



*DELAWARE HEALTH
AND SOCIAL SERVICES*

Division of Public Health

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

2011

Table of Contents

Section	Page Number
Section 1	
The Office of Drinking Water: An Overview	3
Section 2	
2011 State Summary	4
Section 3	
Summary of Violations	6
Section 4	
Enforcement Actions	14
Section 5	
List of Systems in Violation	16
Section 6	
Conclusion	22

The Office of Drinking Water Program: An Overview

In 1974 the US 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 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 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 most 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 and submit those samples to the Delaware 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 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 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, and significant monitoring violations. Delaware does not permit variances and exemptions and therefore does not report anything in these categories.

The 2011 Annual Compliance Report and Summary (ACR) covers the time period of January 1 - December 31, 2011. 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 includes information that Delaware reports to the EPA quarterly.

Public Drinking Water Summary

Delaware 2011

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 2011. 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 ¹		Population of Delaware	899,773 ²
Forest	179,144 acres	(14%)	Percent served by individual wells	17.2
Agriculture	501,712 acres	(40%)	Percent served by public water supplies	82.8
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 mgd⁴

Public Water Systems

Residents served by public water systems³	744,969
Residents served by surface water systems	486,875
Residents served by ground water systems	258,094
Number of public water systems	495
Community systems	215
Non-transient systems	83
Transient systems	197
Number using surface water	3
Number using ground water	492

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).

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.

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	41
Plans & Specifications Reviewed	153

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

<i>Training Provided</i>	
	Number
Certified Operators	787
Approved Sampler/Testers	351
Training classes offered	220
Operators Trained	1,041
Systems Represented	304

Summary of Violations

	MCL (mg/L) ¹	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
Organic Contaminants	n/a	n/a	n/a	n/a	n/a	n/a	n/a
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

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

	MCL (mg/L) ¹	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
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
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
Hexachlorocyclopentadiene	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 tert Butyl Ether (MTBE)	0.01	0	0	n/a	n/a	0	0
Monochlorobenzene	0.1	0	0	n/a	n/a	0	0
o-Dichlorobenzene	0.6	0	0	n/a	n/a	0	0
Oxamyl (Vydate)	0.2	0	0	n/a	n/a	0	0
para-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

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

	MCL (mg/L) ¹	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
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
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							
Disinfection Byproducts	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Total trihalomethanes	0.08	3	2	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		3	3	n/a	n/a	0	0
Inorganic Contaminants							
Inorganic Contaminants	n/a	n/a	n/a	n/a	n/a	n/a	n/a
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 ≤ 10 µm long	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

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

	MCL (mg/L) ¹	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
Fluoride	4.0	1	1	n/a	n/a	0	0
Mercury	0.002	0	0	n/a	n/a	0	0
Nitrate	10 (as Nitrogen)	17	9	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		18	10	0	0	0	0
Radionuclide MCLs	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Gross alpha	15 pCi/l	0	0	n/a	n/a	0	0
Radium-226 and radium-228	5 pCi/l	3	2	n/a	n/a	0	0
Gross beta	4 mrem/yr	0	0	n/a	n/a	0	0
Subtotal		3	2	n/a	n/a	0	0
Total Coliform Rule	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Acute MCL violation	Presence	2	2	n/a	n/a	0	0
Non-acute MCL violation	Presence	59	40	n/a	n/a	0	0
Major routine and follow up monitoring	n/a	0	0	n/a	n/a	0	0
Sanitary survey²	n/a	n/a	n/a	n/a	n/a	0	0
Subtotal		61	42³	n/a	n/a	0	0

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.

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

	MCL (mg/L) ¹	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
Surface Water Treatment Rule	n/a	n/a	n/a	0	0	n/a	n/a
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	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Initial lead and copper tap M/R	n/a	0	0	n/a	n/a	38	29
Follow-up or routine lead and copper tap M/R	n/a	11	9	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	11	9	0	0	38	29
Public Notification	Number of Violations			n/a	Number of Systems with Violations		
Consumer Confidence Reports Violations	24			n/a	16		
Public Notification	4			n/a	4		
Ground Water Rule	0			n/a	0		
Subtotal	28			n/a	20		

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 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.

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.

Sanitary Survey: A major monitoring violation if a system fails to collect 5 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.

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 bi-lateral 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 bi-lateral 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 bi-lateral 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	116 MCL
Public Notices	116 MCL
Consumer Confidence Report Violations	0
Administrative Orders	2
Boil Water Orders	8
Bi-Lateral Compliance Agreements	0
Notices of Administrative Penalty	8

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.

<i>Compliance Highlights</i>	Number of Samples Collected in 2011	Systems Granted Reduced Monitoring in 2011	Systems In Compliance in 2011	% of State Served by Compliant Systems ¹	Number of Systems not in Compliance during 2011
Bacteriological	10,075	n/a	455	99.0% (91.9%)	40
Surface Water Treat. Rule²	n/a	n/a	495	100% (100%)	0
Nitrates	1,763	n/a	486	99.7% (98.2%)	9
Fluoride	1,956	n/a	495	99.9% (99.8%)	1
Inorganic (IOC)	1,738	0	495	100% (100%)	0
Volatile Organic Chemicals (VOC)	479	0	495	100% (100%)	0
Synthetic Organic Chemicals (SOC)	336	0	495	100% (100%)	0
Lead and Copper/AL Exceedences²	1,286	n/a	484	98.0% (97.7%)	11
Lead and Copper/M&R Violations	n/a	n/a	457	99.5% (92.3%)	38
Consumer Confidence Rule	n/a	n/a	456	99.7% (92.1%)	21
Disinfection Byproducts (DBPs)	745	n/a	493	99.3% (99.6%)	2
Maximum Residual Disinfection Level (MRDL)	10,075	n/a	495	100% (100%)	0
Radiological	193	0	493	72.9% (99.6%)	2
Ground Water Rule	n/a	n/a	495	100% (100%)	0

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

² Systems performed own sampling.

Tables of Systems in Violation

Bacteria Violations	
System Name	Population Served
Baltimore Aircoil	450
Blue Diamond MX	100
Brafman Family Dentistry	46
Brenford Plaza Business Center	25
Briarwood Manor Mobile Home Park	296
Centreville School	170
Cherry Creek Valley	78
Child Craft Company	60
Children's Secret Garden	60
Childs Play by the Bay	60
Delaware Museum of Natural History	700
Delaware State Fire School	200
Enchanted Acres	225
Farmington Mini Market	433
Flying Dutchman Mobile Home Park 1	30
Flying Dutchman Mobile Home Park 2	30
Glasgow Deli	25
Greenwood Country Retirement	50
Hills Brothers Market	200
Holts Landing State Park	50
ILC Dover	300
Lynch's Mobile Home Park	54
Maranatha Court	54
Mt. Pleasant Trailer Park	117
North Gate Shopping Center	50
Oak Grove Estates	150
Odessa A Plus Sunoco	350
Panda Early Education Center	82
Papen Farms, Inc.	55
Pine Ridge Mobile Home Park	222
Pinewood Acres	1,200
Savannah Road Center	150
Shore Stop #236 Canterbury	600
Slaughter Neck Community Action Agency	150
Surfing Crab	160
Swann Estates	267
Twin Maples Trailer Park	123
White Oak Subdivision	30
Woodland Manor Estates	110
Woodside Inn	60

Total Number of Violations: 61

Number of Systems Affected: 40

Number of Repeat Violators (Systems): 15

Total Population At Risk: 7,572

Nitrate Violations	
System Name	Population Served
Country Club village	72
De-Lux Dairy Market	916
Epworth Christian School	400
Forest Park	46
Hocker's Super Center	75
Little Einsteins Preschool	33
Pinnacle Foods	309
Savannah Place Homeowners Association	81
Williamsville Country Village	50

Total Number of Violations: 17
 Number of Systems Affected: 9
 Number of Repeat Violators (Systems): 5
 Total Population At Risk: 1,982

Radiological Compounds Violations				
System Name	Population Served	Contaminant	MCL ¹ in pCi/L ²	Level Found in pCi/L
Briarwood Manor Mobile Home Park	296	Radium 226/228	5	5.4
Artesian Water Company	201,000	Radium 226/228	5	8.7

Total Number of Violations: 3
 Number of Systems Affected: 2
 Number of Repeat Violators (Systems): 1
 Total Population At Risk: 201,296

¹MCL means Maximum Contaminant Level

²pCi/L means picocuries per liter

Inorganic/Volatile/Synthetic Organic Compound (IOC/VOC/SOC) Violations				
System Name	Population Served	Contaminant	MCL ¹ in mg/l ²	Level Found in mg/l
Greenwood Water Department	800	Fluoride	2	5.58

Total Number of Violations: 1
 Number of Systems Affected: 1
 Number of Repeat Violators (Systems): 0
 Total Population At Risk: 800

¹MCL means Maximum Contaminant Level

²mg/l means milligrams per liter

Disinfection Byproducts (DPB) Violations

System Name	Population Served	Contaminant	MCL ¹ in mg/l ²	Level Found in mg/l
Frankford Water Department	1,014	Total Trihalomethanes	0.080	0.097
Selbyville Water Department	4,191	Total Trihalomethanes	0.080	0.087

Total Number of Violations: 5

Number of Systems Affected: 2

Number of Repeat Violators (Systems): 1

Total Population At Risk: 5,205

¹MCL means Maximum Contaminant Level

²mg/l means milligrams per liter

Lead/Copper Rule (LCR) Action Level Exceedences

System Name	Population Served	Contaminant	AL ¹ in mg/l ²	90 th percentile in mg/l
Bethany Bay Ocean View	3,992	Lead	0.015	0.019
Childs Play by the Bay	60	Lead	0.015	0.031
Croda Uniqema, Inc.	200	Copper	1.3	1.8
Delaware State Fair	452	Copper	1.3	1.6
Hidden Hills MHP	210	Lead	0.015	0.024
Hockers Super Center	75	Copper	1.3	6.7
Smyrna Water Department	10,001	Lead	0.015	0.025
Tall Pines Resort Community System 1	98	Lead	0.015	0.16
United Parcel Services	112	Lead	0.015	0.028

Total Number of Exceedences: 11

Number of Systems Affected: 9

Number of Repeat Violators (Systems): 2

Total Population At Risk: 15,200

¹AL means Action Level

²mg/l means milligrams per liter

Maximum Residual Disinfection Level (MRDL) Violations

System Name	Population Served	Contaminant	MRDL ¹ in mg/l ²	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

¹MRDL means Maximum Residual Disinfectant Level

²mg/l means milligrams per liter

Lead and Copper Monitoring Violations

Systems that failed to collect the required number of samples during any monitoring period in 2011

System Name	Population
Autumn Woods MHP	75
Cherry Creek Valley	78
County Seat Gardens	297
Downing's Loving and Learning Center	25
Forest Park	46
First Step Preschool	50
Flying Dutchman MHP 1	30
Flying Dutchman MHP 2	30
Flying Dutchman MHP 3	81
Good Beginnings	60
Hand-N-Hand Early Learning Center	41
Hartly Elementary School	450
Hockers Super Center	75
Holiday Estates	75
Holiday Pines	60
Little Einsteins Preschool	33
Maranatha Court	54
Nanticoke Business Park	50
Peddlers Village	65
Pine Ridge MHP	222
Pumpkin Patch Day Care	47
Shady Acres MHP	381
St Andrews School I	200
St. Andrews School II	140
Sussex County Industrial Airpark	450
Sussex Manor MHP	279
United Parcel Service	112
Upcountry Manufactured Home Community	65
Woods Edge MHP	45

Total Number of Violations: 38

Number of Systems Affected: 29

Number of Repeat Violators Systems): 9

Total Population At Risk: 3,616

Consumer Confidence Report (CCR) Violations

System Name	Population served
Savannah Place	81
Holiday Estates	75
Holiday Pines	60
Pine Ridge Mobile Home Park	222
White Oak Subdivision	30
Angola Beach Estates	200
Hilltop Trailer Park	135
Barkers Landing	498
Villas of Grandview	108
Forest Park	46
Maranatha Court	54
Granada Mobile Home Court	138
Glen Acres	40
Pinnacle Rehabilitation	184
Autumn Woods Mobile Home Park	75
Greenwood Country Retirement	50

Total Number of Violations: 39

Number of Systems Affected: 16

Number of Repeat Violators (Systems): 8

Total Population Affected: 1,996

Public Notice (PN) Violations

System Name	Population served
Holiday Pines	210
Woodland Manor Estates	110
Pine Ridge Mobile Home Park	222
Forest Park	46

Total Number of Violations: 4

Number of Systems Affected: 4

Number of Repeat Violators (Systems): 0

Total Population Affected: 588

Ground Water Rule

System Name	Population Served
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Total Number of Violations: 0

Number of Systems Affected: 0

Number of Repeat Violators (System): 0

Total Population Affected: 0

Surface Water Treatment Rule (Turbidity Violation)

System Name		Population Served
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Total Number of Violations: 0
Number of System Affected: 0
Number of Repeat Violators (System): 0
Total Population Affected: 0

Conclusion

In the preceding pages various data and statistics were presented. During calendar year 2011, 232,055 (31.1%) of Delaware's 744,969 residents receiving water from community water supplies, were exposed to harmful (health related) contaminants. Out of 495 public water systems 63 (12.7%) had a violation and 24 systems (4.8%) were repeat violators for health-based contaminants. Forty-nine water systems (9.9%) reported monitoring and reporting (M/R) violations and 17 systems (3.4%) were repeat violators for monitoring or reporting violations. There were two violations for disinfection byproducts. The towns of Frankford and Selbyville 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 returned to compliance. The Town of Selbyville was able to modify its treatment processes and returned to compliance by the end of the year. 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 major change from last year's numbers is caused by Artesian Water Company exceeding the maximum contaminant level for radium 226/228 for a brief period of time in 2011. While we count the entire population served it must be noted that not all of Artesian Water Company's customers received water with the elevated radium 226/228. If we were to discount that violation then 4.1% of the population received drinking water that exceeded a health based standard; this is an improvement from the previous year. 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. The Office of Drinking Water has a web page at the following address: www.dhss.delaware.gov/dhss/dph/hsp/odw.html and the Governor's Office have a water quality website at 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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