



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

**2012**



*DELAWARE HEALTH  
AND SOCIAL SERVICES*

*Division of Public Health*

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# 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 contaminant levels in drinking water to ensure safe water for human consumption. These limits are known as maximum contaminant levels or MCLs. The state of Delaware adopted these limits for use in state regulations governing drinking water.

The SDWA allows a state to seek EPA approval to administer its own PWSS program. The authority to run a PWSS program is called primacy. The state of Delaware was granted primacy in April 1978. In order for Delaware to continue to receive primacy, it has to meet certain requirements laid out in the SDWA, including the adoption of drinking water regulations that are at least as stringent as the federal regulations and by demonstrating 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 frequent the monitoring must occur. In addition, if a PWS violates a MCL, or fails to conduct monitoring, the system must notify the public of the violation. This is known as public notification. Due to the small size of Delaware, the Division of Public Health's Office of Drinking Water (ODW) has traditionally conducted much of the monitoring for public water systems in Delaware. 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, the Office of Drinking Water has required community water systems that serve more than 1,000 people to collect their own total coliform, nitrate and monthly fluoride compliance samples, submit those samples to the Delaware Public Health Laboratory or a properly certified private laboratory for analysis and submit the results to ODW. All of the community water systems (cities, towns, mobile home parks, etc.) and the non-transient, non-community water systems (schools, day cares, 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 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 1414(c)(3)(A)(i) and distribute the report as specified in Section 1414(c)(3)(A)(ii). The purpose of this report is to provide a total annual representation of the number of violations in each of the following categories: MCLs, treatment techniques, and significant monitoring violations. Delaware does not permit variances and exemptions and therefore does not report these categories.

The 2012 Annual Compliance Report and Summary (ACR) covers the time period of January 1 - December 31, 2012. It is broken down into five parts: introduction, general fact sheet on drinking water for the State of Delaware, table listing the number of violations and enforcement actions taken by the ODW, and a listing of the PWS that were in violation, and conclusion. The data in this report was generated by ODW staff. Violation information comes from the Safe Drinking Water Information System/State version and the federal operational data system and includes information that Delaware reports quarterly to the EPA.

# Public Drinking Water Summary Delaware 2012

The quality of drinking water in Delaware is a concern for everyone. This document is a brief overview of the state's public drinking water. Included is everything from general information to a listing of the number of violations by contaminant and by water system that occurred during 2012. If further information is needed or questions arise concerning how these numbers were obtained, please contact the Division of Public Health, Office of Drinking Water at (302) 741-8630.

## General Information

Total land area of Delaware	1,252,459 acres <sup>1</sup>		Population of Delaware	901,208 <sup>2</sup>
Forest	179,144 acres	(14%)	Percent served by individual wells	17.3
Agriculture	501,712 acres	(40%)	Percent served by public water supplies	82.7
Developed	276,844 acres	(22%)	Primacy granted to state by EPA	1978
Wetland/Barren	294,759 acres	(24%)		

### 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<sup>4</sup>

### Public Water Systems

<b>Residents served by public water systems<sup>3</sup></b>	744,984
Residents served by surface water systems	285,130
Residents served by ground water systems	459,854
<b>Number of public water systems</b>	485
Community systems	214
Non-transient systems	84
Transient systems	187
Number using surface water	3
Number using ground water	482

The 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. These funds are utilized to provide services for the drinking water program by ODW and the Division of Public Health Laboratory (DPHL).

1 Source: State Planning Office

2 Source: Delaware Population Consortium

3 Source: Safe Drinking Water Information System/State Version (SDWIS/State)

4 Source: Department of Natural Resources and Environmental Control

To ensure that Delaware’s drinking water meets or exceeds the requirements of the SDWA, 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, reviews monitoring results to ensure compliance with the SDWA, 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 (Del Tech) and the Delaware Rural Water Association to provide training and technical assistance to water system operators.

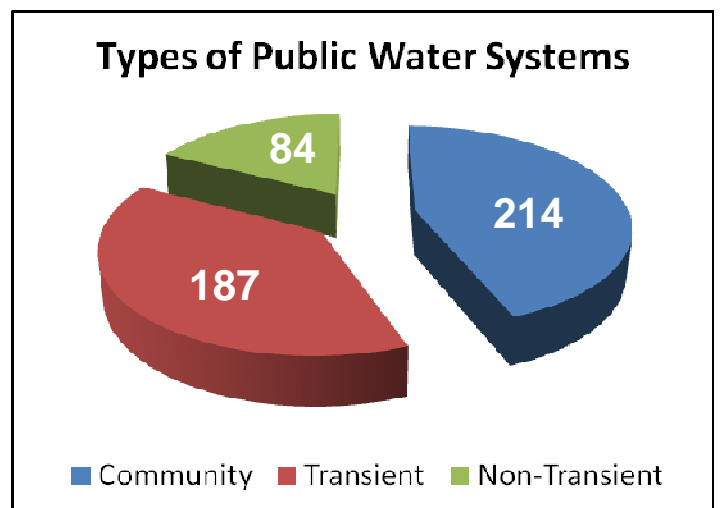
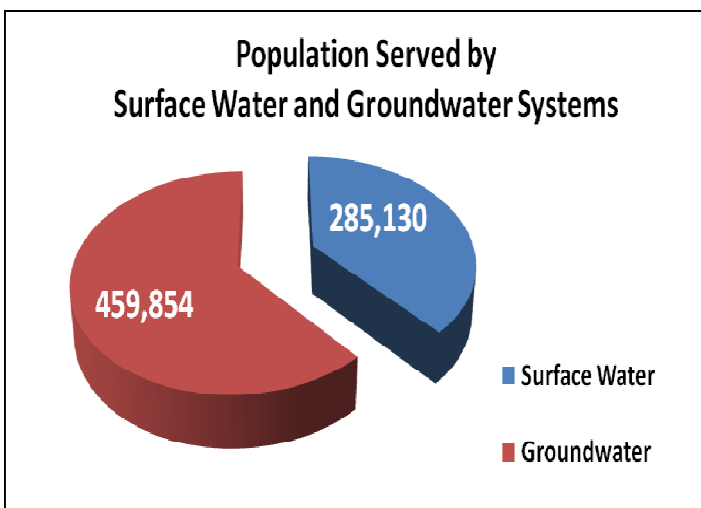
Beginning in January of 2006 the Division of Public Health began requiring any one who collected compliance samples or who conducted daily monitoring of a public water system be certified as an approved sampler/tester. This requirement has ensured that individuals doing daily testing or sampling know what they are doing and why they are doing it.

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

<i>Operations</i>	
Inspections	284
Plans & Specifications Reviewed	176

<i>Budget Information (PWSS Grant)</i>	
Total Budget	\$945,562
Federal Budget	\$557,000
State Budget	\$388,562
Number of Staff Authorized	14.35

<i>Operator Certification</i>	
	Number
Certified Operators	787
Approved Sampler/Testers	351



## Summary of 2012 Violations

	MCL (mg/L) <sup>1</sup>	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
<b>Organic Contaminants</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>
<b>1,1,1- Trichloroethane</b>	<b>0.2</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>1,1,2- Trichloroethane</b>	<b>.005</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>1,1- Dichloroethylene</b>	<b>0.007</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>1,2,4- Trichlorobenzene</b>	<b>.07</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>1,2-Dibromo-3- chloropropane (DBCP)</b>	<b>0.0002</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>1,2- Dichloroethane</b>	<b>0.005</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>1,2- Dichloropropane</b>	<b>0.005</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>2,3,7,8-TCDD (Dioxin)</b>	<b>3x10<sup>-8</sup></b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>2,4,5-TP</b>	<b>0.05</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>2,4-D</b>	<b>0.07</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Acrylamide</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>
<b>Alachlor</b>	<b>0.002</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Atrazine</b>	<b>0.003</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Benzene</b>	<b>0.005</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Benzo[a]pyrene</b>	<b>0.0002</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Carbofuran</b>	<b>0.04</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Carbon tetrachloride</b>	<b>0.005</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>

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

Source: Delaware Office of Drinking Water

## Summary of 2012 Violations (continued)

	MCL (mg/L) <sup>1</sup>	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
<b>Chlordane</b>	<b>0.002</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>cis-1,2-Dichloroethylene</b>	<b>0.07</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Dalapon</b>	<b>0.2</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Di(2-ethylhexyl)adipate</b>	<b>0.4</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Di(2-ethylhexyl)phthalate</b>	<b>0.006</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Dichloromethane</b>	<b>0.005</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Dinoseb</b>	<b>0.007</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Diquat</b>	<b>0.02</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Endothall</b>	<b>0.1</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Endrin</b>	<b>0.002</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Epichlorohydrin</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>
<b>Ethylbenzene</b>	<b>0.7</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Ethylene dibromide</b>	<b>0.00005</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Glyphosate</b>	<b>0.7</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Heptachlor</b>	<b>0.0004</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Heptachlor epoxide</b>	<b>0.0002</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Hexachlorobenzene</b>	<b>0.001</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Hexachlorocyclopentadiene</b>	<b>0.05</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Lindane</b>	<b>0.0002</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Methoxychlor</b>	<b>0.04</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Methyl <i>tert</i> Butyl Ether (MTBE)</b>	<b>0.01</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Monochlorobenzene</b>	<b>0.1</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>o-Dichlorobenzene</b>	<b>0.6</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Oxamyl (Vydate)</b>	<b>0.2</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>para-Dichlorobenzene</b>	<b>0.075</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Pentachlorophenol</b>	<b>0.001</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Picloram</b>	<b>0.5</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>

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

Source: Delaware Office of Drinking Water

## Summary of 2012 Violations (continued)

	MCL (mg/L) <sup>1</sup>	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
<b>Simazine</b>	<b>0.004</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Styrene</b>	<b>0.1</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Tetrachloroethylene</b>	<b>0.005</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Toluene</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Total polychlorinated biphenyls (PCBs)</b>	<b>0.0005</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Toxaphene</b>	<b>0.003</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>trans-1,2- Dichloroethylene</b>	<b>0.1</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Trichloroethylene</b>	<b>0.005</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Vinyl chloride</b>	<b>0.002</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Xylenes (total)</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Subtotal</b>		<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Disinfection Byproducts</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>
<b>Total trihalomethanes</b>	<b>0.08</b>	<b>1</b>	<b>1</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Haloacetic Acid 5</b>	<b>0.06</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Maximum Residual Disinfection Level</b>	<b>4.0</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Subtotal</b>		<b>1</b>	<b>1</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Inorganic Contaminants</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>
<b>Antimony</b>	<b>0.006</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Arsenic</b>	<b>0.05</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Asbestos</b>	<b>7 million fibers/l ≤ 10 μm long</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Barium</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Beryllium</b>	<b>0.004</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Cadmium</b>	<b>0.005</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Chromium</b>	<b>0.1</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Cyanide (as free cyanide)</b>	<b>0.2</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>

Values are in milligrams per liter (mg/l), unless otherwise specified.  
Source: Delaware Office of Drinking Water



## Summary of 2012 Violations (continued)

	MCL (mg/L) <sup>1</sup>	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
<b>Fluoride</b>	<b>2.0</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Mercury</b>	<b>0.002</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Nitrate</b>	<b>10 (as Nitrogen)</b>	<b>19</b>	<b>14</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Nitrite</b>	<b>1 (as Nitrogen)</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Selenium</b>	<b>0.05</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Thallium</b>	<b>0.002</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Total nitrate and nitrite</b>	<b>10 (as Nitrogen)</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Subtotal</b>		<b>19</b>	<b>14</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Radionuclide MCLs</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>
<b>Gross alpha</b>	<b>15 pCi/l</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Radium-226 and radium-228</b>	<b>5 pCi/l</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Gross beta</b>	<b>4 mrem/yr</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Subtotal</b>		<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Total Coliform Rule</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>
<b>Acute MCL violation</b>	<b>Presence with <i>E. coli</i></b>	<b>11</b>	<b>8</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Non-acute MCL violation</b>	<b>Presence</b>	<b>71</b>	<b>44</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Major routine and follow up monitoring</b>	<b>n/a</b>	<b>0</b>	<b>0</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Sanitary survey<sup>2</sup></b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>
<b>Subtotal</b>		<b>82</b>	<b>52<sup>3</sup></b>	<b>n/a</b>	<b>n/a</b>	<b>0</b>	<b>0</b>

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

Source: Delaware Office of Drinking Water

<sup>2</sup> Number of major monitoring violations for sanitary survey under the Total Coliform Rule.

<sup>3</sup> Total does not equal sum of Acute and Non-acute because the same system may have had both violations.

## Summary of 2012 Violations (continued)

	MCL (mg/L) <sup>1</sup>	MCLs		Treatment Techniques		Significant Monitoring/Reporting	
		Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations	Number of Violations	Number of Systems with Violations
<b>Surface Water Treatment Rule</b>	n/a	n/a	n/a	0	0	n/a	n/a
<b>Filtered systems</b>	n/a	n/a	n/a	0	0	n/a	n/a
<b>Monitoring, routine/repeat</b>	n/a	n/a	n/a	n/a	n/a	0	0
<b>Treatment techniques</b>	n/a	n/a	n/a	0	0	n/a	n/a
<b>Turbidity</b>	n/a	n/a	n/a	n/a	n/a	0	0
<b>Monitoring, routine/repeat</b>	n/a	n/a	n/a	n/a	n/a	0	0
<b>Failure to filter</b>	n/a	n/a	n/a	0	0	n/a	n/a
<b>Subtotal</b>	n/a	n/a	n/a	0	0	0	0
<b>Lead and Copper Rule</b>	n/a	n/a	n/a	n/a	n/a	n/a	n/a
<b>Initial lead and copper tap M/R</b>	n/a	0	0	n/a	n/a	0	0
<b>Follow-up or routine lead and copper tap M/R</b>	n/a	0	0	n/a	n/a	14	14
<b>Treatment installation</b>	n/a	0	0	0	0	n/a	n/a
<b>Public education</b>	n/a	n/a	n/a	0	0	n/a	n/a
<b>Subtotal</b>	n/a	0	0	0	0	14	14
<b>Public Notification</b>	<b>Number of Violations</b>			n/a	<b>Number of Systems with Violations</b>		
<b>Consumer Confidence Reports Violations</b>	20			n/a	9		
<b>Public Notification</b>	12			n/a	10		
<b>Ground Water Rule</b>	1			n/a	1		
<b>Subtotal</b>	33			n/a	20		

Source: Office of Drinking Water

# Definitions for Summary of 2012 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 six categories:

*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.

*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.

*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.

*Lead service line replacement:* A violation for a system's failure to replace lead service lines on the schedule required by the regulation.

*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:** EPA specifies which water testing methods the 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 no samples are taken or no results are reported during a compliance period. A major monitoring violation for the surface water treatment rule occurs when at least 90% of the required samples are not taken or results are not reported during the compliance period.

**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:** Failure to issue a public notice and/or certify to the Division of Public Health (DPH) that the notice was delivered.

# Definitions for Summary of 2012 Violations Table (continued)

**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 three categories:

*Gross alpha:* A violation for alpha radiation above MCL of 15 picocuries/liter. Gross alpha includes radium-226 but excludes radon and uranium.

*Combined radium-226 and radium-228:* A violation for combined radiation from these two isotopes above MCL of 5 pCi/L.

*Gross beta:* A violation for beta particle and photon radioactivity from man-made radionuclides above 4 millirem/year.

*Uranium:* A violation for uranium is above 30 micrograms/liter (ug/L; 1 ug/L = 1 part per billion)

**Reporting Interval:** The reporting interval for violations to be included in this PWS Annual Compliance Report is from January 1, 2007 through December 31, 2007.

**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:

*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.

*Treatment techniques (for filtered systems):* A violation for a system's failure to properly treat its water.

*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.

*Failure to filter (for unfiltered systems):* A violation for a system's failure to properly treat its water. Data for this violation code will be supplied to the States by EPA.

**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 four categories of violations:

*Acute MCL violation:* A violation where the system found fecal coliform or E. coli, potentially harmful bacteria, in its water, thereby violating the rule.

*Non-acute MCL violation:* A violation where the system 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% of the samples positive for total coliform is a violation.

*Major routine and follow-up monitoring:* A violation where a system did not perform any monitoring.

# Definitions for Summary of 2012 Violations Table (continued)

*Sanitary Survey:* A major monitoring violation if a system fails to collect five routine monthly samples if sanitary survey is not performed.

**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.

## 2012 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 regulations governing public drinking water systems or 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 has been a violation. The next action taken 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 bacteria standard and the presence of *E. coli* or fecal coliform is detected. This requires immediate notice within 24 hours of being notified of the violation to all consumers informing them on 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 include, an administrative order (AO) and a bilateral compliance agreement (BCA) are used when a water system repeatedly violates an MCL or when a history of violations is present. The administrative order can mandate the installation of treatment or the abandonment of a well with persistent violations, for example. A bilateral compliance agreement is a written contract between the system and ODW in which the violations are outlined and the steps the system is going to take to correct the violation and the timeframe for completing the work are outlined. Examples of a bilateral compliance agreement include the installation of new wells or the re-piping of a water system in order to correct a violation.

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.

<i>Enforcement Actions</i>	
Notices of Violation	132 MCL
Public Notices	132 MCL
Administrative Orders	13
Boil Water Orders	10
Notices of Administrative Penalty	0

**Data Management**

ODW uses an Oracle® based system to inventory water supplies, record sampling results and track compliance with monitoring and MCL requirements. The database includes information about: water supply facilities, water sources, treatment used, and sampling results.

<b>Compliance Highlights</b>	<b>Number of Samples Collected in 2012</b>	<b>Systems In Compliance in 2012</b>	<b>% of State Served by Compliant Systems<sup>1</sup></b>	<b>Number of Systems not in Compliance during 2012</b>
<b>Bacteriological</b>	12,988	441	98.8% (90.9%)	44
<b>Bacteriological Acute (E. coli)</b>	12,988	477	99.9% (98.4%)	8
<b>Surface Water Treat. Rule<sup>2</sup></b>	n/a	3	100% (100%)	0
<b>Nitrates</b>	1,767	471	99.4% (97.1%)	14
<b>Fluoride</b>	2,161	484	85.4% (99.8%)	1
<b>Inorganic (IOC) Excluding Nitrate and Fluoride</b>	1,875	485	100% (100%)	0
<b>Volatile Organic Chemicals (VOC)</b>	470	485	100% (100%)	0
<b>Synthetic Organic Chemicals (SOC)</b>	478	485	100% (100%)	0
<b>Lead and Copper/AL Exceedences<sup>2</sup></b>	1,292	485	100% (100%)	0
<b>Lead and Copper/M&amp;R Violations</b>	n/a	471	99.8% (97.1 %)	14
<b>Consumer Confidence Rule</b>	n/a	476	99.9% (98.1%)	9
<b>Disinfection Byproducts (DBPs)</b>	497	484	99.9% (99.8%)	1
<b>Maximum Residual Disinfection Level (MRDL)</b>	5,618	495	100% (100%)	0
<b>Radiological</b>	153	485	100% (100%)	0
<b>Ground Water Rule</b>	n/a	484	81.2% (99.8%)	1

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

<sup>2</sup> Systems performed own sampling.

Source: Delaware Office of Drinking Water

# 2012 Systems in Violation

Bacteria Violations	
System Name	Population Served
Angola Beach Estates	1,275
Aquatic Resource Center	25
Autumn Woods Mobile Home Park	75
Biderman Golf Course	175
Brafman Family Dentistry	46
Centreville School	170*
Child Craft Company	60
Children's Center	30
Children's Secret Garden	60
Colonial Estates Mobile Home Park	165
Country Acres Mobile Home Park	28
Countryside Hamlet	66
Delaware Museum of Natural History	700
Delaware State Fire School	200
Delaware State Police Troop 9	50
Delicioso's	25
Dugout Bar B Que Lounge & Restaurant	25
Eagles Nest Fellowship Church	400
Fairways Inn	150
Farmington Mini Market	433*
Flying Dutchman Mobile Home Park 1	30
Flying Dutchman Mobile Home Park 2	30
Fort Delaware State Park	700
Greenwood Country Retirement	50
Greenwood Mennonite School	260
Hilltop Trailer Park	135
Historic Odessa Foundation	100
Indian River Yacht Club	60
J & J Mobile Home Park	84*
Law Mobile Home Park	50
Lighthouse Point	36
Little Einsteins Preschool	33
Messick's Mobile Home Park, System 3	45*
Pine Ridge Mobile Home Park	222*
Shore Stop #227 Townsend	800
Shore Stop #270 Milton	25
Slaughter Beach Water II	25*
Strimel's Trailer Park	40*
Warrens Station Restaurant	200
West Fenwick Station	120
White Oak Subdivision	30
Willis Auto Mall	65
Woods Edge I	60
Woodside Inn	60*

Total Number of Violations: 71  
 Number of Systems Affected: 44  
 Number of Repeat Violators (Systems): 19  
 Total Population At Risk: 8,818  
 Source: Delaware Office of Drinking Water

\*Total Number of Acute Violations: 11  
 \*Number of Systems Affected: 8  
 \*Number of Repeat Violators (Systems): 3  
 \*Total Population at Risk: 1,079



## 2012 Systems in Violation (continued)

### Nitrate Violations

System Name	Population Served
Angola Crest II	159
Country Club Village	72
De-Lux Dairy Market	916
Forest Park	46
Hocker's Super Center	75
Holly Lake Campsites System 1	801
Irene's Trailer Court	28
Laurel Junction	25
Little Einsteins Preschool	33
NRG Energy, Inc.	178
Shore Stop #231 Rising Sun	50
Shore Stop #256 Milford	150
Smith Landing System 1	150
Tall Pines Resort Community System 1	1,538

Total Number of Violations: 19

Number of Systems Affected: 14

Number of Repeat Violators (Systems): 3

Total Population At Risk: 4,221

### Radiological Compounds Violations

System Name	Population Served	Contaminant	MCL <sup>1</sup> in pCi/L <sup>2</sup>	Level Found in pCi/L

Total Number of Violations: 0

Number of Systems Affected: 0

Number of Repeat Violators (Systems): 0

Total Population At Risk: 0

<sup>1</sup>MCL means Maximum Contaminant Level

<sup>2</sup>pCi/L means picocuries per liter

Source: Delaware Office of Drinking Water

## 2012 Systems in Violation (continued)

### Inorganic/Volatile/Synthetic Organic Compound (IOC/VOC/SOC) Violations

System Name	Population Served	Contaminant	MCL <sup>1</sup> in mg/l <sup>2</sup>	Level Found in mg/l
United Water Delaware	109,000	Fluoride	2.0	3.0 and 4.7

Total Number of Violations: 2

Number of Systems Affected: 1

Number of Repeat Violators (Systems): 1

Total Population At Risk: 109,000

<sup>1</sup>MCL means Maximum Contaminant Level

<sup>2</sup>mg/l means milligrams per liter

### Disinfection Byproducts (DPB) Violations

System Name	Population Served	Contaminant	MCL <sup>1</sup> in mg/l <sup>2</sup>	Level Found in mg/l
Frankford Water Department	1,014	Total Trihalomethanes	0.080	0.085

Total Number of Violations: 1

Number of Systems Affected: 1

Number of Repeat Violators (Systems): 0

Total Population At Risk: 1,014

<sup>1</sup>MCL means Maximum Contaminant Level

<sup>2</sup>mg/l means milligrams per liter

### Maximum Residual Disinfection Level (MRDL) Violations

System Name	Population Served	Contaminant	MRDL <sup>1</sup> in mg/l <sup>2</sup>	Level Found in mg/l

Total Number of Violations: 0

Number of Systems Affected: 0

Number of Repeat Violators (Systems): 0

Total Population At Risk: 0

<sup>1</sup>MRDL means Maximum Residual Disinfectant Level

<sup>2</sup>mg/l means milligrams per liter

Source: Delaware Office of Drinking Water

## 2012 Systems in Violation (continued)

<b>Lead/Copper Rule (LCR) Action Level Exceedences</b>				
System Name	Population Served	Contaminant	AL <sup>1</sup> in mg/l <sup>2</sup>	90 <sup>th</sup> percentile in mg/l

Total Number of Exceedences: 0  
 Number of Systems Affected: 0  
 Number of Repeat Violators (Systems): 0  
 Total Population At Risk: 0

<sup>1</sup>AL means Action Level  
<sup>2</sup>mg/l means milligrams per liter

<b>Lead and Copper Monitoring Violations</b>	
Systems that failed to collect the required number of samples during any monitoring period in 2012	
System Name	Population
Countryside Hamlet	66
Glen Acres	72
Hilltop Trailer Park	135
Methodist Country House	425
Peddlers Village	165
Sand Hill Mobile Home Park	90
Shady Acres MHP	381
Shoppes at Millville	50
Slaughter Neck Community Action Agency	150
Summit Aviation	50
Tall Pines Resort Community, System 2	69
United Parcel Service	112
Upcountry Manufactured Home Community	65
White Oak Subdivision	30

Total Number of Violations: 14  
 Number of Systems Affected: 14  
 Number of Repeat Violators Systems: 0  
 Total Population At Risk: 1,860

Source: Delaware Office of Drinking Water

## 2012 Systems in Violation (continued)

### Consumer Confidence Report (CCR) Violations

System Name	Population served
Bethany Crest	60
Countryside Hamlet	66
Forest Park	46
Glen Acres	40
Hilltop Trailer Park	135
Holiday Estates	75
Holiday Pines	60
Pine Ridge Mobile Home Park	222
Pinnacle Rehabilitation	184

Total Number of Violations: 20  
 Number of Systems Affected: 9  
 Number of Repeat Violators (Systems): 6  
 Total Population Affected: 888

### Public Notice (PN) Violations

System Name	Population served
Autumn Woods Mobile Home Park	75
Forest Park	46
Hand-N-Hand Early Learning Center	41
Hartly Elementary School	450
Holiday Pines	210
Little Einsteins Preschool	33
Nanticoke Business Park	50
Pine Ridge Mobile Home Park	222
Shady Acres Mobile Home Park	381
Sussex Manor Mobile Home Park	279

Total Number of Violations: 12  
 Number of Systems Affected: 10  
 Number of Repeat Violators (Systems): 1  
 Total Population Affected: 1,787

### Ground Water Rule (Monitoring/Reporting)

System Name	Population Served
Artesian Water Company	201,000

Total Number of Violations: 1  
 Number of Systems Affected: 1  
 Number of Repeat Violators (System): 0  
 Total Population Affected: 201,000  
 Source: Delaware Office of Drinking Water

## 2012 Systems in Violation (continued)

### Surface Water Treatment Rule (Turbidity Violation)

Surface Water Treatment Rule (Turbidity Violation)	
System Name	Population Served

Total Number of Violations: 0

Number of System Affected: 0

Number of Repeat Violators (System): 0

Total Population Affected: 0

Source: Delaware Office of Drinking Water

# Conclusion

In the preceding pages various data and statistics were presented. During calendar year 2012, 125,171 (16.8%) of Delaware's 744,984 residents receiving water from community water supplies, were exposed to harmful (health-related) contaminants. Out of 485 public water systems 84 (17.3%) had a violation and 23 systems (4.7%) were repeat violators for health-based contaminants. Thirty-four water systems (7.0%) reported monitoring and reporting (M/R) violations and seven systems (1.4%) were repeat violators for monitoring or reporting violations. There was one violation for disinfection byproducts. The Town of Frankford exceeded the standard for total trihalomethanes (TTHMs). Frankford completed work on a new treatment plant that will remove disinfection byproduct precursors that has helped to reduce the levels of TTHMs in the finished water. The water system has been able to maintain compliance for three of four quarters during the year.

The major change from last year's numbers is caused by United Water Delaware exceeding the maximum contaminant level for fluoride in 2012. While we count the entire population served, it must be noted that not all of United Delaware's customers received water with the elevated fluoride. There is still a need to maintain vigilance over the drinking water supplies for Delaware residents. We recently adopted four new rules that will require us to continue to work with our water systems and technical assistance providers to ensure the provision of safe drinking water for all Delawareans.

The Office of Drinking Water, the Environmental Protection Agency, other state agencies and non-governmental organizations are working with Delaware's public drinking water systems to ensure that violations have been corrected or are in the process of being corrected. The end result of this cooperative action is ensuring that all residents of and visitors to the state of Delaware receive a safe and potable source of drinking water.

Information on Delaware's public water systems may be found on the internet in EPA's Envirofacts webpage at the following address: [www.epa.gov/enviro/html/sdwis/sdwis\\_query.html](http://www.epa.gov/enviro/html/sdwis/sdwis_query.html). The Office of Drinking Water has a web page at the following address: [www.dhss.delaware.gov/dhss/dph/hsp/odw.html](http://www.dhss.delaware.gov/dhss/dph/hsp/odw.html) and the Governor's Office has a water quality website at [www.waterquality.delaware.gov](http://www.waterquality.delaware.gov) from which Drinking Water Watch may be reached.

Any questions or comments concerning this report and summary can be directed to the Division of Public Health, Office of Drinking Water at (302) 741-8630.

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