



*DELAWARE HEALTH  
AND SOCIAL SERVICES*

Division of Public Health

**Public Drinking Water  
Annual Compliance Report  
And Summary**

**2007**

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## **The Office of Drinking Water Program: An Overview**

In 1974 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 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 has 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 receive primacy, it had 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 a demonstration that it could enforce the program requirements.

The SDWA, EPA regulations and State regulations require that all public water systems (PWSs) 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, Office of Drinking Water (ODW) has traditionally conducted most of the monitoring for PWSs 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 compliance samples and submit those samples to the Public Health Laboratory for analysis. 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 standards. These samples are to be 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.

In 1996 the SDWA was amended once more with several changes. One of these changes was the requirement for states to prepare an annual compliance report as stated in the SDWA, 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, variances and exemptions, and significant monitoring violations.

This annual report covers the time period of January 1 - December 31, 2007. It is broken down into five parts: the introduction, a general fact sheet on drinking water for the State of Delaware, a table listing of the number of violations and enforcement actions taken by the Division of Public Health, Office of Drinking Water, and a listing of the PWSs that were in violation and a conclusion. The data in this report was generated by Office of Drinking Water staff. Violation information was received from the US EPA and comes from the federal reporting that Delaware sends to the EPA quarterly.

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). In addition, the Office of Drinking Water has a web page at the following address: <http://www.dhss.delaware.gov/dhss/dph/hsp/odw.html>.

# Public Drinking Water Summary

## Delaware 2007

The quality of drinking water in the State of 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 that occurred during 2007. 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	1,244,730 <sup>1</sup> acres	Population of Delaware	853,476 <sup>2</sup>
Forest	218,423 <sup>1</sup> acres (18%)	Percent served by individual wells	15.1%
Agriculture	529,821 acres (43%)	Percent served by public water supplies	84.9%
Developed	242,391 <sup>1</sup> acres (19%)	Primacy Granted to State by EPA	1978
Wetland/Barren	254,095 <sup>1</sup> acres (20%)		

\* \* \* \* \*

### Delaware's Drinking Water

### Public Water Systems

#### 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>

<b>Residents served by public water systems<sup>3</sup></b>	724,233
Residents served by surface water systems	281,400
Residents served by ground water systems	442,833
<b>Number of public water systems</b>	520
Community systems	220
Non-transient systems	101
Transient systems	199
Number using surface water	3
Number using ground water	517

The Office of Drinking Water provides many services to consumers and the public water supply systems. Funding comes from both State and Federal monies allotted to the public drinking water program for the State of Delaware. Two components within the Division of Public Health utilize these funds to provide the services for the drinking water program, the Office of Drinking Water and the Division of Public Health Laboratory.

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

The Office of Drinking Water (ODW) works to ensure that the drinking water in Delaware meets or exceeds the requirements of the Safe Drinking Water Act (SDWA). This is accomplished through the review and approval of plans for new or improved water treatment systems and/or new or upgraded distribution systems. ODW staff also inspect water systems, provide technical assistance, respond to and handle emergencies, review monitoring results to ensure compliance with the SDWA and take enforcement actions when necessary. Additionally, ODW provides training to water system operators and owners regarding system operation and compliance with rules and regulations. The Office of Drinking Water also contracts with the Environmental Training Center at Delaware Technical and Community College and the Delaware Rural Water Association to provide training to water system operators.

The Division of Public Health Laboratory performs water analyses for water quality parameters as outlined in the SDWA. The Office of Drinking Water also contracts with private laboratories for analysis of some regulated parameters.

<i>Operations</i>		<i>Budget Information</i>	
Inspections	115	Total Budget	\$914,135
Plans & Specifications Reviewed	266	Federal Budget	\$540,975
Projects requesting DWSRF funding	5	State Budget	\$373,160
Infrastructure Investment Money Available	\$7,602,959	Number of Staff Authorized	23.80

<i>Training Provided</i>	
	Number
Certified Operators	632
Approved Sampler/Testers	312
Training classes offered	181
Operators Trained	1,103
Systems Represented	405

## Summary of 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>1,1,1- Trichloroethane</b>	<b>0.2</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>1,1,2- Trichloroethane</b>	<b>.005</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>1,1- Dichloroethylene</b>	<b>0.007</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>1,2,4- Trichlorobenzene</b>	<b>.07</b>	<b>0</b>	<b>0</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>0</b>	<b>0</b>
<b>1,2- Dichloroethane</b>	<b>0.005</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>1,2- Dichloropropane</b>	<b>0.005</b>	<b>0</b>	<b>0</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>0</b>	<b>0</b>
<b>2,4,5-TP</b>	<b>0.05</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>2,4-D</b>	<b>0.07</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Acrylamide</b>				<b>0</b>	<b>0</b>		
<b>Alachlor</b>	<b>0.002</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Atrazine</b>	<b>0.003</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Benzene</b>	<b>0.005</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Benzo[a]pyrene</b>	<b>0.0002</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Carbofuran</b>	<b>0.04</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Carbon tetrachloride</b>	<b>0.005</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>

<sup>1</sup> Values are in milligrams per liter (mg/l), unless otherwise specified.

	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>0</b>	<b>0</b>
<b>cis-1,2-Dichloroethylene</b>	<b>0.07</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Dalapon</b>	<b>0.2</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Di(2-ethylhexyl)adipate</b>	<b>0.4</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Di(2-ethylhexyl)phthalate</b>	<b>0.006</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Dichloromethane</b>	<b>0.005</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Dinoseb</b>	<b>0.007</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Diquat</b>	<b>0.02</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Endothall</b>	<b>0.1</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Endrin</b>	<b>0.002</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Epichlorohydrin</b>				<b>0</b>	<b>0</b>		
<b>Ethylbenzene</b>	<b>0.7</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Ethylene dibromide</b>	<b>0.00005</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Glyphosate</b>	<b>0.7</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Heptachlor</b>	<b>0.0004</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Heptachlor epoxide</b>	<b>0.0002</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Hexachlorobenzene</b>	<b>0.001</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Hexachlorocyclopentadiene</b>	<b>0.05</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Lindane</b>	<b>0.0002</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Methoxychlor</b>	<b>0.04</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Methyl tert Butyl Ether (MTBE)</b>	<b>0.01</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Monochlorobenzene</b>	<b>0.1</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>o-Dichlorobenzene</b>	<b>0.6</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Oxamyl (Vydate)</b>	<b>0.2</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>para-Dichlorobenzene</b>	<b>0.075</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Pentachlorophenol</b>	<b>0.001</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Picloram</b>	<b>0.5</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>

<sup>1</sup> Values are in milligrams per liter (mg/l), unless otherwise specified.

	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>0</b>	<b>0</b>
<b>Styrene</b>	<b>0.1</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Tetrachloroethylene</b>	<b>0.005</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Toluene</b>	<b>1</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Total polychlorinated biphenyls (PCBs)</b>	<b>0.0005</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Toxaphene</b>	<b>0.003</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>trans-1,2- Dichloroethylene</b>	<b>0.1</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Trichloroethylene</b>	<b>0.005</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Vinyl chloride</b>	<b>0.002</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Xylenes (total)</b>	<b>10</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Subtotal</b>		<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Disinfection Byproducts</b>							
<b>Total trihalomethanes</b>	<b>0.08</b>	<b>1</b>	<b>1</b>			<b>0</b>	<b>0</b>
<b>Haloacetic Acid 5</b>	<b>0.06</b>	<b>1</b>	<b>1</b>			<b>0</b>	<b>0</b>
<b>Subtotal</b>		<b>2</b>	<b>2</b>			<b>0</b>	<b>0</b>
<b>Inorganic Contaminants</b>							
<b>Antimony</b>	<b>0.006</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Arsenic</b>	<b>0.05</b>	<b>2</b>	<b>2</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>0</b>	<b>0</b>
<b>Barium</b>	<b>2</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Beryllium</b>	<b>0.004</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Cadmium</b>	<b>0.005</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Chromium</b>	<b>0.1</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Cyanide (as free cyanide)</b>	<b>0.2</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>

<sup>1</sup> Values are in milligrams per liter (mg/l), unless otherwise specified.



	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>4.0</b>	<b>1</b>	<b>1</b>			<b>0</b>	<b>0</b>
<b>Mercury</b>	<b>0.002</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Nitrate</b>	<b>10 (as Nitrogen)</b>	<b>18</b>	<b>13</b>			<b>0</b>	<b>0</b>
<b>Nitrite</b>	<b>1 (as Nitrogen)</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Selenium</b>	<b>0.05</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Thallium</b>	<b>0.002</b>	<b>0</b>	<b>0</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>0</b>	<b>0</b>
<b>Subtotal</b>		<b>21</b>	<b>16</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Radionuclide MCLs</b>							
<b>Gross alpha</b>	<b>15 pCi/l</b>	<b>0</b>	<b>0</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>0</b>	<b>0</b>
<b>Gross beta</b>	<b>4 mrem/yr</b>	<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Subtotal</b>		<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Total Coliform Rule</b>							
<b>Acute MCL violation</b>	<b>Presence</b>	<b>2</b>	<b>2</b>			<b>0</b>	<b>0</b>
<b>Non-acute MCL violation</b>	<b>Presence</b>	<b>40</b>	<b>37</b>			<b>0</b>	<b>0</b>
<b>Major routine and follow up monitoring</b>		<b>0</b>	<b>0</b>			<b>0</b>	<b>0</b>
<b>Sanitary survey<sup>2</sup></b>						<b>0</b>	<b>0</b>
<b>Subtotal</b>		<b>42</b>	<b>39</b>			<b>0</b>	<b>0</b>

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

2 Number of major monitoring violations for sanitary survey under the Total Coliform Rule.

	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>				<b>0</b>	<b>0</b>		
<b>Filtered systems</b>				<b>0</b>	<b>0</b>		
<b>Monitoring, routine/repeat</b>						<b>0</b>	<b>0</b>
<b>Treatment techniques</b>				<b>0</b>	<b>0</b>		
<b>Unfiltered systems</b>							
<b>Monitoring, routine/repeat</b>						<b>0</b>	<b>0</b>
<b>Failure to filter</b>				<b>0</b>	<b>0</b>		
<b>Subtotal</b>				<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>
<b>Lead and Copper Rule</b>							
<b>Initial lead and copper tap M/R</b>		<b>0</b>	<b>0</b>			<b>34</b>	<b>30</b>
<b>Follow-up or routine lead and copper tap M/R</b>		<b>0</b>	<b>0</b>			<b>7</b>	<b>7</b>
<b>Treatment installation</b>		<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>		
<b>Public education</b>				<b>2</b>	<b>2</b>		
<b>Subtotal</b>		<b>0</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>41</b>	<b>37</b>
<b>Consumer Confidence Reports</b>		<b>Number of Violations</b>			<b>Number of Systems with Violations</b>		
<b>Consumer Confidence Reports Violations</b>		<b>25</b>			<b>16</b>		
<b>Subtotal</b>		<b>25</b>			<b>16</b>		

<sup>1</sup> Values are in milligrams per liter (mg/l), unless otherwise specified.

## Definitions for Summary of Violations Table

The following definitions apply to the Summary of 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 where 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 where 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 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 where 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 cropland or discharge from factories. EPA has set legal limits on 54 organic contaminants that are to be reported [40 CFR 141.61].

**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:** The 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):** The Total Coliform Rule 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.

*Sanitary Survey:* A major monitoring violation if a system fails to collect 5 routine monthly samples if sanitary survey is not performed.

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**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.

## 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.

The two remaining enforcement actions, an Administrative Order (AO) and a Bi-Lateral Compliance Agreement (BCA) are used when a water system repeatedly violates an MCL or when a history of violations is present. The AO can mandate the installation of treatment or the abandonment of a well with persistent violations, for example. A BCA 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 BCA include the installation of new wells or the re-piping of a water system in order to correct a violation.

<i>Enforcement Actions</i>	
Notice of Violations	65 MCL/41 MR
Public Notices	65 MCL/41 MR
Consumer Confidence Report Violations	25
Administrative Orders	0
Boil Water Orders	2
Bi-Lateral Compliance Agreements	0

## Data Management

The Office of Drinking Water 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.

## Compliance Highlights

	Number of Samples Collected in 2007	Systems Granted Reduced Monitoring in 2007	Systems In Compliance in 2007	% of State Served by Compliant Systems <sup>1</sup>	Number of Systems not in Compliance during 2007
<b>Bacteriological</b>	9,656	N/A	482	68.6%* (92.7%)	38
<b>Surface Water Treat. Rule<sup>2</sup></b>	0	N/A	0	100% (100%)	0
<b>Nitrates</b>	2,166	N/A	507	99.6% (97.5%)	13
<b>Fluoride</b>	1,690	N/A	519	99.9% (99.8%)	1
<b>Inorganic (IOC)</b>	628	39	518	99.3% (99.6%)	2
<b>Volatile Organic Chemicals (VOC)</b>	1,035	0	519	99.9% (99.9%)	1
<b>Synthetic Organic Chemicals (SOC)</b>	1,074	16	520	100% (100%)	0
<b>Lead and Copper</b>	707	N/A	520	100% (100%)	0
<b>Consumer Confidence Rule</b>	N/A	N/A	495	99.7% (95.2%)	15
<b>Disinfection Byproducts (DBPs)</b>	653	N/A	519	99.9% (99.9%)	1
<b>Radiological</b>	159	182	520	100% (100%)	0

\*Low percentage is based on one large system that had a violation which lasted less than one month.

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

2 Systems performed own sampling.

## List of Systems in Violation

The following list is the name and population served for all the systems that were in violation during the calendar year 2007. This list is broken down into types of violations for your convenience.

<b>Bacteria Violations</b>	
System Name	Population Served
Centreville School	170
Bethany Club Tennis	100
Camden Wyoming Moose	70
Children's Place	55
Broadkilm Beach Water Company	1,440
Holiday Estates	75
Blue Coast	200
Pickering Beach	109
Wilmington Jr. Academy	150
Carey Estates	312
Bridgeville Commercial Park	44
Artesian Water Company	201,000
Twin Maples Trailer Park	123
Middletown Water Department	16,000
Sea Breeze Longs Trailer Park	80
Woodland Trailer Court	41
Townsend Water Department	1,300
Dow Reichhold Chemicals, Inc.	200
North Gate Shopping Center	50
Woodside Inn	60
Delaware State Fire School	200
Mills Brothers Market	200
Shore Stop #236	600
Woodside Goose Creek	100
Holly Lakes Campsites System 1	801
Holly Lakes Campsites System 2	2,064
St. Andrews School II	40
NVF Corporation (Corporate Offices)	75



<b>Bacteria Violations (continued)</b>	
System Name	Population Served
Flying Dutchman Mobile Home Park System 3	81
Williamsville Country Village	50
Aquatic Resources Education Center	25
Emergency Operations Center	124
Children's Secret Garden	60
Shore Stop #227	800
Felton-Goose Creek Food Store	500
Kristin's Care and Learning Center	25
Woodside Center	25
Downing's Loving and Learning Center	25

Total Number of Violations: 42  
Number of Systems Affected: 38  
Number of Repeat Violators (Systems): 4  
Total Population At Risk: 227,374

<b>Nitrate Violations</b>	
System Name	Population Served
Savannah Place Homeowners Association	81
Tastee Freez	100
Briarwood Manor MHP	296
Bridgeville Commercial Park	44
Forest Park	46
Gulls Way Campground	1,617
Smith Landing System 1	150
Irene's Trailer Court	28
Shore Stop #231	50
La Quetzalteca Mexican Restaurant	74
Stonewater Creek	330
Shore Stop #256	150
Lloyd's Deli and Resale Shop	50

Total Number of Violations: 18  
Number of Systems Affected: 13  
Number of Repeat Violators (Systems): 5  
Total Population At Risk: 3,016

<b>Inorganic Compounds Violations</b>				
System Name	Population Served	Contaminant	MCL <sup>1</sup> In mg/l <sup>2</sup>	Level Found In mg/l
Clayton Water Dept.	2,250	Arsenic	0.010	12.2
Felton Water Dept.	1,591	Arsenic	0.010	32.2
Blades Water Dept.	1,200	Fluoride	2.0	2.78

Total Number of Violations: 3  
Number of Systems Affected: 3  
Number of Repeat Violators (Systems): 0  
Total Population At Risk: 5,041

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

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

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

System Name	Population Served	Contaminant	MCL <sup>1</sup> In mg/l <sup>2</sup>	Level Found In mg/l
Pepper Ridge Park	200	Total Trihalomethane (TTHM)	0.080	0.102
Pepper Ridge Park	200	Total Haloacetic Acids (HAA5)	0.060	0.099
Sandcastle Day Care	52	Methyl Tert Butyl Ether (MTBE)	0.1	0.16

Total Number of Violations: 3  
 Number of Systems Affected: 2  
 Number of Repeat Violators (Systems): 0  
 Total Population At Risk: 252

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

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

### Lead/Copper Rule (LCR) Action Level Exceedences

System Name	Population Served	Contaminant	AL 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

### Bacteriological Monitoring Violations

Systems that failed to collect the required number of samples during any monitoring period in 2007

System Name	Population Served

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

### Lead and Copper Monitoring Violations

Systems that failed to collect the required number of samples during any monitoring period in 2007

System Name	Population
St. Andrews School System 1	350
Twin Cedars Apartments	141
Savannah Place Homeowners Association	81
Upcountry Manufactured Home Community	65
Center for the Creative Arts	115
Children's Place	55
Bayshore Mobile Home Park	1,620
Fish Hook Mobile Home Park	72
Holiday Estates	75
Holiday Pines	210
Homestead Park	230
Pine Ridge Mobile Home Park	222
Kent/Sussex Detox Center	40
Allen's Family Foods	750
Fisherman's Village	36
Suburban Propane	25
Delaware Electric Co-op	120
Wilmington Jr. Academy	150
Forest Park	46
Donavan/Smith Mobile Home Park	369
Cherry Creek Valley	78
Magnolia Water Department	1,065
Granada Mobile Home Court	138
Cantwell Water Company	108
Glen Acres	93
Lakeside Mobile Home Park	50
Central Christian School	100
Moore's Lake Shopping Center	230
Mamie A. Warren Senior Center	120
Autumn Woods Mobile Home Park	75
NVF Corporation (Administrative Offices)	240
University of Delaware Carvel Research and Education Center	60
Good Beginnings	60
Slaughter Neck Community Action Agency	150
Teal Point	96
First Step Preschool	50
Hood Daycare	35
Shell's Learning Center III	83

**Lead and Copper Monitoring Violations (continued)**

Systems that failed to collect the required number of samples during any monitoring period in 2007

Children at Work	98
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Total Number of Violations: 43

Number of Systems Affected: 39

Number of Repeat Violators (Systems): 4

Total Population At Risk: 7,701

**Consumer Confidence Report (CCR) Violations**

System Name	Population served
Mt. Pleasant Trailer Park	117
Governor Bacon Health Center	525
Savannah Place Homeowners Association	81
Upcountry Manufactured Home Community	65
Holiday Estates	75
Holiday Pines	210
Pine Ridge Mobile Home Park	222
Briarwood Manor MHP	296
Oak Grove Estates	91
Hilltop Trailer Park	135
Law's Mobile Home Park	50
Stage Village Mobile Home Court	93
Maranatha Court	54
Forest Park	46
Lakeside Mobile Home Park	50

Total Number of Violations: 25

Number of Systems Affected: 15

Number of Repeat Violators (Systems): 10

Total Population Affected: 2,110

## Conclusion

In the preceding pages several numbers and statistics were presented. During calendar year 2007, out of a population of 724,233 persons in the State of Delaware receiving their water from community water supplies, 235,683 persons (32.5%) were exposed to harmful (health related) contaminants. This significant percentage is the result of a violation of the total coliform rule by Artesian Water Company that lasted less than one month. Absent this one violation the percentage of people exposed to a health related contaminant would drop to 4.7%. Out of 520 public water systems, 54, or 10.3%, had a violation and only 11 systems (2.1%) were repeat violators for health-based contaminants. Thirty-seven water systems (7.1%) reported monitoring and reporting (M/R) violations and four systems (0.8%) were repeat violators for monitoring or reporting violations. There were three violations for inorganic compounds. The Towns of Felton and Clayton for arsenic and both have installed treatment systems to remove the arsenic and are now providing water that is in compliance with the new requirements. The Town of Blades had a brief overfeed of fluoride. The situation was quickly corrected. In 2007 the Division of Public Health began requiring water systems that serve 1,000 people or more to collect their own bacteriological samples. We also had several small systems volunteer to collect their own samples. Beginning in January of 2006 the Division 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.

Except for the one total coliform violation at Artesian Water Company the numbers are an improvement over last year and demonstrate that the water system operators are learning the requirements for the new rules that became effective in the last couple of years. There is still a need to maintain vigilance over the drinking water supplies for Delaware residents. We will be implementing several new rules in the next few years and must continue to work with our partners 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.

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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