

State of Texas Public Drinking Water Program 2018 Annual Compliance Report



San Antonio River, San Antonio, TX

**Texas Commission on Environmental Quality (TCEQ)
Office of Water
Water Supply Division**

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Introduction

The Texas Commission on Environmental Quality (TCEQ) administers the Public Drinking Water Program in Texas under primacy authority from the United States Environmental Protection Agency (EPA). Section 1414(c)(3) of the Safe Drinking Water Act (SDWA) requires that each state that has been granted primacy prepare an annual report on violations of national primary drinking water regulations within the state, make the report readily available to the public, and submit it to the EPA. The TCEQ 2018 Annual Compliance Report fulfills this responsibility for Texas, and includes violations of maximum contaminant levels (MCLs), maximum residual disinfectant levels (MRDLs), treatment technique requirements, variances and exceptions, significant monitoring and consumer notification violations.

Each quarter, primacy States submit data to the Federal Safe Drinking Water Information System (SDWIS/FED), an automated database maintained by EPA. This report is based on data retrieved from the Texas installation of SDWIS/STATE. This report contains data from the following time periods:

1. The beginning date of a given violation compliance period on or before December 31, 2018.
2. The ending date of a given violation compliance period on or after January 1, 2018.

By using these criteria, some violations which began prior to calendar year 2018 are included in this report.

Definitions and Terms

The following are definitions and terms used in this report.

Public Water System - A public water system (PWS), as defined by the State of Texas, is a system that provides water via piping or other constructed conveyances for human consumption to at least 15 service connections or serves at least 25 people for at least 60 days each year. There are three types of PWSs:

- Community PWSs such as towns or other communities where people live.
- Non-Transient Non-Community PWSs such as schools or factories where people work but do not live.
- Transient Non-Community systems -- such as rest stops, parks, and restaurants --where people frequently come and go.

For this report, the acronym PWS means systems of all types unless specified in greater detail.

Maximum Contaminant Level - Under the Safe Drinking Water Act (SDWA), the EPA sets national limits on contaminant levels in drinking water to ensure that the water is safe for human consumption. These limits are known as Maximum Contaminant Levels (MCLs).

Maximum Residual Disinfection Level - The EPA sets national limits on residual disinfection levels in drinking water to reduce the risk of exposure to disinfectant byproducts formed when PWSs add chemical disinfection for either primary or residual treatment. These limits are known as Maximum Residual Disinfectant Levels (MRDLs).

Treatment Techniques - For some regulations, the EPA establishes treatment techniques (TTs) in lieu of an MCL to control unacceptable levels of certain contaminants. For example, treatment techniques have been established for viruses, bacteria, and turbidity.

Variances and Exemptions - The State of Texas does not grant variances or exemptions.

Monitoring - A PWS is required to monitor and verify that the levels of contaminants present in the water do not exceed the MCL. If a PWS fails to have its water tested as required or fails to report test results correctly to the primary agent, a monitoring/reporting violation occurs.

Sampling - The TCEQ collects chemical compliance samples for PWSs using a third party contractor, Antea USA. The samples collected include inorganic and organic chemicals, disinfection by-products and radionuclides. These samples are collected either at the entry point or in the distribution system. Using a third party to collect samples ensures greater quality assurance, unbiased sample results and a very high collection rate. In 2015, 99.9% of samples scheduled were collected, or the sample sites were accounted for as inactive or unavailable for sampling. The PWSs comply with the chemical compliance sampling requirement by paying the lab analysis expense.

PWSs are required to collect additional compliance samples. All public water systems are responsible for the routine collection of bacteriological samples and disinfection residual data from their distribution system. Most water systems have to perform sampling for compliance for the Lead and Copper Rule. Systems that utilize a ground water source must monitor their raw well water when applicable. Systems that utilize surface water or ground water under the influence of surface water must monitor routinely for turbidity and are also required to perform source water monitoring for *Cryptosporidium*. Also, systems that use specific treatments (such as chlorine dioxide or ozone) in their drinking water production are required to perform specialized monitoring.

Significant Monitoring Violations - For this report, significant monitoring violations are defined as any significant monitoring violation that occurred during the calendar year of the report. A significant monitoring violation, with rare exceptions, occurs when no samples were taken or no results were reported during a compliance period.

Consumer Notification - Every Community water system is required to deliver to its customers a brief annual water quality report, referred to as the Consumer Confidence Report (CCR). This report is to include some educational material, and will provide information on the source water, the levels of any detected contaminants, and compliance with drinking water regulations.

Significant Consumer Notification Violations - For this report, a significant public notification violation

occurred if a community water system completely failed to provide its customers the required annual water quality report. This type of violation is designated as “CCR Failure to Report” in SDWIS/STATE.

Public Notification - Public Notification is intended to ensure that consumers will always know if there is a problem with their drinking water. These notices immediately alert consumers if there is a serious problem with their drinking water that may pose a risk to public health. They also notify customers if their water does not meet drinking water standards, the water system fails to test its water, or if the system has been granted a variance (use of less costly technology) or an exemption (more time to comply with a new regulation).

Public Water Systems in Texas

As of July 01, 2019 the State of Texas regulates 7,020 PWSs, providing drinking water to 28,264,987 customers.

- Approximately 27,477,208 people receive drinking water from 4,644 Community water systems.
- Approximately 504,266 people receive drinking water from 896 Non-Transient Non-Community water systems.
- Approximately 283,513 people receive drinking water from 1,480 Transient Non-Community water systems.

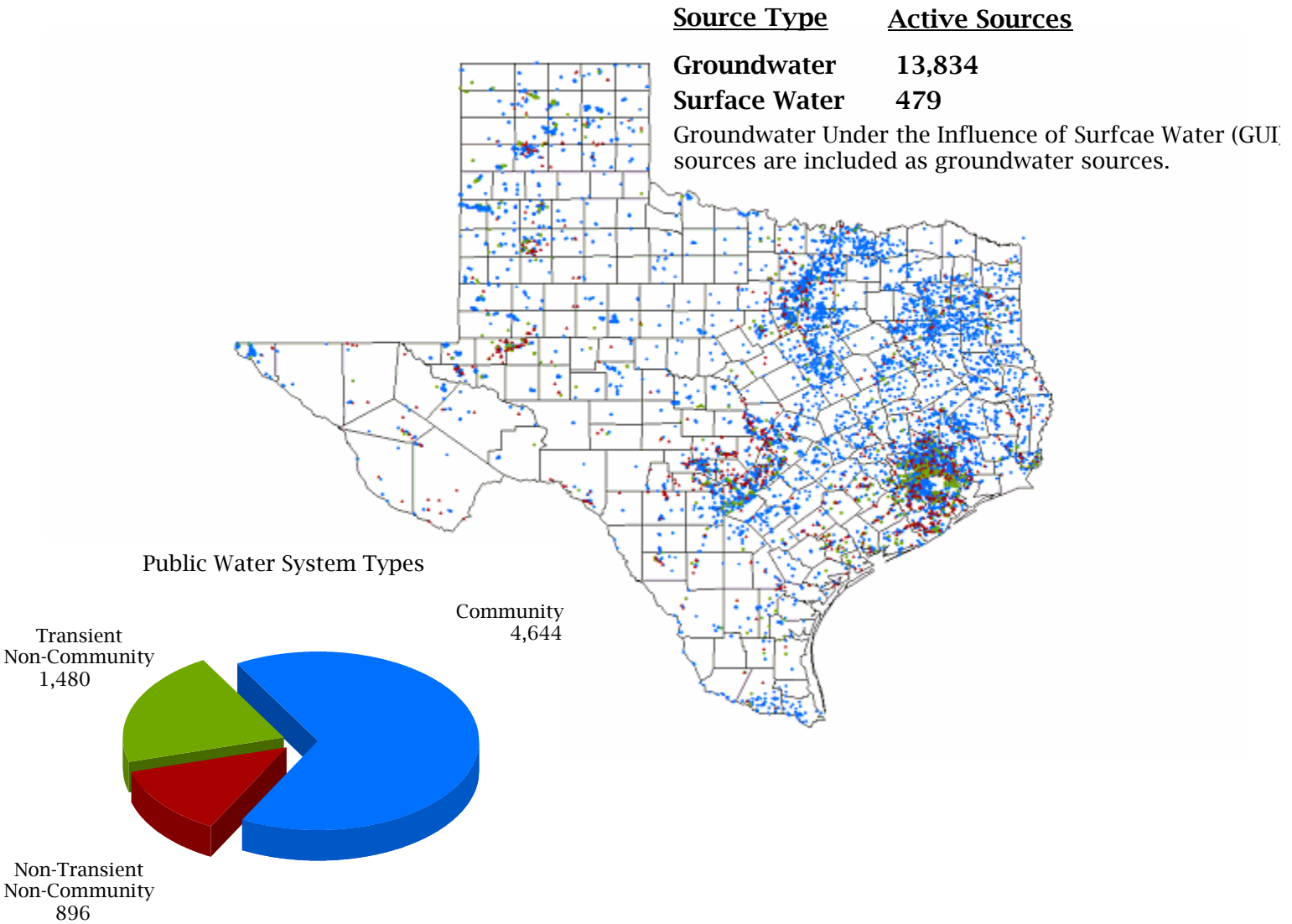
State regulations require all PWSs in Texas to disinfect their drinking water. All systems must properly disinfect water before it is distributed to any customer and must maintain acceptable disinfectant residuals within their distribution system. Systems are required to maintain a disinfectant residual concentration of at least 0.2 milligrams per liter (mg/L) of free chlorine or 0.5 mg/L of chloramine (chlorine + ammonia) in the water entering their distribution system as well as throughout the distribution system.

All PWSs that use surface water or ground water under the influence of surface water as a drinking water source, must use filtration as a treatment in their potable water production. Filtration is used along with other treatments as applicable.

Drinking Water Sources

Sources for drinking water within Texas include both groundwater and surface water originating from numerous aquifers, rivers, and reservoirs throughout the state. An illustration of public drinking water sources in Texas is shown below in Figure 1.

Figure 1. Active Public Water System Sources in Texas

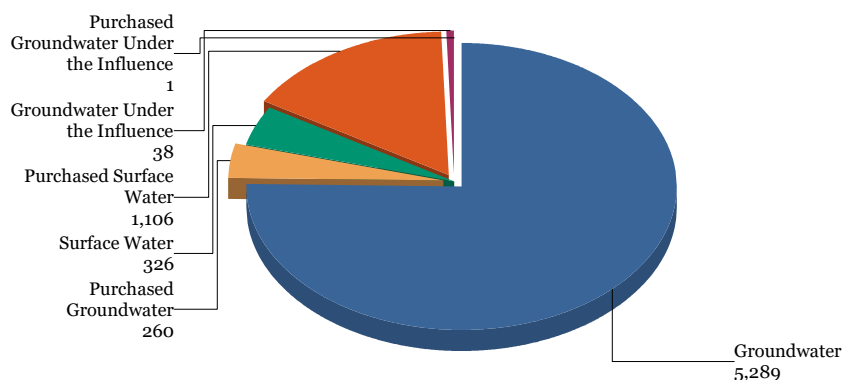


Primary source types for PWSs in Texas include the following

- Groundwater - wells that withdraw water from aquifers
- Purchased Groundwater - water purchased from another PWS where the source is one or more wells
- Surface water - intakes that withdraw water from creeks, rivers, streams, lakes, and reservoirs
- Purchased surface water - water is purchased from another PWS where the source is one or more intakes
- Groundwater Under the Influence of Surface Water - wells that withdraw water from aquifers where surface water may be present
- Purchased Groundwater Under the Influence of Surface Water - water is purchased from another PWS where the source is one or more aquifers where surface water may be present

The number of PWSs by primary source type are included in Figure 2.

Figure 2. Number of PWS by Source Type



Public Water System Size

The EPA defines water system size based on the following population classifications:

- Very small systems - serve 25 to 500 people
- Small systems - serve 501 to 3,300 people
- Medium systems - serve 3,301 to 10,000 people
- Large systems - serve 10,001 to 100,000 people
- Very Large systems - serve more than 100,000 people

The population served by public water systems in Texas is shown in Table 1 below.

Table 1. Texas Public Water System Population by EPA Classification

Population Served	EPA Classification	Number PWS	Total Population Served
25 - 500	Very Small	4,224	673,406
501 - 3,300	Small	1,758	2,566,102
3,301 - 10,000	Medium	688	3,912,111
10,001 - 100,000	Large	312	8,023,712
Over 100,000	Very Large	38	13,089,656
Total		7,020	28,264,987

Alternative Water Sources

With Texas' population expected to reach almost 46 million by the year 2060 as well as the lasting effects of the drought, Texans have had to plan far in advance to sustain their communities, businesses, industries, and environment. Because of these challenges, PWSs have had to begin to utilize less conventional sources of water.

Desalination: In the search to find alternate water sources desalination continues to gain attention as some communities seek to treat saline groundwater, or brackish water, to make it potable. Brackish water sources often need treatment to be used as drinking water, and desalination is the most typical treatment utilized by water systems. For this reason, the agency initiated rulemaking to streamline construction approval for PWSs asking to conduct brackish-water desalination.

In July 2015, after extensive input from the regulated community and interested stakeholders, the rules for desalination using either reverse osmosis (RO) or nanofiltration (NF) membranes became effective. In the past, the use of RO membranes or other desalination techniques required either a site-specific pilot test, a pilot test at a site with similar water quality, or full-scale performance data at a site with similar water quality. The streamlined approach in the new rules allows the use of desalination technologies without an exception request, which is required when approving the use of innovative and alternative treatment technologies. To further assist communities with decreased water supplies, the TCEQ offers concurrent reviews of designs and computer models.

Reuse/reclaimed water: As water systems search for new sources of water, some PWSs began to explore strategies not previously considered. One alternative involves not just reclaiming effluent from municipal wastewater treatment plants for non-potable uses such as irrigation and industry, but also additional treatment to remove chemical and microbiological contaminants found in effluent. The TCEQ has engineers and scientists with the expertise to guide PWSs through the process of selecting innovative treatment technologies and receiving approval for these technologies while ensuring the treated water is safe for human consumption. Texas is the first state to have Direct Potable Reuse (DPR).

2018 Compliance Results

Annual compliance information was determined using the State of Texas Safe Drinking Water Information System (SDWIS) State, version 3.33.

Health-Based Standards

In 1974 Congress passed the Safe Drinking Water Act. This law requires EPA to determine the level of contaminants in drinking water at which no adverse health effects are likely to occur. These non-enforceable health goals, based solely on possible health risks and exposure over a lifetime, with an adequate margin of safety, are called maximum contaminant level goals (MCLG). Contaminants are any physical, chemical, biological or radiological substances or matter in water. EPA sets MCLGs based on the best available science to prevent potential health problems.

For most contaminants, EPA sets an enforceable regulation called a maximum contaminant level (MCL) based on the MCLG. MCLs are set as close to the MCLGs as possible, considering cost, benefits and the ability of PWSs to detect and remove contaminants using suitable treatment technologies. When there is no reliable method that is economically and technically feasible to measure a contaminant at particularly low concentrations, a treatment technique is set rather than an MCL. A treatment technique is an enforceable procedure or level of technological performance which PWSs must follow to ensure control of a contaminant. States may set a more stringent MCL or treatment technique level for pathogens and indicators in drinking water than EPA.

Health-based contaminants are those that may pose an acute or long-term risk to human health if they are found in drinking water. These contaminants include: fecal coliform bacteria, *E. coli*, turbidity, nitrate, nitrite, chlorine dioxide inorganic chemicals, organic chemicals, disinfection byproducts, radionuclides and disinfectants.

Total coliforms, fecal coliforms, *E. coli* and turbidity are indicators that inadequately treated water may contain disease-causing organisms. Pathogens include various types for bacteria, viruses, protozoan parasites and other organisms. Indicators are physical, chemical, or other parameters whose presence at a level outside of specified limit may reflect a problem in the treatment process or in the integrity of the distribution system. These pathogens can cause diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, and people with severely compromised immune systems.

Nitrate and nitrite contamination can occur from several sources: the natural decay of organic materials such as leaves and crop residue, use of commercial fertilizers, contamination by human sewage and wastes from farm animals, and the nitrification of ammonia in the treatment and distribution system. Excessive levels of nitrate and nitrite in drinking water can cause serious illness and sometimes death in infants less than six months of age and may also cause adverse health effects in pregnant women through the risk of miscarriage and in people with specific metabolic diseases.

Chlorine dioxide is a chemical added to drinking water for the purposes of microbial disinfection and oxidation of dissolved organic carbon to reduce formation of disinfection byproducts. Some infants, young children and pregnant women who drink water containing chlorine dioxide in excess of the Maximum Residual Disinfection Level (MRDL) could experience nervous system effects.

Inorganic contaminants can leach into drinking water after dissolving from naturally-occurring minerals in the ground, or from runoff from industrial sources or landfills. Lead and copper enter drinking water primarily through plumbing materials. Exposure to lead and copper may cause health problems ranging from stomach problems to brain damage. Lead and copper levels are controlled by treatment techniques and regulated by action level.

Organic contaminants come from petroleum solvents, paint removers, degreasers, cleaning fluids, pesticides, gasoline, electrical transformers, manufacturing processes, chemical production, byproducts from disinfection, the production of plastics, agricultural runoff, improper waste disposal, and improper handling and storage techniques. These contaminants may damage organs such as the heart, liver, and kidneys, damage the central nervous and immune systems, and cause cancer.

Disinfection byproducts are organic chemicals that form as a result of adding disinfectant to water containing organic matter. Trihalomethane, haloacetic acids, chlorite and bromate are byproducts of disinfection. These contaminants may damage organs such as the kidneys and liver, damage the cardiovascular system and central nervous system, and are sometimes associated with high blood pressure and cancer.

Radionuclides include radium and uranium, which occur naturally in some ground water due to geological formations, particularly in deeper aquifers. Radionuclide contaminants may cause cancer.

Disinfectants are chemicals added to drinking water during treatment to provide disinfection at the treatment plant and in the distribution system. If disinfectants are not dosed and managed appropriately, they may cause health effects from chlorine and chloramines which can include irritating effects to the eyes and nose, stomach discomfort, and (chloramine only) anemia. Chlorine dioxide can cause nervous system effects and anemia.

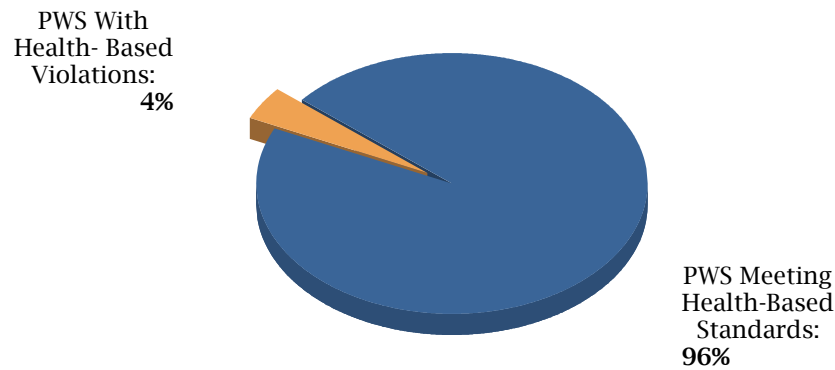
To find more information regarding drinking water contaminants regulated by the EPA, and their potential health effects, go to the following website: <http://water.epa.gov/dwstandardsregulations/>

Health-Based Standards Results

For 2018, health-based standards were met by 96% of the 7,020 PWS in the State of Texas. The percentage of total population served by PWS meeting health-based standards was 99%.

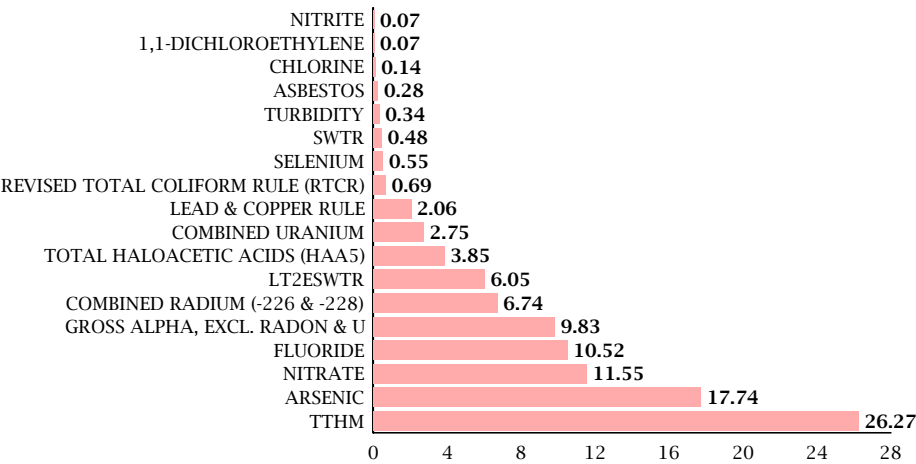
Figure 3 below shows the percentage of PWSs which are in compliance with health-based standards.

Figure 3. Percent of PWS in Compliance with Health-Based Standards



Maximum Contaminant Level and Treatment Technique Rule violations, as a percentage of total health-based violations, are shown in Figure 4 below.

Figure 4. Percent of Health-Based Standards Violations, by Contaminant/Rule



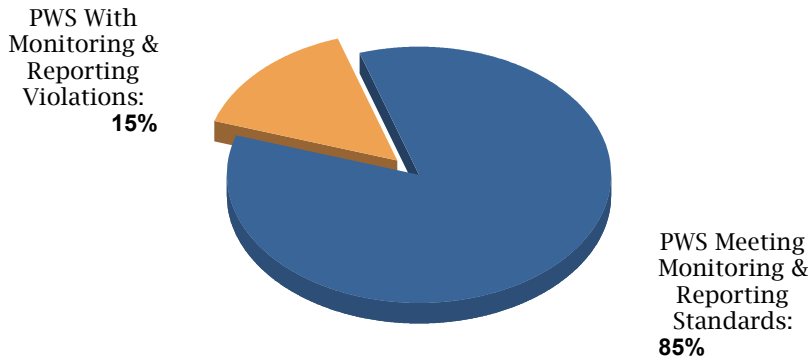
Significant Monitoring and Reporting Regulations

Monitoring and Reporting regulations provide a mechanism to ensure that Public Water Systems (PWS) evaluate contaminants in order to meet health-based standards. When a system does not monitor for contaminants in accordance with associated compliance periods, consumers and primacy agencies do not know whether the water being served is meeting health-based standards.

For 2018, 85% of the 7,020 PWSs in Texas were in compliance with major monitoring and reporting regulations. The total population served by PWSs meeting monitoring and reporting regulations is 90%.

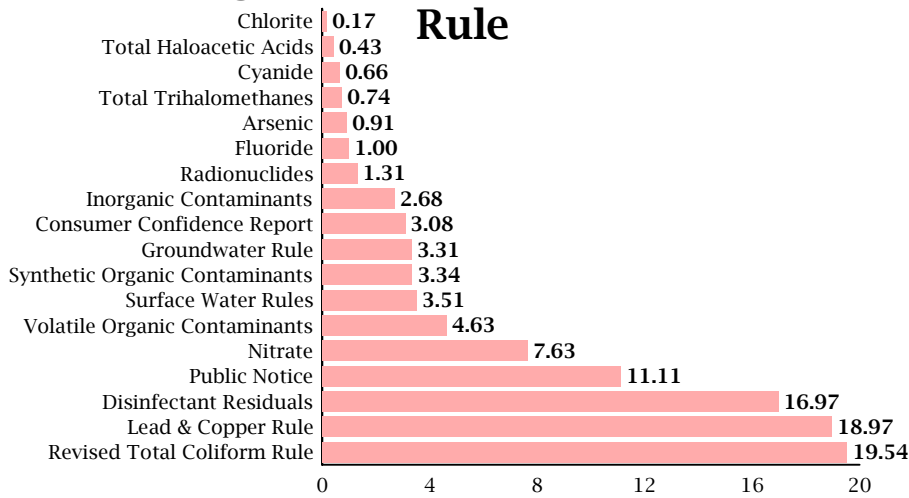
Figure 5 below shows the percent of PWSs which are in compliance with monitoring and reporting regulations.

Figure 5. Percent of PWS in Compliance with Monitoring & Reporting Regulations



Of the 15% of PWSs with monitoring and reporting violations, the percent by contaminant and rule are shown in Figure 6 below.

Figure 6. Percent of Monitoring & Reporting Violations by Contaminant or Rule



Violations by Rule and Type

A summary of the number of violations by rule and type is shown below in Table 2. Violations included here are only those that did not return to compliance in 2018. See Appendix A for the total number of violations and those violations that returned to compliance.

Table 2. PWS Violations by Rule & Type

Rule	Violation Type Code	Violation Name	Violations Not RTC'd	Number of PWS in Violation
CONSUMER CONFIDENCE RULE	71	CCR REPORT	160	126
DISINFECTION BY-PRODUCTS	35	FAILURE SUBMIT OEL REPORT FOR HAA5	1	1
DISINFECTION BY-PRODUCTS	35	FAILURE SUBMIT OEL REPORT FOR TTHM	12	10
DISINFECTION BY-PRODUCTS	02	MCL, LRAA	106	37
DISINFECTION BY-PRODUCTS	27	MONITORING, (DBP) (CHL. DIOXIDE)	1	1
DISINFECTION BY-PRODUCTS	27	MONITORING, ROUTINE (DBP), MAJOR	678	330
DISINFECTION BY-PRODUCTS	11	MRDL (CHLORINE/CHLORAMINE)	2	1
GROUNDWATER RULE	48	FAILURE TO ADDRESS CONTAMINATION (GWR)	1	1
GROUNDWATER RULE	34	MONITOR GWR TRIGGERED/ADDITIONAL, MAJOR	115	101
GROUNDWATER RULE	34	MONITOR GWR TRIGGERED/ADDITIONAL, MINOR	3	3
INORGANIC COMPOUNDS GROUP M/R	03	MONITORING, ROUTINE MAJOR	90	46
INORGANIC COMPOUNDS INDIVIDUAL M/R	03	MONITORING, ROUTINE MAJOR	483	312
INORGANIC COMPOUNDS MCL	02	MCL, AVERAGE	423	83
INORGANIC COMPOUNDS MCL	01	MCL, SINGLE SAMPLE	169	54
LEAD AND COPPER RULE	52	FOLLOW-UP OR ROUTINE TAP M/R (LCR)	328	254
LEAD AND COPPER RULE	51	INITIAL TAP SAMPLING (LCR)	22	22
LEAD AND COPPER RULE	56	INITIAL/FOLLOW-UP/ROUTINE SOWT M/R (LCR)	18	16
LEAD AND COPPER RULE	66	LEAD CONSUMER NOTICE (LCR)	223	207
LEAD AND COPPER RULE	57	OCCT/SOWT RECOMMENDATION/STUDY (LCR)	54	31
LEAD AND COPPER RULE	65	PUBLIC EDUCATION (LCR)	5	5
LEAD AND COPPER RULE	53	WATER QUALITY PARAMETER M/R (LCR)	416	148
PUBLIC NOTICE	75	PUBLIC NOTICE RULE LINKED TO VIOLATION	707	155
RADIONUCLIDES	02	MCL, AVERAGE	281	52
RADIONUCLIDES	03	MONITORING, ROUTINE MAJOR	119	77
REVISED TOTAL COLIFORM RULE	2A	LEVEL 1 ASSESS, MULTIPLE TC POS (RTCR)	6	6
REVISED TOTAL COLIFORM RULE	2A	LEVEL 1 ASSESS, TC POS RT NO RPT (RTCR)	5	5

Rule	Violation Type Code	Violation Name	Violations Not RTC'd	Number of PWS in Violation
REVISED TOTAL COLIFORM RULE	2B	LEVEL 2 ASSESSMENT, 2ND LEVEL 1(RTCR)	4	3
REVISED TOTAL COLIFORM RULE	3A	MONITORING, ROUTINE, MAJOR (RTCR)	678	207
REVISED TOTAL COLIFORM RULE	3A	MONITORING, ROUTINE, MINOR (RTCR)	6	6
REVISED TOTAL COLIFORM RULE	2D	STARTUP PROCEDURES TT (RTCR)	5	4
SURFACE WATER TREATMENT RULES	41	FAILURE MAINTAIN MICROBIAL TREAT.(LT2)	73	9
SURFACE WATER TREATMENT RULES	42	FAILURE TO FILTER (SWTR)	4	2
SURFACE WATER TREATMENT RULES	42	FAILURE TO PROVIDE LT2 TREATMENT	2	1
SURFACE WATER TREATMENT RULES	CT	LOW CT GREATER THAN 4 HOURS	2	2
SURFACE WATER TREATMENT RULES	38	MONITORING, ROUTINE (IESWTR/LT1), MAJOR	108	21
SURFACE WATER TREATMENT RULES	44	MONTHLY COMB FLTR EFFLUENT (IESWTR/LT1)	3	3
SURFACE WATER TREATMENT RULES	43	SINGLE COMB FLTR EFFLUENT (IESWTR/LT1)	2	1
SYNTHETIC ORGANIC COMPOUNDS M/R	03	MONITORING, ROUTINE MAJOR	227	74
VOLATILE ORGANIC COMPOUNDS M/R	03	MONITORING, ROUTINE MAJOR	165	139
VOLATILE ORGANIC COMPOUNDS MCL	02	MCL, AVERAGE	1	1

Rule Abbreviations:

CCR	Consumer Confidence Report
CHEM	Chemical (Inorganics and Organics)
DBP	Disinfection By-Products
GWR	Groundwater Rule
HAA5	Haloacetic Acids
LCR	Lead and Copper Rule
PN	Public Notice Rule
RAD	Radionuclides
SWTR	Surface Water Treatment Rules
TCR	Total Coliform Rule
RTCR	Revised Total Coliform Rule
TTHM	Total Trihalomethanes

MCL/MRDL, Treatment Technique, and Monitoring/Reporting Violations

The following pages include summary tables for MCL/MRDL, Treatment Techniques, and Monitoring/Reporting. Violations included in these tables are only those that did not return to compliance in 2018.

Synthetic Organic Compounds

Contaminant	MCL/MRDL	MCLs/MRDLs		Significant Monitoring/Reporting	
		Violations	PWS in Violation	Violations	PWS in Violation
1,2-DIBROMO-3-CHLOROPROPANE	0.0002MG/L	0	0	56	43
ETHYLENE DIBROMIDE	0.00005MG/L	0	0	56	43
2,4,5-TP	0.05MG/L	0	0	54	41
2,4-D	0.07MG/L	0	0	54	41
DALAPON	0.2MG/L	0	0	54	41
DINOSEB	0.007MG/L	0	0	54	41
PICLORAM	0.5MG/L	0	0	54	41
ALDICARB	0.003MG/L	0	0	52	40
ALDICARB SULFONE	0.002MG/L	0	0	52	40
ALDICARB SULFOXIDE	0.004MG/L	0	0	52	40
CARBOFURAN	0.04MG/L	0	0	52	40
OXAMYL	0.2MG/L	0	0	52	40
ALACHLOR	0.002MG/L	0	0	65	50
ATRAZINE	0.003MG/L	0	0	65	50
BENZO(A)PYRENE	0.0002MG/L	0	0	65	50
BHC-GAMMA	0.0002MG/L	0	0	65	50
CHLORDANE	0.002MG/L	0	0	65	50
DI(2-ETHYLHEXYL) ADIPATE	0.4MG/L	0	0	65	50
DI(2-ETHYLHEXYL) PHTHALATE	0.006MG/L	0	0	65	50
ENDRIN	0.002MG/L	0	0	65	50
HEPTACHLOR	0.0004MG/L	0	0	65	50
HEPTACHLOR EPOXIDE	0.0002MG/L	0	0	65	50
HEXACHLOROBENZENE	0.001MG/L	0	0	65	50
HEXACHLOROCYCLOPENTADIENE	0.05MG/L	0	0	65	50
METHOXYCHLOR	0.04MG/L	0	0	65	50
PENTACHLOROPHENOL	0.001MG/L	0	0	65	50
SIMAZINE	0.004MG/L	0	0	65	50
TOXAPHENE	0.003MG/L	0	0	65	50
Subtotal		0	0	227	74

Volatile Organic Compounds

Contaminant	MCL_MRD	MCLs/MRDs		Significant Monitoring/Reporting	
		Violations	PWS in Violation	Violations	PWS in Violation
1,1,1-TRICHLOROETHANE	0.2MG/L	0	0	165	139
1,1,2-TRICHLOROETHANE	0.005MG/L	0	0	165	139
1,1-DICHLOROETHYLENE	0.007MG/L	1	1	165	139
1,2,4-TRICHLOROBENZENE	0.07MG/L	0	0	165	139
1,2-DICHLOROETHANE	0.005MG/L	0	0	165	139
1,2-DICHLOROPROPANE	0.005MG/L	0	0	165	139
BENZENE	0.005MG/L	0	0	165	139
CARBON TETRACHLORIDE	0.005MG/L	0	0	165	139
CIS-1,2-DICHLOROETHYLENE	0.07MG/L	0	0	165	139
DICHLOROMETHANE	0.005MG/L	0	0	165	139
ETHYLBENZENE	0.7MG/L	0	0	165	139
O-DICHLOROBENZENE	0.6MG/L	0	0	165	139
STYRENE	0.1MG/L	0	0	165	139
TETRACHLOROETHYLENE	0.005MG/L	0	0	165	139
TOLUENE	1MG/L	0	0	165	139
TRANS-1,2-DICHLOROETHYLENE	0.1MG/L	0	0	165	139
TRICHLOROETHYLENE	0.005MG/L	0	0	165	139
VINYL CHLORIDE	0.002MG/L	0	0	165	139
XYLENES, TOTAL	10MG/L	0	0	165	139
Subtotal		1	1	165	139

Inorganic Compounds -- Individual Violations

Contaminant	MCL/MRDL	MCLs/MRDLs		Significant Monitoring/Reporting	
		Violations	PWS in Violation	Violations	PWS in Violation
ALUMINUM	0.2MG/L	0	0	0	0
ANTIMONY, TOTAL	0.006MG/L	0	0	0	0
ARSENIC	0.01MG/L	258	62	18	6
ASBESTOS	7MFL	4	1	116	113
BARIUM	2MG/L	0	0	0	0
BERYLLIUM, TOTAL	0.004MG/L	0	0	0	0
CADMIUM	0.005MG/L	0	0	0	0
CHROMIUM	0.1MG/L	0	0	0	0
CYANIDE	0.2MG/L	0	0	24	17
FLUORIDE	4MG/L	153	37	22	5
IRON	0.3MG/L	0	0	0	0
MANGANESE	0.5MG/L	0	0	0	0
MERCURY	0.002MG/L	0	0	0	0
NITRATE	10MG/L	168	53	267	205
NITRITE	1MG/L	1	1	32	24
SELENIUM	0.05MG/L	8	2	4	1
SILVER	0.1MG/L	0	0	0	0
THALLIUM, TOTAL	0.002MG/L	0	0	0	0
ZINC	5MG/L	0	0	0	0
Subtotal		592	129	483	312

Inorganic Compounds -- Group Violations

Contaminant	Significant Monitoring/Reporting	
	Violations	PWS In Violation
Metals		
ALUMINUM	44	33
ANTIMONY, TOTAL	44	33
ARSENIC	44	33
BARIUM	44	33
BERYLLIUM, TOTAL	44	33
CADMIUM	44	33
CHROMIUM	44	33
IRON	44	33
MANGANESE	44	33
MERCURY	44	33
SELENIUM	44	33
SILVER	44	33
THALLIUM, TOTAL	44	33
ZINC	44	33
Minerals		
CHLORIDE	46	38
FLUORIDE	46	38
SULFATE	46	38
TDS	46	38
Subtotal	90	38

Radionuclides

Contaminant	MCL_MRDL	MCLs/MRDLs		Significant Monitoring/Reporting	
		Violations	PWS in Violation	Violations	PWS in Violation
38-STRONTIUM-90	4 millirems per year			4	1
TRITIUM	4 millirems per year			4	1
53-IODINE-131	4 millirems per year			4	1
GROSS ALPHA, EXCL. RADON & U	5pCi/L	143	41	115	77
COMBINED RADIUM (-226 & -228)	15pCi/L	98	20	115	77
COMBINED URANIUM	30ug/L	40	11	115	77
Subtotal		281	52	119	77

Revised Total Coliform Rule

Violtaion Type	MCL/MRDL	MCLs/MRDLs		Treatment Techniques		Significant Monitoring/Reporting	
		Violations	PWS in Violation	Violations	PWS in Violation	Violations	PWS in Violation
MONITORING, ROUTINE, MINOR (RTCR)						6	6
MONITORING, ROUTINE, MAJOR (RTCR)						678	207
STARTUP PROCEDURES TT (RTCR)				5	4		
LEVEL 1 ASSESS, TC POS RT NO RPT (RTCR)				5	5		
LEVEL 1 ASSESS, MULTIPLE TC POS (RTCR)				6	6		
LEVEL 2 ASSESSMENT, 2ND LEVEL 1(RTCR)				4	3		
Subtotal				20	15	684	213

Surface Water Treatment Rules

Rule	Treatment Techniques		Significant Monitoring/Reporting	
	Violations	PWS in Violation	Violations	PWS in Violation
LOW CT GREATER THAN 4 HOURS	2	2	0	0
FAILURE MAINTAIN MICROBIAL TREAT.(LT2)	73	9	0	0
FAILURE TO FILTER (SWTR)	4	2	0	0
FAILURE TO PROVIDE LT2 TREATMENT	2	1	0	0
MONTHLY COMB FLTR EFFLUENT (IESWTR/LT1)	3	3	0	0
MONITORING, ROUTINE (IESWTR/LT1), MAJOR	0	0	108	21
SINGLE COMB FLTR EFFLUENT (IESWTR/LT1)	2	1	0	0
Subtotal	86	15	108	21

Disinfectants and Disinfection By-Products Rule (DBP1 & DBP2)

Contaminant	MCL/MRDL	MCLs/MRDLs		Treatment Techniques		Significant Monitoring/Reporting	
		Violations	PWS in Violation	Violations	PWS in Violation	Violations	PWS in Violation
BROMATE	0.010MG/L	0	0	0	0	0	0
CARBON, TOTAL	REMOVAL RATIO	0	0	0	0	36	6
DISINFECTANT RESIDUAL	CHLORINE (FREE) 0.2, CHLORAMINE 0.5, BOTH 0.5 MG/L	2	1	0	0	558	306
CHLORINE DIOXIDE	0.8MG/L	0	0	0	0	1	1
CHLORITE	1.0MG/L	0	0	0	0	6	5
TOTAL HALOACETIC ACIDS (HAA5)	0.060MG/L	56	15	0	0	40	34
TRIHALOMETHANES (TTHM)	.080MG/L	380	91	0	0	51	43
Subtotal		438	94	0	0	692	338

Lead and Copper Rule

Violation Type	Treatment Techniques		Significant Monitoring/Reporting	
	Violations	PWS in Violation	Violations	PWS in Violation
INITIAL TAP SAMPLING (LCR)	0	0	22	22
LEAD CONSUMER NOTICE (LCR)	0	0	223	207
OCCT/SOWT INSTALL DEMONSTRATION (LCR)	0	0	0	0
LEAD SERVICE LINE REPLACEMENT (LCR)	0	0	0	0
PUBLIC EDUCATION (LCR)	5	5	0	0
WQP LEVEL NON-COMPLIANCE (LCR)	0	0	0	0
INITIAL/FOLLOW-UP/ROUTINE SOWT M/R (LCR)	0	0	18	16
FOLLOW-UP OR ROUTINE TAP M/R (LCR)	0	0	328	254
WATER QUALITY PARAMETER M/R (LCR)	0	0	416	148
MPL LEVEL NON-COMPLIANCE (LCR)	0	0	0	0
OCCT/SOWT RECOMMENDATION/STUDY	54	31	0	0
Subtotal	59	35	1,007	558

Groundwater Rule

Violation Type	Significant Monitoring/Reporting	
	Violations	PWS in Violation
MONITOR GWR TRIGGERED/ADDITIONAL, MINOR	3	3
MONITOR GWR TRIGGERED/ADDITIONAL, MAJOR	115	101
FAILURE TO ADDRESS CONTAMINATION (GWR)	1	1
Subtotal	119	105

Consumer Confidence Reports

Rule	Significant Monitoring/Reporting	
	Violations	PWS In Violation
CONSUMER CONFIDENCE RULE	160	126
Subtotal	160	126

Public Notification Rule

Rule	Significant Monitoring/Reporting	
	Violations	PWS in Violation
PUBLIC NOTICE RULE	707	155
Subtotal	707	155

Appendix A. Return To Compliance By Rule

Data included in Table 3 represent all violations starting prior to the end of 2018 and ending after the beginning of 2018. Violations that returned to compliance (RTC) in Table 3 are those violations starting prior to the end of 2018 and ending after the beginning of 2018 and returning to compliance in 2018.

Table 3. Violations Returned to Compliance

Rule	Violation Type Code	Violation Name	All Violations	Resolved Violations
CONSUMER CONFIDENCE RULE	71	CCR REPORT	236	76
DISINFECTION BY-PRODUCTS	35	FAILURE SUBMIT OEL REPORT FOR HAA5	11	10
DISINFECTION BY-PRODUCTS	35	FAILURE SUBMIT OEL REPORT FOR TTHM	55	43
DISINFECTION BY-PRODUCTS	02	MCL, LRAA	141	35
DISINFECTION BY-PRODUCTS	27	MONITORING, (DBP) (CHL. DIOXIDE)	7	6
DISINFECTION BY-PRODUCTS	27	MONITORING, ROUTINE (DBP), MAJOR	1,048	370
DISINFECTION BY-PRODUCTS	11	MRDL (CHLORINE/CHLORAMINE)	2	0
DISINFECTION BY-PRODUCTS	11	MRDL, NON-ACUTE (CHL.DIOXIDE)	1	1
GROUNDWATER RULE	45	FAILURE ADDRESS DEFICIENCY (GWR)	1	1
GROUNDWATER RULE	48	FAILURE TO ADDRESS CONTAMINATION (GWR)	1	0
GROUNDWATER RULE	34	MONITOR GWR TRIGGERED/ADDITIONAL, MAJOR	156	41
GROUNDWATER RULE	34	MONITOR GWR TRIGGERED/ADDITIONAL, MINOR	6	3
INORGANIC COMPOUNDS GROUP M/R	03	MONITORING, ROUTINE MAJOR	90	0
INORGANIC COMPOUNDS INDIVIDUAL M/R	03	MONITORING, ROUTINE MAJOR	487	4
INORGANIC COMPOUNDS MCL	02	MCL, AVERAGE	441	18
INORGANIC COMPOUNDS MCL	01	MCL, SINGLE SAMPLE	176	7
LEAD AND COPPER RULE	52	FOLLOW-UP OR ROUTINE TAP M/R (LCR)	396	68
LEAD AND COPPER RULE	51	INITIAL TAP SAMPLING (LCR)	25	3

Rule	Violation Type Code	Violation Name	All Violations	Resolved Violations
LEAD AND COPPER RULE	56	INITIAL/FOLLOW-UP/ROUTINE SOWT M/R (LCR)	26	8
LEAD AND COPPER RULE	66	LEAD CONSUMER NOTICE (LCR)	709	486
LEAD AND COPPER RULE	57	OCCT/SOWT RECOMMENDATION/STUDY (LCR)	99	45
LEAD AND COPPER RULE	65	PUBLIC EDUCATION (LCR)	15	10
LEAD AND COPPER RULE	53	WATER QUALITY PARAMETER M/R (LCR)	428	12
PUBLIC NOTICE	75	PUBLIC NOTICE RULE LINKED TO VIOLATION	3,566	2,859
RADIONUCLIDES	02	MCL, AVERAGE	293	12
RADIONUCLIDES	03	MONITORING, ROUTINE MAJOR	120	1
REVISED TOTAL COLIFORM RULE	2A	LEVEL 1 ASSESS, MULTIPLE TC POS (RTCR)	27	21
REVISED TOTAL COLIFORM RULE	2A	LEVEL 1 ASSESS, TC POS RT NO RPT (RTCR)	18	13
REVISED TOTAL COLIFORM RULE	2B	LEVEL 2 ASSESSMENT, 2ND LEVEL 1(RTCR)	20	16
REVISED TOTAL COLIFORM RULE	1A	MCL, E. COLI, POS E COLI (RTCR)	17	17
REVISED TOTAL COLIFORM RULE	3A	MONITORING, ROUTINE, MAJOR (RTCR)	1,414	736
REVISED TOTAL COLIFORM RULE	3A	MONITORING, ROUTINE, MINOR (RTCR)	58	52
REVISED TOTAL COLIFORM RULE	2D	STARTUP PROCEDURES TT (RTCR)	6	1
SURFACE WATER TREATMENT RULES	41	FAILURE MAINTAIN MICROBIAL TREAT. (LT2)	85	12
SURFACE WATER TREATMENT RULES	42	FAILURE TO FILTER (SWTR)	6	2
SURFACE WATER TREATMENT RULES	42	FAILURE TO PROVIDE LT2 TREATMENT	3	1
SURFACE WATER TREATMENT RULES	CT	LOW CT GREATER THAN 4 HOURS	8	6
SURFACE WATER TREATMENT RULES	38	MONITORING, ROUTINE (IESWTR/LT1), MAJOR	180	72

Rule	Violation Type Code	Violation Name	All Violations	Resolved Violations
SURFACE WATER TREATMENT RULES	44	MONTHLY COMB FLTR EFFLUENT (IESWTR/LT1)	33	30
SURFACE WATER TREATMENT RULES	43	SINGLE COMB FLTR EFFLUENT (IESWTR/LT1)	17	15
SYNTHETIC ORGANIC COMPOUNDS M/R	03	MONITORING, ROUTINE MAJOR	243	16
VOLATILE ORGANIC COMPOUNDS M/R	03	MONITORING, ROUTINE MAJOR	169	4
VOLATILE ORGANIC COMPOUNDS MCL	02	MCL, AVERAGE	1	0

Obtaining a Copy of the 2018 Public Drinking Water Annual Compliance Report

As required by the Safe Drinking Water Act, the State of Texas has made the 2018 *Public Drinking Water Annual Compliance Report* available to the public. Interested parties can obtain a copy of the 2018 *Annual Public Water Systems Compliance Report* for Texas by accessing the TCEQ website at <http://www.tceq.texas.gov>

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