

**State of Delaware
Public Drinking Water
Annual Compliance
Report and Summary
for 2016**



DELAWARE HEALTH AND SOCIAL SERVICES

Division of Public Health

Section	Page Number
Section 1	
Executive Summary	3
Section 2	
The Office of Drinking Water: An Overview	4
Section 3	
2016 State Summary	5
Section 4	
Summary of 2016 Violations	8
Section 5	
2016 Enforcement Actions	16
Section 6	
2016 Systems out of Compliance	18
Section 7	
Conclusion	27

Executive Summary

The State of Delaware Public Drinking Water Annual Compliance Report and Summary for 2017 details the compliance of all public water systems in Delaware for the 2016 calendar year. This report gives the Environmental Protection Agency (EPA) and the public information on the performance of water systems in Delaware in regards to their ability to provide safe drinking water to the public in accordance to the guidelines set by the Safe Drinking Water Act. Submission of this annual report is a mandatory requirement by the EPA.

This report summarizes the performance and compliance of all public water systems for the 2016 calendar year. It gives the EPA and the public a descriptive overview of all public water systems in Delaware and their compliance status. This report is made available to the public through the DPH, Office of Drinking Water (ODW) website:
<http://www.dhss.delaware.gov/dhss/dph/hsp/pubdw.html>.

There was a drop in the total number of violations in 2016 when compared to 2015. This was partly due to a rule change (the Revised Total Coliform Rule went into effect in January 1, 2016). A total of 27 Level 1 assessments and five Level 2 assessments were performed in 2016. There was a decrease in the number of monitoring and reporting violations under the Lead and Copper Rule and the Consumer Confidence Report Rule. There was a slight increase in the number of systems that had action level exceedances under the Lead and Copper Rule. Overall, the quality of water supplied by public water systems in the state of Delaware was found to meet the requirements under the Safe Drinking Water Act.

The Office of Drinking Water Program: An Overview

In 1974 the U.S. Congress adopted the Safe Drinking Water Act (SDWA). The United States Environmental Protection Agency (EPA) established the Public Water System Supervision (PWSS) program under the authority of the SDWA to regulate the drinking water provided by public water systems. Under the SDWA and the 1986 and 1996 amendments, EPA set national limits on drinking water contaminant levels to ensure safe water for human consumption. These limits are known as maximum contaminant levels (MCLs). The State of Delaware adopted these limits for use in state regulations governing drinking water.

The SDWA allows a state to seek primacy, an EPA approval to administer its own PWSS program. The State of Delaware was granted primacy in April 1978. For Delaware to continue to receive primacy, it must meet certain SDWA requirements, including adopting drinking water regulations that are at least as stringent as the federal regulations. The State must also demonstrate that it can enforce the program requirements.

The SDWA, EPA regulations, and state regulations require that all public water systems (PWS) monitor the drinking water for contaminants. Generally, the larger the population served by the water system, the more frequently the monitoring must occur. If a PWS violates an MCL, or fails to conduct monitoring, the system must notify the public of the violation.

Due to Delaware's small size, the Division of Public Health's Office of Drinking Water (ODW) traditionally conducts most monitoring for public water systems. A few of the larger water systems conduct their own monitoring and report the results to ODW. Due to the increase in monitoring requirements in recent years, ODW requires community water systems serving more than 1,000 people to collect their own total coliform, nitrate, and monthly fluoride compliance samples. Such community water systems must submit those samples to the Delaware Public Health Laboratory or a certified private laboratory for analysis, and submit the results to ODW. All community water systems (cities, towns, mobile home parks, etc.) and the non-transient, non-community water systems (schools, daycares, factories, etc.) are required to collect samples for compliance with national lead and copper rule standards. The samples are analyzed by a certified laboratory and the results are submitted to ODW. Transient, non-community water systems (restaurants, parks, rest stops, etc.) are not required to conduct lead and copper monitoring.

The 1996 amendments to the SDWA included a requirement for states to prepare an annual compliance report in accordance with Section 141.4(c)(3)(A)(i) and distribute the report as specified in Section 141.4(c)(3)(A)(ii). This report provides an annual representation of the number of violations in these categories: MCLs, treatment techniques, and significant monitoring violations. Delaware does not permit variances and exemptions; therefore, it does not report these categories.

The 2016 Annual Compliance Report and Summary (ACR) covers the period of January 1 – December 31, 2016. ODW staff generated the data in this report. Violation information comes from the Safe Drinking Water Information System/State version and the federal operational data system, and includes information reported quarterly to the EPA.

State Public Drinking Water Summary, 2016

This document provides an overview of the state's public drinking water system for 2016. Its contents range from general information to violations by contaminant and by water system. For additional information or clarification, contact the Division of Public Health (DPH), Office of Drinking Water at 302-741-8630.

General Information

Population of Delaware	954,937 ¹
Percent served by individual wells	23.3
Percent served by public water supplies	76.7
Year primacy granted to state by EPA	1978

Total land area of Delaware	1,356,186 acres ²	
Forest/Forested Wetlands	370,430 acres	27%
Agriculture	500,159 acres	37%
Developed	278,804 acres	21%
Wetland/Water/Waterways	206,793 acres	15%

¹ Source: Delaware Population Consortium, 2015

² Source: Delaware Office of State Planning Coordination, 2015

Public Water Systems	
Residents served by public water systems¹	732,702
Residents served by surface water systems	241,736
Residents served by ground water systems	490,966
Number of public water systems	495
Community systems	218
Non-transient systems	88
Transient systems	189
Number using surface water	3
Number using ground water	492

Delaware's Drinking Water
Major Sources of Surface Water
Brandywine River Basin
Christina River Basin
Red Clay/White Clay Creeks
Major Sources of Ground Water
Columbia Aquifer
Cheswold Aquifer
Piney Point Aquifer
Number of gallons of public water used in Delaware each day: 101 mgd ²

¹ Source: Safe Drinking Water Information System/State Version (SDWIS/State), 2016.

² Source: Delaware Department of Natural Resources and Environmental Control, 2016.

ODW provides many services to consumers and public water supply systems. Funding comes from both state and federal monies allotted to Delaware's public drinking water program. ODW and the Delaware Public Health Laboratory (DPHL) use these funds to provide services for the drinking water program, including sample collection and analysis, technical assistance, and operator certification.

To ensure that Delaware's drinking water meets or exceeds SDWA requirements, ODW reviews and approves plans for new or existing water treatment systems and/or new or upgraded distribution systems. ODW staff also inspects water systems, provides technical assistance, responds to and handles emergencies, makes compliance determinations based on monitoring results, and takes enforcement actions when necessary. ODW provides training to water system

operators and owners regarding system operation and compliance with rules and regulations. Additionally, ODW contracts with the Environmental Training Center at Delaware Technical Community College (DTCC) and the Delaware Rural Water Association to provide training and technical assistance to water system operators.

Beginning in January of 2006, DPH began requiring anyone collecting compliance samples or conducting daily monitoring of a public water system to be either a licensed operator or certified as an approved sampler/tester. This requirement helps to ensure the integrity of the sampling.

The DPHL performs water analyses for water quality parameters as outlined in the SDWA. ODW also contracts with private laboratories to analyze some regulated parameters.

Operations	
Inspections	230
Plan Reviews	211

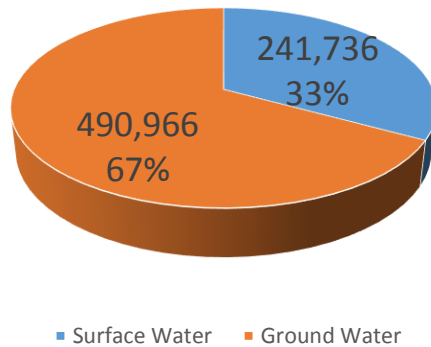
Budget Information (PWSS Grant)	
Total Budget	\$1,025,738
Federal Budget	\$549,000
State Budget	\$476,738
Number of Staff Authorized	15.75

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

Operator Certification	
	Number
Certified Operators	425
Approved Sampler/Testers	336

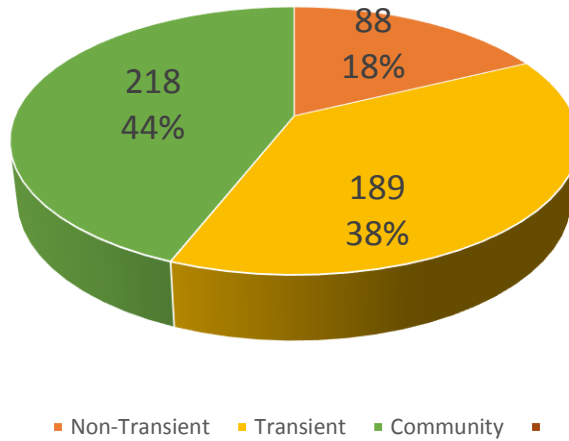
Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

Figure 1: Population Served by Surface Water and Groundwater Systems, 2016



Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

Figure 2: Types of Public Water Systems, 2016



Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

Table 1: Summary of Violations, 2016

	MCL (mg/L) ¹	MCLs		Treatment Techniques		Significant Monitoring/ Reporting	
		Violations	Systems with Violations	Violations	Systems with Violations	Violations	Systems with Violations
Organic Contaminants							
1,1,1-Trichloroethane	0.2	0	0	N/A	N/A	0	0
1,1,2-Trichloroethane	.005	0	0	N/A	N/A	0	0
1,1-Dichloroethylene	0.007	0	0	N/A	N/A	0	0
1,2,4- Trichlorobenzene	.07	0	0	N/A	N/A	0	0
1,2-Dibromo-3- chloropropane (DBCP)	0.0002	0	0	N/A	N/A	0	0
1,2-Dichloroethane	0.005	0	0	N/A	N/A	0	0
1,2-Dichloropropane	0.005	0	0	N/A	N/A	0	0
2,3,7,8-TCDD (Dioxin)	3x10 ⁻⁸	0	0	N/A	N/A	0	0
2,4,5-TP	0.05	0	0	N/A	N/A	0	0
2,4-D	0.07	0	0	N/A	N/A	0	0
Acrylamide	N/A	N/A	N/A	0	0	N/A	N/A
Alachlor	0.002	0	0	N/A	N/A	0	0
Atrazine	0.003	0	0	N/A	N/A	0	0
Benzene	0.005	0	0	N/A	N/A	0	0
Benzo[a]pyrene	0.0002	0	0	N/A	N/A	0	0
Carbofuran	0.04	0	0	N/A	N/A	0	0
Carbon tetrachloride	0.005	0	0	N/A	N/A	0	0
Chlordane	0.002	0	0	N/A	N/A	0	0
cis-1,2- Dichloroethylene	0.07	0	0	N/A	N/A	0	0
Dalapon	0.2	0	0	N/A	N/A	0	0
Di(2-ethylhexyl) adipate	0.4	0	0	N/A	N/A	0	0
Di(2- ethylhexyl)phthalate	0.006	0	0	N/A	N/A	0	0

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, Dec.31, 2016.

¹ Values are in milligrams per liter (mg/L), unless otherwise specified.

Table 1: Summary of Violations, 2016
(continued)

	MCL (mg/L) ¹	MCLs		Treatment Techniques		Significant Monitoring/ Reporting	
		Violations	Systems with Violations	Violations	Systems with Violations	Violations	Systems with Violations
Dichloromethane	0.005	0	0	N/A	N/A	0	0
Dinoseb	0.007	0	0	N/A	N/A	0	0
Diquat	0.02	0	0	N/A	N/A	0	0
Endothall	0.1	0	0	N/A	N/A	0	0
Endrin	0.002	0	0	N/A	N/A	0	0
Epichlorohydrin	N/A	N/A	N/A	0	0	N/A	N/A
Ethylbenzene	0.7	0	0	N/A	N/A	0	0
Ethylene dibromide	0.00005	0	0	N/A	N/A	0	0
Glyphosate	0.7	0	0	N/A	N/A	0	0
Heptachlor	0.0004	0	0	N/A	N/A	0	0
Heptachlor epoxide	0.0002	0	0	N/A	N/A	0	0
Hexachlorobenzene	0.001	0	0	N/A	N/A	0	0
Hexachlorocyclopent adiene	0.05	0	0	N/A	N/A	0	0
Lindane	0.0002	0	0	N/A	N/A	0	0
Methoxychlor	0.04	0	0	N/A	N/A	0	0
Methyl <i>tert</i> Butyl Ether (MTBE)	0.01	0	0	N/A	N/A	0	0
Monochlorobenzene	0.1	0	0	N/A	N/A	0	0
<i>o</i> -Dichlorobenzene	0.6	0	0	N/A	N/A	0	0
Oxamyl (Vydate)	0.2	0	0	N/A	N/A	0	0
<i>para</i> - Dichlorobenzene	0.075	0	0	N/A	N/A	0	0
Pentachlorophenol	0.001	0	0	N/A	N/A	0	0
Picloram	0.5	0	0	N/A	N/A	0	0
Simazine	0.004	0	0	N/A	N/A	0	0
Styrene	0.1	0	0	N/A	N/A	0	0
Tetrachloroethylene	0.005	0	0	N/A	N/A	0	0
Toluene	1	0	0	N/A	N/A	0	0
Total polychlorinated biphenyls (PCBs)	0.0005	0	0	N/A	N/A	0	0

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, Dec.31, 2016.

¹ Values are in milligrams per liter (mg/L), unless otherwise specified.

Table 1: Summary of Violations, 2016 *(continued)*

	MCL (mg/L) ¹	MCLs		Treatment Techniques		Significant Monitoring/ Reporting	
		Violations	Systems with Violations	Violations	Systems with Violations	Violations	Systems with Violations
Toxaphene	0.003	0	0	N/A	N/A	0	0
trans-1,2-Dichloroethylene	0.1	0	0	N/A	N/A	0	0
Trichloroethylene	0.005	0	0	N/A	N/A	0	0
Vinyl chloride	0.002	0	0	N/A	N/A	0	0
Xylenes (total)	10	0	0	N/A	N/A	0	0
Subtotal		0	0	N/A	N/A	0	0
Disinfection Byproducts							
Total trihalomethanes	0.08	0	0	N/A	N/A	0	0
Haloacetic Acid 5	0.06	0	0	N/A	N/A	0	0
Maximum Residual Disinfection Level	4.0	0	0	N/A	N/A	0	0
Subtotal		0	0	N/A	N/A	0	0
Inorganic Contaminants							
Antimony	0.006	0	0	N/A	N/A	0	0
Arsenic	0.05	0	0	N/A	N/A	0	0
Asbestos	7 million fibers/L, with fiber length >10 microns	0	0	N/A	N/A	0	0
Barium	2	0	0	N/A	N/A	0	0
Beryllium	0.004	0	0	N/A	N/A	0	0
Cadmium	0.005	0	0	N/A	N/A	0	0
Chromium	0.1	0	0	N/A	N/A	0	0
Cyanide (as free cyanide)	0.2	0	0	N/A	N/A	0	0

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, Dec.31, 2016.

¹ Values are in milligrams per liter (mg/L), unless otherwise specified.

Table 1: Summary of Violations, 2016 *(continued)*

	MCL (mg/L) ¹	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Violations	Systems with Violations	Violations	Systems with Violations	Violations	Systems with Violations
Fluoride	2.0	0	0	N/A	N/A	0	0
Mercury	0.002	0	0	N/A	N/A	0	0
Nitrate	10 (as Nitrogen)	12	6	N/A	N/A	0	0
Nitrite	1 (as Nitrogen)	0	0	N/A	N/A	0	0
Selenium	0.05	0	0	N/A	N/A	0	0
Thallium	0.002	0	0	N/A	N/A	0	0
Total nitrate and nitrite	10 (as Nitrogen)	0	0	N/A	N/A	0	0
Subtotal		12	6	N/A	N/A	0	0
Radionuclide MCLs							
Gross alpha	15 pCi/l	0	0	N/A	N/A	0	0
Radium-226 and radium-228	5 pCi/l	0	0	N/A	N/A	0	0
Gross beta	4 mrem/yr	0	0	N/A	N/A	0	0
Subtotal		0	0	N/A	N/A	0	0
Revised Total Coliform Rule							
Acute MCL violation	Presence with <i>E. coli</i>	3	3	N/A	N/A	0	0
Level 1 Assessment	Presence	32	29	N/A	N/A	0	0
Level 2 Assessment	Presence w/ <i>E. coli</i>	2	2	N/A	N/A	0	0
Sanitary survey	N/A	N/A	N/A	N/A	N/A	0	0
Subtotal		37	34	N/A	N/A	0	0

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, Dec.31, 2016.

¹ Values are in milligrams per liter (mg/L), unless otherwise specified.

Table 1: Summary of Violations, 2016 *(continued)*

	MCL (mg/L) ¹	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Violations	Systems with Violations	Violations	Systems with Violations	Violations	Systems with Violations
Surface Water Treatment Rule							
Filtered systems	N/A	N/A	N/A	0	0	N/A	N/A
Monitoring, routine/repeat	N/A	N/A	N/A	N/A	N/A	0	0
Treatment techniques	N/A	N/A	N/A	0	0	N/A	N/A
Turbidity	N/A	N/A	N/A	N/A	N/A	0	0
Monitoring, routine/repeat	N/A	N/A	N/A	N/A	N/A	0	0
Failure to filter	N/A	N/A	N/A	0	0	N/A	N/A
Subtotal	N/A	N/A	N/A	0	0	0	0
Lead and Copper Rule							
Lead and Copper Rule	Action Level (mg/L)	Exceedance	Systems with Exceedance	Violations	Systems with violations	Violations	Systems with Violations
Initial lead and copper tap M/R	N/A	0	0	N/A	N/A	17	17
Follow-up or routine lead and copper tap M/R	N/A	0	0	N/A	N/A	0	0
Treatment installation	N/A	0	0	0	0	N/A	N/A
Public education	N/A	N/A	N/A	0	0	N/A	N/A
Subtotal	N/A	0	0	0	0	17	17
Public Notification		Violations		N/A	Systems with Violations		
Consumer Confidence Reports Violations		29		N/A	29		
Public Notification		0		N/A	0		
Ground Water Rule		0		N/A	0		
Subtotal		29		N/A	29		

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, Dec.31, 2016.

¹ Values are in milligrams per liter (mg/L), unless otherwise specified.

Definitions for Summary of 2016 Violations Table

Filtered Systems: Surface water systems that have installed filtration treatment [40 CFR 141, Subpart H].

Inorganic Contaminants (IOC): Non-carbon-based compounds such as metals, nitrates, and asbestos. These contaminants are naturally occurring in some water, but can get into water through farming, chemical manufacturing, and other human activities. EPA has established MCLs for 15 inorganic contaminants [40 CFR 141.62].

Lead and Copper Rule: This rule established national limits on lead and copper in drinking water [40 CFR 141.80-91]. Lead and copper corrosion pose various health risks when ingested at any level, and can enter drinking water from household pipes and plumbing fixtures. States report violations of the lead and copper rule in the following five categories:

1. *Initial lead and copper tap monitoring/reporting:* A violation in which a system did not meet initial lead and copper testing requirements, or failed to report the results of those tests to the state.
2. *Follow-up or routine lead and copper tap monitoring/reporting:* A violation in which a system did not meet follow-up or routine lead and copper tap testing requirements, or failed to report the results.
3. *Treatment installation:* Violations for a failure to install an optimal corrosion control treatment system or source water treatment system that would reduce lead and copper levels in water at the tap.
4. *Lead service line replacement:* A violation for a system's failure to replace lead service lines on the schedule required by the regulation.
5. *Public education:* A violation in which a system did not provide required public education about reducing or avoiding lead intake from water.

Maximum Contaminant Level (MCL): The highest amount of a contaminant that EPA allows in drinking water. MCLs ensure that drinking water does not pose either a short-term or long-term health risk. MCLs are defined in milligrams per liter (mg/L; 1 mg/L = 1 part per million) unless otherwise specified.

Monitoring: The EPA specifies which water testing methods water systems must use, and sets schedules for the frequency of testing. A water system that does not follow EPA's schedule or methodology is in violation [40 CFR 141].

States must report monitoring violations that are significant as determined by the EPA administrator in consultation with the states. For purposes of this report, significant monitoring violations are major violations and they occur when compliance samples are not taken or when results are not reported during a compliance period. A major monitoring violation for the surface water treatment rule occurs when at least 90 percent of the required compliance samples are not taken or the results are not reported during the compliance period. Further enforcement actions, include administrative orders and penalties, may be taken against the public water system for continued non-compliance. (See Enforcement Actions)

Definitions for Summary of 2016 Violations Table *(cont.)*

Organic Contaminants: Carbon-based compounds, such as industrial solvents and pesticides. These contaminants generally get into water through runoff from crop land or discharge from factories. EPA has set legal limits on 54 organic contaminants that are to be reported [40 CFR 141.61].

Public Notification: When a system issues a public notice and notifies the Division of Public Health that the notice was delivered.

Radionuclides: Radioactive particles which can occur naturally in water or result from human activity. EPA has set legal limits on five types of radionuclides: radium-226, radium-228, gross alpha, beta particle/photon radioactivity, and uranium [\[40 CFR 141\]](#). Violations for these contaminants are to be reported using the following four categories:

1. *Gross alpha:* A violation for alpha radiation above MCL of 15 picocuries/liter. Gross alpha includes radium-226 but excludes radon and uranium.
2. *Combined radium-226 and radium-228:* A violation for combined radiation from these two isotopes above MCL of 5 pCi/L.
3. *Gross beta:* A violation for beta particle and photon radioactivity from man-made radionuclides above 4 millirem/year.
4. *Uranium:* A violation for uranium is above 30 micrograms/liter ($\mu\text{g/L}$; 1 $\mu\text{g/L}$ = 1 part per billion)

Reporting Interval: The reporting interval for violations to be included in this Public Water System Annual Compliance Report is from January 1, 2016 through December 31, 2016.

Surface Water Treatment Rule: Establishes criteria under which water systems supplied by surface water sources, or ground water sources under the direct influence of surface water, must filter and disinfect their water [40 CFR 141, Subpart H]. Violations of the Surface Water Treatment Rule are to be reported for the following four categories:

1. *Monitoring, routine/repeat (for filtered systems):* A violation for a system's failure to carry out required tests, or to report the results of those tests.
2. *Treatment techniques (for filtered systems):* A violation for a system's failure to properly treat its water.
3. *Monitoring, routine/repeat (for unfiltered systems):* A violation for a system's failure to carry out required water tests, or to report the results of those tests.
4. *Failure to filter (for unfiltered systems):* A violation for a system's failure to properly treat its water. EPA will supply data for this violation code to the states.

Definitions for Summary of 2016 Violations Table *(cont.)*

Revised Total Coliform Rule (TCR): Establishes regulations for microbiological contaminants in drinking water. These contaminants can cause short-term health problems. If no samples are collected during the one-month compliance period, a significant monitoring violation occurs. States are to report three categories of violations and 2 levels of assessments:

1. *Acute MCL violation:* A violation where the system found fecal coliform or *E. coli*, potentially harmful bacteria, in its water, thereby violating the rule.
2. *Major routine and follow-up monitoring:* A violation where a system did not perform any monitoring.
3. *Sanitary Survey:* A major monitoring violation if a system fails to collect five routine monthly samples if sanitary survey is not performed.
4. *Level 1 Assessment:* Is performed on systems that found total coliform in samples of its water at a frequency or at a level that violates the rule. For systems collecting fewer than 40 samples per month, more than one positive sample for total coliform is a violation. For systems collecting 40 or more samples per month, more than 5 percent of the samples positive for total coliform is a violation.
5. *Level 2 Assessment:* Is performed on a system when the system found *E. coli*, potentially harmful bacteria, in its water or if the system performs two level 1 assessments in a rolling 12 month period

Treatment Techniques: A water disinfection process that EPA requires instead of an MCL for contaminants that laboratories cannot adequately measure. Failure to meet other operational and system requirements under the surface water treatment and the lead and copper rules have also been included in this category of violation for purposes of this report.

Unfiltered Systems: Water systems that do not need to filter their water before disinfecting it because the source is very clean [40 CFR, Subpart H]. There are no unfiltered systems in Delaware.

Violation: A failure to meet any state or federal drinking water regulation.

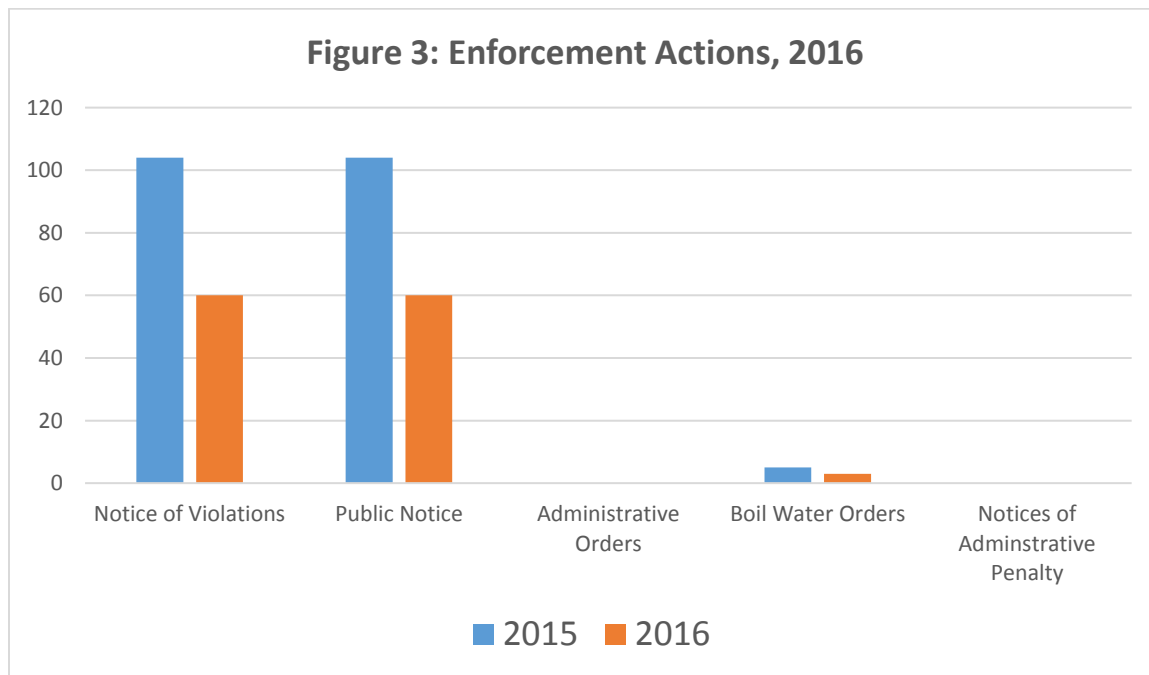
2016 Enforcement Actions

Enforcement actions are taken when a public water system violates a maximum contaminant level (MCL) or treatment technique (TT), as specified in Delaware’s regulations governing public drinking water systems; or if a system fails to conduct proper monitoring and/or reporting (M/R) for a particular contaminant.

A notice of violation (NOV) is the first action taken. This notifies the owner/operator of a public water system that there was a violation. The next action is the issuance of a public notice (PN) that the owner/operator is required to mail, hand-deliver, or post in a conspicuous place. This notifies the consumers of the water that there was a violation, what the violation was, possible related health effects, and preventative measures the consumer can take until the violation is corrected. A boil water notice is issued when a water system violates the *E. coli* MCL. This requires immediate notice (within 24 hours of being notified of the violation) to all consumers informing them about what actions to take to make their water safe for consumption; or if they should use an alternate source such as bottled water.

Additional enforcement actions, used when a water system repeatedly violates an MCL or when a history of violations is present, are the issuance of an administrative order (AO) and a bilateral compliance agreement (BCA). The administrative order can mandate the installation of treatment or the abandonment of a well with persistent violations. A bilateral compliance agreement is a written contract between the system and ODW in which the violations, corrective steps, and the timeframe for completing the work are established in writing and are enforceable.

Lastly, if a public water system fails to correct the violation or continues to ignore DPH requirements, a Notice of Administrative Penalty may be issued. The administrative penalty can range from \$100/day to \$10,000/day, per violation.



Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016

Data Management

ODW uses an Oracle® based system to inventory water supplies, record sampling results, and track compliance with monitoring and MCL requirements. The system is called the Safe Drinking Water Information System (SDWIS) and includes information about water supply facilities, water sources, treatment used, and sampling results.

Table 2: Compliance Highlights, Public Water Systems, 2016

Compliance Area	Samples Collected	Systems In Compliance	% of State Served by Compliant Systems ¹	Systems not in Compliance	
				2016	2015
Bacteriological	10,278	495	100% (100%)	0	28
Bacteriological Acute (<i>E. coli</i>)	10,278	492	99.9% (99.4%)	3	4
Surface Water Treatment Rule ²	N/A	3	100% (100%)	0	0
Nitrates	1,919	489	99.7% (98.6)	7	8
Fluoride	2,379	495	100% (100%)	0	0
Inorganic (IOC) Excluding Nitrate and Fluoride	1,759	495	100% (100%)	0	0
Volatile Organic Chemicals (VOC)	313	495	100% (100%)	0	0
Synthetic Organic Chemicals (SOC)	465	495	100% (100%)	0	0
Lead and Copper	1,060	495 ²	99.8% (98%)	10	0
Lead and Copper/ M&R Violations	N/A	481	98.8% (97.2 %)	17	21
Consumer Confidence Rule – Failure to Report	N/A	466	99.1% (94.1%)	29	51
Consumer Confidence Rule – Inadequate Report	N/A	493	100% (100%)	2	0
Disinfection Byproducts (DBPs)	820	495	100% (100%)	0	0
Radiological	167	495	100% (100%)	0	0
Ground Water Rule	N/A	495	100% (100%)	0	0

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

¹ First percentage based on population served, second percentage based on total number of public water systems.

² Systems with no action level exceedance.

Table 3: Systems out of Compliance, 2016

Level 1 Assessments	
System Name	Population Served
Anyo Properties	44
Bethany Club Tennis	100
Brafman Family Dentistry	46
Brumbley's Family Park	48
Country Acres Mobile Home Park	28
Delaware Fire School	219
Discovery Cove Learning Center	55
Dover Skating Center	500
Farmington Mini Mart	433
Flying Dutchman Mobile Home Park 1	30
Flying Dutchman Mobile Home Park 2	81
Graying ILC Seaford	120
Harrington Moose Lodge 534	25
Hilltop Trailer Park	135
Holiday Estates	75
Lewes Senior Citizens Center	50
Northside Professional Center	30
Pepper Ridge Park	209
Rehoboth Bay Community	554
Shore Stop #236 Canterbury	600
Smith Landing System 1	150
Sports at the Beach System 2	25
Stargate Diner	50
Taco's Chabelita	25
Tony J. Marchio Administrative Offices	50
United Parcel Services	112
Woodside Goose Creek	100
Level 1 Assessment Totals	
Number of Assessments	27
Number of Systems Affected	27
Number of Repeat Violators	0
Total Population at Risk	3,894

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

Table 3: Systems out of Compliance, 2016 (Continued)

Level 2 Assessments	
System Name	Population Served
Anyo Properties	44
Shulties General Store	50
Smith Landing System 1	150
Stargate Diner	50
White Clay Creek State Park (System 2)	25
Level 2 Assessment Totals	
Number of Assessments	5
Number of Systems Affected	5
Number of Repeat Violators	0
Total Population at Risk	319

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

Nitrate Violations		
System Name	Population Served	Return to Compliance Date
Child Craft Company	60	N/A
Epworth Christian School	400	12/12/2016
Forest Park	46	N/A
Shore Stop #256 Milford	150	N/A
South Fork Deli	100	N/A
Taco's Chabelita	25	12/23/2016
Tall Pines Resort Community System 1	1,538	N/A
Nitrate Violation Totals		
Number of Violations	12	
Number of Systems Affected	7	
Number of Repeat Violators	2	
Total Population at Risk	2,319	

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

Table 3: Systems in out of Compliance, 2016 (Continued)

Radiological Compounds Violations				
System Name	Population Served	Contaminant	MCL¹ in pCi/L²	Level Found in pCi/L
None	N/A	N/A	N/A	N/A
Radiological Compounds Violation Totals				
Number of Violations			0	
Number of Systems Affected			0	
Number of Repeat Violators			0	
Total Population at Risk			0	

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

¹ MCL means Maximum Contaminant Level

² pCi/L means picocuries per liter

Inorganic/Volatile/Synthetic Organic Compound Rule (IOC/VOC/SOC) Violations				
System Name	Population Served	Contaminant	MCL¹ in mg/L²	Level Found in mg/L
None	N/A	N/A	N/A	N/A
IOC/VOC/SOC Rule Violation Totals				
Number of Violations			0	
Number of Systems Affected			0	
Number of Repeat Violators (Systems)			0	
Total Population at Risk			0	

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

¹ MCL means Maximum Contaminant Level

² mg/L means milligrams per liter

Table 3: Systems out of Compliance, 2016 (Continued)

Disinfection Byproducts Rule (DPB) Violations				
System Name	Population Served	Contaminant	MCL¹ in mg/L²	Level Found in mg/L
None	N/A	N/A	N/A	N/A
Disinfection Byproducts Rule Violation Totals				
Number of Violations			0	
Number of Systems Affected			0	
Number of Repeat Violators			0	
Total Population at Risk			0	

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

¹MCL means Maximum Contaminant Level

²mg/L means milligrams per liter

Maximum Residual Disinfection Level (MRDL) Violations				
System Name	Population Served	Contaminant	MRDL¹ in mg/L²	Level Found in mg/L
None	N/A	N/A	N/A	N/A
Maximum Residual Disinfection Level Violation Totals				
Number of Violations			0	
Number of Systems Affected			0	
Number of Repeat Violators			0	
Total Population at Risk			0	

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

¹MRDL means Maximum Residual Disinfectant Level

²mg/L means milligrams per liter

Ground Water Rule Violations		
System Name	Population	Return to Compliance Date
None	N/A	N/A
Ground Water Rule Violation Totals		
Number of Violations		0
Number of Systems Affected		0
Number of Repeat Violators		0
Total Population Affected		0

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

Table 3: Systems out of Compliance, 2016 (Continued)

Surface Water Treatment Rule Violation	
System Name	Population Served
None	N/A
Surface Water Treatment Rule Totals	
Number of Violations	0
Number of System Affected	0
Number of Repeat Violators	0
Total Population Affected	0

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

Lead and Copper Rule(LCR) Monitoring Violations		
Systems that failed to collect the required number of samples including tap samples and/or water quality parameters during any monitoring period in 2016		
System Name	Population	Return to Compliance Date
Grayling ILC, Seaford	120	N/A
Hilltop Trailer Park	135	N/A
Hocker's Super Center	75	N/A
Lakeside Home LLC	32	N/A
Lotus Blossom Learning Center	30	N/A
Messick's MHC, LLC System 2	36	10/12/2016
Messick's MHC, LLC System 3	45	N/A
Messick's MHC, LLC System 4	72	N/A
Messick's MHC, LLC System 5	102	N/A
Messick's MHC, LLC System 6	63	N/A
Milton Water Dept	63	N/A
Smyrna Water Dept.	10,001	06/14/2016
Stage Village MHC	93	N/A
Sussex Manor Mobile Home Park	49	N/A
Holiday Pines	60	N/A
Holiday Estates	75	N/A
Northside Professional Center	30	N/A
LCR Monitoring Violation Totals		
Number of Violations		17
Number of Systems Affected		17
Number of Repeat Violators		0
Total Population at Risk		11,126

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

Table 3: Systems out of Compliance, 2016 (Continued)

LCR 90th Percentile Action Level Exceedances				
System Name	Population Served	Contaminant	AL¹ in mg/L²	90th percentile in mg/L
Allen Harim Foods Inc.	750	Copper	1.3 mg/L	8.3 mg/L
Allen Harim Foods Inc.	750	Copper	1.3 mg/L	4.7 mg/L
Delaware Electric CO-OP	130	Copper	1.3 mg/L	1.5 mg/L
Delaware State Fair	452	Lead	0.015 mg/L	0.018 mg/L
Forest Park	46	Lead	0.015 mg/L	0.017 mg/L
Hocker's Super Center	75	Copper	1.3 mg/L	7.82 mg/L
Messick's MHC LLC System 2	36	Lead	0.015 mg/L	0.022 mg/L
Pyle Sevice Center	250	Lead	0.015 mg/L	0.016 mg/L
RHST, LLC	30	Copper	1.3 mg/L	1.4 mg/L
Stage Village MHC	93	Copper	1.3 mg/L	2.0 mg/L
Willis Auto Mall	65	Copper	1.3 mg/L	2.3 mg/L
LCR 90th Percentile Action Level Exceedance Totals				
Number of Exceedances			11	
Number of Systems Affected			10	
Number of Repeat Violators			1	
Total Population At Risk			1,927	

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

¹AL means Action Level

²mg/L means milligrams per liter

Table 3: Systems out of Compliance, 2016 (Continued)

Failure to have Licensed Operator Violations	
System Name	Population Served
Barkers Landing	498
Beach Babies Day Care	180
Center for the Creative Arts	115
Child's Play by the Bay	60
Country View	84
Cozy Critters Day Care	120
Crossroad Christian Church Academy	68
Eagles Nest Fellowship Church	400
Enchanted Acres MHP, LLC	75
RHST, LLC	30
Glen Acres	72
Hartly Elementary School	450
Hilltop Trailer Park	135
Holiday Estates	75
Holiday Pines	60
Kristin's Care and Learning Center	44
Lake Forest Estates	225
Little People Child Development Center	82
Lotus Blossom Learning Center	30
Perdue Feed Mill	47
Serenity Manor Estates	110
Shell's Learning Center III	83
Shoppes at Millville	25
Slaughter Beach Water II	31
Slaughter Neck Community Action Agency	150
The Children's Center	30
Village Square Academy Learning Center	50
Failure to have Licensed Operator Violation Totals	
Number of Violations	27
Number of Systems Affected	27
Number of Repeat Violators	0
Total Population Affected	3,329

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

Table 3: Systems out of Compliance, 2016 (Continued)

Monitoring Violations¹		
Systems that failed to collect the required number of samples during any monitoring period in 2016		
System Name	Population	Rule
Rising Sun Plaza	122	Revised Total Coliform
Monitoring Violation Totals		
Total Number of Violations		1
Number of Systems Affected		1
Number of Repeat Violators		0
Total Population Affected		122

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

¹ Excluding Lead and Copper

Consumer Confidence Report (CCR) Rule Inadequate Reporting		
System Name	Population served	Return to Compliance Date
Smyrna Water Dept.	10,001	10/21/2016
Sussex Shore Water Company	350	12/09/2016
CCR Violation Inadequate Reporting Totals		
Number of Violations		2
Number of Systems Affected		2
Number of Repeat Violators		0
Total Population Affected		10,351

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

Table 3: Systems out of Compliance, 2016 (Continued)

Consumer Confidence Report (CCR) Rule Failure to Report		
System Name	Population served	Return to Compliance Date
Angola Beach Estates	1,275	07/05/2016
Bethany Crest LLC	60	N/A
Brumbley's Family Park	48	07/06/2016
Carey Estates, LLC	312	07/12/2016
Cedar Village LLC	445	07/12/2016
Country Living Mobile Court	250	07/06/2016
Country View	84	08/08/2016
Countryside Hamlet	66	N/A
Ed's Mobile Home Park	66	07/08/2016
Enchanted Acres MHC, LLC	225	N/A
Felton Water Department	1,591	07/05/2016
Forest Park	46	N/A
Frankford Water Department	1,014	07/11/2016
Glen Acres	72	N/A
Hidden Hills MHP	210	07/12/2016
Hilltop Trailer Park	135	N/A
Holiday Acres, LLC	132	07/11/2016
Holiday Estates	75	N/A
Holiday Pines	60	N/A
Lakeside Homes LLC	32	09/22/2016
Law Mobile Home Park	50	08/22/2016
Maranatha Court	54	N/A
Pinnacle Rehabilitation & Health Center	256	07/26/2016
Quillens Point	38	08/03/2016
Rehoboth Bay Community	1,575	08/02/2016
Serenity Manor Estates	110	08/05/2016
Stage Village MHC	93	N/A
Sussex Manor Mobile Home Park	49	N/A
Woodland Trailer Court	41	08/05/2016
CCR Violation Failure to Report Violation Totals		
Number of Violations		29
Number of Systems Affected		29
Number of Repeat Violators		0
Total Population Affected		8,464

Source: Delaware Health and Social Services, Division of Public Health, Office of Drinking Water, 2016.

Conclusion

During calendar year 2016, 2,563 (0.3 percent) of Delaware's 732,702 residents receiving water from community water supplies were exposed to harmful contaminants, total coliforms including *E. coli*, and nitrates. Of 495 public water systems, 10 (2.0 percent) had a violation and two systems (0.4 percent) were repeat violators for health-based contaminants. Eighteen water systems (3.6 percent) reported monitoring and reporting (M/R) violations: 17 systems violated the Lead and Copper Rule and one system violated the Revised Total Coliform Rule.

In 2016, 29 water systems received violations for failing to submit their Consumer Confidence Reports (CCR) and delivery certification to ODW by July 1, 2016. Five water systems returned to compliance within one week, six were in compliance by July 31, and an additional seven systems were back in compliance by the end of the year. The remaining 11 water systems had not returned to compliance by the end of 2016.

ODW identified 30 public water systems for failing to have a licensed water operator. Small community water systems comprise 10 of these and 20 are non-transient non-community public water systems. ODW will work with these systems to help them find water operators.

The Revised Total Coliform Rule became effective January 1, 2016. This required Level 1 or Level 2 assessments to be performed on public water systems with the presence of Total Coliform or *E. coli*. The purpose of a Level 1 assessment is to determine a likely cause of contamination. A Level 2 assessment is performed whenever *E. coli* is detected or the system has had two Level 1 assessments in a rolling 12 month period. A Level 2 assessment is a more in-depth inspection of the water system to determine the likely source of contamination. The likely source of contamination was identified in two of the five Level 2 assessments performed.

ODW, the Environmental Protection Agency, other state agencies, and non-governmental organizations are working with Delaware's public drinking water systems to ensure that violations are corrected promptly. This cooperative effort ensures that all Delaware residents and visitors receive safe and potable sources of drinking water.

For detailed information about Delaware's public water systems, visit EPA's Envirofacts webpage at www.epa.gov/enviro/html/sdwis/sdwis_query.html or ODW's web page at www.dhss.delaware.gov/dhss/dph/hsp/odw.html. To access Delaware public water system data, visit the Drinking Water Watch website at <https://drinkingwater.dhss.delaware.gov/>. For additional water monitoring resources, visit this water quality website maintained by the Governor's Office: <http://www.delaware.gov/topics/waterquality/index.shtml>.

Questions or comments concerning this report and summary can be directed to the Division of Public Health's Office of Drinking Water at 302-741-8630.

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