww>

27. www.tceq.texas.gov/downloads/drinking-water/rg-384.pdf

[Drinking Water Laboratory Approval Form](#)²⁸ (TCEQ-10450). Other parameters, such as bacteriological or lead and copper tap samples, must be analyzed by a laboratory accredited by TCEQ under the National Environmental Laboratory Accreditation Program (NELAP). A list of NELAP-accredited laboratories can be found on our [Environmental Laboratory NELAP Accreditation](#)²⁹ webpage.

Table 3 shows basic information about some of the samples a groundwater (GW) or purchased water (PW) system may need to take themselves. Specific requirements, including frequency and minimum number of samples may vary with the type and size of your system, your water source, and sampling results. For example, systems that use ozone or chlorine dioxide or systems that treat a GUI or surface water source will have additional monitoring not included in this table.

Table 3 is organized by where your water samples should be taken.

- Take raw water samples from your water source before treatment.
- Take distribution samples at multiple locations so they represent water quality throughout your system.

Refer to 30 TAC Chapter 290, Subchapter F for the complete water sampling regulations. More information can be found on the [Public Water System Chemical Sampling and Monitoring Frequency](#)³⁰ webpage.

For more information about coliform monitoring, see our [Coliform Monitoring, Analyzing, and Reporting](#)³¹ (RG-421) guidance and our [Revised Total Coliform Rule](#)³² webpage.

28. www.tceq.texas.gov/downloads/drinking-water/form-10450-drinking-water-lab-approval.pdf

29. www.tceq.texas.gov/agency/qa/env_lab_accreditation.html

30. www.tceq.texas.gov/drinkingwater/chemicals/sample_collection

31. www.tceq.texas.gov/downloads/drinking-water/microbial/rg-421.pdf

32. www.tceq.texas.gov/drinkingwater/revised-total-coliform-rule

Table 3. Water sample types and frequencies for small groundwater and purchased water systems

Sample Type	Population	Minimum Frequency	Minimum Number of Samples	PWS Type	NELAP Lab Required?	30 TAC Rule	Who Collects?
Raw-Water Sampling							
Coliform bacteria ^d	N/A	After a routine distribution coliform sample is positive, or if otherwise required by TCEQ ^e	1 from each active groundwater well unless the PWS has an approved Triggered Source Monitoring Plan or provides 4-log treatment	All	Yes	290.109	Operator
Distribution-System Sampling							
Coliform bacteria	1 to 1,000 people	Monthly	1	All	Yes	290.109	Operator
Coliform bacteria	1,001 up to 2,500 people	Monthly	2	All	Yes	290.109	Operator
Disinfectant residual (free or total chlorine)	Up to 249 connections or 749 people	Every 7 days	1	All	No	290.110	Operator
Disinfectant residual (free or total chlorine)	At least 250 connections or 750 people	Daily	1	All	No	290.110	Operator
Lead, copper (tap sampling)	100 people or fewer	Initially 2 rounds of consecutive 6-month periods. Subsequent sampling frequency may be reduced based on results.	Based on population. See 290.117(c)(1)(A) ^f	C, NTNC	Yes	290.117	Operator or homeowner

Sample Type	Population	Minimum Frequency	Minimum Number of Samples	PWS Type	NELAP Lab Required?	30 TAC Rule	Who Collects?
Lead, copper (tap sampling)	101 to 500 people	Initially 2 rounds of consecutive 6-month periods. Subsequent sampling frequency may be reduced based on results.	Based on population. See 290.117(c)(1)(A) ^f	C, NTNC	Yes	290.117	Operator or homeowner
Lead, copper (tap sampling)	501 to 3,300 people	Initially 2 rounds of consecutive 6-month periods. Subsequent sampling frequency may be reduced based on results.	Based on population. See 290.117(c)(1)(A) ^f	C, NTNC	Yes	290.117	Operator or homeowner
Water quality parameters (related to Lead and Copper Rule)	Initial sampling required for new PWSs of all population sizes.	Initially once in the year following activation. Subsequent sampling frequency may vary based on results.	Based on population. See 290.117(e)(1) ^g	C, NTNC	Yes	290.117	Operator

^d Coliform bacteria are commonly used to show whether water is sanitary.

^e Groundwater systems may be required to collect monthly raw samples if granted a rule exception by TCEQ or as a corrective action under the Groundwater Rule in 30 TAC 290.109 and 30 TAC 290.116. The minimum number of required samples may vary.

^f texreg.sos.state.tx.us/fids/201101544-10.html

^g texreg.sos.state.tx.us/fids/201101544-11.html

Chemical samples collected by TCEQ contractors

Other types of sampling for parameters such as disinfection byproducts, organic and inorganic contaminants, and radionuclides are collected by a third-party contractor on behalf of TCEQ. As the PWS, you do not collect these samples yourself, but you are responsible for coordinating with the third-party contractor and paying for the lab analyses. These chemical analyte groups are summarized in Table 4.

Table 4: Chemical Analyte Groups Collected by Third Party Contractors

Chemical Analyte Group	30 TAC Rule
Inorganic Contaminants	290.106
Synthetic Organic Contaminants	290.107
Volatile Organic Contaminants	290.107
Radionuclides	290.108
Disinfection Byproducts	290.115
Secondary Constituents	290.118

The monitoring frequency for chemical analytes is based on a combination of factors, such as your PWS type, the population served, previous sampling results, and your water source. Find your system's sampling schedules in Drinking Water Watch and estimate the annual sampling costs using [these instructions](#).³³

Additional sampling if chlorine dioxide or ozone are used

If you treat your water using chlorine dioxide, additional monitoring for chlorine dioxide and chlorite is required. If you use ozone to treat your water, additional monitoring for bromate is required. See the following guidance documents for more information on sampling and reporting requirements for systems using chlorine dioxide or ozone.

- [Monitoring, Analyzing, and Reporting Chlorine Dioxide and Chlorite](#)³⁴ (RG-503)
- [Monitoring, Analyzing, and Reporting Bromate for Public Water Systems Using Ozone](#)³⁵ (RG-544)

33. www.tceq.texas.gov/drinkingwater/chemicals/sample_collection/costestimate#Find-schedules

34. www.tceq.texas.gov/downloads/drinking-water/operating-reports/rg-503.pdf

35. www.tceq.texas.gov/downloads/drinking-water/operating-reports/rg-544.pdf

Disinfecting water and monitoring the residual

As the owner or operator of a PWS, one of your most important responsibilities is to disinfect drinking water to prevent waterborne diseases. All PWSs in Texas must disinfect with chlorine or chloramines.³⁶ Our [Monitoring, Analyzing, and Reporting of Free Chlorine and Chloramines](#)³⁷ (RG-407) guide covers disinfectant residual requirements, including reporting and record keeping. Your treatment process and facilities must be approved by TCEQ before installation and use.

Maintain and organize records

Keep records of all operations and maintenance activities for your PWS. You send certain documents to us, while others are for your records. **Keep copies of all documents sent to or from TCEQ.** Organize them so they can be reviewed during inspections. We created compliance tools to help you organize and retain your records based on the type of system you operate.

- [Transient Noncommunity PWS Compliance Notebook](#)³⁸ (RG-549)
- [Community PWS Compliance Notebook](#)³⁹ (RG-545)
- [Surface Water and Groundwater under the Influence of Surface Water PWS Compliance Notebook](#)⁴⁰ (RG-542)
- [Water Hauler Compliance Notebook](#)⁴¹ (RG-540)

36. See 30 TAC Section 290.110.

37. www.tceq.texas.gov/downloads/drinking-water/disinfectant-report/rg-407.pdf

38. www.tceq.texas.gov/downloads/assistance/publications/rg-549.pdf

39. www.tceq.texas.gov/downloads/assistance/publications/rg-545.pdf

40. www.tceq.texas.gov/downloads/assistance/publications/rg-542.pdf

41. www.tceq.texas.gov/downloads/assistance/publications/rg-540.pdf